Amat's "Guitarra Española" and its Influence on Music Theory

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Abstract

The guitar was one of the most popular instruments of the 17th century and played a large role in the way that theorists and musicians thought about music during the 16th and 17th centuries. A new style of guitar playing for the Spanish five-course guitar, called *rasgueado,* had just burst on to the music scene and was changing the way people thought about music. The spark that ignited the popularity of this new style originated from the first treatise on *rasgueado* music, written by physician and amateur guitarist Juan Carlos Amat. In his treatise "Guitarra Española," Amat introduces new theoretical, pedagogical, practical, and notational tools to explain the *rasgueado* style. Amat's methods of arranging and accompanying music on the guitar show that he had an understanding of inversional equivalence, chord theory, and major/minor diatonic harmony, prior to the formal conceptualization of these theories. His treatise marks a definitive shift in music history away from the church modes and towards major/minor tonality and scale based diatonic harmony. Many of the theoretical concepts found in Amat's treatise precede their formalization by several decades. In this paper, I discuss Amat's treatise as well as its impact on guitar music and music theory. I will be expanding on the work of Thomas Christensen by explaining the pedagogical tools and theoretical concepts found in Amat's treatise, as well as comparing them with the work of theorists who came after him.

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"I believe it can be legitimately argued that much of the implicit theory we have observed in 17th century guitar practice points the way to theoretical formulations that would become explicitly articulated in the 18ttth century."[1] The keyboard has been a leading instrument in the development and display of musical ideas. The prominence of the keyboard often obscures the contributions of other instruments in the development of music theory. The significance of guitar in the overarching narrative of music theory is often underrated and rarely taught. The guitar was one of the most popular instruments of the 17th century and played a large role in the way that theorists and musicians thought about music during the 16th and 17th centuries. In fact, in the late 16th and early 17th centuries, a new style of guitar playing for the Spanish five-course guitar, called *rasgueado,* had just burst on to the music scene and was changing the way people thought about music. The spark that ignited the popularity of this new style originated from the first treatise on *rasgueado* music, written by physician and amateur guitarist Juan Carlos Amat. In his treatise "Guitarra Española," Amat introduces new theoretical, pedagogical, practical, and notational tools to explain the *rasgueado* style. In addition to this, Amat's methods of arranging and accompanying music on the guitar show that he had an understanding of inversional equivalence, chord theory, and major/minor diatonic harmony, prior to the formal conceptualization of these theories. In fact, Amat was the first to create a musical circle which displayed key relationships by ascending fourths and descending fifths. His musical circle would eventually evolve through the work of other theorists into the circle of fifths. His treatise marks a definitive shift in music history away from the church modes and towards major/minor tonality and scale based diatonic harmony. Despite its publication in 1596, Amat demonstrates a practice

[1] Christensen, Thomas. "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory." ***Journal of Music Theory*** 36, no. 1 (1992), 33

that resembles the work of theorists such as Johannes Lippius and Jean-Phillipe Rameau. Many of the theoretical concepts found in Amat's treatise precede their formalization by several decades. Amat solidified *rasgueado* as a respectable style of music by giving it an instructional manual of its own. By compiling, inventing, and explaining musical concepts found in *rasgueado* music, Amat was able to directly influence guitar music and music theorists of the baroque period.

In this paper, I will discuss Amat's treatise as well as its impact on guitar music and music theory. I will be expanding on the work of Thomas Christensen by explaining the pedagogical tools and theoretical concepts found in Amat's treatise, as well as comparing them with the work of theorists who came after him. Christensen's work includes some in depth information on Amat's treatise, but his main focus is on the wider scope of rasgueado music. I will be expanding on his work by specifically focusing on Amat's treatise "Guitarra Española," and its theoretical implications. In order to do this, I will first discuss some of the history of the Spanish five-course guitar as well as *rasgueado* and compare them with other styles present during this time period. Next, I will discuss the theoretical concepts found in Amat's treatise and explain the pedagogical tools which he uses. Lastly, I will compare his work with the work of other theorists who came after him, in particular Rameau, highlighting Amat's role in the shift towards major/minor tonality, triadic theory, inversional equivalence, and functional scale degree based harmony.

Origins of the Five Course Guitar

The guitar in the 16th century went by many names, which can cause some confusion. In Italy the guitar was referred to as the *chitarra,* while in Spain it was referred to as the *guitarra*. In France the guitar was known as the *guiterne,* while the English used an anglicized version of

the French term called the *gittern*. The Spanish word *vihuela* was originally a generic term for plucked instruments, although it has also come to be associated with the Spanish six-course guitar.[2] For the purpose of this paper, I will be speaking in reference to the baroque five-course guitar. Five-course guitars were used beginning in the early 16th century. The five-course guitar was very similar to the modern six-string guitar, however there are a few important differences. Baroque guitars used gut strings as opposed to nylon or various metal strings. Gut strings are made out of a natural fiber that is found in the wall of animal intestines, most commonly sheep or goats.[3] Because of the fact that gut strings were not very resonant, baroque guitars used pairs of strings, called courses, instead of using single strings. A course is simply when two or more strings are placed closely together and are played as a single string, usually tuned at a unison or an octave. The tuning of the instrument plays a role in how the music and treatises of the five-course guitar are analyzed. There were many possible tunings for the five-course guitar making some of the guitar literature of the 16th and 17th centuries somewhat confusing. However, as the guitar became a more popular instrument, so did the guitar literature. In the 16th century, authors and composers began specifying preferred tunings at the beginning of treatises and pieces of music. Differences in tuning varied primarily based on the country or region of the composer. Although many possible tunings existed, there were three typical tunings, which specifically differed on the bottom two courses. One of the possible tunings for the bottom two courses was to tune them in unison but at a higher octave (aa-dd). Another possible tuning was to have the fifth course tuned in unison at the higher octave and the fourth course tuned lower but in octaves

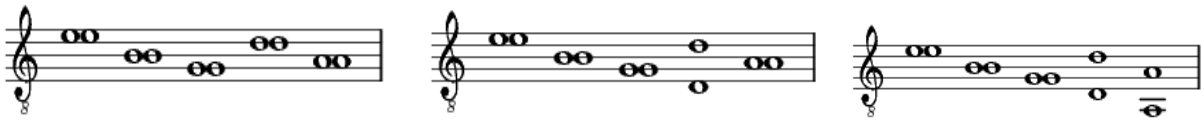
2 Tyler, James. "The Renaissance Guitar 1500-1650." *Early Music* 3, no. 4 (1975), 342

3 Abbott, Djilda, and Ephraim Segerman. "Gut Strings." *Early Music* 4, no. 4 (1976), 431

(aa-dd'). The third option was to have both the fourth and fifth courses tuned in octaves (aa'-dd').[4]

Example 1- Five-Course Tunings [5]

Tuning 1 **Tuning 2** **Tuning 3**



One of the tunings for the five-course guitar was tuned A, D, G, B, E (lowest pitch to highest pitch).[6] The standard was for the G, B, and E courses to be tuned at unisons, however the tuning of the two lowest courses A and D varied by composer. Due to the fact that gut strings were not very resonant, having two strings tuned at unisons or octaves played as if it were one string was more pleasing, especially on the lower sounding strings. Due to the warm tone of the gut strings, the bottom two courses required a second string tuned at the octave in order produce a clearer sound. For this reason, there were multiple ways to tune the fourth and fifth courses that were never quite agreed on. Some guitarists later in the 17th century would try to replace the fourth and fifth courses with a violin canto. Violin cantos were wound strings that were more resonant than the gut strings of the guitar. Violin strings in place of the fourth and fifth courses were called *bourdens*, and they became quite popular among guitar players, although it was considered by some that the violin strings were too "boomy" for the strumming of the rasgueado style. The higher sounding courses had a clearer tone, making it not uncommon for guitarists to play using one high E-string on the first course rather than two.

[4] Murphy, Sylvia. "The Tuning of the Five-Course Guitar." *The Galpin Society Journal* 23 (1970), 53.
[5] Murphy, Sylvia. "The Tuning of the Five-Course Guitar," 53
[6] Gill, Donald. "The Stringing of the Five Course Baroque Guitar." *Early Music* 3, no. 4 (1975), 370

In Amat's treatise he clarifies his preferred tuning, in fact the first chapter of his treatise deals solely with explaining how to tune. Amat's tuning required nine strings rather than ten. "This five-course Spanish guitar which you have in your hands (my brother) has nine strings in all, one on the first course, called first, and two on the rest of the courses, which are called seconds, thirds, fourths and fifths." [7] Amat was among those who did not think two strings on the first course was necessary because the gut strings at the higher pitches were more resonant. Amat tunes the second and third courses in unison, while the fourth and fifth courses are tuned in octaves. Amat used a version of tuning number 3 from Example 1, the only difference being that he did not have a second string on the first course tuned at the E unison.

Rasgueado Guitar

Before discussing rasgueado music, it is worth taking a look at the other compositional techniques of this time period. In the late 16th and early 17th centuries *rasgueado* music surfaced and was a direct contrast to the common compositional techniques of this period. During the majority of the 16th century, music was primarily modal and contrapuntal. Up to this point, there had been eight church modes, until Glarean introduced an additional four modes in 1547, although his twelve-mode system was not universally accepted. Each mode had a "final" that was the note on which the mode would cadence. The final is similar to what we would now refer to as the tonic. However, unlike the tonic, finals were not always the first note of a mode's scale. Modes with the final as the first note in the scale were referred to as *authentic modes* while modes with the final on the fourth scale degree were called *plagal modes*.[8]

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7 Amat, Juan Carlos [1596]. "Guitarra Española", Monica Hall (2011), 5

8 Hudson, Richard. "The Concept of Mode in Italian Guitar Music during the First Half of the 17th Century." *Acta Musicologica* 42, no. 3/4 (1970), 164

Counterpoint was a polyphonic compositional technique that involved multiple melodic lines that were independent in contour and rhythm, but worked together by overlapping harmony. Counterpoint was the dominant compositional technique of the baroque period, especially among church vocal and keyboard music. During the 17th century, portable and versatile stringed instruments, such as the lute and early versions of the guitar, gave way to the rise of monody that contained a single chant like melodic line accompanied by a single instrument. Stringed instruments such as the lute and five-course guitar had moveable gut frets that made it easily accessible to play in multiple modes. The five-course guitar was especially known for being easily accessible for most modes[9]. The popular technique of playing in the early 16th century among stringed instruments such as the lute, vihuela, and guitar was called *punteado*. The *Punteado* technique was a form of polyphonic playing that involved plucking the strings individually. The *punteado* style grew in popularity and was associated with the upper class. [10]

In the mid 16th century a new style of solo Italian songs, now known as monody, began to surface. These songs often contained a single almost chant-like melodic line and were accompanied by a single instrument often played by the vocalist. The harmony of these songs were simple and derived from the bass line, with stock harmonic structures such as Romanesca, Tenor di Napoli, Ruggiero, or Passamezzo antico.[11] According to James Tyler and Paul Sparks, this new style of a single performer singing over a simple harmonic chord progression can be compared to a modern day "coffee house poet or folk-club vocalist singing

9 Tyler, James and Paul Sparks. *The Guitar and Its Music: From the Renaissance to the Classical Era.* Oxford: Oxford University Press, (2009), 42.

10 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 3.

11 Christensen, *3*.

over a standard blues chord progression."[12] Instruments such as the lute, cittern, and guitar were well suited for this style of playing. However, among these the guitar quickly became the instrument of choice, due to the physical construction of the instrument that made chords in most keys easily accessible. Tyler and Sparks explain the benefit of the guitar when they say," The guitar, on the other hand, could meet many of the demands of the monadic style with little difficulty." They later go on to state that "By its very nature the guitar encourages the player to think about harmony in the "new" way rather than in terms of traditional counterpoint. Being able to play block chords on it with ease made the guitar an ideal tool for early monodists." [13]

Rasgueado is the epitome of this new trend of solo accompaniment. Rasgueado was more chordal and involved strumming with the right hand. In fact, rasgueado literally means "strummed," and although many people today would probably already associate the guitar with strummed chordal playing, in the late 16th and early 17th centuries this was new and innovative. Melodic (*punteado*) and contrapuntal playing were still the popular methods of composition. Rasgueado playing was a direct contrast with the *punteado* plucking technique that had been long cultivated by the lute and its Spanish equivalent the vihuela. In the baroque period, the Italian term *pizzicato* was also often used due to the fact that Italian guitarists were the main developers of this technique in the guitar repertoire of this period. Rasgueado playing uses sharp unfurling of the fingers in alternate directions and is most associated today with Flamenco music. Because the strings were played individually, the *punteado* style was less chordal than rasgueado. At first rasgueado was somewhat looked down upon because the long-standing tradition of *punteado* was considered to be more refined and aristocratic. At the time, *rasgueado*

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12 Tyler and Sparks, *The Guitar and its Music from the Renaissance to the Classical Era*, 38.
13 Tyler and Sparks, 43.

was thought of as simple and was associated with the music of lower class stable boys.[14] However, due to the Spanish dance forms such as the *folia*, *pasacalle*, *chacona*, and *zarabanda,* rasgueado gradually became more common and well respected.

Juan Carlos Amat

Juan Carlos Amat (1572-1642) was a Spanish physician and amateur guitarist, who is most well known for a treatise he wrote titled "Guitarra Española," (1596), which was the first to provide instructions on rasgueado performance techniques. Amat was only twenty-four when he wrote "Guitarra Española" having just graduated from the University of Valencia with a degree in medicine.[15] Amat was very aware that he was paving new ground as the first instructional publication on rasgueado music. This short excerpt from Amat's dedication at the beginning of his treatise shows his awareness of the fact that his publication was a first.

