

INTRODUCTION

Giacomo Puccini's *Turandot* "holds a remarkable position in the history of artistic genres"¹ because it represents not only the composer's last work but also the culminating point of the Golden Century of Italian Opera.² If this is not enough to make this work a point of inflection in the operatic genre there is another aspect that makes this opera an object of constant interest for scholars: *Turandot* is Puccini's unfinished opera.

At the time of his death Puccini was only able to complete up to the middle of Act III, right after Liù's death.³ The remaining of the opera, as we know it today, was completed by Italian composer Franco Alfano after a committee chose him to finish the work.⁴ After a difficult time dealing with so many pressures from members of this committee, especially from the conductor chosen for the première, Arturo Toscanini, Alfano finished the opera and *Turandot* was finally premièred at La Scala, in April 25, 1926. However interesting might be a study on Alfano's ending and the difficulties he

¹ William Ashbrook and Harold Powers, *Puccini's "Turandot."* *The End of the Great Tradition*, Princeton Studies in Opera (Princeton: Princeton University Press, 1991), 3.

² Paraphrasing William Weaver's work on Italian Opera where he identifies Puccini's *Turandot* as the last Italian opera of the Great Tradition. William Weaver, *The Golden Century of Italian Opera: From Rossini to Puccini* (London and New York: Thames and Hudson, 1980), 242.

³ For this study I am using the orchestral score. See Giacomo Puccini, *Turandot. Dramma lirico in tre atti e cinque quadri* (Milan: G. Ricordi, 1926).

⁴ Members of this committee were Italian conductor Arturo Toscanini, librettist Giuseppe Adami, Casa Ricordi's co-directors Carlo Clausetti and Renzo Valcarengi, Tito Ricordi, the firm's former director, and Antonio Puccini, the composer's son. For a detailed account on these events see Linda B. Fairtile, "Duetto a tre: Franco Alfano's Completion of *Turandot*," *Cambridge Opera Journal* 16/2 (July, 2004): 163-185.

underwent when working on this work, the topic of this study will solely concentrate on Puccini's work completed until his death.⁵

⁵ Interesting studies discussing Alfano's ending are: Fairtile, "Duetto a tre," and Janet Maguire, "Puccini's Version of the Duet and Final Scene of *Turandot*," *The Musical Quarterly* 1/3 (1990): 319-359.

In their study on Puccini's *La bohème* Arthur Groos and Roger Parker present Puccini "as a composer half-way house between Verdi and Wagner, a composer rooted in the Italian tradition of vocal melody but strongly influenced by Germanic practice in a number of respects: the use of the orchestra as a binding force over long stretches of music, the consistent association of characters with motifs or themes, and the development of a more chromatic palette when required by the needs of the drama."⁶ It is this "development of a more chromatic palette," that is crucial in this study because in *Turandot*, more than in any other opera, Puccini's harmonic language becomes adventurous and extremely complex, conditioned by the oriental exoticism of the libretto.⁷

The purpose of this thesis is to provide a cogent analysis of the large-scale harmonic structure that holds together the apparent disparity between the different harmonic levels used in *Turandot*. In order to accomplish it, this thesis employs an analysis based on tritone symmetries to explain Puccini's diatonic language (heavily influenced in this work by Richard Wagner, Richard Strauss, and Claude Debussy, as well as the modernist movement in general).

⁶ Arthur Groos and Roger Parker, *Giacomo Puccini: 'La bohème,'* Cambridge Opera Handbooks (Cambridge: Cambridge University Press, 1986), 86.

⁷ One of the first studies on the exoticism in Puccini's music is Mosco Carner, "The Exotic Element in Puccini," *The Musical Quarterly* 22/1 (January, 1936): 45-67.

The first three chapters discuss the methodological approach followed in this study. Chapter 1 is a survey of the *status quo* of the different analytical approaches to opera followed by a description of the different musical elements of this opera and the need for a suitable theory that explains them. In the following chapter, I provide a comprehensive analytical theory based on a symmetrical division of the octave into minor thirds, which I firmly believe explains the large-scale structure of the opera.⁸ Chapter 3 gives an overview of how to apply this theory to the analysis of the different acts of the opera. Finally, chapters 4 through 6 contain the core of this thesis: a detailed analysis of the harmonic events of the opera and how they are controlled by a more or less systematic musical structure based on tritone symmetries.

As explained before, my analysis of the opera covers up to Liù's death, which corresponds to the portion of the opera finished by Puccini. Any further analysis would be mere speculation as to what Puccini "might have done," as opposed to what Puccini actually did accomplish. Therefore, the inclusion of Alfano's ending or even Luciano Berio's ending in this study, which is the most recent completion of the work, would clash against the original purpose of this thesis: Puccini's large-scale harmonic structure based on a symmetrical division of the octave⁹

⁸ The theory used for this analysis represents the study of my thesis advisor Henry Burnett, and represents a comprehensive analytical tool not only useful for opera but for any musical genre from the sixteenth-century to the early twentieth century. This theory is presented in: Henry Burnett, and Roy Nitzberg, *Composition, Chromaticism, and the Developmental Process. A New Theory of Tonality* (Aldershot: Ashgate 2007).

⁹ Apart from Alfano's ending, which has been discussed earlier, Luciano Berio provided with an ending for Puccini's *Turandot*, commissioned by the Festival de Música de Gran Canarias and

CHAPTER 1: A NEW PERSPECTIVE

In his article “Puccini’s *Tosca*: A New Point of View” Allan W. Atlas argues against the general tendency of critics who depict Puccini as a more emotional than rational composer, that in this opera Puccini “developed a calculated and logical tonal plan” based on the opposition of the main characters, Scarpia and Tosca/Cavaradossi and the qualities associated with them.¹⁰ In order to support his point, Atlas gives a detailed explanation of the main key areas used by these characters derived from the two whole-tone scales on C and C#. Moreover, he distinguishes these scales by their main tritones, and sets Scarpia’s tritone (Bb-E) against Cavaradossi’s tritone (B-F) as the main source for the harmonic conflict of the opera. He maintains that the individual pitch classes of the two whole-tone scales are the main source from which Puccini assigns the harmonic areas to these opposing characters.¹¹

In another study on *Butterfly*, Atlas goes even further and assigns “to each of two keys, Gb major and A major, one pair of contradictory semantic associations for Pinkerton, and another—with keys and meanings now reversed—for Butterfly.”¹² Although the present study does not deal with the validity of Atlas’s studies on Puccini’s operas, it takes as its starting point the new analytical perspective that Atlas has given to the complex task of analyzing Puccini’s operas.

¹⁰ Allan W. Atlas, “Puccini’s *Tosca*: A New Point of View”, in *Studies in the History of Music. Volume 3: The Creative Process* (New York: Broude Brothers Limited, 1992), 248.

¹¹ See Atlas, “Puccini’s *Tosca*,” 247-273.

¹² Allan W Atlas, “Crossed Stars and Crossed Tonal Areas in Puccini’s *Madama Butterfly*,” *19th-Century Music* 14/2 (Autumn, 1992): 185-186.

As the title of the previously mentioned article states and as Atlas also points out in his conclusion for the same, studies on Puccini's operas need a new point of view: an "unbiased" reevaluation, in which our prejudices about what to look for and the analytical tool used have to be freed from the current conventions.¹³ In this light, the present study presents a new approach to Puccini's *Turandot* revealing a large-scale harmonic plan that holds together its seeming disparity, and chaotic harmonic language.

In the most comprehensive study on *Turandot* to date, William Ashbrook and Harold Powers give a detailed description of the opera from every possible point of view.¹⁴ In chapters IV and V, *The Four Colors* and *The Two Duets* respectively, they give a thorough description of the harmonic language of the opera with a special emphasis on the description of the four colors or *tinte* used by Puccini. They even point out that the exoticism found in this opera has a deeper structural significance than the one in *Butterfly*: "In *Turandot*, far more than in any of Puccini's other operas, *tinta* is structural: it emerges from a web of interlocking resemblances and contrasts based on tempo or pacing, on instrumental and /or harmonic color, on melodic or rhythmic *topoi* and types, on the texture of accompaniment patterns, and so on."¹⁵ It is in the harmonic aspect that Ashbrook and Powers' study misses the points of connection that generate the large-scale tonal plan underneath all the complexity; they describe *tinta* as structural but they do not go one step further and find the background structure that holds the harmonic events of the opera together.

¹³ Atlas's controversial analyses on Puccini's operas, especially the one on *Butterfly*, have been challenged by Roger Parker in his article "A Key for Chi? Tonal Areas in Puccini," *19th-Century Music* 15/3 (Spring, 1992): 229-234. In spite of its controversy, there is no doubt that the new analytical perspective Atlas opened up with his studies should be explored.

¹⁴ See footnote 1, Ashbrook and Powers, *Puccini's "Turandot."*

¹⁵ Ashbrook and Powers, *Puccini's "Turandot,"* 94.

In a discussion on the various approaches to the study of nineteenth-century opera, James Webster particularly focuses on the difficulties one faces in analyzing Verdi and Wagner's operas.¹⁶ In his study, Webster states that "operatic form is not to be understood as 'organic' or 'unitary,' but as something which arises (if at all) in complex and often *mysterious ways* from patternings in numerous musical and dramatic domains" (emphasis mine).¹⁷ In this aspect, Webster's study coincides with Ashbrook and Powers's point that opera is based on "coherence" rather than on "unity." A few paragraphs later he asserts that "our intuitive experience of, say, *Otello* or *Tristan* is multidimensional and repeatedly satisfying—in a word, coherent. Hence there must be something congruent with or analogous to that coherence 'in' or 'about' the opera, comparable to whatever it is 'in' the *Jupiter* Symphony that corresponds to our coherent experience of it."¹⁸

In this comparison Webster addresses an interesting point: in the same way that we experience a symphonic work as understandable by purely musical means, we understand opera as a multidimensional experience where drama and music are intrinsically related. It is in a previous paragraph in the same article that he points out the core of the problem and gives a practical example of his understanding of the term "coherence": "A work can "compose out" some fundamental musical idea—a common one is the search for the major mode as the resolution or transformation of a troubled or threatening minor-mode state of being, as in Haydn's Farewell Symphony and Beethoven's Fifth and Ninth—and one can in some sense understand and account for

¹⁶ James Webster, "To Understand Verdi and Wagner We Must Understand Mozart," *19th-Century Music* 11 (1987): 176-77.

¹⁷ Webster, "Verdi and Wagner," 176-77.

such a work even in the absence of any demonstration of "motivic unity" or Schenkerian background tonal structure."¹⁹

¹⁸ Ibid., 179.

¹⁹ Ibid., 179.

When Webster refers to the composing out of a musical idea that permeates an entire work, he is referring to the intrinsic relationships that hold together a musical work and make it comprehensible. If that is possible and necessary for any instrumental work, why should it not be feasible and needed, up to a point, for any opera? This study goes one step further and proves that even though an opera employs a libretto with its own dramatic action, this fact does not cancel the possibility of musical development in a similar way than in a purely musical work; on the other hand, the working out of a musical idea can enhance the dramatic development of an opera, creating a multilevel structure so typical of the Wagnerian and post-Wagnerian operas.²⁰

In the chapter devoted to the “Dissonance” *tinta*, Ashbrook and Powers explain the presence of the unprepared and unresolved augmented fourth, the “tritone,” as an “outgrowth of the nineteenth-century convention of representing mystery and/or terror” and they provide musical examples from other operas such as *Der Freischütz*, *Siegfried* and even *Tosca*, where the “diabolus in musica” is used to depict fear and/or terror.²¹ Coincidentally, the example they use from *Tosca*, which is the “Scarpia motive” that opens Puccini’s opera, is the same example that Atlas’s study uses to prove the “semantic association” of the two whole-tone scales with the opposing characters of the opera.

²⁰ Explaining harmonic coherence and unity within Richard Strauss’ *Elektra*, Arnold Whittall asserts that “it was nevertheless inevitable, in post-Wagnerian German music drama, that some degree of broad tonal planning would be part of the compositional process. (...) It is not simply that in opera some themes and characters seem to belong to one key-area rather than another—alternatives would always be plausible—but that in the interests of balance as well as coherence, variety as well as unity, the harmonic flow should be controlled by the careful organization of local and larger-scale relationships.” Arnold Whittall, “Dramatic structure and tonal organization,” in *Richard Strauss: “Elektra,”* edited by Derrick Puffett, 55-73 (Cambridge: Cambridge University Press, 1989), 58.

²¹ Ashbrook and Powers, *Puccini’s “Turandot,”* 100.

Even though the topic of this study does not deal with the validity of Atlas's conclusions it is very plausible that middleground, and/or foreground events would be projected into the background as part of a much larger developmental process. Although this analytical method is usually associated with instrumental music, or at least music divorced from the *parola scenica*; there is an aspect of it that the defenders of 'anti-organicism' or 'anti-unity' fail to realize: the possibility that musical development operates at the same time as dramatic development, understanding by musical development the acceptance of a harmonic plan that works out a specific tonal, harmonic, and/or motivic conflict.²²

²² In his article on Verdi's *Il trovatore*, Pierluigi Petrobelli identifies the influence that Shakespeare's *Macbeth* had on Verdi's musical associations throughout the musical-dramatic development of an opera. See Pierluigi Petrobelli, "Towards and Explanation of the Dramatic Structure of *Il Trovatore*," translated by William Drabkin, *Music Analysis* 1/2 (July, 1982): 129-141.

Returning to Ashbrook and Powers' chapter on the "Dissonance" *tinta* of *Turandot*, they show how in a passage in the *tempo di mezzo* (III.C.3)²³ of Act III, Liù's torture and death, "the interval F#-c' dominates the whole passage."²⁴ At this point in the opera, Liù and Timur have been arrested and presented before Turandot because of their connection with the unknown Prince, Calàf. The soldiers interrogate Liù unsuccessfully about the name of the Prince, and the excited crowd calls for the Executioner ("Il boia!"). At Ping's words "Sia messa, alla tortura!" ("Let her be tortured") the *tempo di mezzo* breaks off and the tritone F#-C takes over the music. In this respect, Ashbrook and Powers' dramatic and musical interpretation of the F#-C tritone associated with cruelty, explains also the association of F# minor with cruelty; in order to prove their point they provide several illustrations, for example, the tonality of the opening number (I.A.0), and Turandot's *aria di sortita* "In questa reggia" (II.D.3). They provide other instances where the "diabolus in musica" appears associated with the mystery and/or terror of Turandot's reign, for example the music accompanying the ghosts of Turandot's executed suitors in Act I (I.C.3).²⁵

²³ This study uses Ashbrook and Powers' subdivision of the opera in numbers. The abbreviation rh means rehearsal number; the Roman numeral refers to the respective act in any Ricordi score, and the Arabic number provides the specific rehearsal number. The sign + expresses the number of measures after it, starting to count from the rehearsal number. The capital letters "denote major musico-dramatic "numbers", as well as expositions, and conclusions." See Ashbrook and Powers, *Puccini's "Turandot,"* 15.

²⁴ Ashbrook and Powers, *Puccini's "Turandot,"* 101.

²⁵ The association of the tritone (also the diminished chord) with cruelty and mystery is also supported by Luigi Dallapiccola. In his study on nineteenth-century opera, Dallapiccola asserts the following: "It is sufficient to point out that shock, terror, surprise, abduction, execration, and sometimes even desperate invocations are underlined by the diminished seventh chord." Luigi Dallapiccola, "Words and Music in Italian Nineteenth-Century Opera," translated by Alvary E. Grazebrook, in *The Verdi Companion*, edited by William Weaver and Martin Chusid, 193-215 (London: Faber, 1979), 198.