> So bearing in mind the lack that there is in the whole of this country, because no author has written about it (at least to my knowledge), I wished to write about the tuning and playing *rasgueado* of this five-course guitar, called Spanish because it is more welcome in this country than in others, and about the method of arranging any piece of music for it, in such a way that it might serve as a teacher, and also so that students of the instrument need not be subjected to as much misery as that which our humour predisposes us to.[16]

The excerpt offers many insights into Amat's intentions for writing the treatise. Not only does Amat discuss rasgueado as a strumming technique but also as its own compositional and musical style. He accomplishes this by including his methods of arranging music in the rasgueado style. Amat is the founding father of the rasgueado music, because he literally wrote the book on it. While Amat is the first to write about the technique and theory surrounding this new music, he was not the inventor of the technique itself. In the dedication Amat speaks of rasgueado music as

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14 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 3.

15 Amat, "Guitarra Española," 1.

16 Amat, "Guitarra Española," 3.

a style of music that has already begun gaining popularity but has yet to be explained. However, Amat's instruction on chords and tonality are worthy of study. Amat's "Guitarra Epañola" was very well received and helped formalize the rasgueado style. Amat's treatise remained relevant for a long time, and Amat was able to make a career for himself as a composer and guitarist. In 1629 Amat came out with a new edition of his treatise aptly titled "Guitarra Española y Vandola," which included nine more chapters and introduced his pedagogical tools for another string instrument similar to the guitar named the vandola. In addition to this, Amat also added another five chapters in 1639, over forty years after his original treatise. Evidence of these treatises can be seen in print as late as the 1800's. However, for the purpose of this paper, I will be focusing on the first edition of his treatise from 1596, which focused solely on the five-course guitar, with the exception of a short chapter to acknowledge the four-course guitar. Recognition of this treatise is well deserved because of its historical significance as well as its theoretical and practical uses. The number of reprints, new editions, and ability to stay relevant speaks to the significance of this little treatise. The remarks from one of the publishers by the name of Jayme Castellar speaks to how well it was received.

> I, Jayme Castellar, Prior of St. Anna in Barcelona, at the command of the very Illustrious and Reverend Monsignor Don Ioan Dymas Loris, Bishop of Barcelona, saw this book called Spanish Guitar by Doctor Juan Carlos, and I have not found in it anything contrary to the art of music; rather it contributes much to its perfection. And so it seems to me that it ought to be printed, so that all may make use of it. - Barcelona, 15 June 1596.[17]

Amat argued that for the rasgueado style only two types of chords (*puntos*) needed to be learned: these chords were the major (*naturales*) and the minor (*B mollados*). Amat added that a guitarist should learn these two types of chords in all twelve "transpositions." He also stated that

[17] Amat, "Guitarra Española," 2.

each chord could represent a distinct "*modos*" or "key."[18] When Amat says that each chord can represent a distinct *modos,* it is not to be confused with transposing to twelve different church modes, because Amat only used two types of *modos,* which were *B-quadro* (major mode) and *B-molle* (minor mode). When Amat claims that all guitarists should be able to learn the two types of chords in all twelve transpositions, it means is that he believes that the players should be able to transpose the "*modos*" into all twelve major and minor keys. He proved that transposition in each of the twelve keys was possible by taking a *Vacas* dance and transposing it into each key. He stated that he wanted to show how the *vacas* could be played in the twelve keys because it was similar to many other types of pieces, and that by "using the twelve keys one would be able to play many pieces that are current such as the vacas, gallardas, pabanillas, sezarillos, etc." [19]Amat was not the first composer to write music that cycled through the twelve equally-tempered keys, in fact some lute literature used these keys as early as 1567. However, Amat was the first to describe the use of these keys and was also able to create a more efficient form of tablature for chordal playing.[20] In order to demonstrate these twelve chords, Amat invented distinctive theoretical and pedagogical devices. Amat created a circle (shown below) that displayed the chord shapes and their relationships throughout the first four frets of the fret-board.

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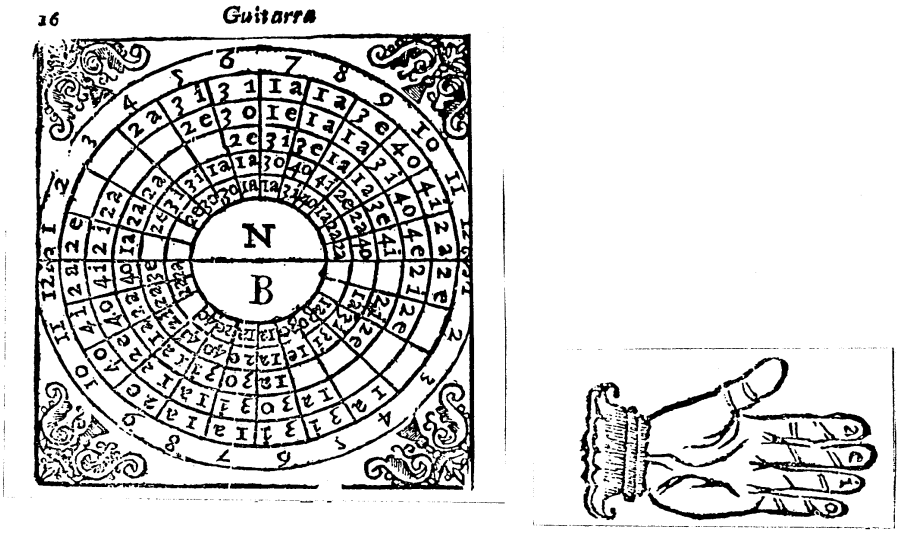
18 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 7.

19 Amat, "Guitarra Española," 11.

20 Christensen, Thomas Street. *The Cambridge History of Western Music Theory*. Cambridge: Cambridge University Press (2002), 7.

Example 2 - Amat's Circle (1596)[21]



Although the primary purpose of the circle was to instruct the reader on how to play both the major and minor chord shapes, it also shows the relationships between the chords.

Reading Amat's Circle

Although at a glance the circle may seem complicated, it is actually very easy to read. The circle is split into two halves both containing 12 segments. Each segment is divided into five sections plus the outer ring. The number on the outer ring displays the number that Amat has assigned to each chord. The five sections beneath the chord number each represent one of the guitar's courses. The first course is tuned the highest and is represented by the section at the innermost part of the circle while the fifth course is tuned the lowest and is notated in the section at the outermost part of the circle.[22] Amat also includes a diagram of a hand, which displays the letters that correspond with each finger. The finger letters are used in the circle to indicate which

[21] Amat, 11.

[22] Hall, Monica. "The Guitarra Española of Joan Carles Amat." *Early Music* 6, no. 3 (1978): 365-66.

finger of the fretting hand presses the designated fret. The letters and corresponding left hand finger are shown below.

a =index finger i = ring finger

e =middle finger o = pinky

The section that represents which course is being played contains one of these letters and a number. The numbers represent the fret to be played while the letter shows which finger presses the fret. For example, in order to play chord 1N, the first two courses (innermost sections of the circle) are blank indicating that those strings are to be played open. On the third course, the index finger plays the first fret. The middle and ring fingers play the second fret on the fourth and fifth courses. The finger letters come next to the fret number to designate which of fingers played the particular fret. The sum of this in the first section (Chord 1N) would equal an E-major chord with a B as the lowest sounding note.[23]The example below shows how Chord 1N of Amat's circle would be read.

Example 3- Chord 1N from Amat's Circle

Outer circle (Chord #)	Course #5	Course #4	Course #3	Course #2	Course #1	Inner circle (N or B)
1	2e	2i	1a			N
E	Middle finger on the 2nd fret	Ring finger on the 2nd fret	Index finger on 1st fret	Open string	Open string	Major

The top half of the circle illustrates major chords (marked N) from left to right in ascending fourths from E to B. The bottom half illustrates minor chords (marked B) from right to left in the same order E to B. The chords on the top of the chart read as follows E, A, D, G, C, F,

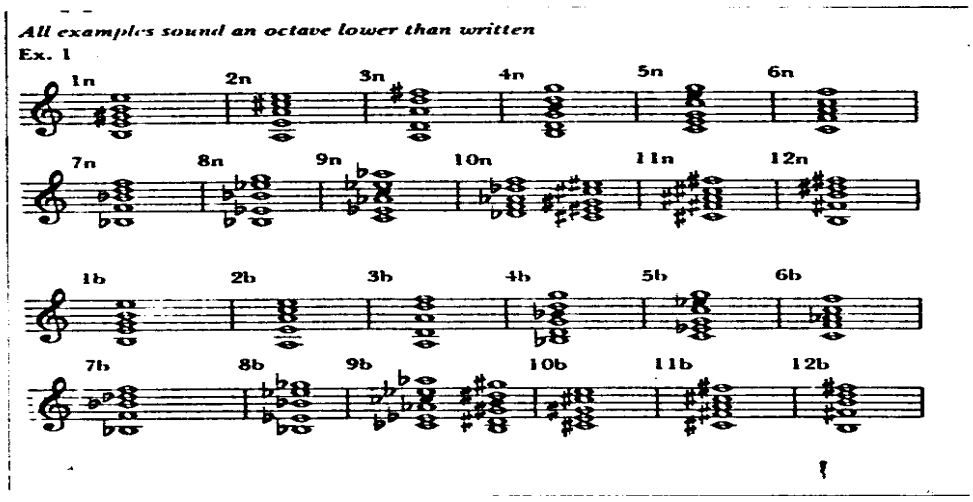
[23] Amat, "Guitarra Española," 12.

Bb, Eb, Ab, C#, F#, and B. The bottom half of the circle reads from right to left in the same order but with minor chords.[24] Each chord corresponds with a number between one and twelve, with the first chord beginning on E and the twelfth chord representing B. It is unclear why Amat chose to number his chart in this way, although it may have to do with the tuning of the guitar and the relationships between the courses. The chord numbers remain the same for both major and minor chords. For example, chord 4 represents G on both the top and bottom half of the circle, therefore 4n would represent G-major while 4b would represent G-minor. The chords and their corresponding numbers are shown below.

Example 4- Amat's Number System

#	1	2	3	4	5	6	7	8	9	10	11	12
N	E	A	D	G	C	F	Bb	Eb	Ab	Db	F#	B
B	em	am	dm	gm	cm	fm	bbm	ebm	abm	dbm	f#m	bm

Example 5 – Amat's Chord Voicings[25]



[24] Amat, "Guitarra Española," 6-10.
[25] Amat, "Guitarra Española," 11.

Example 5 displays the chord voicings found in Amat's circle. Further inspection of Amat's circle shows that none of the chords go past the fourth fret, despite the fact that the five-course guitar contains eight frets. Amat strongly believed that there were only twenty-four major and minor chords. Amat did not include chords past the fourth fret because it resulted in repetitions of the previous chords. In Amat's own words "it stands to reason that chord 13 is the same as chord 1, and likewise chord 14 is the same as chord 2, chord 15 the same as chord 3 and so on for all the rest, because the distance rising from one chord to another is a fourth. There is no need to prove this, as it is so obvious."[26] This shows that Amat had a strong sense of octave and inversional equivalence.

Although the primary purpose of the circle was to instruct the reader on how to play both the major and minor chord shapes, it also shows the relationships between the chords. In his treatise Amat explains how the chords of his circle relate by interval. He begins by pointing out that because his circle is organized in fourths, then in order to move by the interval of a fourth one would simply move to the next chord in the circle. Another interval relationship he chooses to explain is movement by whole step. To ascend by a whole step from any point on the musical circle requires one to move back two chords. In a similar way, Amat also explains chord movement by half-step. In order for a chord to rise by half step, the player would have to move forward five spaces.[27] The process can be simplified through the use of basic addition and subtraction with Amat's chord numbers. For example, in order to move up a whole step from F (chord 6) a player would simply need to subtract two spaces resulting in G (chord 4). The same type of mathematical process could be used for ascending by half step. However instead of

[26] Amat, "Guitarra Española," 13.
[27] Amat, "Guitarra Española," 13.

subtracting two (spaces) from the original chord, a player would add five (spaces). Example 6 demonstrates this process.

Example 6: Ascending by Whole Step and Half Step in Amat's Circle

	Chord numbers	Chord letters
Ascending by whole step	**6** – 2 = **4**	**F** – 2 spaces = **G**
Ascending by half step	**1** + 5 = **6**	**E** + 5 spaces = **F**

These procedures also work in reverse for descending intervals. Amat explains the relationship of a descending whole step through hexachordal solmization and mutation. He gives the example of having chord 6 (F) as fa and needing to descend to another fa in another hexachord. In this instance Amat instructs the players to use chord 8 (Eb), meaning that they would have to move up two chords in his circle. [28]

The twelve keys also coincide with the order of the twelve chords that he uses for his musical circle. Amat chose to order the chords by ascending fourths from left to right and descending fifths if read from right to left. Amat's circle was very influential because of the structure of his circle and its relationship not only to guitar chords, but also to the twelve keys. In fact, Amat's circle is the earliest iteration of the circle of fifths.[29] Amat's circle was the first of its kind to display relationships of a fourth/fifth around a circle, and it preceded any other musical circle by several decades. The circle was well received by guitarists and would later influence many theorists. In 1640 Portuguese guitarist Diozi de Velasco wrote an introduction to rasgueado guitar performance titled "*Nuevo Modo de Cifrar para taner la Guitara*."[30] Velasco adopted the

[28] Amat, "Guitarra Española,"13.