The important step that Ashbrook and Powers miss refers to the fact that Turandot does not change her heart until almost the very end of the opera; therefore the mystery and terror (in musical terms, the F#-C tritone) surrounds her over the course of the whole opera and not just in isolated instances. If this tritone represents her cruelty and is present for most of the opera, why not use the interval that represents these qualities throughout the whole opera as an element of the background harmonic structure that holds the opera together? It does not mean that there is a background key for the whole opera neither is there an opposition of harmonic areas derived from the two whole-tone scales.²⁶ Instead, this study considers that the symmetrical division of the octave, that is one of the tritone's properties, governs a whole array of harmonic events and generates a series of harmonic conflicts that support the dramatic action until they are resolved, albeit, as several authors point out, in a not very convincing way, owing to Puccini's untimely death.²⁷

As a successful analytical tool that helps to understand the tritone as an octave divider instead of as "colourfully fleshed-out diatonicism", this study will use Henry Burnett's "missing pitch theory" that sustains, among other postulates, that there are "eleven-pitch-class systems constructed around a 'system-consonant' tritone, meaning that tritone which divides the root or tonic octave at its midpoint."²⁸ The articulation of the "system-consonant" tritone defines the eleven-pitch-class system, so it could be

²⁶ Among the studies that try to unify an opera within a background key see Edward T. Cone, "On the Road to *Otello*: Tonality and Structure in *Simon Boccanegra*," in *Studi verdiani* 1 (1982): 72-98; on the other hand, for studies that derived the harmonic areas from two whole-tone scales see Atlas, "Puccini's *Tosca*" (see footnote 10).

²⁷ Ashbrook and Powers also give an explanation about Puccini's incapability to complete the opera based on Turandot's unsatisfactory change of heart and the excessive importance given to a secondary character such as Liù. See Ashbrook and Powers, *Puccini's "Turandot,"* 131-140.

considered as a tritone system generator. In this particular case, the tritone C-F# is the system consonant tritone of the “0” or C system, where C is the root of the system.²⁹ The eleven-pitch-class theory gives a broader spectrum of tonal possibilities within a given system, which is not to be confused with a key, but at the same time holds all the keys of that system within the same harmonic orbit. By these means it becomes possible to unveil *Turandot*’s harmonic plan, dominated by a pervasive use of tritone systems. Another aspect of the eleven-pitch-class theory that helps to articulate *Turandot*’s harmonic plan is the concept of development.

²⁸ Burnett and Nitzberg, *Composition*, 16.

²⁹ “0” or C system refers to the same system.

In spite of the narrow definition of development generally employed, the one that limits the developmental process to “the manipulation of motives and limit(s) the term to the music specifically of the high Classical and Romantic periods,”³⁰ we support Burnett and Nitzberg’s idea that “throughout music history, composers were always sensitive to a developmental process that concentrated on working out *specific diatonic and chromatic pitch-class relationships that encompassed entire movements, if not entire compositions*, and which resulted in a narration of carefully controlled events that guided the listener from one end of the composition to the other”(emphasis mine).³¹ In this opera there is a pervasive use of pitch F# as sonority, similar to Pierluigi Petrobelli’s use of the term *sonorità* as “a specific pitch prolonged by various means of articulation, and considered independently of any harmonic function it may imply as a result of being heard in a particular context.”³²

Puccini prolongs F# as a sonority throughout the whole opera by means of enharmonicism (Gb), embedding it as an inner voice as part of a harmony, or being the root of its own key (F# both major and minor), and also as part of a dyad conflict with F natural (a pitch that will also be prolonged), a relationship that will be worked out on a large scale. Examples 1a and 1b provide the different harmonies that prolong F# and F natural, respectively.

³⁰ Burnett and Nitzberg, *Composition*, 3.

³¹ *Ibid.*, 3.

³² Petrobelli, “Dramatic structure of *Il trovatore*,” 132.

Special attention will be focused on the prolongation of F# in the first act, the juxtaposition with F natural on the second act, and how this conflict is worked out in the third act until Liù's death (see example 2).

The development of this chromatic relationship, or dyad conflict, is “itself an element of dramatic articulation, an ideal instrument of pure theatre”³³ supported by the dramatic action, which does not deny its musical coherence and harmonic architecture. The use of a dyad conflict or motive as the originator of the harmonic events of an opera is not a new device. Carolyn Abbate shows how the dyad conflict, F#/ F natural, is worked out in Claude Debussy's *Pelléas et Mélisande*, where this dyad conflict is also supported by specific harmonies.³⁴ One of the most remarkable studies that deals

³³ Ibid., 132

³⁴ Carolyn Abbate, “*Tristan* in the Composition of *Pelléas*,” *19th-Century Music*, 5/2 (Autumn, 1981): 117-141. Moreover, she identifies F# with Mélisande as the “tonal focus”: “F# major was fixed as standing for Mélisande, both as a character in the drama and as Pelléas sees her, the corporealization

with a dyad conflict controlling the harmonic events of an opera is Patrick McCreless's study of *Parsifal*; in this study, McCreless presents a complete analysis of how the diatonic half-step E-F controls the different musical levels as well as the symbolic meaning behind this motive.³⁵

of his ideal of beauty. F minor, on the other hand, was being manipulated as a contrasting key, as attested to by its sudden and unprepared appearance at the catastrophe which closes the scene." Abbate, "*Tristan in the Composition of Pelléas*," 132.

³⁵ Patrick McCreless, "Motive and Magic: A Referential Dyad in *Parsifal*," *Music Analysis* 9/3 (October, 1990): 227-265.

The articulation of the dyad conflict as part of a harmony is similar to Pierluigi Petrobelli's definition of *sonorità*, when he asserts that in order to be complete (“completa”) a *sonorità* has to be articulated as part of a tonal articulation.³⁶ Although the working out of the F#/F natural dyad conflict in *Turandot* does not correspond to Petrobelli's definition of *sonorità*, the tonal articulation represents a common point between the dyad conflict and the *sonorità* that stresses the importance of matching the architectonic musical structure with the dramatic development. In his study of *Simon Boccanegra*, Edward T. Cone emphasizes the contribution that musical structure should provide to the dramatic coherence.³⁷ According to him, “opera-composers have always known this, but whereas some have been content with a sense of progression extending over a few numbers at most, other have successfully sought the control the course of an entire music-drama—or series of music-dramas! Obviously, when the arrival of a tonic represents the confirmation or return of an original condition of stability, or the establishment of one long awaited, the effect is more powerful than when it is an event of merely local significance.”³⁸

This study does not aim to prove that Puccini's *Turandot* prolongs one key or is in one key; on the contrary, its main purpose is to explain how a series of recurrent tonal centers and harmonic progressions belong to a much deeper background structure governed by a tritone system, itself generated by an even deeper level matrix of complementary tritone systems that hold together the elements of the opera supporting

³⁶ “Una sonorità riceve la definizione più completa se diviene tonalità, se di essa cioè viene esplicitamente specificata l'articolazione tonale.” See Petrobelli, “Dramatic Structure of *Il trovatore*,” 394.

³⁷ Cone, “On the Road to *Otello*,” 73.

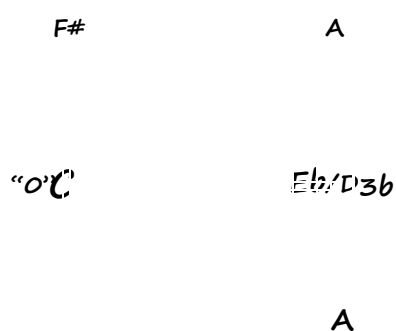
³⁸ *Ibid.*, 73.

the dramatic action. An understanding of how these systems operate and how they generate harmonic areas and dyad conflicts will deepen our understanding of how they control the harmonic events of this opera.

CHAPTER 2: AN APPROPRIATE ANALYTICAL THEORY

The musical features of *Turandot* encompass an intricate harmonic network that projects at different levels. The most prominent harmonic element in this opera is the tritone, especially what is called the “system generator tritone” C-F#. The combination of this tritone (which defines the “0” or C system)³⁹ with its complementary tritone Eb-A (which activates the “0” system) creates the matrix of minor 3rds with C as its root: C-Eb-F#-A (see figure 1).⁴⁰

Figure 1. “0” system of symmetrical axes.⁴¹



³⁹ From now on and for the sake of simplicity, I will only use the term “0” system instead of C system.

⁴⁰ See postulate 3 of the eleven-pitch class theory on Burnett, and Nitzberg, *Composition*, 11.

⁴¹ *Ibid.*, 24.

These tritones work at the deepest structural level controlling the harmonic events of any given system. As explained before by “system” we mean “an eleven-pitch-class field or gamut from which harmonic areas are derived.”⁴² For example, the “0” system, with C as its root, allows the use of eleven-pitch classes without modulating to another system. One of the harmonic properties of the “0” system is that it can support a harmonic spectrum of all the harmonic areas provided by the chromatic array except the ones where its missing pitches appear, therefore creating an expanded definition of tonality. As Burnett and Nitzberg point out, in order to determine the ordering of these harmonic areas we have to trace tonality back to its origins: the medieval gamut of overlapping hexachords.

In their effort to explain tonality as the next step from the medieval gamut, Burnett and Nitzberg prove that the key of C major evolved from the *C naturalis* gamut, just as G major evolved from the *G durus* gamut and F major from the *F mollis* gamut. Furthermore, throughout the sixteenth and seventeenth centuries the C hexachord, which is the central hexachord of the *naturalis* gamut, reordered in fifths, provided “most, if not all, of the harmonic motions within a single composition.”⁴³ Therefore, in the transition from modality to tonality, the central hexachord, now supporting a “key,” still gave a hierarchical order to its harmonic areas.⁴⁴ Diagram 1 illustrates the C major hexachord (“0” system) reordered in fifths as follows.

Diagram 1. “0”-system central hexachord.

D#

⁴² Ibid., 33.

⁴³ Burnett and Nitzberg, *Composition*, 34.

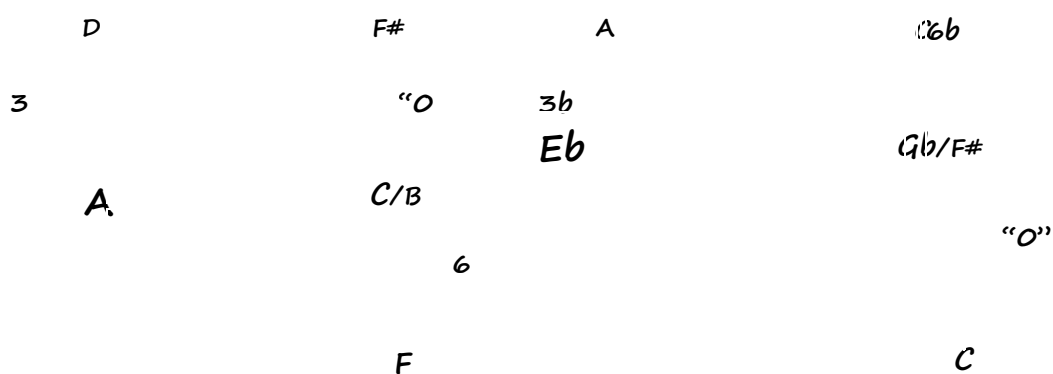
⁴⁴ These properties also apply to all the systems but the “0” system serves as example and also

Bb	/	F-	C-	G-	d-	a-	e		b	B
bVII	/	IV	I	V	ii	vi	iii		vii ^o	V/iii

As Burnett and Nitzberg explain “the reordering shows” that “primary harmonies in C major are located at the beginning of the reordered hexachord, and these are the ones most likely to be tonicized as harmonic areas closest to the prolonged tonic: C initiates the composition and G is the first goal away,”⁴⁵ therefore for each system there is a particular hierarchy determined by its central hexachord.⁴⁶ The only harmonic areas that are not supported by any given system, in this case the “0” system, are the ones that employ pitch 3 (Eb/D# in the “0” system).

As shown in diagram 1, the double bars separate “tones outside the main hexachord” (in this case the next fifth up from E, B) that “cannot function as a goal in its own right unless the entire system is transposed.”⁴⁷ Whenever one of these pitches appears there is a modulation to a complementary system: if the Eb is introduced the “0” system modulates to a 3b system whose pitch or tonal center is Eb; on the other hand, if D# is introduced the modulation moves from the “0” system to the 3# system, where A is the tonal center (see figure 2).

Figure 2. 3# and 3b systems.



⁴⁵ Ibid., 34.

⁴⁶ Postulate 4 stresses the importance of the central hexachord, Burnett, and Nitzberg, *Composition*, 11.

⁴⁷ Ibid., 34.

3# system**3b system**

Both complementary systems are a minor third apart from the “0” system, a minor third relation that emphasizes the symmetrical partition of the octave, “a procedure alien to tonality” that “undermines functional tonality.”⁴⁸ These complementary systems have their system tritones: Eb-A for the 3b system and A-D# for the 3# system; in relationship to the system tritone of the “0” system these tritones are called complementary system tritones because they divide the “0” system tritone at its midpoint creating a diminished chord: C-Eb-F#-A also spelled as C-D#F#-A, which represents the “0” or C matrix.⁴⁹ Each of these systems (the 3# and 3b systems) support all the harmonic areas except the ones where their missing pitches appear; the introduction of a missing pitch makes these systems modulate to their complementary systems (6# and “0” systems, and 6b and “0” systems respectively). The interaction of all these complementary systems creates the C matrix presented in figure 3 that expresses all the possible relationships between their systems.

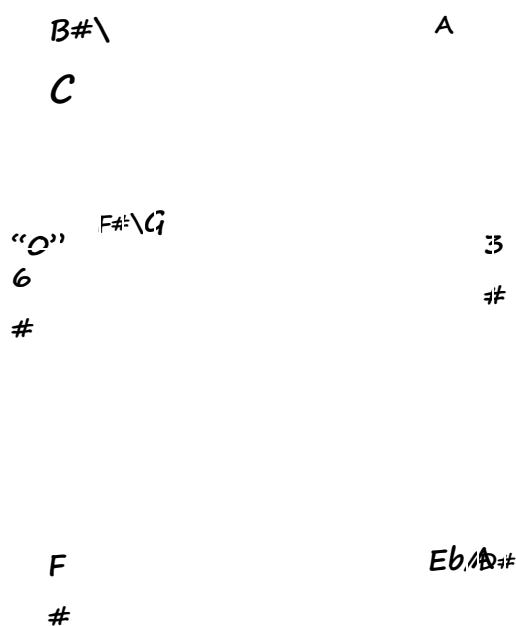
As mentioned in the previous paragraph the net of interlocking complementary systems does not end with the 3b and 3# systems because they also have their own complementary systems: the 6b and 6# systems. If there is a Gb within a 3b system there is a shift to a 6b system, whose pitch center is Gb; when B# is introduced within a

⁴⁸ Carl Dahlhaus, *Between Romanticism and Modernism. Four Studies in the Music of the Later Nineteenth Century*, translated by Mary Whittall (Berkeley, University of California Press, 1980), 65. When explaining the difference between “expanded” and “wandering” tonality in Wagnerian (or Lisztian) terms in comparison to Brahmsian methods, Carl Dahlhaus states that “the symmetrical division of the octave, to which Liszt was particularly prone, is a procedure alien to tonality and undermines functional tonality: C-F#-C; C-E-G#=Ab-C; C-Eb-F#-A-C; C-D-E-F#-G#=Ab-Bb-C.” The systems work in a way divorced from any tonal function, although they provide the pitch material to support harmonic areas.

⁴⁹ In the same way as with the “0” or C system, the “0” or C matrix refers to the same matrix but to make a difference between matrix and system this study uses the terms “0” system and C matrix.

3# system it shifts to a 6# system with F# as its tonal center (see figure 2). These systems have their system tritones that define them: Gb-C and F#-B# for the 6b and 6# systems, respectively. The matrix originated by the “0” system and all its complementary systems belong to the C matrix, a web of interlocking systems that is represented by a symmetrical partition of the C octave into minor thirds (figure 3).

Figure 3. C matrix representing the “0” system and its complementary systems.