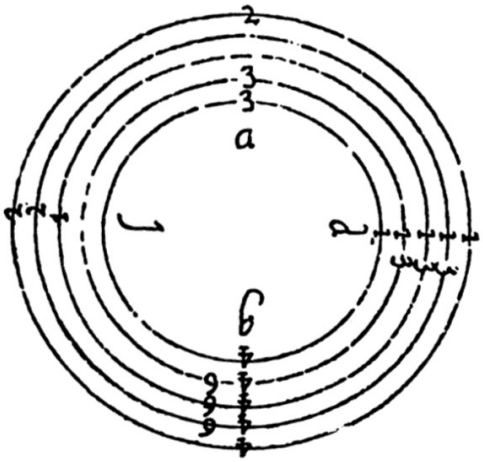
[29] Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 5

[30] Christensen, 11.

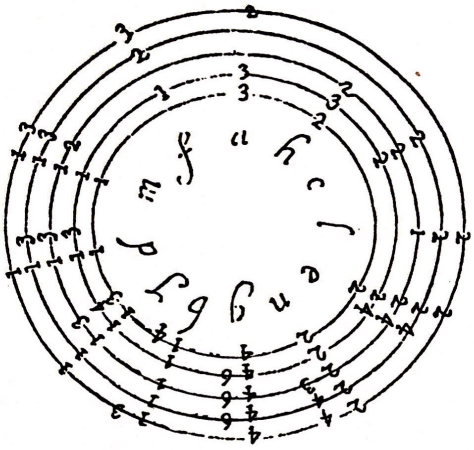
idea of Amat's musical circle to show all of the major/minor chords in their twelve transpositions along a circle of fifths, however Velasco decided to add to it by creating fifteen additional circles. Velasco's circles displayed triad relationships by cycles of major and minor thirds, whole steps, and half steps.

Examples 7- Velasco's Circles[31]

Ascending minor thirds



Ascending fifths



In Velasco's circle there are five rings which correspond to the five courses of the guitar. The numbers on the rings represent the fret to be played on each of the courses. The letters on the inside of the circle represent the chord names in alfabeto notation. In Velasco's circles we begin to see what Christensen describes as, "anticipations of the whole tone and octatonic cycles." [32] After Velasco, Spanish guitar tutor Gaspar Sanz (1640-1710) was the next to adopt and add to the concept of the musical cycles. Sanz called his cycle a "musical labyrinth," and it is significant because it maintains inversional equivalence between triads. Sanz actually states that any of the chords in a column could be substituted for another. By including this, Sanz solidifies

31 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory", 12-14.
32 Christensen, 10.

that chords that include the same notes can be used interchangeably regardless of voicing or inversion.[33]

Circle of fifths

In 1672, almost eighty years after Amat created his circle, Lorezo Penna illustrates playing four types of cadences around a complete circle. The circle is organized in fifths and shows that cadences can be formed using either the major or minor thirds. Although Penna only recognized the eight *tuoni* (synonymous with mode), the inclusion of the concept of major/minor cadences is an early reference to all twenty-four major/minor keys. In 1711, in his *Neu erfundene und grundliche Anweisung Des General-basses,* Johann David Heinichen created the first depiction of all twenty-four major/minor keys organized in fifths along a circle, which he calls the *Musicalischer Circul* (musical circle). Heinichen does not take credit for the invention of the musical circle, but he is the first to depict it with all twenty-four keys, stating simply that he learned about the musical circle while studying under the tutelage of Johann Kuhnau (1660-1722). However, Heinichen also stated that the circle of Athanasius Kircher, who taught Kuhnau, gave him no satisfaction and that it was most "imperfect" because it included the major keys but left out all twelve of the minor keys.[34]

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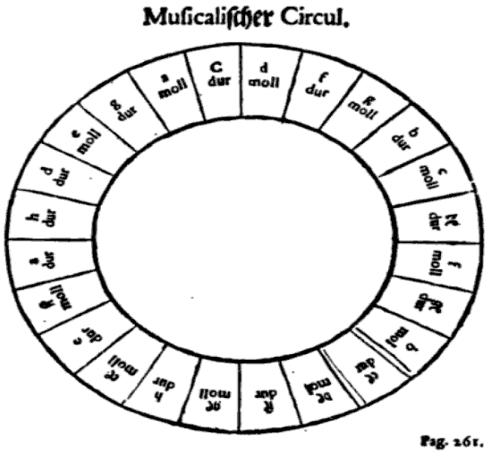
33 Christensen, 11.

34 Christensen, Thomas Street. "*The Cambridge History of Western Music Theory*", 444.

Example 8- Heinichen's Musical Circle (1711) [35]



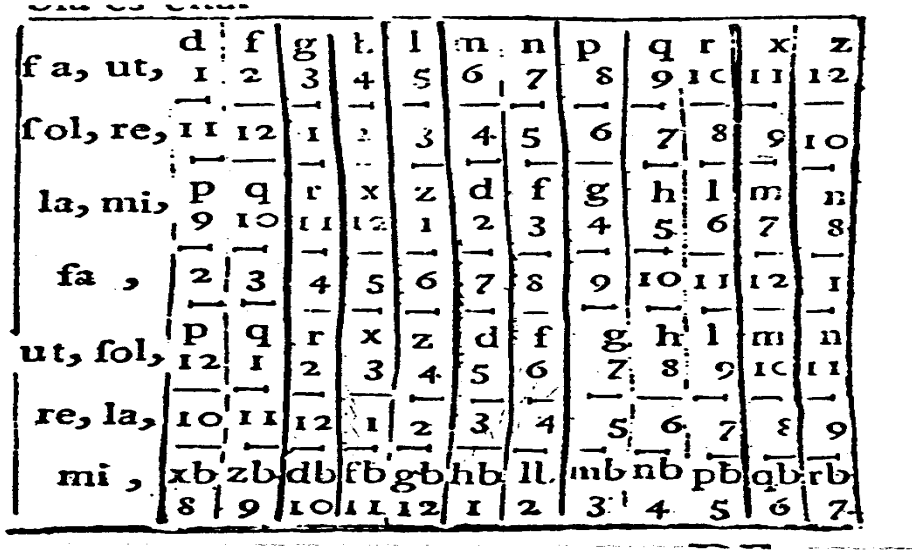
There is a natural progression from Amat's circle in 1596 to Heinichen's in 1711. In 1596 Amat was the first to use a musical circle as a pedagogical tool to display musical relationships. Amat used his musical circle as a way of helping guitar players learn and memorize their major and minor chords. In 1640 Velasco published an introduction to rasgueado, creating his own musical circles to demonstrate the twelve chords and their transpositions on the guitar. In 1672 Lorenzo Penna uses a musical circle as a pedagogical tool to illustrate cadences. After that, Heinichen uses his own version of the circle (which he admits to not inventing) to illustrate key relationships. Given the popularity of the guitar across multiple countries, the timeline of various musical circles, and the undeniable similarities between Amat's musical circle and Heinichen's, there is no doubt that Heinichen's circle was in some way influenced by the musical circle of Amat. Guitar music, literature, and pedagogy specifically through the work of Amat played a large role in the development of the circle of fifths and how theorists came to view and teach the twenty-four major and minor keys.

[35] Christensen, 445.

Amat's Musical Cipher

In addition to his musical circle, Amat also came up with a musical cipher that displays how to accompany a bass line in all twelve keys. Amat believed that with this table, anyone could arrange or accompany any piece of music in any key. In fact, he boasts of its effectiveness by telling a story of his encounter with four advanced Spanish guitarists. Four guitarists had heard about his musical device that allowed anyone to arrange any piece for the guitar. These guitarists mocked Amat and begged him to show them his arrangement technique, so that they could "follow his example." Confident in his method, Amat agreed to explain it to the guitarists. He states that after explaining his method to them, "they saw that what I had promised them was true, so that, admiring what was done, and looking at one another, they were left as if with a platter without a partridge."[36] Amat's cipher proved to be an effective tool and soon became widely accepted by guitarists.

Example 9a- Amat's Musical Cipher[37]



	d	f	g	h	l	m	n	p	q	r	x	z
fa, ut,	1	2	3	4	5	6	7	8	9	10	11	12
sol, re,	11	12	1	2	3	4	5	6	7	8	9	10
la, mi,	p	q	r	x	z	d	f	g	h	l	m	n
	9	10	11	12	1	2	3	4	5	6	7	8
fa ,	2	3	4	5	6	7	8	9	10	11	12	1
	p	q	r	x	z	d	f	g	h	l	m	n
ut, sol,	12	1	2	3	4	5	6	7	8	9	10	11
re, la,	10	11	12	1	2	3	4	5	6	7	8	9
mi ,	xb	zb	db	fb	gb	hb	ll.	mb	nb	pb	qb	rb
	8	9	10	11	12	1	2	3	4	5	6	7

[36] Amat, "Guitarra Española," 17.

[37] Amat, 17.

On the left side of the table are the solmization syllables ut, re, mi, fa, sol, and la. Two solmization syllables are included in some of the rows to account for overlapping hexachords. The top row from left to right is numbered in order from one to twelve. The numbers in this table represent the same chord numberings from his musical circle. These chords can be used to harmonize each solfege syllable in the corresponding row. When arranging or accompanying a piece of music, Amat would start with the bass line to determine the first solfege syllable. According to Amat, when accompanying or arranging for music that was written imitatively, one would begin the cipher with whatever part entered first until a clear bass line became present. After designating which note was ut, he would move along the top row to find the chord which corresponded to that note. For example, if the first note in the bass line of a piece was C, then he would use chord 5 (C-major) on the top row of the column as the first chord. Once ut was established, then the player would move vertically through the selected column based on the solfege of the bass line. Amat instructed the player to choose the chords and solfege based on what they felt was "most pleasing to the ear." [38] If the chord which corresponds to the solfege of the bass line did not fit with the rest of the chord progression or other parts in the ensemble, then Amat instructs the player to look at the top of the line being used to see what letter identifies it (d,f,g,b,l,m,n,p,q,r,x,z). After that, the player is to try all the chords within the cipher that share the same letter. These letters appear on lines 1, 3, 5, and 7, of each column. For example, if a player was using column 5 ("key" of C), and they were to get stuck on chord 1 (E) on the third row, then they would look at the identifying letter above it, which in this case would be "Z". After that, they would then be able to substitute that chord for any of the other chords which are also labeled "Z". In this case, E would have the possibility of being substituted for chords B, G,

[38] Amat, "Guitarra Española," 18.

or Ab. Amat specifies that the chords on the first and third rows can be either major or minor, chords on the fifth row could only be major, and chords on the seventh row had to be minor. The "b" next to each of the letters above the numbers in the seventh row indicates the chord is minor. However, aside from the first, third, fifth and seventh rows, Amat does not specify if the chord is major or minor. Although the quality of the chords may not have been specified, experienced guitar players would have been familiar with which chords should be played as major or minor. When converted from his number system to actual letter names, an interesting pattern emerges. Going across the top row from left to right, we see the same twelve chords moving by an interval of a fourth just like in his musical circle. The columns going down contains the notes of the major scale. For example, in the first column of the table, moving downward we see the chords numbered 1, 11, 9, 2, 10, 12, and 8. By translating these chords from Amat's system to modern letter names, it forms the E-major scale.

Example 9b- Translation of Amat's Musical Cipher

Fa, Ut	E	A	D	G	C	F	Bb	Eb	Ab	C#	F#	B
Sol, Re	F#	B	E	A	D	G	C	F	Bb	D#	G#	C#
La, Mi	G#	C#	F#	B	E	A	D	G	C	E#/F	A#	D#
Fa	A	D	G	C	F	Bb	Eb	Ab	Db	F#	B	E
Ut, Sol	B	E	A	D	G	C	F	Bb	Eb	G#	C#	F#
Re, La	C#	F#	B	E	A	D	G	C	F	A#	D#	G#
Mi	D#	G#	C#	F#	B	E	A	D	G	B#/C	E#	A#

In this example, each column contains the major scale with the top row being "tonic". Although terms like tonic and major, minor scales had not yet been established, in practice Amat was using them to accompany and arrange music. By harmonizing to the solfege of the bass line, Amat was using a diatonic scale-degree based form of harmony. While this is common practice among modern musicians, it was revolutionary to the players of the late 16th century. In the late 16th century, music was primarily based on the modes rather than major/minor tonality. Amat allowed what was "most pleasing to the ear" to help guide him to these theoretical conclusions. His ear led him to a more major/minor based playing rather than one of the church modes, which would have been much more popular at the time. Knowing this, we can better understand Amat's process for accompanying and arranging music. His first step was to determine the ut (tonic) of the bass line. After that he used the diatonic series to harmonize chords to the solfege of the bass line. Amat's cipher was a sophisticated pedagogical tool, which showed even the most untrained musician how to use the chords of the diatonic series to arrange and accompany in all of the twelve keys.

Amat's Transposition table

Not only does Amat address playing in the twelve keys, but he also explains how he transposes popular styles of music into the twelve keys. Amat mentions the *paseo* dance form, stating that there are an infinite number of these types of pieces, and that when a player learns how to transpose them in the twelve keys, they are well equipped to play anything. Other popular styles that Amat claims can easily be learned to transpose are the *Vacas, gallardas, pavanillas,* and *sezarillos*. In the example below, Amat shows his method of transposition for one of his own pieces which he wrote in the Vacas style.

Example 10a- Amat's Transposition Table [39]

				(Vacas)				
1	12	10	9	1	12	10	9	10
2	1	11	10	2	1	11	10	11
3	2	12	11	3	2	12	11	12
4	3	1	12	4	3	1	12	1
5	4	2	1	5	4	2	1	2
6	5	3	2	6	5	3	2	3
7	6	4	3	7	6	4	3	4
8	7	5	4	8	7	5	4	5
9	8	6	5	9	8	6	5	6
10	9	7	6	10	9	7	6	7
11	10	8	7	11	10	8	7	8
12	11	9	8	12	11	9	8	9

Amat proves his reputation as a mathematician by creating this table, which utilizes a number system as a means of transposition. Each row has numbers ranging from 1-12 which correspond with the twelve chords in his musical circle. The first row across the top contains the original chord progression of the piece. In this example the original pattern is 1, 12, 10, 9, 1, 12, 10, 9, 10. When translated from his number system to letter names this progression would be E, B, C#, G#, E, B, C#, G#, C#. The fact that this method uses numbers allows the player to transpose by interval. As the rows move down, the chord numbers are simply raised by one. It must be remembered though that these numbers represent the chords from Amat's musical circle, so while on paper it looks as though each row is moving by step, it is actually moving by fourth. For example, the first row begins with an E chord, and the second row contains the same progression but staring on an A. If a player wanted to transpose the first line (key of E) up by one step, they would actually have to look at the 6th row (key of F).

[39] Amat, "Guitarra Española," 15.

Example 10b- Translation Amat's Transposition Table

E	B	C#	G#	E	B	C#	G#	C#
A	E	F#	C#	A	E	F#	C#	F#
D	A	B	F#	D	A	B	F#	B
G	D	E	B	G	D	E	B	E
C	G	A	E	C	G	A	E	A
F	C	D	A	F	C	D	A	D
Bb	F	G	D	Bb	F	G	D	G
Eb	Bb	C	G	Eb	Bb	C	G	C
Ab	Eb	F	C	Ab	Eb	F	C	F
C#	G#	A#	E#	C#	G#	A#	E#	A#
F#	C#	D#	A#	F#	C#	D#	A#	D#
B	F#	G#	D#	B	F#	G#	D#	G#

The number system is unique in that only guitar players of the late 16th and early 17th centuries would be familiar with it. In addition to that, the number system not only implies a chord but specific spellings of the chord. From a practical standpoint, this allowed guitar players who were untrained in music to be able to accompany, arrange, and transpose music by mastering this method. From a theoretical standpoint the implications are many. First and foremost, the numbering of the chords supports the idea that Amat understood music from a mostly chordal standpoint. Secondly, his use of these numbered chords in his musical cipher to harmonize with solfege shows a tilt towards diatonic harmony and a scale-degree based idea of tonality.

Christensen comes to the same conclusion when discussing Amat's cipher and transposition table stating,

> As elementary and unpretentious as these scale triads appear, their theoretical implications are profound: they reflect the beginnings of a subtle but ultimately decisive, shift in music theory away from a melodic conception of mode based upon the ordering and articulation of particular intervals and toward a conception of key based upon the context and function of its indigenous harmonies. As we follow the evolution over the course of the 17th century of these scale triads as prescribed in guitar tutors, we are in essence observing the emergence of a scale-degree-based conceptualization of tonality. [40]

Christensen goes on to say that while some of these concepts may be found scattered within the literature of keyboard and theorbo tutors, "it is in the literature of guitar that we find their most explicit and unencumbered depiction."[41] Thirdly, Amat's use of a scale degree based idea of harmonization allowed for easy transposition of simple chord progressions which he proved through the use of his transposition table. The most apparent flaw in Amat's tables, however, is the fact that he does not specify which chords are major or minor, though the tonality of the chords can be inferred using the description of Amat's musical cipher and the fact that rasgueado music used only a handful of the same simple chord progressions. Aside from the fact that Amat intentionally avoids diminished chords, the rest of the chords from his tables follows the diatonic series.

Aside from the rasgueado dance forms, the guitar's treatment of inversions had implications on other styles of music, such as those that included thorough bass practice. The treatment of triad inversions was contrary to the practice of thorough bass, because in thorough bass chords are generated from the bass note and not from the root. Musicians were beginning to realize that the same chord could be played over different signatures. For example, a C-chord

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[40] Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 29.
[41] Christensen, 12.

could be played over an unfigured C-note, a figured 6/3 E-note, or a G-note figured with a 6/4. Guitarists such as Amat formalized the idea that chords were not just the sum of its intervals but its own entity. This is partially due to the fact that guitarist were less likely to be trained in contrapuntal theory, as well as often unable to read staff notation, which made it difficult for many guitarists to play in a continuo ensemble. In response to this, Amat created his cipher in order to establish a "rule of thumb" for accompanying on the guitar.[42] His solution was to create a table where each diatonic note in the scale was assigned to a specific triad. In Amat's system, inversions could replace their root position counterparts but only on the chords assigned to the third, fifth, and seventh scale degrees. Amat's system became popular and was taught by virtually every thorough bass guitar instructor in the 17th century.[43] Amat's instruction reflects a shift from primarily intervallic melodic playing to a tonal conception of key and functional harmony. Joel Lester, in his article *Rameau and eighteenth-century harmonic theory* states, "… performers of strummed instruments such as the guitar, lute, and theorbo (all popular instruments in seventeenth-century continuo bands) learned to realize chordal signatures without regard to the actual acoustical bass note sound."[44] However, as we have seen in the previous paragraphs, Amat first introduced the awareness of inversional equivalence on the guitar in 1596. The Italians did not expand the technique over to other stringed instruments until the early 1600's.

In "Guitarra Española" Amat introduced a new form of notation. This new notation was an early ancestor of alfabeto notation and was originally referred to as *"Catalan cifras"* (numbers), because numbers were used to represent chords written above a melody line or above

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42 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 26.

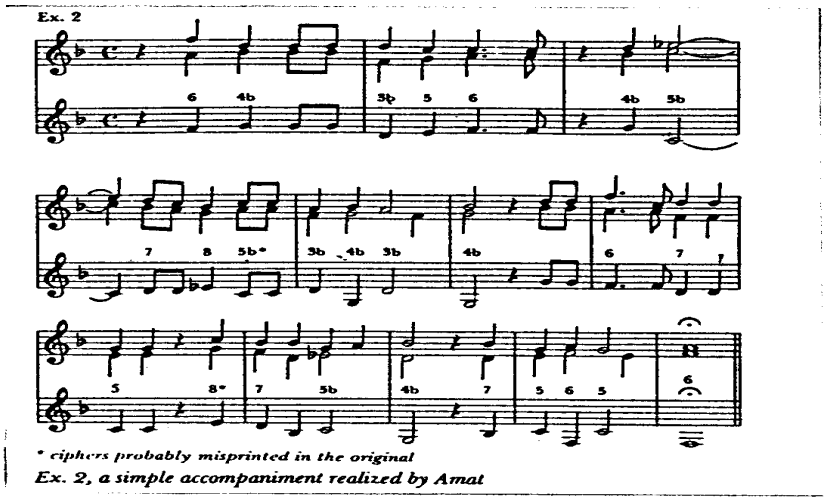
43 Christensen, 26

44 Lester, Joel. "Rameau and Eighteenth-century Harmonic Theory." *The Cambridge History of Western Music Theory*: 756.

the lyrics.[45] The numbers represented the chord voicings while the letter b was used to indicate minor chords. Although similar in concept and purpose to basso continuo, the two systems are very different. What makes Amat's system unique is the fact that it was more chord focused than interval focused. In fact, the second chapter of Amat's treatise is titled "What is a chord, how many there are and how they are named"[46] In this chapter, Amat explains that each chord is a pattern made up of three voices: bass, alto, and treble. Amat also states that there are twenty-four chords total, and the patterns that make up these chords can be arranged in any order. Amat chooses to mention that he is leaving out diminished and augmented chords because they are not important for the purpose of playing rasgueado music.[47] This emphasis on chords rather than intervals sets Amat's style of accompaniment apart from that of basso continuo, because in basso continuo the numbers represent the intervals that were to be played above the given bass note. However, in Amat's system each number represented a specific chord with a specific fingering. This chord focused mentality is most apparent in Amat's treatment of inversions. In this chapter, Amat uses the cipher to harmonize chords for one of his own compositions (shown below).

45 Amat, "Guitarra Española", 19.
46 Amat, 6.
47 Amat, 4.

Example 11a- Amat's Accompaniment Example [48]



The first note of the bass line (bottom voice) in his example is an F, which he designates as ut. Because of this, the chord used to harmonize it is an F major chord (6) in the first row of the 6th column of his cipher. After that, the bass line moves to a G that Amat harmonizes with a g-minor chord (4b). Next the bass line moves to D harmonized with a d minor chord (3b). Up to this point the chords seem fairly straightforward, with the bass line determining the root of the chord. However, on the second beat of the second measure the bass line goes to an E. By Amat's own description of the cipher and the way he has treated the chords up to this point, we expect to see some type of E chord. The E in the bass line should be harmonized as mi, but instead Amat chooses to treat it as sol by harmonizing with a C-chord. This occurs again with the D on the first beat of measure 9. With the D in the bass and given Amat's explanation of the table, he should harmonize the note as re with some kind of D chord. Instead, Amat harmonizes the D as if it were fa by treating it like a Bb-major chord, once again showing an understanding that notes in the bass line do not have to be treated as the root of the chord. Amat uses the 6th column of his

[48] Amat, "Guitarra Española," 20.

musical cipher for arranging example 11a. Example 11b shows a translated version of Amat's musical cipher. The column used to harmonize his composition is highlighted.

Example 11b- Amat's Musical Cipher with used column highlighted.

	1	2	3	4	5	**6**	7	8	9	10	11	12
Fa, Ut	E	A	D	G	C	**F**	Bb	Eb	Ab	C#	F#	B
Sol, Re	F#	B	E	A	D	**G**	C	F	Bb	D#	G#	C#
La, Mi	G#	C#	F#	B	E	**A**	D	G	C	E#/F	A#	D#
Fa	A	D	G	C	F	**Bb**	Eb	Ab	Db	F#	B	E
Ut, Sol	B	E	A	D	G	**C**	F	Bb	Eb	G#	C#	F#
Re, La	C#	F#	B	E	A	**D**	G	C	F	A#	D#	G#
Mi	D#	G#	C#	F#	B	**E**	A	D	G	B#/C	E#	A#

Example 11c- Translation of Amat's Accompaniment Example

Chord	FM	g-minor	d-minor	**C/E**	FM
Chord number	6	4b	3b	**5**	6
Solfege	Ut	Re	La	**Sol**	Ut
Bass line	F	G	D	**E**	F

Although Amat never specifically uses the term inversion, he does take time to emphasize that it is not necessary for the chord to be stacked with the root on the bottom, the third in the middle, and the fifth on top. Instead, Amat explains that chords can be spelled using the same notes in any order. This is another factor that plays into the fact that Amat does not include any chords that are played beyond the fourth fret. In the first chapter of his treatise, Amat explains that "no more than four frets will be necessary, because the chords which can be formed at the rest [of the

frets] have the same sound as those which we form at the second, third and fourth frets."[49] Amat also revisits this topic in chapter six of his treatise titled "How there are no more than twelve major and minor chords."[50] In this chapter, Amat insists that chords formed at the fifth fret and above all share the same consonances and roots as the chords played on frets 1-4. He states that chords 13 and up are just repetitions of chords 1-12. Amat claims that this concept is fairly obvious and can be easily proved through reasoning.

> This can easily be proved by reasoning. If the root is found to rise a [perfect] fourth, that is, from UT to FA, from chord 1 to chord 2, and from chords 2 to 3 another fourth, and from chords 3 to 4 another fourth, and so on rising from one to another as far as chord 12; and if from chord 1 to chord 12 we find only the same [interval of a perfect] fourth as we found from chord 12 to chord 13, it stands to reason that chord 13 is the same as chord 1, and likewise chord 14 is the same as chord 2, chord 15 the same as chord 3 and so on for all the rest, because the distance rising from one chord to another is a fourth.[51]

Not only does he see some of the chords as octaves but even the chords which have different fingerings Amat writes off as respellings the same chords. Chapters 3 and 4 support his views on inversions. The title of chapter 3 is "the arrangement of major chords" and chapter 4 "the arrangement of the minor chords".[52] Even the title of this chapter points to his understanding that chords have various "arrangements." In these chapters, Amat explains all twelve chords individually. For each chord Amat begins by giving the chord number, which corresponds to his chart, as well as the chord fingering. In doing so, Amat also clarifies which notes are the root, third, and fifth of each chord as well as the courses they are played on. Amat does not use the terms root, third, and fifth specifically but instead refers to the three voices of each chord as the bass, alto, and treble. However, it is obvious that when Amat refers to the "bass" of a chord, he

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[49] Amat, "Guitarra Española," 5.
[50] Amat, 13.
[51] Amat, 13.
[52] Amat, 8.

does not literally mean the lowest sounding note, because in some of his descriptions of the chords he states that the "bass voice" is in the middle or on the top. For context, an explanation of a G-major and G-minor chord in Amat's own words from chapters 3 and 4 of his treatise is shown below.

> Chord 4n (G-major) is formed placing a finger on the first course, and another on the second course at the third fret, and another on the fifth course at the second fret; and the third and the fourth courses remain open. The bass (root) is found on the third course, the alto (third) on the fifth course and the treble (fifth) on the fourth course; the first course is the same as the third, the second the same as the fourth. G-major. [53]
>
> Chord 4b (G-minor) is formed placing a finger on the first course at the third fret, another on the second course at the third fret and another on the fifth course at the first fret and the third and fourth courses are unstopped. The root is on the third course, the third on the fifth course and the fifth on the fourth course. The first course is the same as the third course and the second as the fourth. The minor third is on the fifth course.[54]

This excerpt from Amat's treatise shows an example of how he describes each of the twelve major and minor chords. He first begins with the chord number, which in this case is 4n (major) and 4b (minor). Next, he explains which course and frets each finger plays. After that, he explains which fingers contain the root, third, and fifth of the chord. The excerpt above shows Amat's use of the terms bass, alto, and treble as synonymous for root, third, fifth. When describing the fingering of a G-chord, Amat states that the "bass" is played on the third course while the "alto" is played on the fifth course. This would mean that the "alto" is the lowest note of the G-chord. Because of this, when Amat states that the "bass" of the chord is played on the third course, he is not referring to the bass as the lowest note. Therefore, when Amat refers to the bass of the chord, he is actually referring to the root of the chord. This understanding of his

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53 Amat, "Guitarra Española," 9.