One of the characteristics of any given matrix is its functionality at different levels of structure. At the deepest level of structure we find the C matrix projecting a centric organization of the systems, which means they are built in terms of a tonal center that is not tonally functional. The tonal center of the C matrix is C and the unfolding of this matrix creates the diminished chord already mentioned, but the relationship among the systems belonging to the C matrix is purely symmetrical. These systems relate to each other at the deepest level of tonal structure because they are

symmetrically connected, but at the same time this symmetry exhausts the matrix for there is no tonal resolution in a system based on symmetrical relationships.⁵⁰

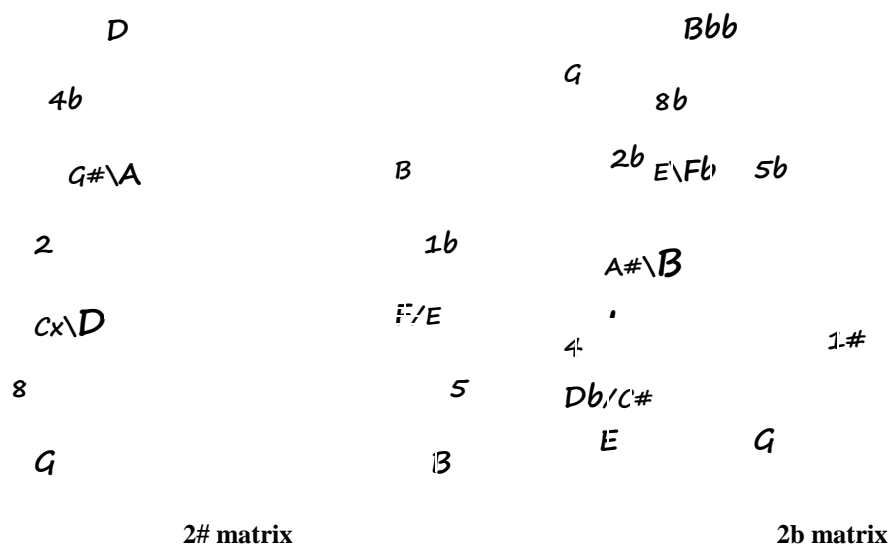
The systems belonging to the same matrix do not create tension for they are based on a symmetrical division of the octave, but when expressed as part of a local diatonic progression their harmonic relationships may or may not produce a temporary dissonance that is subsumed into the governing matrix. For example, the 3b and the 3# systems belong to the same matrix and because they express a symmetrical partition of the octave they are static, therefore unable to project dissonance; but when they are embedded on a diatonic progression, for example a prolongation of F# minor as a harmony, their local interaction clashes against their structural symmetry. For this reason Act I of this opera is devoid of harmonic tension in spite of all the dissonances utilized at the middleground level (such as tritones and major/minor sevenths) since the minor thirds relationships between all these keys belong to the same matrix.

The only possible way to create dissonances at the deepest structural level is by juxtaposing two of the three possible matrixes, a procedure used in *Turandot*. The C matrix governs the tonal background of the most part of the opera, but at certain structural dramatic points there are insertions of dissonant matrixes, these of 2# and 2b. The 2# matrix supports the following systems: 2#, 5#, 1b, 4b, and their respective enharmonic systems; while the 2b matrix provides the following systems: 2b, 5b, 1#,

⁵⁰ On a study of Stravinsky, Richard Taruskin discusses the foundation of a “background theory” that explains Stravinsky’s harmonic language based on a symmetrical partition of the octave into minor thirds. This symmetrical division of the octave is based on the octatonic scale, and his efforts are geared toward an analysis of Stravinsky’s music based on an octatonic tonality. But as he recognizes “an octatonic tonality will never be precisely analogous to a diatonic key, since the structure of the collection precludes the exclusive a priori hierarchical dominance of a single pitch class,” in Richard Taruskin, “Chez Pétouchka: Harmony and Tonality ‘chez’ Stravinsky,” *19th-Century Music* 10/3, Special issue: Resolutions I (Spring, 1987): 267.

and 4# systems with their respective enharmonic systems (see figure 4). A juxtaposition of two dissonant systems (systems that do not belong to the same matrix) produces a harmonic tension at the deepest structural level by conflicting two matrixes and their respective tritones. Because of the use of the C-F# tritone the C matrix controls the whole opera, and the introduction of the 2# and 2b matrixes takes the form of parenthetical insertions where a matrix displaces temporally another matrix. These systems can be used to symbolize a group of characters or emotions in the same way that key areas can be associated to characters or a group of characters.

Figure 4. 2# and 2b matrixes.



The introduction of each of these matrixes follows a more or less coherent pattern that we assign to the main characters of the opera and to their immediate world. Their use can be described as follows: the C matrix is the background matrix that controls the whole work, the 2b matrix represents Liù, Timur, and the Prince's immediate world, and the 2# matrix supports Turandot's influence and the mystery and

power she exerts to her immediate world.⁵¹ The importance of these symmetries in *Turandot* has to be taken with a grain of salt for Puccini's harmonic language is embedded within a tonal hierarchy therefore the use of the symmetrical division of the octave into minor thirds ultimately resolves into a diatonic system.

As explained before in his study on *Tosca*, Atlas assigns the different key areas to the opposing characters of the opera. The basic difference with Atlas' analysis of *Tosca* is that in this study a whole array of harmonic areas generate a system, and the network of systems separated a minor third apart generate a matrix, being the matrix associated to characters. In his study, Atlas wants to prove that Puccini uses harmonic areas based on the two whole-tone scales. As explained before, a system provides a central hexachord that supports a tonal hierarchy that Atlas's study does not provide therefore making its application to a diatonic system unsatisfactory.

⁵¹ Diagram 2 shows the different matrixes used throughout the opera, and it will be used in the different analysis of acts I, II, and III. See diagram 2.

The correlation of these matrixes to characters and emotions presents contradictions (such as the 2# matrix supporting Liu's aria in Act III) because another musical-dramatic level subordinates the systems.⁵² The use of systems not only provides a musical correlation to the dramatic action, but also generates the main dyad conflict of the opera: F#/F natural, created by the interaction of the C matrix (C-Eb-F#-A) and the 2# matrix (D-F-G#-B), respectively (see example 3). This dyad conflict will be projected into deeper levels of structure that sometimes conflict with the system level, which is the deepest structural level, demonstrating the multilevel richness of this opera. Therefore the F# prolongation throughout the opera is not only achieved by common tone harmonies (as shown in example 1a), or by the conflict with F natural (see example 2) but also by the interaction between the C matrix that is the background matrix of the opera, and its dissonant 2# matrix (a conflict expressed in example 3).

CHAPTER 3: THE ROLE OF SYSTEMS IN TURANDOT

⁵² To limit the use of these matrixes related to specific characters would constrain the multidimensional experience of opera.

Within the C matrix Puccini assigns to the “0” system a specific role: it is used to create a very disturbing atmosphere at the beginning of the opera where the oppression of Turandot’s iron fist shows its most cruel side. The opera begins at the “blood-red hour of sunset” when the people are waiting for the execution of the Prince of Persia. After the “Execution” motive follows the Mandarin’s proclamation to the crowd: “Popolo di Pekino” where the “0” system supports an F# minor harmonic area.⁵³ The “bicentric” harmonies that accompany the Mandarin’s proclamation are “associated with whatever seemed ‘barbaric’ about Imperial Peking to the colonial-era European.”⁵⁴ As the plot unfolds the “0” system is juxtaposed with its dissonant systems, those of 2b and 2#. The 2# matrix associated with Turandot, the traumatized Princess that beheads all her suitors, is used directly by her in just one instance: right before the Enigma scene (rh.II.48+3), and at this time it is used along with the unknown Prince. For the rest of the opera this system reflects Turandot’s influence upon the crowd (rh. I, 17), the Ministers (rn.I.28) as well as upon the slave-girl Liù (rh.III.24) right before she commits suicide to keep her beloved Prince’s name unknown.

The 2b matrix reflects the dethroned Timur, his slave-girl Liù and his lost and recently found son, the Prince, Calàf. As explained above this matrix does not support an F#/F natural dyad conflict, therefore its parenthetical insertion within the C matrix will follow other musical reasons. For example, in the second half of Act II the insertion of the 2b matrix system (from rh II.63+21 to rh II.68+3) corresponds to the dramatic action not to the F#/F natural dyad conflict. At this moment, the unknown

⁵³ See diagram 2 with a detailed subdivision of the opera.

⁵⁴ Ashbrook and Powers *Puccini’s “Turandot,”* 89.

Prince's world represented by the 2b system takes over the dramatic action because he has successfully solved Turandot's three riddles; as a result Turandot feels powerless, and the 2b matrix system reflects the prince's certainty while at the same time Turandot's insecurity and fear.

The seeming contradiction in Puccini's use of dissonant matrixes as structurally important (the C and 2# matrixes conflict) while at the same time the use of 2b matrix at the middleground level, follows a different *raison d'être* hinted by Helen M. Greenwald in her study of Puccini's operatic transpositions:

Puccini had a very clear idea of how to use the 'powerful claims' of tonality to substantiate both the dramatic meaning and the action in his works. Sometimes he used tonal relations to generate a structure—most often a scene or an act—while at other times his tonal relationships seem to be schematic or unorthodox, generated strictly by the text, and non-functional with respect to large-scale structure. He explored both traditional and untraditional ways of manipulating keys, and often treated tonalities as individual sonorities, pitting sharps against flats to shade his characterizations and mark both subtle modulations of the drama as well as more obvious shifts of scene.⁵⁵

⁵⁵ Helen M. Greenwald, "Puccini, *Il tabarro*, and the Dilemma of Operatic Transposition," *Journal of the American Musicological Society* 51/3 (Autumn, 1998): 532-33

This subtle description of Puccini’s harmonic development explains one of the most difficult problems when analyzing *Turandot*: the multiple variables taken into consideration to find the function of the different harmonic areas of this opera. Diagram 2 presents the operating systems of the opera following Ashbrook and Powers’s subdivision of the opera.⁵⁶ This diagram shows the systems as originated by the key signatures, which is the most common association of systems and keys, but as explained before it is possible that a key signature supports a system that is a parenthetical insertion to a deeper level governing system.

Diagram 2. An overview of *Turandot* in terms of system analysis.

ACT I

		Key Signature	System Tritone
A. Sunset: awaiting the execution			
1. Introduction (rh I.0).		0	C-F#
2. Recognition (rh I.4).		3#	A-D#
(rh I.5)	“Padre! Mio Padre!”	2b	Bb-E
(rh I.6)	“O mio figlio”	6b	Not defined
(rh I.6+11)	“Ecco i servi”	0	Not defined
3. Interlude (rh I.7)		1#	G-C#
(rh I.8)	“Nulla sono”	5b	Not defined
4. Executioners’ chorus (rh I.9)		5b	Db-G
(rh I.10+1)	“Ungi, arrotà”	3#	Not defined
(rh I.11)	“O dolci amanti”	2b	Bb-E
(rh I.12+3)	“Apparire la vedrà”	3#	A-D#
(rh I.13+3)	“Vano è l’amore”	2b	Bb-E
(rh I.14+3)	“Ungi, arrotà”	3#	Not defined

B. Moonrise

⁵⁶For the purpose of this study all divisions of the acts in numbers and sections follow Ashbrook and Powers’ division. See Ashbrook and Powers, *Puccini’s “Turandot,”* 16-38. Concerning the systems analysis, they are represented by colors depending on what matrix they belong: the systems belonging to the C matrix are represented in black; the systems within the 2# matrix are in red, while the systems of the 2b matrix are in blue. The column indicating the system tritone corresponds to the sections where the system is defined by its tritone. When a system is not defined it means that it serves in a subsidiary harmonic role to another governing system, which is the controlling system of the section. A detailed account on the different system conflicts will be presented later in this study.

1. The crowd awaits the moonrise (rh I.17) (rh I.18+19) "Pu-Tin-Pao!"	2# 3b	D-G# Not defined
2. Children's chorus (rh I.19)	3b	Not defined
3. The funeral cortège (rh I.21)	6b	Gb-C
4. Interlude (rh I.25)	0	C-F# (Gb)

C. The three Ministers and the unknown Prince

1. The Ministers/the unknown Prince (rh I.28)	4b	Not defined
2. Interludes (rh I.35) (rh I.37) "Notte senza lumicino"	4# 2#	E-A# Not defined
3. Ghosts of Turandot's former suitors (rh I.38)	0	C-F#
4. Conclusion (rh I.39) The ministers try again	0 3b	C-F# Eb-A

D. Finale

1. Transition (rh I.41+3)	0	C-F# (Gb)
2. Aria of Liù (rh I.42)	6b	Gb-C
3. Aria of the unknown Prince (rh I.43)	6b	Gb-C
4. Concluding concertato (rh I.46) (rh I.48) "E lasciamolo andar!" (rh I.48+4) Orchestral ostinato	6b 2# 6b	Not defined Not defined Not defined

ACT II

A. Trio of the three Ministers

	Key Signature	System Tritone
0. Scena (rh II.0)	0	Not defined
1. <i>Tempo d'attacco</i> (rh II.1)	0	Not defined
2. <i>Andantino</i> (rh II.9)	2#	D-G#
3. <i>Tempo di mezzo</i> (rh II.13) (rh II.14) "Vi ricordate" (rh II.18) "Addio, stirpe divina!" (rh II.19+11) "Il talamo voglio preparare"	2b 6b 3b 3b	Bb-E Gb-C Not defined Eb-A
4. <i>Stretta</i> (rh II.21)	1#	G-C#

B. Change of set: the Court assembles

1. Transition (rh II.25+2)	0	G-Db (C#)
2. Processional (rh II.26) (rh II.31+12)	6b 3b	Not defined Eb-A

C. The first confrontation

1. Emperor/unknown Prince (rh II.34)	0	Not defined
2. Brief ceremonial conclusion (rh II.39)	1b	F-B

D. Turandot

1. Reprise of the Mandarin (rh II.40)	1b	Not defined
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2. Reprise of the Children's chorus (rh II.42)	2#	Not defined
3. Aria di sortita of Turandot (rh II.43)	0	C-F#
(rh II.44) "Principessa, Lou-Ling"	3#	Not defined
(rh II.45) "Pure, nel tempo"	0	Not defined
(rh II.46+3) "O Principi"	3#	Not defined
(rh II.47) "Mai nessun, m'avrà!"	6b	Gb-C
(rh II.47+8) Più sostenuto	2#	D-G#
(rh II.47+14) "Gli enigma sono tre"	3b	Not defined
(rh II.48+1)	6#	Not defined
(rh II.48+3)	4b	Ab-D

E. The second confrontation: the Enigma scene

1. The first enigma and response (rh II.50+2)	0	Not defined
2. The second enigma (rh II.54+3)	0	Not defined
3. The third enigma (rh II. 59+2)	0	C-Gb (F#)
(rh II.62+6) "Gloria, o vincitore"	3b	Not defined
4. Coda and concerted piece (rh II.63)	3b	Eb-A
(rh II.63+21) <i>Animando</i>	1#	G-C#

F. The third confrontation

1. The Prince's enigma (rh II.65+9)	1#	G-C#
(rh II.66) "Il mio nome non sai!"	5b	Not defined
2. The Emperor's reaction (rh II.67+3)	5b	Not defined
3. Full ceremonial conclusion (rh II.68+3)	1b	Not defined

ACT III

	Key Signature	System Tritone
A. The Prince alone		
1. Introduction (rh III.0)	0	C-F#
2. Romanza del unknown Prince (rh III.4)	1#	G-C#
3. Extension and transition (rh III.6+5)	1#	G-C#
B. The tempting of the Prince		
1. The first temptation (women) (rh III.8+5)	2b	Bb-E
2. Two more temptations (wealth, glory) (rh III.9)	0	C-Gb (F#)
3. Entrance of Turandot (rh III.16+5)	3b	Eb-A
C. The slave-girl and the Princess		
1. <i>Tempo d'attacco</i> (rh III.20)	0	Not defined
2. <i>Aria de Liù</i> (rh III.24)	1b	F-B
3. <i>Tempo di mezzo</i> (rh III.25+6)	0	C-F#
4. Suicide and funeral cortège of Liù (rh III.27)	6b	Gb-C

D. The thawing of the Princess-

1. The Prince's accusation and his wooing (rh III.35)	0	C-Gb (F#)
2. The Princess weakens (rh III.39)	0	C-F#
3. Aria of Turandot (rh III.42)	6b	C-Gb
4. The Prince tells his name (rh III.46)	0	Not defined

E. Change of set: the final scene

1. Fanfares (rh III.50)	0	C-F#
(rh III.51)	6b	Not defined
2. The Princess tells the Prince's name (rh III.53)	0	Not defined
3. The final chorus (rh III.54)	0	C-F#

The systems play an important role in the harmonic relations of this opera but sometimes their projection onto the foreground is barely noticeable. A very special feature of the systems is that their structural background does not always coincide with the middleground harmonic transformations originated by the immediacy of the plot. At these moments, the other harmonic levels of the opera are more prominent and represent Puccini's difficulties in dealing with such a complex harmonic language, alien to his style. A very good example is at the moment of highest tension of Act II: at the entrance of Turandot before the Enigma scene.