54 Amat, 9

use of the term "bass" sheds light on his use of the terms "alto" and "treble". Simply put, if Amat uses the term "bass" to refer to the root of the chord, then we can infer that the terms "alto" and "treble" refer to the other chord tones. These definitions of the terms bass, alto and treble are further supported by his use of them at the end of chapter 4.

> I refer to each chord as having a bass, alto and treble, each one on its string, nevertheless I concede that sometimes they are changed from one string to another, so that sometimes the bass is on the alto or treble string, and the alto on the treble or bass string, and the treble on the alto or bass string. And observe too that although I say that three different notes are found in each chord, nevertheless I concede that many others may be joined together in each chord.[55]

In the excerpt above, Amat explains that the bass, alto, and treble "voices" can switch orders. This shows that Amat's use of the term bass, alto, and treble actually coincide with our understanding of root, third, and fifth. At the beginning of his treatise, Amat also states that, "Each chord has its different pattern and arrangement, and each has three different voices, which are the bass, alto and treble."[56] This means that Amat understood that each chord was made up of various arrangements of the same chord tones (voices), which are the root (bass), third (alto), and fifth (treble). Amat's understanding of the triad is sophisticated, considering the fact that triads were not formally theorized until 1608. This means that Amat understood and explained the concept of the triad (at least on a practical level) over a decade prior to the conceptualization of the term "triad" by Johannes Lippius in 1608. [57] Given the popularity of Amat's work, it is possible that Lippius was familiar with his work or at least familiar with work that Amat influenced. Because of this and the fact that Lippius formalized the concept of the triad only 12 years after Amat's treatise, it is possible that Lippius may have been influenced by the work of Amat.

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55 Amat, "Guitarra Española," 10.

56 Amat, 6.

57 Christensen, "*The Cambridge History of Western Music Theory*," 407.

The use of first inversion triads in this example proves that Amat's approach to harmonization was more root/chordal based than interval based. This is significant because figured bass would become the popular method of accompaniment. Figured bass was heavily interval focused rather than root focused. Numbers in basso continuo indicated intervals to be played above the bass note. Because of this, when a chord was respelled with another note on the bass it could be perceived as a different chord entirely. While inversions did play a role in the basso conitinuo, the notion of triads and equivalence of triadic inversions had not been conceptualized. Although both methods of notation contained first inversion chords, Amat's treatment of inversions demonstrates a shift in the conceptual understanding of them. Triads had not yet been conceptualized as a single entity that could be respelled in multiple ways. *Rasgueado* players on the other hand had been setting a new trend by using triads and their inversions synonymously. Amat was not the first to treat chord inversions in this way because *Rasgueado* musicians had been around for a while prior to Amat's "Guitarra Espanola." *Rasgueado* music had already been gaining a reputation for its chordal focused style. Amat's "Guitarra Espanola" is significant in that it was the first treatise on the *rasgueado* technique, making Amat the first "theorist" to demonstrate and explain the musical concepts found in rasgueado music. The chordal focused mentality of rasgueado music had a major impact on the way theorists approached music. According to Joel Lester, a crucial point of harmonic tonality is "the notion that the basic harmonic unit is the chord, not the interval,"[58] and this is exactly what we see with *rasgueado* music. Chordal movement took precedence for the late 16th and early 17th century Spanish guitar players. Amat describes chords as being "raw materials," equivalent to colors for a painter, that can "mix in any way and in whatever key jumping from one to

[58] Lester, "Rameau and Eighteenth-century Harmonic Theory," 753.

another."[59] Inversions were used more freely than they were in other instruments during this time period. Their understanding of inversions was partially due to the actual construction of the guitar itself. As Christensen states, "The rich and percussive resonance of the guitar courses allowed a chord's functional sonority to remain essentially consistent no matter which particular note happened to be on the bottom."[60] Unlike modern guitars the lowest sounding string was not as prominent, because the gut strings did not resonate as well in the lower octaves, thus making the lowest note somewhat irrelevant. It was not until players began replacing the lowest string with "bourdons" that the lowest sound could be clearly heard. By the time bourdons became more popular, the concept of considering a chord and its respellings as a single entity had already gained recognition.

The publication date of Amat's treatise is also incredibly significant. In 1581 German organist Johannes Avianius recognized that intervals were best understood as part of a chord. Not long after Avianius, Amat writes the first instructional rasgueado performance practice book in 1596. Soon after Amat's book, Joachim Burmeister and Johannes Magirus reiterated in 1599 and 1611 respectively that the 5/3 and the 6/3 chords were the sole consonant harmonies. Around 1610 German theorists Otto Siegfried Harnisch and Johannes Lippius helped formalize the theories of chord inversions. Harnisch first recognized that the 6/3 and 6/4 chords were essentially different voicings of the same basic 5/3 sonority. It was not until the end of the seventeenth century that it had become commonly accepted by musicians that the 5/3 and 6/3 triads were rearrangements of the same harmony. In 1725 Johann Joseph Fux explained the inversional relationship between these spellings of the triad in his study of three-part modal

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59 Amat, "Guitarra Española," 14.

60 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 3.

species counterpoint called *Gradus ad Parnassum*. Although inversional equivalence is not considered to have been formally recognized until the work of Harnisch and Lippius in 1610, we can see the use of inversional equivalence in both a theoretical and practical level in the work of Amat. Not only did Amat acknowledge that chords were all made up of the same three "voices" (root, third, fifth), but he also acknowledged that it was a pattern shared between the twelve major and twelve minor chords. Furthermore, he understood that these notes could be arranged in any order regardless of the lowest sounding pitch. Given this information and the timeline of these theories as well as the popularity of the guitar during this time period, it is hard to dispute the influence that Amat and rasgueado guitar had on the conceptualization of the theories of triads and inversional equivalence. As Christensen states, "in rasgueado style it makes no difference whether or not the bottom note of the chord is the "root" what is important is the chord's overall functional sonority."[61] Inversions and positions of the same basic chord were called *lettere false*. It was not unusual in rasgueado for the piece to begin or end on a first or second inversion triad. This allowed theorists to begin seeing that the same three notes create a single chord regardless of the order of notes or which note is on the bottom, forever changing how musicians viewed chords. Amat's views on harmony also influenced the theories of Rameau. Christensen points out that Amat indirectly influenced the theories of Rameau through the work of other theorists that Rameau was familiar with. "…Let me point out that there indeed exists a direct connection that can be drawn between Rameau's theory and this guitar literature in a work we can be certain Rameau knew well François Campion's "*Traité d'accompagnement et de composition selon la règle des octaves de musique*".[62] François Campion (1686-1748) was one of the last French "champions" of the five-course guitar. Campion was a theorbo player and

61 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 5.
62 Christensen, 33.

played the continuo part in operas in the orchestra of the Académie Royale de Musique from 1704 through 1719. Campion published a treatise on continuo titled *Traite d'accompagnement et de composition selon la regle des octaves de musique* (Paris, 1716), which Christensen refers to as the "last and most important published for the guitar in France" and that it marked, "at once the culmination of pedagogical tradition of guitar continuo practice."[63] Campion's treatise embodied the newer gallant/ rococo style. Eleven years after his first treatise, Campion continued his work by publishing another treatise titled *Addition au traite ou est compris particulièrement le secret de l'accompagnement du théorbe, de la guitar & du luth*. In his second treatise, Campion explains at length his "secret" method for teaching guitar, theorbo, and lute players the art of continuo accompaniment.[64] Campion's treatise was also responsible for elaborating on the work of Amat by canonizing a normative harmonization of both ascending and descending major and (melodic) minor scales under the guidelines of the rule of the octave. He does this by creating harmonizations for the C-major and a-harmonic minor scale and then transposing them into the other 22 keys. Campion believed, much like Amat, that memorizing the chords and all of their transpositions were the key to accompanying perfectly. To do this, the player would have to know the key and then know the chords that were assigned to each scale degree, in a similar way to how Amat demonstrates in his cipher. Campion also believed that accompanying was a harmonic and not a contrapuntal skill, therefore regard for voice leading was not as important and chords could be inverted without interfering with the harmony. His view of chords and the acknowledgement of chord inversions can be traced back to the treatise of Amat.[65] Campion expanded on the work of Amat and the other guitar tutors who preceded him by offering a scale

63 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 34.
64 Hudson, Richard. "The Concept of Mode in Italian Guitar Music during the First Half of the 17th Century," 164.
65 Christensen, 34.

degree based form of accompaniment. Because of this, many eighteenth century musicians learned the common scale-step placements of harmonies within a key, and how they interacted with one another.[66] Campion continued his work for many years by making additions to his treatises and other songbooks. Campion's ideas could be found both in theoretical literature and in practice throughout the 17th and 18th centuries and helped to promote what would later be norms of tonality.

Jean-Phillipe Rameau

It is difficult to discuss major/minor tonality, chordal theory, inversional equivalence, and the division of the octave without mentioning French composer and theorist Jean-Phillipe Rameau (1683-1764). Rameau is one of the most recognizable names in music theory. His treatise *Traité de L'harmonie* (1722) was revolutionary for introducing new ideas, such as the generative fundamental and fundamental bass. Although some of the theories proposed in Rameau's treatise were original ideas, a large part of his treatises between 1722 and 1761 were just reformulations and combining longstanding concepts into a single perspective. [67]Amat's views on music are in many ways very similar to the theories of Rameau. In fact, some of the practices and pedagogical tools of Amat are used in the work of Rameau. They both share similar views on harmony and tonality. Most notably both theorists demonstrate an understanding of major/minor tonality, root based tertian harmony, inversional equivalence, and scale degree based functional harmony. It is not my intention to diminish in anyway the contributions of Rameau, instead I am merely highlighting that despite the fact that Amat's treatise preceded Rameau's by over a century, they share similar concepts in their approach of harmony and tonality. Rameau is well known for many of the theoretical concepts that have been

66 Lester, "Rameau and Eighteenth-century Harmonic Theory," 753-77.
67 Lester, 753.

discussed thus far. While Amat did not formalize these theoretical concepts, his treatise does mark a definitive shift in the world of music theory towards a new understanding of chordal theory and major/minor tonality.

As shown in the previous paragraphs, there indeed exists a connection that can be traced from Amat to Rameau. There is evidence in Rameau's treatise that shows that he was familiar with rasgueado guitar music. Rasgueado was most well known for its dance forms such as the *folia*, *passacaglia*, *chaconne*, and *zarabanda*. In his treatise, Rameau refers to two of these dance forms specifically, the *chaconne* and the *passacaglia*.

> Notice that we do not separate the term mode from the term key when a change between major and minor is found on the same tonic note, for we may change the mode from major to minor or from minor to major without changing the tonic ot principal note of the mode. For, example, when we pass from a gay theme to a sad one, or from a sad to a gay, as occurs in most *Chaccones* or *Passacaglias* or often in two successive airs of the same type, we can say that the key does not change at all even though the mode changes.[68]

The excerpt above from Rameau's treatise references the two rasgueado dance forms, the chaconne and passacaglia which were often written in both major and minor. Both the *chaconne* and the *passacaglia,* originated in Spain as rasgueado dance forms. The dance forms utilized the two "guitar modes" known as *B-quadro* and *B-molle,* which are one of the earliest examples of major/minor tonality.[69] *B-quadro* (B-natural) referred to the interval of a major third while *B-molle* (B-flat) refers to the minor third.[70] Hudson explains the significance of these "guitar modes" by stating, "The Spanish guitar gave to art music such forms as the passacaglio, the ciaccona, the zarabanda, and the folia and, along with these forms, a concept of mode that led

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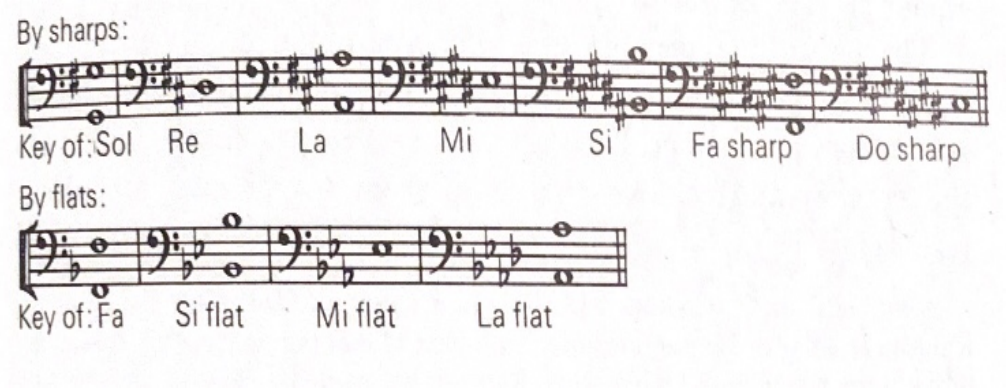
[68] Rameau Jean-Phillipe. 1722. "Treatise on Harmony", translated by Philip Gossett. Dover Publications, inc. (1971), 163.

[69] Hudson, "The Concept of Mode in Italian Guitar Music during the First Half of the 17th Century," 165.

[70] Hudson, 165.

eventually to fully developed major-minor tonality."[71] Amat first explained the guitar modes in treatise back in 1596. When Amat introduces the concept of major and minor chords, he also specifies that each of the chords have the ability to represent its own "modos" or key. Amat then uses these different keys as the vertical columns of his musical cipher for the purpose of harmonizing bass lines. Amat's idea of each chord representing its own "modos" (major/minor keys) eventually comes to be termed the "guitar modes." Rameau uses the same major/minor modes as early rasgueado players stating "we distinguish between two types of modes. They take their names from the major and minor interval formed by the third of the sound, which together with its octave, is the primary element of a mode."[72] Rameau gives a detailed description of major and minor keys.

Example 12- Rameau's Major Keys[73]



The example above shows Rameau's depiction of the major keys. Rameau used a fixed Do system to label the keys. This means that C was Do and everything else was labeled by the solfege in relation to it. The key of "sol" is the key of G, the key of "re" is the key of D, etc. Rameau organized key signatures in 5ths, based on the number of sharps or flats, starting with the key of G. Amat ordered the keys in 4ths, an order that was most natural for the guitar

71 Hudson, 165.
72 Rameau, "Treatise on Harmony," 157.
73 Rameau, 263.

beginning on E. Despite the difference in organization, Amat used the very same major keys in his cipher from 1596. Amat's treatise marked the shift away from modal music towards major minor tonality. Hudson explains that rasgueado music marked the beginning of "an inclination toward tonality."[74] This "inclination" began with Amat and his first instructional manual on rasgueado music. After that, rasgueado music continued to explore the concept of major/minor tonality to the point that major a minor keys were referred to as the guitar modes. The guitar modes played a large role in the popularity of the guitar dance forms which Rameau directly references when discussing major/minor tonality.

Another similarity between the work of Amat and Rameau is that Rameau also used a musical circle to explain his idea of the division of the octave. Rameau sets up his circle and the division of the octave by first explaining intervals. After giving the intervals names second, third, fourth, fifth, etc., Rameau explains that in order to find these intervals one must, "first designate a note as the source or first degree; then, counting from this note to another, the same number as the number of notes counted designates the interval found between the first note and the other."[75] In other words, Rameau explains the notes within the octave are given a designated function in relationship to the tonic. This is demonstrated in his musical circle shown in **Example 13**. At the center of Rameau's musical circle are the solfege syllables of the major scale do, re, mi, fa, sol, la, and si. Unlike Amat, Rameau used a seven note solfege system. Interestingly, despite the fact that they used different solfege systems, they both shared the same view of the division of the octave. Just beneath the center of Rameau's circle the syllable do aligns with the number 1, showing that do (C) is the 1st scale degree or tonic of that particular key.

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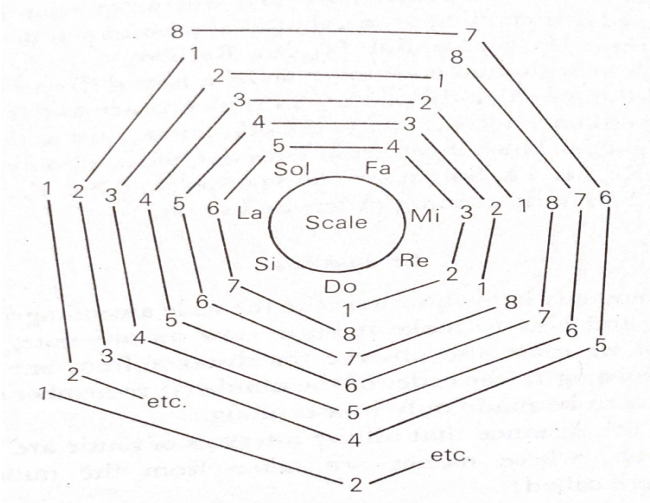
74 Hudson, "The Concept of Mode in Italian Guitar Music during the First Half of the 17th Century," 163-83.

75 Rameau, "Treatise on Harmony," 190.

Example 13- Rameau's Musical Circle [76]



The line stemming from the 1 in the innermost layer of the circle is then traced around the other solfege syllables as it is divided up through the octave. This process is then repeated by the next layer of the circle beginning on re. In the second layer of the circle, re (D) is the tonic. The line tracing the second layer of the circle traces the solfege syllables through the octave in the key of re (D). This continues around the circle to show each solfege syllable as the tonic. Amat was the first to use the musical circle as a pedagogical tool for showing musical relationships. The fact that Rameau is using a circle of all things to show the relationships of intervals shows that Rameau had to have been influenced in some way by Amat, whether it was directly, or indirectly through the work of other theorists. Aside from the use of the circle itself, the actual concepts found within Rameau's circle resemble Amat's musical cipher. This division of the octave resembles the correlation between the solfege syllables and the chords that Amat uses for harmonizing bass-lines. In Amat's cipher ut was used instead of do. Although Amat does not have the same terminology as Rameau, they are similar in practice. In practice, Amat treats whatever chord corresponds with ut as the tonic. This is supported by the fact that Amat states

[76] Rameau, "Treatise on Harmony," 190.

that each chord has the ability to represent its own key. After Amat designates the ut (tonic) he uses the rest of the scale degrees in relation to the tonic to harmonize the bass-line. A major difference between Amat's cipher and Rameau's circle is that Rameau also uses a fixed do system to organize the circle in a similar way that he uses to explain the keys. However, both Amat and Rameau shared the idea that scale degrees shared the same intervallic relationship to tonic in every key. With Amat this is shown in his transposition table, where he takes a chord progression and transposes it into all 12 major keys. Amat demonstrates in his transposition table that chord progressions can be transposed to a new key by simply adding or subtracting the same number to each chord of the progression.

Example 14- Example from Amat's Transposition Table

Original chord progression:	2	1	11	10	2	1	11	10	11
	+1	+1	+1	+1	+1	+1	+1	+1	+1
Same progression in new key:	3	2	12	11	3	2	12	11	12

Rameau gives a more in depth description of these relationships saying that " The mediant, dominant, and leading tone always form the same intervals with regard to the tonic note in every key Mi, Sol, and Si form in regard to Do."[77] Rameau further explains this by giving each scale degree a name and identifying function that corresponds to each of the solfege syllables.

[77] Rameau, "Treatise on Harmony," 220.

Example 15- Rameau's Scale Degree Names

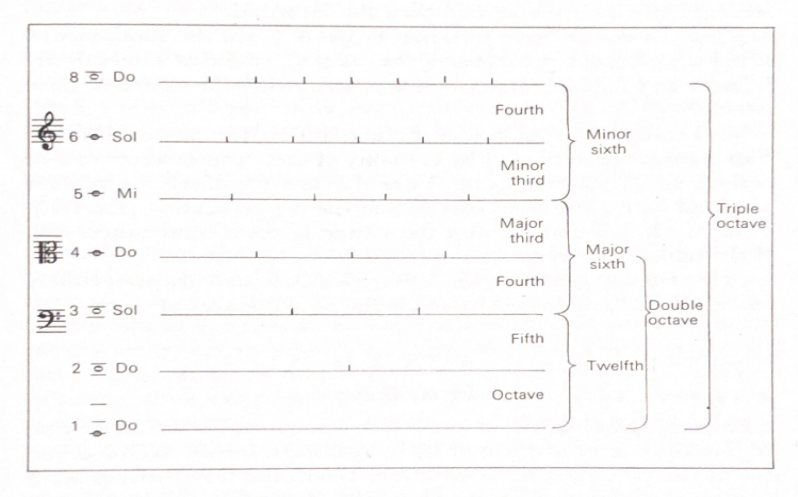
Do	Tonic Note
Re	Second note
Mi	Mediant
Fa	Fourth note
Sol	Dominant
La	Sixth note
Si	Leading tone
Do	Octave

Amat and Rameau both emphasize the importance of the chord rather over the melody. Because rasgueado music was primarily chordal, Amat does not mention melody once throughout his treatise. Instead, Amat only discusses the bass line and the harmony that should correspond to it. Rameau distinctly explains why he emphasizes harmony over melody. Rameau believed that melody was derived from harmony and not the other way around. He explains this view at the very beginning of chapter one in his *Traité de L'harmonie* saying, " music is generally divided into harmony and melody, but we shall show in the following that the latter is merely a part of the former and that a knowledge of harmony is sufficient for a complete understanding of all the properties of music."[78] They both understood the chords as made up of a root, third, and fifth. Although Amat never mentions the terms root, third, or fifth specifically, he uses them in practice. While Amat uses major/minor triads and their inversions in practice, he never actually describes them at length. Amat does explain, however, that chords were made up of three

[78] Rameau, "Treatise on Harmony," 3.

"voices" the bass (root), alto (third), and treble (fifth), which could be arranged in any order. Rameau also saw chords as made up three notes, but he takes time to discuss how they can be rearranged to form the different inversions. Rameau refers to root position chords as "perfect chords," first inversion chords as "sixth chords," and second inversion chords as "six-four chords." Both Amat and Rameau understood that rearranging the chord tones does not change the identity of the chord. Amat explains it in a more practical sense while Rameau uses sets of proportions in order to explain the intervals that make up chords. Rameau generated these proportions by dividing up a string into equal sections.

Example 16- Rameau's Interval Proportions[79]

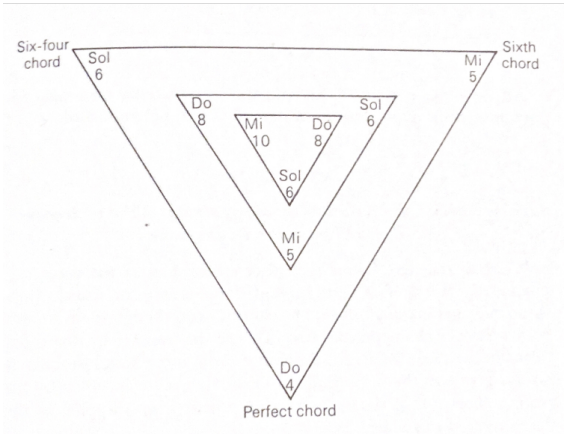


When the string was divided up into four equal sections, the result was a major third, thus it is represented by a 4. For Rameau, a major chord in root position was made up of the proportions 4:5:6. When the 4 is doubled it is raised up the octave, creating a first inversion chord with the proportions of 5:6:8. To create a second inversion triad the 5 is doubled, raising it the octave leaving the fifth as the lowest sounding note. **Example 17** shows Rameau's inversion triangle, which demonstrates how he viewed inversions, and the chord tones/ proportions that create

[79] Rameau, "Treatise on Harmony," 7.

them. The outer triangle shows a perfect (root position) chord with the root (do) as the lowest sounding note. The second triangle shows a sixth chord with the third (mi) as the lowest note. The inner most triangle represents the second inversion chord with the fifth (sol) as the lowest sounding note.

Example 17- Rameau's Chord Inversions[80]



Rameau uses the triangle because it has three points. Each point represents a chord tone but is ultimately part of the same single sonority. Because of this, no matter which note is on the bottom, they are still all part of the same chord. Rameau uses the same reasoning to explain the inversions of minor chords.

Example 18- Rameau's minor chord proportions[81]

10 : 12 : 15 La Do Mi	12 : 15 : 20 Do Mi La	15 : 20 : 24 Mi La Do
Fundamental perfect chord	Sixth chord, inversion of the perfect	Six-four chord, inversion of the perfect

The proportions shown above represent minor chords. These proportions can be substituted into the triangle to show the inversions of minor chords. The proportion 10:12:15 represents a root

80 Rameau, "Treatise on Harmony," 41.
81 Rameau, 42.

position minor triad. Raising the root up an octave creates a first inversion triad with the proportions 12:15:20. When the third of the chord is raised up the octave, it generates a second inversion minor triad with the proportions of 15:20:24. Rameau goes on to explain these chord inversions in a more practical view, stating that any of the chord tones may be used as the bass. Much like Amat, Rameau also explains that the chord tones can be arranged in any order. "The third, fifth, or the octave may be placed in any part at all; the third may be above the fifth or the octave, and the fifth above the octave, whichever is convenient."[82]Although Amat does not explain inversions to the extent of other theorists, his treatise is still one of the earliest examples of inversional equivalence used in practice.

It is in Amat's treatise that demonstrates a shift towards a more root-based concept of chords and their inversions. This makes Amat's treatise a significant part of music history, because his treatise precedes the idea of figured bass, which was a prominent approach to harmony during the baroque period. It was not until after figured bass that the majority of musicians began to adopt an idea of harmony that resembled Amat's. This evidence supports the fact that Amat really was a theorist who was ahead of his time. A root based concept of chords had implications on how theorists such as Rameau and Amat harmonized bass lines. Amat does not explain this concept of root but uses it in practice. As was demonstrated by the analysis of his accompaniment example (exp. 13a), Amat uses roots of chords and not the bass line alone to harmonize an accompaniment. This is most evident when he harmonizes the E (mi) with a C chord (sol). By harmonizing the bass line with the implied root rather than the actual bass note, Amat demonstrates an awareness that harmony is to follow root movement which does not always correlate with the bass line. This kind of awareness of chordal roots is similar to

[82] Rameau, "Treatise on Harmony," 207.

Rameau's concept of the generative fundamental and fundamental bass. Rameau's idea of a generative fundamental asserts that the root of the chord was not only a foundation of the harmony but also could be heard as the "generative source."[83] This generative source would soon come to be known as chord roots.[84] Rameau's concept of the fundamental bass states that chord progressions should follow root movement. Rameau understood that bass-lines do not always carry the root of the chord. This would mean that it is not sufficient for the harmony to solely follow the bass-line. Instead, Rameau explains that in the case of inversions, it is the implied root, not the bass-line, which generates the harmony of the progression. Amat's harmonization example demonstrates a similar understanding to Rameau's in both the generative fundamental and the fundamental bass. When Amat harmonizes the E in the bassline as a C-chord, he is demonstrating both the idea of generative root and fundamental bass. Interestingly, Amat explains that he uses the bass line to determine the harmony, however as his example shows, in practice he is actually following the concept of the fundamental bass by using the implied root to determine the harmony. Amat is a great example that practice can precede theory, because his theory implied the bass line generates the harmony, but in practice it was root movement that was generating his bass-line. According to Christensen, this concept was not an intuitive one for musicians prior to Rameau.[85] However, Amat demonstrates his understanding of this concept in practice, although he never fully explains it in his treatise. Despite this, the practice of root-based movement was a concept that was used in the tradition of rasgueado accompaniment. Amat's early use of a root based idea of harmony is one of the many features that makes his treatise so unique and revolutionary during the time of its publication.