Diagram 2 shows how the reprise of the Mandarin's proclamation (rh II.40) and the reprise of the Children's chorus (rh II.42) are supported by the 2# matrix, but at Turandot's *aria di sortita* (rh II.43) the C matrix displaces the 2# matrix as the governing matrix. Since the 2# matrix is associated with Turandot it would have been appropriate to support her entrance by this matrix but Puccini gives priority to the F# minor sonority associated with cruelty than to the systems level. The consequences are

-Since this study uses Ashbrook and Powers's subdivision of the opera in numbers I felt it would be interesting to show Alfano's ending of the opera. As a matter of pure observation it is remarkable how Alfano disregarded Puccini's use of systems and his musical contribution to this opera follows entirely the C matrix.

that from the entrance of Turandot (rh.II.40) there is a juxtaposition of the “0” and 2# systems with predominance of the “0” system over the 2# system, representing the Prince’s will to win over Turandot’s cold heart. The use of the “wrong” system for Turandot’s *aria di sortita* shows Puccini difficulties when dealing with symmetries.

This is an example of how in *Turandot*, Puccini tries to be innovative and “modern” with the results of inconsistencies in the way he uses symmetries. Furthermore, the dyad conflict is not fleshed out harmonically in a systematic way that allows to assign specific keys to the opposing characters; for example it is not always clear whether Turandot is represented by the 2# matrix or not. The conflicts between associations and symmetries are numerous in this opera and show Puccini’s difficulties finishing the opera. His difficulty working out the symmetries in a systematic way is due to the harmonic style and modernist approach that he adopted in this opera, which challenged his talent.

Even though he had difficulties when dealing with symmetries, there are instances where he achieved a high level of sophistication matching the harmonic level to the dramatic action, for example right before the Enigma scene (rh.II.47). When these characters confront each other, the Prince tries to win Turandot’s love while she is threatening him with death; the keys employed by Puccini reflect a strong emphasis on F# (=Gb) against Eb until Ab is reached (rh.II.48+3). F# and Eb are part of the complementary tritones of the C matrix and their juxtaposition does not create any harmonic tension within the C matrix; but the change of key signature in the *più sostenuto* (rh.II.47+8) to 2# (belonging to the 2# matrix) supports the F# major harmony which clashes against the C matrix that supports Eb major. The juxtaposition

of these matrixes at this point enhances the dramatic conflict between Turandot and the unknown Prince by musical means.

There is no evidence of how Puccini would have resolved these conflicts because he did not finish the opera, and the sketches and drafts he left are not sufficient to confirm how he would have solved them; but there is no doubt that throughout the opera he works out these system conflicts by assigning the three matrixes to the different characters of the plot and their dramatic interaction becomes the harmonic basis for the musical development of the opera. The difficulty analyzing this opera rests on the multiple parameters and harmonic levels at which Puccini is working out at the same time; therefore a cogent explanation requires the utmost analytical flexibility to detect which parameter is more prominent at any specific point within the opera.—

— In discussing the different studies on “associative tonalities” by scholars such as Robert Bailey, Nors Josephson, Reinhold Brinkmann, and Patrick McCreless, Carolyn Abbate emphasizes that these authors “posit sustained tonics or pitch-complexes as background to long musical spans” and their studies “have emphasized the profound consequences that tonal symbolism may have for the basic organization of an opera, suggesting that text-generated quotations of tonalities determine the emergence of certain keys at certain dramatic foci, whether those keys are in any sense logical in their local context or not.” Carolyn Abbate, “Introduction: On Analyzing Opera,” in *Analyzing Opera*, edited by Carolyn Abbate and Roger Parker, 16-23 (Berkeley: University of California Press, 1989), 15. In this respect, the use of matrixes broadens the association between musical structure and dramatic development, allowing for a more flexible approach.

The association of the matrixes with characters and emotions in the opera should be interpreted as a governing principle that enriches our understanding and shows how many variables, both harmonic and dramatic, inform the readings of this work. Paraphrasing Roger Parker in his open response to Atlas's article on *Butterfly*—, this study is “wary of the totalizing initiative, whether it be directed toward the semantic burdens that music may occasionally shoulder, or toward the patterned shapes that may occasionally be made by keys.”— That being said, it is very evident, as it will be demonstrated in this essay, that the dramatic musical coherence Puccini uses in this opera is based on symmetrical subdivisions of the octave, a harmonic perspective that until now has not been explained.—

— Atlas, “Crossed Stars,” 182-192.

— Parker, “A Key for Chi?” 232.

— The most comprehensive study on *Turandot*, Ashbrook and Powers, *Puccini's 'Turandot'*, does not provide a cohesive explanation of the interaction between the dramatic and harmonic elements of this opera.

CHAPTER 4: ACT I

Following Ashbrook and Powers' subdivision of *Turandot* as a numbers opera this study divides Act I into four different sections according to their dramatic and harmonic events: Sunset, Moonrise, the three Ministers and the unknown Prince, and Finale.— In dramatic terms, the first act has a double function: it sets the exotic barbarism of the opera and also presents its main dramatic force, which is the confrontation of the unknown Prince and Turandot. Both elements remain throughout the whole opera almost until the very end, when the Prince's kiss changes Turandot's heart and therefore the fearful atmosphere gives way to an explosion of joy, a section that Puccini did not finish leaving the work incomplete. The Sunrise section sets off an atmosphere of confusion, fear, and brutality right from the introduction (rh I.0). In this respect, this introduction follows the procedure that Roger Parker associates with Verdi's *Aida* and Puccini's mature operas which is the presentation of the local atmosphere from the outset.—

— For a complete division of Act I see diagram 2.

— Roger Parker, "Motives and Recurring Themes in *Aida*," in *Analyzing Opera. Verdi and Wagner*, edited by Carolyn Abbate and Roger Parker, 222-238 (Berkeley: University of California Press, 1989).

When discussing the prelude and opening scene of *Aida*, Parker asserts the following: “*Aida* is unique in Verdi’s work in the extent to which it engages local atmosphere. As do nearly all of Puccini’s mature operas, it seems constantly to allude to its ambience. This means that the *tinta* (or identifying color) of the work is of great importance, and that we need a tightly unified opening scene in which to set forward some elements of this *tinta* with special clarity.”—— The *tinta* used in *Turandot* is built on tritones, “bicentric” harmonies, and motives that will be presented recurrently throughout the opera. Being the tritone one of the most influential musical elements of this opera, it is noteworthy that Richard Strauss’ *Salome* also presents a prominent tritone (in this case G-C#) at the beginning of the opera.—— In both cases, the root of the tritone represents the root of the matrixes (C in *Turandot*, and G in *Salome*) and the fleshing out of the tritone is more than just a mere intervallic association: it becomes the controller of the large-scale harmonic progressions of the opera.—— At the same time that the tritone controls the deepest structural level of the opera there are other middleground harmonic events that present the other musical elements important in this work.

The opera starts with the “Execution” motive——: A-E#-B-C#-F#. Right from the outset, Puccini gives us the main dyad conflict of the opera F-F#, (in disguise: the F is spelled E# as leading tone to F#) and also the controlling *sonority* of the opera

—— Ibid., 223.

—— See Richard Strauss, *Salome. Musikdrama in einem Aufzuge nach Oscar Wilde’s gleichnamiger Dichtung. Op. 54.* (London: Boosey & Hawkes, c.1943).

—— Puccini attended the 1906 première of *Salome* in Graz, Austria. It can be demonstrated that *Salome* is also governed by tritone systems that interact with the harmonic unfolding in much the same way as in *Turandot*.

—— Term coined by Ashbrook and Powers in *Puccini’s “Turandot,”* 16.

F#. The peculiarity of the “Execution” motive lies in the fact that it is a perversion of a Chinese pentatonic scale: A-B-C#-E-F#, where the E natural is “brutally” replaced by the E#, symbol of Turandot’s tyranny (example 4). This motive is based on the non-hemitonic pentatonic scale associated in Western culture as “Chinese”: C-D-E-G-A, a scale that is transposed and “transformed” in this passage. F# takes over as a pedal note in the bass line rapidly displaced by a prominent F natural/E# in the “bicentric” harmonies that accompany the Mandarin’s proclamation to the crowd: “Popolo di Pekino” (rh.I.1).

In their description of this introduction, Ashbrook and Powers associate these “bicentric” harmonies with the European perspective of the Imperial Peking as “barbaric.” Without denying this function this study goes one step further and defines these harmonies as representatives of the main dyad conflict of the opera: F-F#. Taking a closer look at this passage we find that when E# and its enharmonic F natural replace the F# of the bass line (mm. 3-4), they create a powerful instability prolonged until the momentary relaxation at the Recognition scene (rh I.4) in F# minor.

Puccini extends this sonority (F natural-E#) by two techniques: the absence of F# in the declamatory passage of the Mandarin, and the presence of superimposed major-minor triads where the E#-F sonority is present. The C# major chord over a D minor sonority, and the A major chord over a Bb minor pedal point present this sonority up front (see example 5a. and 5b.), while the Mandarin’s declamation implies

an absent F# and the “Execution” motive now transposed (C-Ab-D-E) also implies the whole-tone scale where F# is also missing. Before the first stable F# minor harmony supports the Recognition melody (rh. I.4), the Mandarin’s proclamation anticipates the F# sonority coinciding with the dreadful announcement of the Prince of Persia’s execution, “Il principe di Persia” (rh. I 2 + 5). At this moment the B major harmony is superimposed over a C minor sonority (see example 5c).

This moment of highest tension has its musical support in the presentation of the missing pitch of the “0” system simultaneously spelled as D# and Eb, forming with the other pitches of the chords the unfolding of the C matrix: C-Eb(D#)-F# that is juxtaposed against the A major chord of the next measure, compressing the minor thirds of the C matrix. The whole introduction is an expansion of the F# sonority, and to be more precise, of the F# minor harmony. In order to achieve this harmonically static atmosphere, Puccini uses a sequence of descending major thirds (F#-D-Bb-F#), a static progression that is embellished by two passing notes: C natural and G# right before the dominant pedal of F# minor in the Recognition scene (rh. I.3+12). The result is a whole-tone scale in the bass line whose harmonic function is determined by the F#-F natural dyad conflict. The F# minor harmonies surround the D minor and Bb minor

harmonies that support the F natural sonority as a chromatic lower neighbor to F# (see example 6).

Up to the Recognition section (rh.I.4) the “0” system governs the entire introduction with a few incursions and attempts to shift over to the 3# and 3b systems (by means of their respective missing pitches). But the natural key signature still governs the introduction until the change to a 3# key signature (rh.I.4) that is prepared in the measure before by means of the prominent D# in the Mandarin’s announcement modulating from the “0” system to the 3# system. At this point Puccini changes the key signature because he wants to stabilize the F# minor harmony in order to express the changes in the dramatic action.————— The unstable atmosphere of the introduction gives way to a more stable passage where the unknown Prince reunites with his father, Timur, and his father’s slave, Liù. For the first time there is a discernible melodic line, called “Recognition” melody by Ashbrook and Powers, whose diatonic construction contrasts with the “barbaric” harmonies of the beginning (example 7).

————— “Stabilizing the F# minor harmony” means that the 3# key signature supports F# minor, therefore matching the system to the harmonic area. In system analysis it is structurally more significant if F# minor harmony is supported by a 3# key signature than if it were supported by a natural or other key signature, therefore creating a conflict.

The stability of this motive is emphasized by a chromatic “sequence that repeats the same motive from f# through g and ab, to arrive at a for the entrance of the Executioner’s servants.”———— The structural harmonies of this passage are F# minor and A minor, the latter one coinciding with the entrance of the Executioner’s servants (rh I.6+12) while the intermediate harmonies belong to what Robert Bailey calls the “*expressive* use of tonality”, which in this case consists of a sequential passage that is transposed up to indicate intensification.———— Furthermore, these harmonies (G minor and Ab minor) represent an inserted parenthetical progression that contrapuntally prolongs the minor-third progression from F# minor to A minor through half-step neighbor relations: F#minor_G minor/Ab minor_A minor, a harmonic progression that needs further explanation.

The rise in musical intensity matches what happens in the escalating dramatic action: Timur falls down to the floor and Liù looks around begging for help. When she cries out “*pieta!*” (rh.I.5) the first modulation from F# minor to G minor occurs and the

———— Ashbrook and Powers, *Puccini’s “Turandot,”* 16

———— Robert Bailey, “The Structure of the Ring and its Evolution,” *19th-Century Music* 1/1 (July, 1977): 51.

unknown Prince hastens to help her and suddenly recognizes his father. The first modulation also coincides with a parenthetical insertion of the 2b system, which is defined and activated, but the 6b system rapidly restores the C matrix in the next modulation to Ab minor. Diagram 3 shows the predominance of the C matrix, by means of different systems, in this sequential passage.

Diagram 3. System analysis of the Recognition melody.

Character	The guards	The unknown Prince	Timur	The guards
	“Indietro, cani!”	“Padre! Mio padre!”	“O mio figlio!”	“Ecco I servi !”
Rehearsal	rh. I.4	rh. I.5	rh. I. 6-----	
Keys	F# minor	G minor	Ab minor	A minor
Systems	3#	2b	6b	“0”
Matrixes	C matrix	2b matrix	C matrix-----	

The parenthetical insertion of the 2b system reflects the reunion of the unknown Prince with his father. It is symbolic that right before the 2b system appears Liù asks for help (“Chi m’aiuta, chi m’aiuta a sorreggerlo?”) within the chaotic atmosphere associated with the F# minor and the 3# system; but when the unknown Prince runs to help them and recognizes his father, G minor (that belongs to the 2b system) supports their suffering in the middle of the general chaos. After the unknown Prince exclaims a few words of thankfulness in great anguish for encountering his father, at the words “un Dio pietoso!” there is a modulation to Ab minor that anticipates Timur’s recognition of his son (“O mio figlio!”). The entrance of the Executioner’s servants suddenly interrupts their dialogue, an entrance that generates a modulation to A minor: “Ecco I servi del boja!” (rh.I.6+12). This modulation reestablishes the “0” system and presents an A diminished triad (A-C-Eb) that represents three of the pitches that conform the C

matrix with the exception of the absent F#, which will be saved for the entrance of the executioner's chorus (rh.I.9).

Before the return to F# minor Timur and Liù give away their true feelings that the unknown Prince's encounter has brought them (rh.I.7). Ashbrook and Powers label this section as an interlude, and definitely its function as a transition both dramatically and musically is evident. Timur's "Perduta la battaglia" (rh.I.7) *ariette* in G major relates to Liù's "Nulla sono" in Bb minor as an ascending minor third progression, half step higher than the one found between the recognition motive and the entrance of the Executioner's servants (from F# minor to A minor). This interlude represents another parenthetical insertion of the 2b matrix (to be precise of the 1# and 5b systems of the 2b matrix) that leads to the restitution of the C matrix (3# system) at the Executioners' chorus (rh I.9). This passage confirms that Timur's, Liù's, and the unknown Prince's world, contrast with the chaotic and unstable world depicted at the beginning of this opera, an opposition that has its parallel in musical terms with the juxtaposition of the dissonant 2b matrix to that of the C matrix.

The transition between Liù's "Nulla sono" in Bb minor and the Executioners' chorus "Ungi, arrotta," (rh I.10+2) in F# minor corresponds to the passage "Gira la cote," where the bloodthirsty crowd incites the Executioners' assistants to "grind the whetstone." This passage comes directly from the Bb minor found in "Nulla sono" and presents a disturbing speech-like declamation on pitch Bb that is supported by an ostinato bass line on Bb-F that slowly descends by half-step motion down to F#. It is important to understand this relationship between F-F# in order to understand the harmonic progressions that Puccini is using.