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83 Christensen, *Rameau and Musical Thought in the Enlightenment*. Cambridge: Cambridge Univ. Pr, 2004, 71.

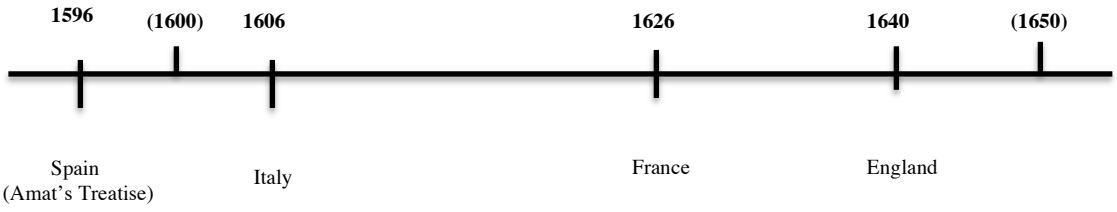
84 Christensen, *Rameau and Musical Thought in the Enlightenment*, 71.

85 Christensen, 71.

Further Influence

Rasgueado playing quickly became popular and spread from Spain to Italy where it was received with open arms. *Battente,* the Italian translation for rasgueado, migrated to Italy in the early 1600's. Italian publications associated with rasgueado music can be seen as early as 1606. The *battente/rasgueado* technique quickly became popular with sixty-nine songbooks published in Italy alone, between 1609 and 1629. Italians also expanded the technique to the *lute, theorbo*, *archlute*, and the *chitarrone*. Rasgueado was so well received in Italy that some Spanish guitar players thought that in order to perfect their art they would have to go study with the Italians.[86] After Italy rasgueado moved north were the French adopted it. By 1626 a rasgueado guitar method and collection was published in Paris. A young Louis XIV became interested in the guitar, and many French composers such as Jean Baptiste Lully begancomposing for it. [87] Along with its strumming style the guitar also brought to France the dance forms that were associated with it. The guitar gained popularity in England replacing the lute as the plucked instrument of choice. A timeline showing the spread of rasgueado from Spain to England is shown below.

Example 19: Spread of Rasgueado Music



Based on the dates of surviving works scholars believe that the five-course guitar did not

86 Christensen, *The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory*, 1-42.

87 Tyler and Sparks. "The Guitar and its Music from the Renaissance to the Classical Era," 121.

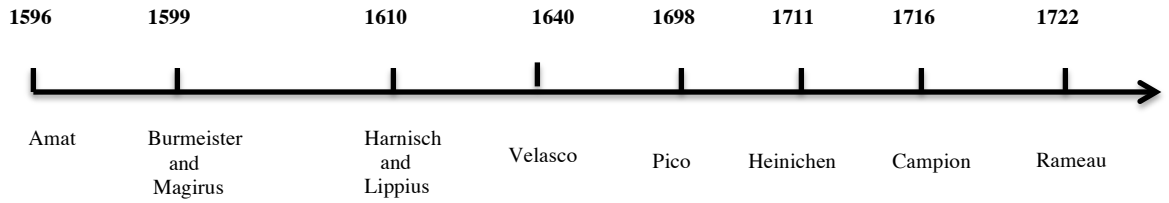
begin to appear in England until the 1640's. [88] This date is estimated based off of the earliest manuscript which belonged to Lady Ann Blount Lady Ann's songbook contains pieces of a solo guitar piece written on five lines in French tablature with Italian stroke signs. Similar to King Louis XIV of France, King Charles II was drawn to this new music of the five-course guitar. After King Charles II regained his throne in 1660 the five-course guitar became common in theatre productions. King Charles II even went so far as to approve funds to recruit Italian musicians for his court. This band of musicians was aptly titled the "Italian Players of his Majesty" and was made up of singers, theorbists, and guitarists. Singer/guitarist Pietro Reggio was one of the players among this group of recruited musicians. During his time in England Reggio compiled multiple collections of Italian arias for his students. One of these collections was an anthology of Italian vocal music written by some of the most popular composers of the early baroque such as Giacomo Carissimi, Francesco Cavalli, Luigi Rossi, Barbara Strozzi, and Francesco Lucio. For eighteen of the twenty-nine pieces in this collection a "realization" of the bass line in French guitar tablature in addition to the vocal and figured bass line.[89] In 1661 King Charles II married Catherine of Braganza who was the daughter of John IV of Portugal. After the marriage Catherine brought many of her own court musicians from Portugal, which King Charles slowly replaced with more Italian musicians. Among this new wave of Italian musicians in the king's court was entrepreneur and guitar teacher Francesco Corbetta. Corbetta published two books titled "*Guitarre Royalle"* the first of which he dedicated to king Charles. The book is divided into different suites organized by key. Each suite contains a prelude followed by an allemande as well as other dance movements. The book also includes two guitar trios that

[88] Tyler and Paul, 121.

[89] Tyler and Sparks, "The Guitar and its Music from the Renaissance to the Classical Era," 66.

include figured bass and guitar accompaniment. By 1673 the five-course guitar began to show up in advertisements alongside instruments such as lutes and violins showing that it had become well established among both royalty and the middle class.[90] The five-course guitar was rising so steadily in popularity that in 1697 William Turner stated that, "The lute is not wholly laid aside, but within 20 or 30 years much neglected, to what it was formerly, not withstanding the great improvement of this instrument among us, within a hundred years…. The Fine easie Ghittar, whose performance is soon gained, at least after the brushing way hath at this present over-topt the nobler lute." [91]

Example 20- Timeline of Theorists from Amat to Rameau



Alfabeto Notation

Rasgueado's chordal focus and harmonic structure can be most clearly seen through the unique notation system known as *alfabeto*, which originated from Amat's treatise. This new shorthand system for guitar players began in 1596 when Amat introduced it in his treatise "Guitarra Espanola." His notation was originally referred to as *"Catalan cifras"* (numbers) because numbers were used to represent chords and were written as roman numerals above melody line or above the lyrics. As previously stated, although similar in concept and purpose to

[90] Tyler and Sparks, 32.

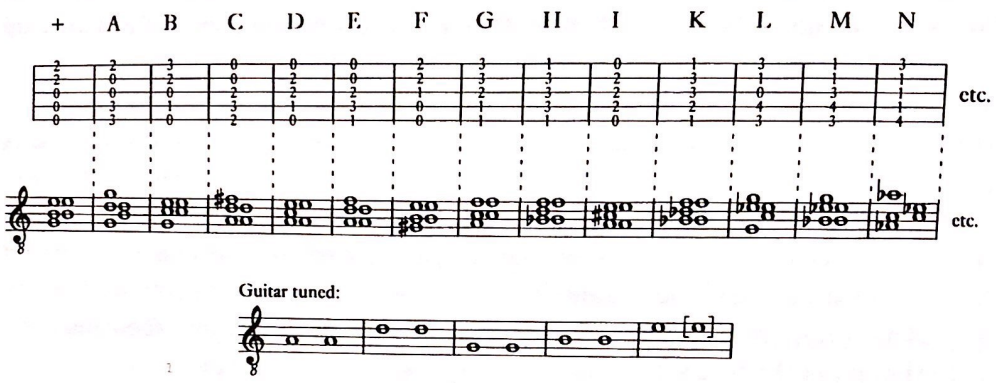
[91] Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 17.

basso continuo the two systems were very different. In basso continuo the numbers represent the intervals that were to be played above the given bass note, while in *Catalan cifras* each number represented a specific chord with a specific fingering on the frets. The notation illustrating these common guitar chords eventually moved from *Catalan cifras (*numbers) to *Alfabeto* (letters), which was introduced by Italian singer and composer Girolamo Montesardo. In 1606 the first appearance of alfabeto notation for solo guitar appeared in Montesardo's treatise titled *Nuova Inventione d'intavolatura per sonare li balletti sopra la chitarra spagniola senza maestro potra imparare*. This very elaborate and specific title translates as the "New invention of tablature for playing dances on the Spanish guitar without numbers or staff notation by means of which you can learn to play by yourself without a teacher."[92] In this book Montesardo explains alfabeto notation for the first time using Italian style lute tablature to teach the left hand chord formations and their respective letters and symbols. Amat and Montesardo's notation system share many similarities, but they also differ in some major ways. While certain chords were each assigned to a major/minor chord throughout the fingerboard like in Amat's system, Montesardo chose to order them differently. The letters in Montesardo's system did not actually correspond with the names of chords as we know them today. For example, in modern day chord charts an A would represent an A-major chord, but in alfabeto notation an A represented a G-Major chord in first inversion. The reason being that the third of the chord was the closest note to the lowest open sounding course. The letter B would then represent a C-major chord in root position, and the letter C would represent a D-major chord in second inversion, and the letter D would represent an A-minor chord in root position. The main difference between the two systems can be seen in how Montesardo chose to order his chords. In Amat's system he presented chords in order using

[92] Tyler and Sparks "The Guitar and its Music from the Renaissance to the Classical Era," 52.

a circle of fourths and fifths while Montesardo ordered the chords in what seems to be no apparent order, although some believe it he chose to order them by the frequency of their use.[93]

Example 21- Montesardo's Symbol System[94]



Because of this it would appear that Montesardo's system was actually less theoretical than that of Amat. By ordering the chords by the frequency of their use Montesardo offered a more "practical" approach rather than theoretical approach to chordal playing. This is most evident in the fact that Amat's system is evenly spaced and symmetrical, while Montesardo's is not. In Amat's number system the distance between one and two is a fourth, and the distance between three and four is a fourth etc. In Montesardo's letter system this is not the case. For example, the chord which corresponds to the "A" symbol is a G chord while the corresponding chord for the "B" symbol is a second inversion C-chord. The distance between these two chords (root to root) are a 4th apart while the distance between "B" (C-chord) and "C" (D-Chord) is only a 2nd apart. Because of this, certain musical concepts such as transposition would be much more difficult to

93 Hudson, "The "Zarabanda" and "Zarabanda Francese" in Italian Guitar Music of the Early 17th Century,"125-149.

94 Tyler and Sparks, 40.

navigate in Montesardo's alfabeto system. When transposition in the two systems are compared side by side the theoretical issues with the alfabeto system become obvious. Below is an example of the two systems transposing the same chords.

Example 22- Comparison of Montesardo and Amat's Notation

	E-major to A-major	G-major to C-major	Transposition Distance
Catalan Cifras (Amat)	1 - 2	4 - 5	+3
Alfabeto (Montesardo)	F - I	A - B	???

In the chart above I have compared the two systems side by side in transposing the two chords E-major and A-major to G-major and C-major. In Amat's system the transposition is clear if the E-major chord is labeled as chord 1 and the G-major is labeled as chord 4 then you can add 3 to all the chords in your progression to get the old progression in the new key. The transposition in Montesardo's system, on the other hand, is not as clear. In the Alfabeto system the E-major chord is labeled as "F" while the A-major chord is labeled as "I". When transposed the G-major chord is labeled "A" and the C-major chord is labeled "B". Because of this there is no mathematical or formulaic way to approach transposition in Montesardo's system. If a player would like to transpose a piece of music they would literally have to go through and change it chord by chord. The irony of this is the fact that Montesardo's *alfabeto* system was meant to be more practical. However, when applied to different musical concepts such as transposition we see that Amat's *catalan cifras* system was actually more applicable on both a theoretical and practical level. Although we have seen that Amat's *catalan cifras* system made more theoretical

and practical sense, it was soon shrouded by the growing popularity of the *alfabeto* system. The *alfabeto* system was appealing to many guitar players of the early 1600s. Although the alfabeto system could be considered as more complicated than *catalan cifras*, to the musicians of the 17th century it was considered to be revolutionary and appealing. As presented in the title of Montesardo's treatise the appeal of *alfabeto* notation came from the fact that the system presented a way for untrained musicians to learn music without the help of a teacher even if they had no previous formal instruction. The *alfabeto* system was especially appealing to untrained musicians because it made learning the guitar seem easier and more accessible.[95] Despite the fact that guitar had significantly grown in respect and status it was still an instrument that appealed to many untrained musicians which made up a significant part of the guitar community. Soon the *alfabeto* system became the new main style of chordal guitar notation. Alfabeto notation was limited however when it came to conveying rhythm. Vertical lines were placed either above or below a horizontal line to indicate upstrokes or down strokes with the right hand. In 1606 Montesardo expanded on Amat's alfabeto notation by adding a system of notating uncomplicated time values. With the addition of Montesardo's system alfabeto notation blossomed with multiple publications including the notation from 1606 until well into the 18th century.[96] Alfabeto notation is very similar to modern tablature notation. In Montesardo's notation each horizontal line represents one of the courses of the guitar. The numbers on these lines represent the fret numbers that is to be pressed. Above the tablature letters and signs are written representing the chords of Montesardo's system. When compared side by side (shown below) it is easy to see that very little has changed even after over four-hundred years.

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95 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 1-42.