The Bb belongs to an incomplete major-third progression from F# (F#-D-Bb), but at the same time, it is a supporting harmony of the dissonant F natural that will be restored to the F# right at the beginning of the Executioners' chorus. This incomplete major-third progression is similar to the one that Puccini used in the introduction (see example 6). But at this point, he makes each of these pitches the root of a stable harmonic area instead of part of "bicentric" harmonies like those in the introduction (see example 9a). The missing note from this incomplete major third progression is D, which will be saved for the arrival of the Moonrise section (rh I.17).

In the Executioners chorus section, the F# minor section ("Ungi arrotà") that restores the 3# system belongs to the C matrix, but there is a "contrasting section in d minor over a low Bb pedal"————— (rh.I.11) that projects the F natural as a conflicting pitch against the F# of the previous section. In this section (rh.I.9) the crowd interacts with the Executioners' assistants and the F# minor/Bb minor passages are juxtaposed to increase the tension between their projecting pitches, F#-F natural, respectively; the crowd gets more and more excited at the event that is going to take place: the Prince of Persia's execution This passage is shown below in example 9b.

————— Ashbrook and Powers, *Puccini's "Turandot,"* 16.

At the very end of this section, the crowd shouts “Dove regna Turandot!” while the Executioner is preparing to execute the Prince of Persia; at this point, a terrifying scream on F# minor represents the climax of the entire section and leads into the Execution motive, five measures before the next major section: Moonrise (rh.I.B.17). Puccini marks the beginning and end of the first major section (Sunrise) by using the same motive at the same transposition level, therefore giving a prominence to F# as a sonority that is carried over throughout the whole section as illustrated in example 9b.

The next major section starts when the crowd is awaiting the moonrise “Perchè tarda la luna?” (rh I.17). At this point the 2# system appears for the first time supporting a stable D major. The 2# system belongs to the 2# matrix associated with Turandot, which is dissonant to the C matrix. The moon is associated with Turandot’s cruelty; and at its rise is the moment of execution for the Prince of Persia, therefore the moonrise has a deeper symbolic significance. ————— Although the 2# system is defined by its tritone D-G# it is rapidly displaced by the 3b system at the entrance of the Executioner (rh.I.B.18+19). In this section a chromatic sequence that moves “from D

————— According to Allan W. Atlas, Puccini “reacted to the idea of the rising moon early in his work on *Turandot*,” a fact that “underscores once again his sensitivity to the visual aspects of opera.” In Allan W. Atlas, “Newly Discovered Sketches for Puccini’s *Turandot* at the Pierpont Morgan Library,” *Cambridge Opera Journal* 3/2 (July, 1991): 189.

major through Eb major and E major to F major, to climax back in Eb major for the entrance of the Executioner, ‘Pu- Tin- Pao!’”———— Example 10 provides a contrapuntal abstraction of the harmonic progression of this passage where the pervasive chromaticism projects the F#/F natural dyad conflict.

———— Ashbrook and Powers, *Puccini’s “Turandot,”* 17.

This sequential passage leads to the entrance of the Executioner and furthermore, to the Children's chorus (rh.I.B.19) by using "expressive" tonality, which transposes the same melodic design several times. Although it is transposing up the effect is the opposite of what it should be: instead of increasing, the intensity relaxes, due to several factors. First of all, the transposition moves from the sharp side to the flat side of the circle of fifths, ————— and a motion to the flat side of the fifth cycle lessens the tension. This harmonic motion is supported by the insertion of the 2# dissonant system at the beginning of the sequence and its quick displacement by the 3b system (at the children's chorus) that belongs to the C matrix cuts off any possible expansion of the 2# matrix.

The dramatic development coincides with these musical events when the crowd awaits the moonrise because their bloodthirsty souls will have peace with the execution of the Prince of Persia. The rising half-steps of the modulation have a symbolic meaning in that it represents the ascending of the moon. For this reason, this passage depicts a "symbolic" use of tonality where music portrays an extra-musical event. But the section up to the Children's chorus (rh.I.B.17-19) has more than a mere symbolic function; harmonically speaking it is a passage that develops the F#-F natural dyad conflict which is everywhere present.

In the last number of the previous section, the Executioners' chorus (rh.I.A.9), the dyad conflict F#-F natural controls the harmonic events ending in a powerful F# minor. Puccini juxtaposes the D major to the F# minor (a 5-6 diatonic progression) where F# becomes the third of the chord. In this position the F# will be worked out

————— The E major passage in this sequence is an enharmonic equivalent of Fb major.

throughout the sequential passage as an inner voice that sporadically becomes the harmonic support in the bass line (see example 10). Among the keys of the sequential passage there are two of them that are very significant, D major and F major. Both keys prolong the 2# matrix, and at the same time project the dyad conflict F#/F natural in their respective harmonies.

The harmonic and dramatic goal of the Moonrise section (see diagram 2) is the funeral cortège of the Prince of Persia (rh.I.B.21) that is preceded by an actual Chinese melody, “Mo-li-hua,” in the children’s chorus “Là sui monti dell’est” (rh.I.B.19). This melody (“Mo-li-hua”) appears for the first time when the Children’s chorus is leading the funeral cortège for the Prince of Persia (rh. I.B.19), and it is repeated, now in the orchestra, when the clamoring crowd is begging for Turandot’s mercy towards the Prince of Persia (rh.I.B.23+5). In both passages this melody is in Eb major, belonging to the C matrix and is associated directly with the F# minor of the beginning of the opera (see example 11).————— This symmetry gives us a clue to Puccini’s intentions in terms of the harmonic elements of the opera: the minor-third relationships are originated as tritone dividers and belong to a large-scale projection of systems and ultimately matrixes transferred onto the background and middleground levels.

————— The relationship of these two pitches within the C matrix is supported by the Eb which ‘dissects’ the system tritone C-F# into two symmetrical minor thirds, making the Eb the system activator.

As has been described before, the Sunset section projects F# minor as the background harmony; meanwhile, in the Moonrise section (from rh.I.17 to rh.I.28) F# becomes an inner voice in D major which is displaced by Eb major as the background sonority. In both places there is a prominence of the parallel minor (F# minor and Eb minor, respectively) that corresponds to the prolongation of F# as the controlling pitch. The juxtaposition of these sonorities in the first two major sections of the opera responds to the large-scale tonal plan for the opera which is the expression of the C matrix and the internal relationships among its systems: natural, 3#s, 3bs, 6#, and 6bs (see example 11) This juxtaposition (Eb and F#) will be presented in its maximum expression at one of the moments of highest tension of the opera that is right before the Enigma scene (rh.II.D.47+8 to rh.II.D.48+1). The use of the Eb minor harmonic area corresponds to the prolongation of F# as sonority, in this case by its enharmonic Gb as the third of the chord. Even though the Eb major sonority does not support the F#/F natural dyad conflict, it does pertain to the C matrix, being the system tritone divider.

The Eb minor section that corresponds to the funeral cortège for the Prince of Persia is repeated at other important dramatic moments of the opera such as the Act I finale (rh I.46), where the unknown Prince strikes the gong to challenge the princess Turandot, and the Act III cortège for Liù (rh III.27), both of these sections also in Eb minor. The dramatic importance of these moments is enhanced by the harmonic events that control these sections in terms of the harmonic development of the opera. It is very interesting to see how Puccini presents the F# sonority as the root of the harmonic area at the beginning of the opera, where F# minor controls the Sunset section, and at the Moonrise section where it is the third of the harmony (D major). Even though the F#

sonority is prolonged by means of its enharmonic Gb, Eb minor displaces F# minor as the controlling harmonic area and root of the harmony. In these passages, Puccini's ability to work out two different harmonic issues at different levels of structure is surpassed by his ability to connect these harmonic events with the dramatic action of the opera.

The interlude (rh.I.B.25) that follows the funeral cortège for the Prince of Persia functions as a transition to the next section, the appearance of the three Ministers trying to dissuade the Prince from striking the fatal gong (rh.I.C.28). Although this section is very unstable and built on sequential passages, it follows a coherent harmonic development. Determining the harmonic goal of this transitional passage, which is the Ab major of the entrance of the three Ministers, will provide the perspective to determine its place within the dramatic harmonic unfolding of Act I. This Ab major is hinted at a few measures before its arrival (rh.I.B:27+7) where there is an implied F minor sonority (a harmony that will be important in the three Ministers section). Ab major does not belong to the C matrix; on the other hand it represents another parenthetical insertion of the 2# matrix (D-F-Ab-B) that as drama develops will challenge the C matrix as the governing system.

The first appearance of the 2# matrix system is at the moment when the crowd is waiting for the moonrise (rh.I.17) where D major appears for the first time. If we make a connection between the harmonic areas of that section (D major) and that of the entrance of the three Ministers (Ab major) the result is the tritone D-Ab, which is system tritone of the 2# matrix. By introducing the D major and Ab major harmonies at these moments in the opera Puccini starts to destabilize the C matrix system. The 2#

and 4b systems belong to the 2# matrix which is dissonant to the C matrix, and their inclusion as parenthetical insertions within the C matrix takes on a large-scale harmonic structure as the drama unfolds.

The introduction of the three Ministers in the next major section (rh.I.C.28) has a comic relief that softens the atmosphere and is based on the characters of the *commedia dell'arte* of the original play by Carlo Gozzi. In Ashbrook and Powers' study on *Turandot* there is a chapter devoted to the sources both as a spoken play and as an opera before Puccini. ————— In the original play by Gozzi, the *commedia dell'arte* characters take on a very prominent role in the dramatic action, while in Puccini's libretto they are reduced to secondary level. In spite of this Puccini gave the greatest importance to this number both stylistically and harmonically speaking. Puccini uses a 'pentatonic' sound for the first part of their number (to denote their "chinese" influence), when the Ministers try to dissuade the Prince from striking the fatal gong ("Fermo! che fai?"). Example 12a shows the melody sung by the three Ministers's in their opening number.

The pentatonic scale that Puccini uses follows this shape: Ab-Bb-C-Eb-F, supported by an Ab major harmony. As explained before the four flats in the key

————— For a detailed account on the genesis of the libretto see chapter 2: *The Sources* in Ashbrook and Powers, *Puccini's "Turandot,"* 43-59.

signature stand outside the region of the C matrix setting this passage outside the matrix of the opera (C matrix). If we compare the beginning of this number with the Moonrise and Sunset numbers, this is the first time that a major section in the opera starts with a harmony that does not support F#; on the contrary, the pentatonic scale of this passage gives a prominent weight to F as a pitch within the pentatonic scale and also within the harmonic progression. The passage gravitates between Ab major and F minor as the central harmonies, creating a 5-6 voice exchange that shifts the harmonic weight from the major key to its relative minor (see example 12b).

In this section, and in order to increase its instability, there is a bitonal passage where the Prince demands the three Ministers for the first time to let him pass to strike the gong (“Lasciatemi passare!” at rh.I.C.30+2). Example 13 presents a detailed reduction of this passage that has more than a decorative function.

At this point F natural is presented simultaneously against Gb/F# contracting the two pitches of the dyad conflict into a single sonority. Even though Puccini's purpose might just be to create an unstable sonority, the importance attributed to F within the pentatonic scale, and its opposition against F# in this passage shows a projection of this dyad conflict on a higher structural level. Every time the Prince demands them to let him pass, the bitonal harmonies support F natural and F# leading to the reply of the three Ministers in Ab major. This is another instance where Puccini juxtaposes two different levels of musical development: the dissonant matrixes and the dyad conflict. For this reason, the F#/F natural dyad conflict does not resolve in the Ab major harmonic area that follows. The last outcry of the three Ministers towards the Prince (rh. I.C.34) "Pazzo, va' via, va via!" ends via Db major (F natural is the major third of this harmony) that is picked up by Turandot's handmaidens "Silenzio, olà!" (Silence there!). This Db major collapses into a Db minor (enharmonic of C# minor), which is the starting harmony of the next section (rh.I.C.35).

In this section there are two interludes that prolong F# as a pitch by means of different harmonic motions. The first interlude (rh.I.C.35) uses a deceptive key signature: the four sharps in the key signature and the first harmony of the interlude (C# minor) does not correspond to the background harmony of this passage, but to the minor dominant harmony of the real background harmony of the passage, F# minor. Even though this passage is built on a stable F# minor harmony there are a lot of “bicentric” harmonies built on F, therefore presenting again the conflict of F natural against F# at the arrivals of the F# harmonies. The illusory effect of this passage translates into musical elements by using a key signature that belongs to the 2b matrix (4# system). The 2b matrix represents the prince’s presence within the F# prolongation, a pitch that represents Turandot’s cruelty, as if he would fight to survive among her handmaidens and the malicious energy they project.

In the second interlude “Guardalo, Pong” (rh.I.C.36) the three Ministers warn the unknown Prince about the danger he is in if he strikes the gong. In this passage, the illusory F# of the previous section is confirmed as the central harmony that leads to the next harmonic area in B minor (rh. I.C.37). F# is very prominent because of the way Puccini builds the melodic line; he uses again a pentatonic scale (in this case D-E-F#-A-B) that allows him a certain ambiguity in the melody, which in this case emphasizes F# as the fifth of the tonal center.

In the harmonic design of both interludes Puccini uses a sequence of fifths down from C# minor-F# minor-B minor, what allows him to prolong F# throughout the whole section. Going even further back to the beginning of the three Ministers section, (rh.I.C.28) there is a coherent motion of descending fifths from Ab major-Db major/C#

minor-F# minor-B minor that supports the juxtaposition and sometimes the simultaneity of the dyad conflict F natural/F# as it has been explained above (see example 14).

After the second interlude where the Ministers try to discourage the Prince from striking the gong, a very unstable passage leads to the conclusion (rh.I.C.39). In this passage the ghosts of Turandot's former suitors "Non indugiare!" (rh.I.C. 38) appear to the Prince, who far from being scared by them declares his love for Turandot ("No! No! No! I alone love her!"). Powers and Ashbrook labeled this passage as atonally harmonized,———— which is correct but it does not give an exact account of its harmonic implications.

The lower strings (cellos and basses) play an ostinato F# diminished chord that represents the C matrix (see example 15). The C matrix has a symbolic meaning as the controller of the whole opera, both harmonically and dramatically; and, although the use of tritones in this section represents mystery and terror, this does not take away its symbolic meaning: the former suitors of Turandot are also oppressed within the C matrix. This matrix will support the rest of Act I with the exception of the "Mo-li-hua" section that utilizes a 2# key signature but that does not activate the 2# matrix because the main harmonic issue at this point is the prolongation of the F#/Gb throughout the

————— Ashbrook and Powers, *Puccini's "Turandot,"* 20.

end of the act (rh I.48). This is another instance where Puccini favors one of the harmonic levels above the others: in this case the dyad conflict assumes more immediate attention than does the background C matrix under which it is subsumed.

The section of the ghosts of Turandot's former suitors leads to the second ministerial warnings (rh.I.C.39) that are now supported by bolder harmonies based on whole-tone, and octatonic scales as well as tritones derived from the "Execution" motive. The second ministers' warnings are embedded within a bolder harmonic language as if influenced by the visions of the former suitors of Turandot, and more in accordance with the 'barbaric' element that surrounds Turandot's reign. As they express the Prince their warnings they come back to a more diatonic language (rh.I.C.40), which brings them back to reality with a sequential passage on Eb major and Bb major before reaching D minor, when the chief Executioner enters showing the severed head of the Prince of Persia. Calaf interrupts their warnings and, more and more perplexed, expresses his feelings about Turandot "A me il trionfo! A me l'amore!" (Triumph is mine! Love is mine!) (rh.I.C.40+13). Defying destiny at the

words “l’amore” he sings high A’s, the same pitches that the Prince of Persia sang before his beheading. Moreover, these words are supported by a D minor harmony that restores momentarily the F natural of the dyad conflict, a pitch that will be prolonged until the half-step transposition right before Liù’s aria (rh.I.D.41+8).

The last section of Act I is the finale (rh.I.D.41+3), which is divided into four clear segments: the first is a transitional passage (rh.I.D.41+3), where Timur tries to discourage his son from trying to obtain Turandot’s love; the second corresponds to Liù’s aria “Signore, ascolta!” (rh.I.D.42), where she expresses her deepest feelings about the Prince and also tries to dissuade him from striking the gong; in the third, the Prince replies to Liù’s words (rh.I.D.43), trying to console her and encouraging her not to leave his father, and lastly, the concluding *concertato* (rh.I.D.46) that is divided into two parts.

In the first part Timur, Liù, and the three Ministers try to discourage the Prince while he insists on gaining Turandot’s love (“Ah! per l’ultima volta!”). The second part starts at the moment when Calàf strikes the gong (rh.I.D.48) while shouting out loud the Princess’s name. At this dramatic point (supported by Eb major) the crowd sings the “Mo-li-hua” melody to the words “E lasciamolo andare!” (Let him be!). The dramatic development of this finale revolves around the psychological dispute between the Prince, who has decided to strike the gong to win over Turandot’s heart, and the rest of the characters on scene: the three Ministers, Timur, Liù, and the crowd. Puccini ties the whole section together harmonically by prolonging the F#/Gb pitch throughout the entire finale.

Timur's "O figlio, vuoi dunque ch'io solo" serves as a transition to Liù's aria (rh.I.D.42) and it also presents one of the most controversial passages of the entire opera: the transposition from E minor to Eb minor right before Liù's aria. Ashbrook and Powers' explanation of this passage is accurate in the half-step dissonant associations between D and Eb and the implications that the transposition of this passage has with other sections of the opera. ————— However, this study moves one step further and explains the harmonic relationships between Gb major, and Eb minor that belong to the C matrix, which, as it has been explained throughout this study, governs the whole opera. Furthermore, the Eb minor/D major relationship established at the "Mo-li-hua" prolongs the Gb/F#, which is the controlling pitch of the opera. The dyad conflict is also worked out in this finale but this time it is embodied in the diatonic F natural/Gb that appears both in the Eb minor and Gb major sections.

One important aspect of this finale is highlighted when the Prince exclaims Turandot's name (rh.I.D.47+13). Each of the three callings presents a note that belongs to the C matrix: at the first exclamation, he reaches Eb which is supported by an Eb minor harmony; the second time, he sings Gb supported by a Gb minor harmony (enharmonic of F# minor); while in the last one he arrives at an A whose supporting harmony (A major) functions as a dominant of the key of the Mo-li-hua (D) of the next section (rh.I.D.48) (see example 16).

————— For the associations between D and Eb see Ashbrook and Powers, *Puccini's "Turandot,"* 41-42; see *ibid.*, 103-107 for more detailed implications of the transposition of this passage in relationship to the half-step relationship D-Eb.

This passage forecasts the confrontation of the Prince and Turandot in Act II, but at the same time presents a partial unfolding of the C matrix: Eb-Gb-A (with the absence of its root), therefore summarizing the control that this matrix has exerted over the harmonic progressions within Act I. At the confrontation of the Prince and Turandot in Act II, this passage will be presented with a small but profound change as it will be shown.

A large-scale structural analysis of Act I confirms that this act is delimited by F# minor at the beginning and Eb minor at the end. These harmonies have several common points: both harmonies are in minor, which results in a dark atmosphere; they have F#/Gb as part of their sonority (F# as the root, Eb as its third); and these harmonies belong to the C matrix. These are the two harmonies that permeate Act I and that will have a special place in Act II, where they will be juxtaposed right before the Enigma scene.

CHAPTER 5: ACT II

Ashbrook and Powers divide Act II into six sections (see diagram 2), and the act opens with the trio of the three Ministers. Puccini referred to this section as “a *morceau* **outside** of the action” (bold is mine), admitting that he took the composition of this number as “an almost academic piece”.——— The final result is a dramatic structure that follows the grand duet outline, where kinetic and static sections alternate and give momentum to this “difficult section”, as Puccini labeled it in one of his letters.——— The static sections coincide with the reflective moments of the three Ministers such as “Ho una casa nell’ Honan” (rh.II.A.9) and “Non v’è in China” (rh.II.A.21), where they are absorbed in their far away vision of their homes and dream of a peaceful China, respectively. The kinetic sections are far more unstable and dramatically bring them back to their sad reality. In the *tempo d’attacco* “Io preparo le nozze” (rh.II.A.1) the three Ministers “regret the past and lament the present,”——— while in the *tempo di mezzo* “O mondo, pieno di pazzi innamorati!” (rh.II.A.13) they recall past executions.

Puccini fits perfectly the dramatic action within the form of the trio but he also connects the sections of the trio harmonically by working out the dyad conflict F natural/F#. Example 17a offers a harmonic reduction of the trio and shows the working out of the dyad conflict, as well as the predominance of the 5-6 contrapuntal

——— Giuseppe Adami, *Giacomo Puccini. Epistolario*, (Milan: A Mondadori, 1928), letter 213.

——— *Ibid.*, letter 213.

——— Ashbrook and Powers, *Puccini’s “Turandot,”* 24.

relationship between the harmonies of the different sections, originated by third motions. As it is shown in the following example, Puccini assigns to the static sections the keys of D major and G major respectively, in which F# plays an

important role as both the third of D major and as the leading tone of G major. If we take seriously Puccini's words about the 'academicism' of this trio, the static numbers function as harmonic pillars with the F# first prolonged as third of D major, later transformed into the leading tone to G major, as explained above.

In terms of system analysis, the three Ministers' number continues to project the two dissonant matrixes against the C matrix. The 2# system supports the first static section *Andantino*, a system that is defined and activated. This section is followed by the kinetic *tempo di mezzo* where a 2b system interrupts at the words "O mondo, pieno di pazzi innamorati!" in clear allusion to the unknown Prince (see diagram 4). But in this second act, the 2# matrix has more weight because it challenges the C matrix as controller of the harmonic background, a conflict developed at all of the major events of this act (e.g. the Enigma scene).

Diagram 4. Trio of the Three Ministers.

Section	Scena	Tempo d'attacco	Andantino	Tempo di mezzo	Stretta
Rehearsal	II.0	II.1	II.9	II.13-II.14-II.18	II.21
Key areas	Dm-----	Am-----	D	Bb -Ebm-Eb-D7	G

System	“0”	“0”	2#	2b - 6b - 3b	1#
Matrix	C	C	2#	2b -“0”	2b
Dyad conflict		F	F#	F	F#

In the kinetic sections of the trio, their harmonies emphasize F natural as a pitch that is juxtaposed to the F# of the static sections. The *tempo d'attacco* starts in D minor (rh.II.A.2), and the *tempo di mezzo* in Bb major, a major third below. In both cases F natural belongs to the harmony and in both cases it is worked out by means of the harmonic motions within these sections. The *tempo d'attacco* begins in D minor when the Ministers sarcastically explain their duties under Turandot's reign (“Io preparo le nozze,” “Ed io l'esequie”). This section comes to a complete stop, following the dramatic action, when the Ministers stop their duties and express their unhappiness about their past and sadness about their present in “O China” (rh.II.A.3+4). A sudden modulation to G minor marks the beginning of this sequential passage that will move by minor thirds (Bb minor and Db minor) returning back to G minor. Even though G minor needs F# as its leading tone, Puccini replaces it with the lowered seventh degree (F natural) as well as whole-tone sonorities that emphasize the enharmonic of F natural (E#) (example 17b).

The harmonic motion from D minor to G minor resembles on a smaller scale the motion between the two static sections of the trio (D major and G major). By doing that, Puccini is working out the dyad conflict by association: the D minor and G minor sections emphasize F natural while the D major and G major prolong F#. This section is followed by a passage in A minor, which brings back the material of the sequential passage in the G minor section, and prepares the *Andantino* “Ho una casa nell’Honan” in D major by its minor dominant (rh.II.A.6+15). Therefore the previous *tempo d’attacco* is delimited by a fifth relationship (D minor-A minor) in order to finally reach D major in the *Andantino*. Although these fifth relationships are important to the harmonic articulation of the opera, it is the F/F# dyad conflict which directs the harmonic element that governs the choice of these keys and that controls their harmonic development.

As explained above the *tempo d’attacco* prolongs F natural as a sonority, which is supported as a common tone harmony within larger progressions. For example, the Bb major passage (rh II.6), which occurs right before the A minor section, and the Bb minor of the sequential passage as well as the D minor passage at the beginning, support F natural in their sonorities. Furthermore, when Puccini introduces keys that do not support F natural but on the contrary need F# to define the key such as G minor, he deliberately introduces the lowered seventh scale degree that is F natural.

In order to anticipate the F# that will govern the next section, Puccini introduces a dissonant Gb against F natural in the last measures of this section (rh.II.A.7+14) coinciding with the motive from the executioners’ chorus, a sonority that recalls the Executioners’ chorus stylistically and harmonically. In the Executioners’ chorus (rh I.9)

there is a tug-of-war between F# and F natural supported by F# minor and Bb major respectively (see example 9b). When this motive is recalled in the *tempo d'attacco* it is transposed to A minor (a minor third above the original) but the dyad conflict is still present, now as the diatonic half-step F natural/Gb.

The harmonic progression of the *tempo di mezzo* (rh II.13) is very similar to that of the *tempo d'attacco*: a descending fifth motion between the first two harmonic areas (Bb major-Eb minor/major) and a descending half-step motion that leads to the dominant of the static section (Eb-D7). In this kinetic section there is more interaction between the F natural and F# supported by the harmonic motion described above. This interaction is foreshadowed in the previous *Andantino*, where the placid D major is interrupted by a Db major passage when one of the three Ministers describes the blue lake in his hometown (“con il suo laghetto blu”). Even though this passage responds to color-painting technique, the harmonic implications that are explained in this study demonstrate that it has a deeper harmonic significance.

The harmonic function of the *tempo di mezzo* is to create tension in order to match the dramatic action, a tension that will be released at the next stable section. But this *tempo di mezzo* divides into four clear subsections that alternate stable and unstable passages, within the intrinsic instability of this section. “O mondo, pieno di pazzi innamorati!” (rh.II.A.13) and “Addio, stripe divina!” (rh.II.A.18) represent the subsections that are more stable within the *tempo di mezzo*. Both subsections are closed-ended and their harmonic centers are a fifth apart (Bb major-Eb major), mirroring at another scale the fifth relationship between the static sections of the trio (D major-G major).

The more unstable passages of the *tempo di mezzo* correspond to the passages where F#/Gb is brought back: those are the passages in Eb minor (“Vi ricordate il principe regal di Samarcanda?”) and the F# diminished seventh passage that starts the dominant preparation for the *stretta* (“Il talamo le voglio preparare!”). Both passages present F# conflicting with F natural, which is the pitch prolonged in the *tempo di mezzo* and *tempo d’attacco*. The F# diminished-chord passage has a special importance not only because it is the preparation for the G major *stretta*, but also because it represents the C matrix. This chord finally dissolves into a D major chord that functions as dominant for the next section. As it has been explained above Puccini prolongs F# in the static sections, but at the same time this pitch is used within the less unstable passages of the *tempo d’attacco* and *tempo di mezzo* in order to increase the tension. Therefore the function of F# as stable pitch is reversed in the kinetic sections of the trio, where it is used to create tension against F natural.

After analyzing the structure of the trio with its development of the dyad conflict F#/F natural as pitches associated with the static and kinetic sections of the trio, respectively, there is no doubt that the *scena* that starts Act II, serves as preparation for the harmonic issues that occur in the trio. Example 18 presents the ‘bicentric’ harmonies that start off this section outlining two tritones a half-step apart: Eb-A and E-Bb.

It is the first tritone (Eb-A), played in the high register and therefore more prominent to the ear that is of greatest importance to this analysis. The Eb-A tritone becomes part of the melodic line when Ping greets his fellow ministers Pang and Pong: this is the complementary tritone of the “0” system, which partitions the system tritone C-F# at its midpoint (Eb-A). The presence of this tritone activates the “0” system and the C-F# defines it, therefore their interaction in this passage confirms the C matrix amid the ‘bicentric’ harmonies. The F# is first presented in the melodic line at the words “Poichè il funesto gong desta la reggia,” while the F natural appears a few measures later following a similar melodic design to the words “siam pronti ad ogni evento,” displacing F# as the controlling pitch in the *tempo d’attacco*.

Coming back to the end of the trio, an offstage march interrupts the *stretta* (rh.II.B.25+2) implying a dominant seventh of Gb major, with Ab in the bass line, a harmony that will become Ab major for the choral Acclamation of the Emperor (rh.II.B.33+2). The interruption of the *stretta* is mirrored in the harmonic structure by the displacement of the 1# system (2b matrix) by the 6b system (C matrix) (see diagram 1). Throughout this section F natural prevails over F# with a few exceptions where F#/Gb takes over. The prominence of F natural is presented in the main motive of the march, where Puccini employs F-G as the ostinato motive, despite the fact that there is a Gb in the key signature. At the arrival of the “mandarins dressed in coats of azure and gold” ————— there is a brief modulation to Gb major followed by a more abrupt modulation to A major. The juxtaposition of these keys is not new in the development

————— Adami, Giuseppe and Renato Simoni. “*Turandot*.” *Dramma lirico in tre atti e cinque quadri*. English translation by K.H.B.de Jaffa. Milan: G. Ricordi, 1926, 47.

of the opera and it responds to the representation of the C matrix (Gb/F# and A).—————

The next modulation to C# minor (rh.II.29+7) is achieved by a 6-5 chromatic voice exchange from the A major section. C# will be the pivot harmony to go back to Ab major at the choral Acclamation of the Emperor (a similar progression in the first act goes from C# minor to Db minor to Ab major for the entrance of the Ministers). C# minor becomes Db major at the entrance of the three Ministers (rh.II.30) where the ostinato motive returns to its original pitch level (F-G). The Db pedal note will be reinterpreted as the minor seventh of an Eb dominant chord that will modulate to Ab major for the Acclamation of the Emperor (see example 19). At this moment the fermatas that punctuate the acclamations of the crowd (“Diecimila anni al nostro Imperatore”) present a dominant seventh chord on Eb with two dissonant notes: Eb and A. These notes not only belong to the C matrix system but also are connected directly to the Gb and A harmonic areas after the change of set. These three pitches belong to the C matrix that controls this section in spite of all the harmonic activity on the middle ground level.

————— See example 16.

After the choral Acclamation of the Emperor (rh.II.33+2) the rest of Act II corresponds to the three confrontations, ending the act in suspense. The three confrontations are divided into two parts separated by Turandot's entrance. In the first confrontation (rh.II.34), between the Emperor and the unknown Prince, Puccini uses an orchestration that pretends to be oriental and exotic in order to provide an appropriate atmosphere for their exchange. Their melodies are based on the Chinese pentatonic scale, a scale that is "transformed" in the introductory passage of this number

The peculiarity of this transformation lies in the fact that it has a 'wrong' note (F natural) ending the scale with the half-step E-F. Thus, the pentatonic scale that opens the first confrontation (rh.II.34) follows the design: A-B-D-E-F instead of A-B-D-E-F# (example 20). The substitution of F natural for F# in a pentatonic scale does not appear here for the first time; as we have pointed out in this analysis in the first notes of the entire opera E# (enharmonic of F natural) substitutes for F# (see example 4). In the first confrontation scene of Act II the F natural is always emphasized by an accent, right before breaking the pentatonic scale to end on an open fifth (C-G). This repeated open fifth at the end of each phrase would imply a section in C major; but it really functions as C pentatonic with mutable tonal center between A and C.

After the Emperor warns the unknown Prince of his "irremediable" fate, a brief ceremonial conclusion (rh.II.39) presents the dominant seventh harmony of B flat major leading to the reprise of the Mandarin's proclamation from Act I. When the chorus

repeats their Acclamation of the Emperor (“Diecimila anni”) the F natural is finally transferred to the root of the harmony (F-A-C-Eb), attaining a harmonic importance that will clash with Turandot’s *aria di sortita* in F# minor (rh.II.43). This Bb major section presents a peculiarity that is well explained by using system analysis. The Bb major section of the brief ceremonial conclusion (rh II.39) is supported by a 1b system (derived from a 2# matrix), therefore Turandot’s entrance is anticipated by the correction of the matrix (from the C to the 2#) that is associated with Turandot. This modulation is simultaneous with the working out of the F natural/F# dyad conflict that is projected in this passage (example 21).