96 Tyler and Sparks, "The Guitar and its Music from the Renaissance to the Classical Era," 42.

Example 23- Alfabeto and Modern Guitar Tablature[97]


```
    |---3--|  |---3--|  |---3--|  |---3--|
    E  E  E  E  E  E  E  E  E  E  E  E
E||---------5---------5---------5---------5--||
B||------5---------5---------5---------5-----||
G||--7b--------7b--------7b--------7b--------||
D||-----------------------------------------||
A||-----------------------------------------||
E||-----------------------------------------||
```

Alfabeto is also the predecessor to the chord symbol system often used in modern day chord charts. The invention of this notation was significant because it gave rasgueado players a new way to notate their new style of playing. Because this shorthand notation displayed the fret numbers to play the desired chords for a piece as well as symbols that could be easily read, it opened up the guitar to untrained musicians who could not read staff notation allowing the guitar to grow even more in popularity. The written music of the rasgueado style is significant to both the music historian and theorist because it is in the *alfabeto* transcriptions of rasgueado music that we begin to see some of the first examples of chordal music. It is in the *alfabeto* notation that we see triads and their inversions used freely as well as functional harmony that theorists would later use to formalize into musical concepts. An example of this can be seen in the way that Montesardo often composes his introductions and interludes in many of the "alfabeto keys". In 1643 florentine guitarist Antonio Carbonchi published a book by the name of "Le dodici Chitarre" which also contained parts for his pieces in each of the twelve "alfabeto keys". In fact, it seems that most guitar players of this period were expected to be able to play intros and ritornellos in a variety of "keys" when accompanying upon request. Because of this most solo guitar books included pieces written out in each of the twelve "alfabeto keys". Interestingly, the

[97] Tyler and Sparks, "The Guitar and its Music from the Renaissance to the Classical Era," 53.

twelve alfabeto keys are actually based off of the 12 chord rows of Amat's cipher. In Amat's cipher the top row consisted of the chords E, A, D, G, C, F, Bb, Eb, Ab, C#, F#, and B. As we previously saw the chord rows of Amat's cipher followed the diatonic major scale. For example, the chord row with C as Ut contained no sharps or flats, the chord row with E as ut contained four sharps, etc. Amat would then use each row to harmonize the bass line of a piece of music in order to compose or accompany. This harmonic structure generated simple progressions such as I-IV-V-I and is the same harmonic structure that is the foundation of the twelve *alfabeto* keys. The twelve alfabeto keys are E, A, D, G, C, F, Bb, Eb, Ab, C#, F#, and B the same tonal centers which Amat used in his musical cipher. Not only was Amat using the "alfabeto keys" before they gained the nickname but he also had created a whole transposition system which he used to move progressions in different "keys". All of this draws from the work of Amat in "Guitarra Española". The concept of assigning specific guitar chords to symbols that could easily be read by beginners began with Amat. Amat's treatise was published in 1596 ten years prior to the publication of Montesardo's treatise in 1606. Rasgueado music did not begin to appear in Italy until the early 1600's. Most guitar players would have been familiar with Amat's work seeing as it was the first and only instructional manual on the rasgueado technique. Given the overall popularity of Amat's treatise and the time frame at which rasgueado music begins to surface in Italy it is very likely that Montesardo drew his inspiration from Amat. Despite the many differences between Amat's *Catalan Cifras* and Montesardo's *Alfabeto* notation systems they also have some similarities. Both methods of notation represent specific chords, which are each represented by some sort of symbol. Both forms of notation are to be memorized so that even untrained guitarists could use these symbols to play chordal accompaniment at a glance.

The *alfabeto* system however, did not remain stagnant. Over the years a number of improvements to the system began to add to its already growing popularity. In 1620 Bendetto Sanseverino published "Intavolatura Facile". His book contains many of the passacaglias and other dances that can be found in most alfabeto guitar books. However, what is most notable about this work is the new additions to improve interpretation of rhythm. Sanseverino included meter signs, bar lines, note heads, stems, flags, and actual stroke signs for strumming. After alfabeto, a new form of notation surfaced that was more detailed. This new notation came to be called mixed tablature blending together Italian lute tablature and alfabeto notation. Giovanni Paolo Foscarni is believed to have been the first to debut the idea in 1630 with his publication titled "*Il primo, secondo, e terzo, libro della chitarra spagnola"*. Within his publication there were various books. Book 1 was made up entirely by alfabeto solo pieces. In book 2 we see the first pieces that have been found to be in mixed tablature. The pieces contained in this section include various dance forms that are common to rasgueado. However, what sets this new notation apart is the fact that it could display single note lines, strummed chords, and rhythm all at once. In book 5 Foscarni includes four pages, which are dedicated to teaching figured bass in mixed tablature. According to James Tyler and Paul Sparks Foscarni is "the first serious attempt at continuo instruction for the guitar."[98] Foscarini was also known for not having the typical I-IV-V-I introductions for his passacaglias, but instead making use of dissonance, scale passages, and unexpected harmonies.

Angelo Bartolotti

In 1640 after Foscarini's book on mixed tablature a Bolognese guitarist by the name of Angelo Michele Bartolotti published "*Libro primo di chitarra spagnola*." Bartolotti's book was

[98] Tyler and Sparks, "The Guitar and its Music from the Renaissance to the Classical Era," 63.

unlike any other previous guitar book due to the sheer artistic skill and creativity of his arrangements. Bartolotti's book was a set of passacaglias written in mixed tablature where each piece ends in a key that becomes the start of the next one. When played from start to finish the set moves through multiple keys and is comparable to Bach's "Well Tempered Clavier" although it would not be published until eight decades later. After his set of *passacaglias* Bartolotti includes a series of variations on the *ciaccona* and six suites in various keys of the *allemande*, *corrente*, *sarabanda*, and *folia*. Bartolotti published a second book (*Libro Secondo*) which includes one of the most in depth explanations of guitar technique up to this point. His book includes explanations both in word and tablature about techniques such as arpeggios, chords, trills, mordents, and appoggiaturas.[99]

Moveable chords

A modified *alfabeto* system was eventually also used to display chords that shared the same fingering. This modified version of the *alfabeto* system originated in 1698 by a man by the name of Foriano Pico who wrote a treatise titled "Nuova Scelta di Sonate per la Chitarra Spagnola". It is in this treatise where Pico introduced a new system for notating moveable chords. This would be a similar system to what modern guitar players would call "moveable chord shapes" where the same fingering is used to play multiple different chords. Moveable chord shapes are one of the most unique advantages of stringed instruments such as the guitar because players can play multiple chords with a single chord shape. This type of playing lends itself well for talking about and applying music theory in a way that Amat's system did not. When using a moveable chord shape the identity of a single fingering is no longer confined to a single chord. Instead, the fingering can be seen as a certain spelling for example a major chord

[99] Hudson, "The Concept of Mode in Italian Guitar Music during the First Half of the 17th Century," 163-83.

spelled root, third, fifth can be moved up and down the fret-board to spell a number of major chords with the same spelling. To put this in perspective if the original chord shape has the 3rd of the chord played with the index finger than even when that same shape is moved to play another chord the 3rd would still be played with the same finger. In Pico's system numbers are placed beside the letters to indicate which fret the chord shape was to be played. For example, a chord notated as H indicates a Bb-major chord that is played on the first fret, but a chord notated as H5 was the same fingering but played on the 5th fret creating a D-major chord. This new system was useful in that it offered an alternative to memorizing the entire alfabeto system because the chord H2 in Pico's system could be used to represent the same chord as the letter R in Montesardo's system. Unfortunately while Pico's treatise seemed to be popular during its time either very little physical manuscripts of his works have survived or there is still much to be found. Because of this reason very little else is known about him, his modified *alfabeto* system, or his other works.

The height of *alfabeto* notation occurred during the first half of the 17th century. Alfabeto notation was so popular that the total number of manuscripts and printed books from the seventeenth century that have been preserved in the libraries throughout Europe, U.S, and Mexico is significantly greater than the number for either lute or keyboard.[100] From Italy alone one hundred and eighty printed and manuscript collections of solo music for the five-course guitar survived. In addition to this over 250 sources of Italian vocal music with alfabeto accompaniment have also survived.[101] While all alfabeto solo guitar books contain the same repertoire of dances and passacaglias they are unique due to the different arrangements, embellishments and the variety of keys they are written in. Over the course of the century as it

[100] Tyler and Sparks, "The Guitar and its Music from the Renaissance to the Classical Era," 94.
[101] Tyler and Sparks, 93.

grew in popularity it also grew in sophistication. The last original publication of a guitar solo book in the 17th century was by Sicilian guitarist and priest Antonio di Micheli titled "La Nuova Chittarra". His book shows just how far the notation and the music itself had come by including instructions on tuning, movable chords, transposition, cadences, scales, reading of a bass line, and even continuo practice. Reprints and updated editions of solo guitar books such as these continued to be published even up through 1737.[102] Unfortunately, although a great number of these publications have survived, they are still understudied by scholars so little is known about many of them. However, based on what we do know it is easy to see that there is a rich history in the rasgueado style that shows early indications of the development of major/minor tonality. Alfabeto notation was the most popular form of notating rasgueado music, because of this it is in alfabeto guitar books that we can see their music theory as it was applied to performance and vice versa.

Conclusion

Although modern terminology was not available to musicians of this time period, we are nonetheless able to recognize the use of many aspects of functional harmony in their theories. Amat's use of the major and minor keys, as well as diatonic scale degree based harmonization of bass lines, shows early signs of functional chord movement. Thomas Christensen agrees with this when he states,

> Of course, such functional terminology was not part of any 17th-century vocabulary; nevertheless, I believe it is reasonable to use functional designations in this case, as there is evidence that guitarists of the time did indeed think of chords in a functional way, i.e., as belonging to diatonic scale steps of major and minor keys. [103]

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[102] Tyler and Sparks, "The Guitar and its Music from the Renaissance to the Classical Era," 97.

[103] Christensen, *The Cambridge History of Western Music Theory*, 3.

By looking through the lens of modern music, we can see the beginning of functional harmony and how progressive rasgueado was compared to other music from the same time period. Even major theorists of the 17th century such as Burmeister, Harnisch, and Lippius, who were pioneers of triadic theory, still considered triads as only being subordinate to intervallic and contrapuntal movement.[104] Amat, on the other hand, emphasized root movement of the bass-line for arranging music. Music of this time period was also predominantly modal because major/minor keys had not been conceptualized. However, Amat uses the twelve major and minor scales. Throughout the rasgueado repertoire, we see the two "guitar modes" emerge as the building blocks that would spark an "evolutionary change" from modality to tonality.[105] In fact, by 1640, it was difficult to differentiate what system was in effect, because the guitar modes had already begun to "dissolve" into major/minor tonality.[106] The fact that Amat was writing and playing music that moved functionally as if it were within the context of a key, prior to the actual conceptualization of tonality is astounding, especially considering the fact that guitar was the only instrument at the time with music like this. Because rasgueado popularized the guitar in multiple countries, it is safe to say that the music of the guitar became a building block that theorists would analyze and later use to develop the concepts of tonality and tonal chordal movement, offering new possibilities in playing and thinking about music.

The guitar has a rich history and influence on the baroque period and how musicians of that time period viewed tonality, harmony, and triads. The physical attributes of the guitar forced players to think more in chords rather than intervals. Amat's "Guitarra Española" was the first instructional manual on rasgueado. In his work, Amat explains and even demonstrates an

104 Christensen, 3.

105 Hudson, "The Concept of Mode in Italian Guitar Music during the First Half of the 17th Century," 163-83.

106 Hudson, "The "Zarabanda" and "Zarabanda Francese" in Italian Guitar Music of the Early 17th Century," 125-149.

understanding of triadic theory and inversional equivalence 12 years prior to the conception of the terms. Although he did not use the term triad, he does explain the idea that chords were made up of various arrangements of three different "voices." Amat's terminology may have been different, but his understanding of chords strongly resembles Rameau. Amat referred to the three "voices" of the chord as bass, alto, and treble, while Rameau referred to them as root, third, and fifth. Christensen's statement that "much of the implicit theory we have observed in 17th century guitar practice points the way to theoretical formulations that would become explicitly articulated in the 18tth century," is supported by the fact that Amat's understanding of chords as being identified by its root precedes Rameau's generative fundamental theory by over a century.[107] In addition, Amat explains the methods of rasgueado accompaniment as if it were in the context of major/minor keys, even though modes were still the prominent means of structuring pitches. This shift away from the church modes and towards major minor/tonality helped lay the foundation for other theorists, such as Heinichen, Campion, and Rameau to expand on these topics. The pedagogical tools that Amat invented, such as his musical circle, cipher, and transposition table, are important landmarks in the history of music theory. Amat's musical circle was the first of its kind and was adopted by theorists after him, such as Velasco, Penna, Heinichen, and Rameau. His musical circle can be traced through history to Heinichen's circle of fifths, revealing that Amat's circle is the earliest ancestor of the circle of fifths. His cipher displayed the twelve major keys as well as early concepts of scale degree based functional harmony. By assigning numbers to each of the twelve major and minor chords, Amat was able to easily transpose chord progressions into all twelve of the major and minor keys. Furthermore, the publications of guitar tutors, who were both directly and indirectly influenced by the work of

107 Christensen, "The Spanish Baroque Guitar and Seventeenth-Century Triadic Theory," 33.

Amat, made large strides in the field of triadic theory and tonality. Amat's work influenced theorists such as Lippius, who formalized the term triad. Amat also influenced Francois Campion, who canonized the harmonization of major and melodic minor scales and went on to influence the work of Rameau. Amat was responsible for creating a new form of shorthand notation that gave untrained musicians a way to read and notate music and aided in the popularization of the guitar. His musical cipher helped both trained and untrained guitarists arrange, accompany, and transpose music. Throughout history, the guitar has been an instrument that has appealed to all social classes. Its popularity can largely be attributed to the work of guitar tutors such as Amat, who presented the pedagogical tools, notation, and compositional methods and in a way that made guitar accessible to everyone. Amat is worthy of further study by both music theorists and historians for his contributions to the overarching narrative of music theory and for marking a definitive shift towards tertian harmony and major/minor tonality.

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