Right before Turandot’s aria there are two reprises: the first one of the Mandarin’s proclamation “Popolo di Pekino” (rh.II.40) where the “bicentric” harmonies of the introduction prolong the F natural/E# sonority, followed immediately by the Children’s chorus “Dal deserto al mar” (rh.II.42) in D major (see example 21). The Children’s chorus melody (“Mo-li-hua”) that originally was presented in Eb major is here transposed to D major for different reasons: D major prolongs the 2# system presented in the previous section, but at the same time it projects F# as part of the harmony, a pitch that is prolonged until the second confrontation (from rh II.42 to rh II.50). The “Mo-li-hua” melody in D major, right before the entrance of Turandot, shifts

the orientation of this melody from the C matrix (when it was presented in Eb major) to that of the 2# matrix in a dramatic turn that anticipates Turandot's entrance.

Turandot's "In questa reggia" (rh.II.43) starts in D major and by means of a 6-5 chromatic voice exchange turns to F# minor at the words "Principessa Lou-Ling." This aria has an unstable middle section (rh.II.45) that modulates briefly to A minor with an emphasis on F natural until it modulates back to F# minor at the words "O Principi". The conclusion of this aria brings Gb major (enharmonic of F# major) as the key for the "maggiore peroration"———"Mai nessun, m'avrà!" The entire section described above is controlled by the C matrix, being surrounded by the 2# matrix before, at the brief ceremonial conclusion (rh II.39+1), and after, at the *più sostenuto* (rh II.47+8) (see diagram 5).

Diagram 5. Systems analysis of Turandot's entrance.

Section	rh II.40	rh. II.42	rh II.43	rh II.47	rh II.48
Key area	Dm-F#m	D	D—F#m-Am-F#m	Gb-D-F#	Eb-F#-Ab
System	1b	2#	"0"-3#--"0"—3#	6b- 2#	3b-6#- 4b
Dyad conflict	F	F#	F F#	Gb-F#	F
Dissonant System	2#-----"0"-----2#-----"0"-----2#				

The choice of systems and harmonic areas in this passage deserves special attention because there is a highly complex interaction of different levels of structure. At the deepest level, the C matrix controls the entire passage by projecting an interaction between the "0" and 3# systems followed by a modulation to the 6b system

for the Gb major section. It is significant that Puccini utilizes the C matrix to support Turandot's entrance, because previously Turandot had been associated with the 2# matrix; but the reasons behind this seeming contradiction lie in the projection of other significant musical materials associated with Turandot. Taking a closer look at the musical events surrounding the anticipated arrival of the "Ice" Princess will give light to this matter.

Right after the Children's chorus in D major (rh II.42), Turandot enters the scene with a sudden modulation to the "0" system which supports a D major harmony for her first words "In questa reggia." As John Louis DiGaetani points out in his study on Puccini's operas, this aria "indicates the depth of her neurotic fear and hatred of men,"——— caused by the rape and murder of her ancestor the Princess Lou-Ling. In order to portray this emotion, Puccini introduces the "0" system that not only supports a D major harmony but also presents a prominent C-F# tritone relationship, the "0" system tritone. When she is recalling her ancestor, Princess Lou-Ling, there is a system shift from the "0" to the 3# system that supports F# minor. When the chorus reveals the name of the king who committed the atrocity on her ancestress ("Fu quando il Re dei Tartari le sette sue bandiere dispiego!") the first section of Turandot's narration ends.

Right after, there is a chorus interjection where A minor displaces F# minor, a harmony change that also has a system change: from the 3# system to the "0" system. The unfolding of these complementary systems that belong to the C matrix supports the

——— John Louis DiGaetani, *Puccini the Thinker. The Composer's Intellectual and Dramatic Development* (New York: Peter Lang, 1987), 39.

F natural/F# conflict when Turandot continues her recounting of the cruel story of her ancestress (rh II.45). Another interjection of the chorus marks the shift back to the 3# system supporting F# minor (rh II.46+3) that leads to her confrontation with the Prince.

Turandot recovers from the sad memories that her story brought her, and now she confronts the unknown Prince with strong determination (“Mai nessun, m’avra!”); at this moment the F# minor becomes Gb major, a harmonic motion that is supported by the modulation from the 3# to the 6b system. The Gb major passage leads to one of the most dramatic moments of the opera and represents Puccini’s *tour de force*: after Turandot challenges and confronts the Prince for the first time, he responds to her taunts and confronts her power. Right after the *maggiore* peroration in Gb major, Turandot repeats her words “No, mai nessun, m’avra!” a major third down (D major), right before modulating to F# major (enharmonic of Gb major) when she directly addresses the Prince with the words “Straniero! Non tentar la fortuna! (rh II.47+13).

This study considers the section that follows this passage in a different light than all the previous studies because this analysis raises a question that had not been presented before. The unexpected modulation from F# major to Eb major at the words “Gli enigma sono tre, la morte è una!” responds to the arpeggiation of the C matrix, a harmonic progression that has been repeatedly presented throughout the whole opera. This phrase is presented three consecutive times: the first one in Eb major followed by a transposition to F# major and finally repeated in Ab major. It is in the last transposition that this analysis raises an important question: is the third key of the enigmas, the Ab transposition, the ‘wrong’ key? And, did Puccini actually intend for A major (a root pitch within the C matrix) to be at this point, but rejected the idea because

of range issues? This study presents these conjectures based on system analysis and how Puccini has used the C matrix throughout the opera up to this point.

As previously explained, this passage follows the harmonic progression: Eb-F#-Ab. Comparing this harmonic progression to the one when the Prince is about to strike the gong (rh.I.47+13) there are certain connections (see diagram 6). First of all, the dramatic situations are interconnected: when the Prince is about to strike the gong he is challenging the Princess and putting his life at risk, a moment revived here in Act II as the Prince faces Turandot right before her riddles. The ascending intervals (Bb-Bb-Eb, Db-Db-Gb, and E-E-A) used in the Prince's melody when he calls the Princess' name in the first act, are now restated at their confrontation (see example 16).

Diagram 6. Comparison between harmonic areas of the Prince striking the gong and Turandot and the Prince right before the enigma scene.

The Prince strikes the gong (rh. I. 47+13)

	Il Principe		
rh. I.47+13	“Turandot!”	“Turandot!”	“Turandot!”
Harmonic areas	Eb minor	Gb minor	A major
System	6b system	6b system	6b system
Matrix	“0” matrix	“0” matrix	“0” matrix

Turandot and the Prince right before the enigma scene (rh. II. 47+15)

	Turandot	Il Principe	Turandot/Il Principe
rh II.47+15	“Gli enigmi sono tre, la morte è una!”	“Gli enigmi sono tre, una è la vita!”	“Gli enigma sono tre, la morte è una/ una è la vita!”
Harmonic	Eb major	F# major	Ab major

areas

System	3b	6#	4b
Matrix	“0” matrix	“0” matrix	2# matrix

Furthermore, the first two harmonies of this sequential passage were at first presented in minor keys (Eb minor and Gb minor), and are now, in the second act, presented in their parallel majors (Eb major and F# major). This does not affect our analysis because all these keys form root positions within the C matrix: the Eb minor belongs to the 6b system, while the A major and Gb minor belong to the 3# system and its enharmonic 9b system, respectively. At the confrontation in the second act, Puccini actually uses different systems: Eb major to the 3b system, F# major to the 6# system (this time spelled as F# instead of Gb), and our hypothetical A major to the 3# system.

Puccini’s intentions behind this substitution of Ab major for A major are unknown but the conclusions drawn from it are quite interesting. The shape of this melody reaches high C at the word “sono.” If this passage had been written in A major the high C would have been transposed up a half step to high C#, a pitch that is far more extreme for the tenor register. It could be that Puccini had to transpose it down a half-step because “it is too high,” paraphrasing him in his explanations for the transposition right before Liù’s “Signore ascolta.”————— By transposing this passage to Ab major there is a major system conflict that increases exponentially the harmonic conflict of the passage. The Eb major and F# major that precede the Ab major

————— The transposition in Liù’s aria “Signore ascolta” from E minor to Eb minor was made by Ricordi, under Puccini’s instructions: “I remind Maestro Zuccoli that it is necessary to transpose the whole Act I Finale down a key, because as it is it’s too high. But it’s not a difficult matter, since it is taken from e to eb.” In a letter from Puccini to Renato Valcarengi on 21 February 1924 in *Carteggi pucciniani*, edited by Eugenio Gara, (Milan: Ricordi, 1958), letter 884, page 548.

unfold the C matrix and ‘our hypothetical’ A major would continue within the same matrix ; as explained before the unfolding of minor thirds belonging to the same matrix does not create harmonic tension.

On the other hand, the introduction of a dissonant matrix creates a major clash with the prevailing system. In this case, the presence of Ab major introduces a dissonant matrix—the 2# matrix (D-F-G#/Ab-B). This parenthetical insertion of the 2# matrix creates a powerful dissonance to the C matrix, the governing system of the whole opera, at one of the opera’s moments of highest tension. The 2# matrix is expressed at this moment by its divider tritone D-Ab: the Ab major key of the section and the D major harmony that ends this passage (rh.II.49+6).

After a brief modulation from Ab major to D major (rh.II.49) there is a passage that collapses into D minor (rh.II.50), a section that leads to the Enigma scene. The three riddles proposed by Turandot follow this outline: D minor-D minor-Eb minor, followed by the chorus Acclamation of the “Mo-li-nua” in Eb major (rh.II.62+7), which then functions as a dominant for the Emperor’s “Acclamation” melody in Ab major (rh.II.62+15). The three riddles are based on tritone relationships that need to be arranged hierarchically in order to get a sense of the harmonic plan. First of all, the F#/F natural dyad conflict remains very present in the harmonic events for this section. The first two riddles support F natural as the minor third of their harmony while the last riddle is transposed a half-step higher, so that F natural of the previous harmonies is now displaced by Gb (enharmonic F#) as the minor third of the Eb minor harmony. In this respect, the Enigma scene presents a clear-cut juxtaposition of the dyad conflict.

As explained before, the parenthetical insertion of the 2# matrix system within the C matrix starts in the Ab major section right before the Enigma scene, a section that modulates to D major. These two harmonies unfold the system tritone for the 2# matrix. The first two riddles in D minor imply a 1b key signature that is never used in this passage; instead, Puccini uses a natural key signature. Furthermore, when the Prince answers Turandot's riddles (rh.II.53 and 58) the system tritone of the 2# matrix is clearly presented as its octave divider. Therefore there is a clear conflict between the C matrix (represented by the key signature) and 2# matrix that is the active matrix since the insertion of Ab major in the previous passage (see diagram 7).

From this analysis it is clear that the 2# matrix parenthetical insertion is still operating at the deepest level of structure and that it conflicts with the C matrix expressed by the key signature. It is not until the third riddle in Eb minor than the C matrix finally wins over the 2# matrix, when the Prince answers the final riddle

Diagram 7. The enigma scene (rh II.50+2).

	rh II.50+2	rh II.54+3	rh II.59+2	rh II.63
Key areas	Dm	Dm	Ebm-----Eb	Ab
Key Signature	“0”	“0”	“0”-----3b	3b
System	“0”-----3b-----			
System Tritone	D-G#-----Eb-A-----			
Dissonant System	2#-----“0”-----			

(rh II.62), by means of the complementary system tritone of the “0” system, Eb-A. An even more direct indication that the C matrix ultimately wins over the 2# matrix is confirmed when the chorus sings the “Mo-li-hua” melody in Eb major supported by a 3b system at the words “Gloria, Gloria, o vincitore!” (rh II.62+7), when the crowd praises the Prince for his victory over Turandot.

The difficulty in analyzing the Enigma scene lies in its different structural levels and the contradictions that their interaction projects. System analysis provides a clear understanding of the 2# matrix parenthetical insertion within the C matrix, but on a higher level, Puccini inserts a series of diminished chords that define the local keys of the riddles (D minor and Eb minor) while conflicting against the deepest harmonic level—that of the system.——— In the first two riddles the diminished chord (C#-E-G-Bb) function as localized dominant harmonies to D minor; the meaning of this diminished chord represents the fear and mystery that Turandot’s riddles produce upon the Prince, whose life is at stake in this moment. Example 22a provides the reduction of the Enigma motive and the projection of the C# diminished chord in this motive.

——— As it is explained in chapter 2, it is important to differentiate between the systems as generators of all the possible keys and how these keys operate at local levels independently of the properties of the systems. As explained above the systems are related by minor third relationships that create the matrix, the diminished chord being the expression of this matrix. But on a higher harmonic level this diminished chord does not negate the use of other diminished chords at a more local level. In order to understand this relationship it is necessary to differentiate between the large-scale structural level provided by systems and matrixes, and the local harmonic progressions that operate above it on a middleground structural level.

The Prince's answers provide the reaffirmation of the system tritone (D-Ab), therefore confirming the local harmonic function of the C# diminished chord (see examples 22b and c).

It is at the third riddle that the clash of these levels takes on significant meaning. Following the procedure of the first two riddles, the Prince's answer to the last riddle provides the complementary system tritone of the "0" system (Eb-A); but the diminished chord that supports Turandot's last riddle is the one that defines the 2# system: D-F-G#-B (rh II.59). Therefore the clash between these matrixes (those of C and 2#) has taken over both the large-scale and the local harmonic levels; the last riddle represents the maximum expression of this conflict and the Prince's answer provides the resolution of this conflict when the C matrix wins over the 2# matrix. The Enigma scene expresses the conflict between Turandot and the unknown Prince, which is represented in musical terms by the dyad conflict between the F#/F natural which in turn, is supported by the C matrix and 2# matrix, respectively.

The Eb major “Mo-li-hua” melody that follows the Enigma scene functions as the dominant harmony for the Ab major choral “Acclamation” “Diecimila anni al nostro Imperatore!” (rh II.62+15). This time the Ab major harmony is supported by a 3b system instead of by a 4b system because the C matrix has replaced the 2# matrix as the governing matrix at the end of the Enigma scene. The Ab major is extended into the next section that is the coda of the second confrontation (rh.II.63). After the crowd has celebrated the Prince’s victory (“Gloria, Gloria, o vincitore!”) the Princess begs her father to liberate her from the hands of a stranger (“Figlio del cielo! Padre augusto! No! Non gettare tua figlia fra le braccia dello straniero!”). At this moment Ab major remains as her key (a key that had been used to introduce the dissonant 2# matrix in the previous section) supported by a 3b system that belongs to the C matrix. This is a way to represent musically what happens in the dramatic action: Turandot’s pleadings do not have any effect on her father and her power and command starts to diminish after the Prince’s solutions to her riddles.

In her pleadings there is a modulation by means of whole tone sonorities down a half-step to G major, which becomes the dominant harmony of the next appearance of the “Mo-li-hua,” this time in C major (rh.II.64+13). After begging her father, Turandot tells the Prince that she will never be his (“Non guadarmi cosi!”). A section in G major (rh.II.63+22) follows where Puccini works out the dyad conflict F#/F natural by presenting the F natural/F# as a diatonic relationship, E#/F#, that will be enharmonically spelled as F natural (rh.II.64+6) implying a modulation to C major, which happens a few measures later. This modulation serves to express the “Mo-li-hua” melody sung by the Prince (“No, no, Principessa altera!”) in C major, supported by the

“0” system that confirms the “victory” of the C matrix over the 2# matrix. In a dramatic twist, the Prince expresses that he wants her love, what leads him to propose his own enigma: if she knows his name at the rise of dawn he will die.

The Prince’s enigma starts the third and last confrontation (rh.II.65+9) using the Enigma motive (see example 22a) but the harmonic events are different. From this section to the end of Act II, F natural replaces F# as the controlling pitch. The beginning of this section is supported by D minor, which is the original key of the first enigma (“Tre enigma m’hai proposto!), but this harmony is quickly displaced by a half-step modulation to Db major (rh.II.66) at the words “Il mio nome non sai!” Throughout the opera there is a strong tendency to move from D minor/major to Eb minor/major, but this unexpected motion a half-step down, anticipates “the theme of the Prince’s name” used in the Prince’s aria “Nessum dorma” in D major (rh.III.4).

The Db major collapses into Db minor at the Emperor’s reaction to the Prince’s challenge “Il cielo voglia” (rh.III.67) that leads to the full ceremonial conclusion “Ai tuoi piedi ci prostriam” (rh.III.68+3) in F major, functioning as dominant for “Dieci mila anni” (rh.III.69) in Bb major. The large-scale harmonic progression of this passage presents a crossed third-relation that connects the D minor of the Prince’s enigma to the Bb major of the final chorus, and the harmonic areas of Db major/minor and F major that are enclosed between the Prince’s enigma and the final chorus (see example 23).

The system analysis provides a different harmonic perspective that explains the end of Act II. From the G major section that follows Turandot's "Figlio del cielo!" (rh. II.63+22) the key signatures and harmonic areas belong to the dissonant 2b matrix. But as explained in chapter 3, the 2b matrix does not provide support for the F#/F natural dyad conflict therefore it merely functions as a dissonant matrix to the C matrix. Up to this point in the opera, the 2b matrix had been associated with the characters outside Turandot's influence: Timur, Liù and the Prince, with the exception of its insertion at the beginning of Act II in the trio of the three Ministers (rh II.13) and at the change of set (rh II.21+2 and rh II.25).

The insertion of the 2b matrix at the third confrontation represents the Prince's power: he feels so secure about gaining Turandot's love that the 2b matrix is an expression of his confidence. Furthermore, the introduction of the Prince's name theme in Db major at the words "Il mio nome non sai!" (rh II.66) is transposed to G major at the Prince's aria "Nessun dorma" (rh III.4). These keys are separated a tritone apart (Db-G) and express the complimentary tritone within the 2b system.

The 2b matrix is displaced by the 2# matrix at the full ceremonial conclusion (rh II.68+3) that supports the 1b key signature when the chorus acclaims the Emperor ("Ai tuoi piedi a prostriam"). The harmonies at this moment are an F major dominant seventh that will eventually resolve to Bb major at the words "Gloria a te!" a passage that presents the lowered seventh (Ab). It is important to notice that Act II ends with the 2# matrix even though the Prince's newly gained power is still operating. The 2# matrix at the end of Act II is juxtaposed against the C matrix at the beginning of Act III, a

relationship that represents the conflict of the opera but also represents Turandot's hope to regain her own power.

CHAPTER 6: ACT III

The analysis of the last act presents some difficulties not only associated with the fact that Puccini did not finish it, but also because the harmonic complexity he had achieved in the first two acts needed to be resolved. Another aspect that makes this act very complicated is the dramatic weight that a secondary character, Liù, takes on within

the drama when she commits suicide, despite the fact that she and Timur, her master, had not appeared at all in Act II.

In a description of Liù's dramatic role, Mosco Carner describes her as "a composite figure" that despite the fact that "she does not advance the essential drama by one iota, it must be conceded that her presence serves to enlarge both the emotional and musical range of the opera appreciably, and that she remains the only character who touches our heart. Puccini needed the poignant element embodied in Liù to kindle his fundamentally 'tragic' imagination." ————— For the most of the opera Liù does not contribute to the dramatic development, but Carner does not take into account that Liù's only action in the whole opera, her suicide, gives the most dramatic change to the opera, difficult to overcome both musically and dramatically. The "poignant element" that Carner refers to was conceived by Puccini as "a powerful influence in bringing about the thawing of the Princess." —————

It is well known by his correspondence with his librettists Giuseppe Adami and Renato Simoni that Puccini gave a special emphasis to the grand duet following Liù's suicide, a duet that he considered to be "the *clou* of the opera." ————— Two months before his death Puccini wrote on the subject to Adami: "it must be a great duet. Those two almost superhuman beings descend through love to the level of mankind, and this love must at the end take possession of the whole stage in a great

————— Mosco Carner, *Puccini. His Life and Works* (Oxford: Oxford University Press, 2002), 518.

————— Adami, *Epistolario*, letter 206, quoted in Ashbrook and Powers, *Puccini's "Turandot,"* 89.

————— Eugenio Gara, ed. *Carteggi pucciniani*, letter 877, 545.

orchestral peroration.”——— This description of the grand duet represents the central theme of the opera: love as “the force that can change the cold, bloody Princess and her people into loving human beings,” what DiGaetani calls “the mystical power of love”——— Puccini envisioned Liù’s suicide as the generator to Turandot’s change of heart but the difficulties created by this action were complicated to overcome.

Puccini completed the first three major “musico-dramatic” numbers of Act III: the Prince alone, the tempting of the Prince, and the slave-girl and the Princess (see diagram 2). Act II had finished with the projection of the 2# system, and with F natural displacing F# as the controlling pitch. In Act III, at the point of the confrontation between the slave-girl and Turandot, the C matrix and F#, as a pitch, have already regained their original positions as controlling elements of the harmonic events; however, it is important to detect the turning point of this transformation, which will be explained by the system analysis of this act.

Act III starts with two major numbers where the prince Calàf is the main character. The first number presents him wandering in solitude in the middle of the night when he sings his *romanza* “Nessun dorma” (rh.III.4), immediately followed by the entrance of the three Ministers who present three temptations to him, which he rejects (see diagram 2). After the last temptation, the soldiers bring Liù and Timur to torture them in order to find out the Prince’s name. At this point Turandot enters (rh.III.16+5) and believing that she has found out the Prince’s name she challenges him

——— Adami, *Epistolario*, letter 237, quoted in Ashbrook and Powers, *Puccini’s “Turandot,”* 88

——— DiGaetani, *Puccini the Thinker*, 38. In the chapter dedicated to *Turandot*, DiGaetani identifies the mythical and mystical aspects of this opera. In this respect DiGaetani finds similitude between *Turandot* and Richard Wagner’s *Parsifal*.

in her “Sei pallido, straniero” (rh.III.18+3). It is at the entrance of the Princess that the Gb (F#) is finally brought back, supported by the C matrix. The previous sections of this act, with the exception of the introduction and chorus of heralds offstage, are supported by the dissonant 2b matrix that represents the Prince’s world.

In the next major number, (the slave-girl and the Princess, rh.III.20) the dyad conflict is fleshed out by juxtaposing F natural/F#: Liù’s aria “Tanto amore segreto” in F major that belongs to the 2# matrix (rh.III.24) is immediately followed by Liù’s torture “Sia messa alla tortura!” in F# minor that belongs to the C matrix (rh.III.25+6). Right after this section the F# is respelled enharmonically as Gb for the suicide and funeral cortège of Liù (rh III.27) (example 24 presents a harmonic reduction of these numbers). From this point to the end it is Franco Alfano’s completion of the opera based on Puccini’s sketches and drafts, including original passages by Alfano, and cuts and arrangements by Toscanini.————— But returning to the beginning of Act III one can analyze how the harmonic events interact within the dramatic development.

The introduction and chorus of offstage heralds at the start of the act (rh.III.0), presents “bicentric” harmonies based on the harmonies of the first act introduction.

————— Several major studies on Franco Alfano’s ending and the difficulties he went through to finish the opera with Toscanini, and the Ricordi publishers are cited in the previously mentioned Maguire, “Puccini’s Version of the Duet,” 319-359, and Fairtile, “*Duetto a tre*,” 163-185.

This time these harmonies project prominently the tritone as a sonority being D-G# the prominent tritone, which is fleshed out by F-B to complete the 2# matrix (D-F-G#/Ab-B). Following this pattern, the harmonic progression of the whole passage follows this sequence of diminished chords: D-F-G#-B/ C#-E-G-Bb/ C-Eb-F#-A, being the 2#-2b-C matrixes respectively. The juxtaposition of these matrixes at the beginning of this act occurs at a local harmonic level, and therefore does not disrupt the dyad conflict that is being worked out on the deepest structural level (See example 25).

The natural key signature projects the C matrix, a procedure followed at the beginning of each act of the opera. As explained before, the C matrix presented by the key signature is juxtaposed to the 1b system at the end of Act II that presents the matrix conflict of the opera (C matrix against 2# matrix). But is it really the C matrix governing the beginning of this act or Puccini presents a deceiving key signature that conflicts with the real supporting matrix?

In the bass line, which articulates the harmonic rhythm in the first measures of the act, the system tritone D-G# of the 2# system has predominance over the other two tritones (G-C# and C-F#, respectively). The opening five-measure phrase emphasizes D as the starting pitch center and reaches A which functions as a half cadence, a hierarchy that is reversed at the entrance of the chorus of heralds (rh III.1) where A minor

becomes the implied pitch center with diatonic functions. The juxtaposition of the “bicentric” harmonies with that of the diatonic passages reinforces A minor as the controlling harmony of this section. At the same time Puccini presents the conflict between the C and 2# matrixes by using a key signature that implies the C matrix but unfolds the 2# system tritone D-G#, which is dissonant to the C matrix.

The A minor harmony of this passage leads to the *romanza* of the Prince that starts in G major and quickly modulates to D major. It is very clear that Puccini wants to reach D major as the first harmonic goal of Act III therefore he implies the 2# as the governing matrix, even though the natural key signature is supported by the C matrix (see diagram 8). For most of this study the 2# matrix has been associated with Turandot’s influence, then why, at this point, does he use the 2# matrix as background during the Prince’s aria? As explained before, Puccini is working out different harmonic elements that do not always support each other. When this is the case, the predominance of one above the others responds to the importance that he gives to one of them in support of the dramatic development.

For example, the matrix conflict had been worked out to high levels of intensity at the Enigma scene while at the same time F natural was slowly displacing F#, culminating Act II with F natural as the prominent pitch. At the beginning of Act III, Puccini gives predominance to the dyad conflict above the matrix conflict, for this reason the 2# matrix that governs the beginning of this act supports F natural as the controlling pitch and the matrixes are subsidiary to the dyad conflict. To make things more complicated the different key signatures of these sections (from rh III.4 to rh III.9) belong to the 2b matrix, but as explained above it is the 2# matrix that is the one that is

actually in control by means of its complementary tritones. The 2b matrix operates at the local level relating this passage to the Prince's world, in opposition to the C matrix that surrounds this passage (rh III.0 and rh III.9 respectively), and the 2# system operates subservient to the dyad conflict————— (Diagram 8 presents a complete description of the system interactions that operate at different levels in this passage).

Being the dyad conflict the element that controls this passage it would be interesting analyze how it is worked out. In the middle of the *romanza*, the modulation to D major supports the displacement of F natural by F#, which is anticipated in the “bicentric” harmonies of the previous passage that juxtapose F natural and F# by means of the diminished chords (see the diminished chords of example 25). This displacement is confirmed by the G major *romanza* of the Prince, that had been anticipated at the end of Act II in Db major (therefore supporting F natural), but this time the modulation to D major brings back F# as the controlling pitch (see example 24).

The end of this aria represents the Prince's confidence in his victory of his love over Turandot, a victory that is represented by a D major harmony supported by a concealed 2# matrix, with a 1# key signature that operates on a lower structural level. The conflict of matrixes is prominent but they work at different levels of structure: one supports the dyad conflict of the opera, while the other symbolizes the Prince's world, as explained before.

————— This conflict represents one of the major difficulties in analyzing *Turandot*: the superposition of the associative and structural harmonic conflicts of the opera. Puccini seems not to have a systematic procedure to work out the conflicts of the opera, and often the symbolic and associative meanings of the harmonic areas clash against the structural and large-scale harmonies.

Diagram 7. Systems interaction in Act III.

ACT III

	A. The Prince alone Princess			B. The tempting of the Prince			C. The slave-girl and the			
Rehearsal rh.27	rh. 0	rh. 4	rh. 6+5	rh. 8+5	rh. 9	rh. 16+5	rh.20	rh.24	rh.25+6	
Section Suicide and funeral	Introduction	“Nessum dorma”	Extension and transition cortège of	The first temptation (women)	Two more temptations (wealth, glory)	Entrance of Turandot	<i>Tempo d’attaco</i> “Sia legata”	Aria di Liù	<i>Tempo di</i> <i>mezzo</i>	Liù
Key Area Ebm	Am	G-D	D-G	Gm-Dm	Dm-Ebm	Gb-Cm-Abm	Em	F	F#m	
System	“0”	1#	1#	2b	“0”	“0”-3b	“0”	1b	“0”	6b
Matrix -----	“0”	2b-----	2b	“0”-----	“0”-----	“0”-----	2#	“0”-----		
Dyad Conflict	F	F#-----	F	F-Gb	Gb(F#)	(E)-F	F	F#	=	

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Gb

Dissonant Matrix 2#-----

C matrix regains
its position as
background matrix

2# **C matrix**---
parenthetical
insertion

At the entrance of the three Ministers and the populace, (rh.III.6+5) D major becomes the dominant seventh of G major, a harmony that is never fully achieved by a cadence. Instead of G major, the first temptation (women) “Guarda, son belle” reaches G minor and is transposed up to D minor for the second and third temptations (wealth, glory) “Che vuoi? ricchezze?” (rh.III.9). In the first temptation, the complementary tritone of the 2b system C#-G belongs to the middleground level, and therefore does not displace the 2# matrix as the governing system. The secondary function of the C#-G tritone is determined by the secondary level that the G minor harmony has in relationship to D major/ minor harmonies. After the *romanza* of the Prince in D major the motion towards G major/minor is quickly reversed and brought back to D minor (rh.III.8+15); therefore its function is merely a pivotal one: it helps to collapse D major into D minor for the second and third temptations. As a result, the F# that had been brought back at the Prince’s *romanza* now collapses into F natural at the D minor harmonic area.

At the second and third temptations (rh.III.9) the three Ministers try to persuade the Prince by offering him wealth and glory (“Che vuoi? ricchezze?”). Here Puccini uses a pentatonic scale that lacks F natural or F#: C-D-E-G-A. It is not until the Prince’s furious reply “Alba, vieni! Quest’incubo dissolvi!” (rh.III.12) that he finally sings an F natural followed by the G#-D tritone arpeggiating part of the 2# matrix system (example 26). That is an unequivocal sign that the 2# matrix is still in control of the middleground harmonic events in spite of the key signature implied by the C matrix.

When the Ministers threaten the Prince in “Straniero, tu non sai,” the pentatonic passage returns (rh.III.14) after a brief incursion into C minor, which is implied by its dominant seventh chord (rh.III.12+5) This C minor passage supports F natural instead of F#, implying a 2# matrix system as background, but at the same time it anticipates the Eb major/Eb minor section that will appear a few measures later (rh.III.14+11).

A group of soldiers bring in Timur and Liù (rh.III.15) convinced that they know the Prince’s name (“Eccolo il nome!”); at this moment, a modulation to Eb major takes place, collapsing a few measures later into Eb minor. In this section the F natural is associated with Gb (F#), which foreshadows the entrance of Turandot that will be in Gb major (rh.III.16+6) (see example 24). As in the second act, the entrance of Turandot is associated with F#/Gb, a sonority that is the octave divider of the C matrix. At the entrance of Turandot in the third act, the return of the “Mo-li-hua” melody in Gb major is very significant because it displaces momentarily the F natural as the controlling pitch, but at the same time it marks the return of the C matrix after the lengthy passage where the 2# matrix had displaced it as the background matrix.

Diagram 9 shows all the presentations of the “Mo-li-hua” melody in different keys throughout the whole opera. This melody, associated with the Princess, is presented in all three matrixes and in four different key areas: Eb major, D major, C major, and Gb major. At the entrance of Turandot (rh.III.16+5) the “Mo-li-hua” melody in Gb major projects the C-Gb tritone supported by a C matrix what makes the F# (Gb)

to regain its position as background pitch supported by the C matrix. At this point the 2# matrix no longer supports Turandot's music and it is subsumed into the background matrix of the opera (C matrix). At the same time, F# regains its predominance as background pitch of the opera by means of its enharmonic Gb, which will be projected into the Eb minor section of Liù's suicide and funeral cortège.

Diagram 9. The different appearances of "Mo-li-hua."

	Section	Key area	System	Matrix
rh I.19	Children's chorus	Eb major	3b	C
rh I.48	Prince strikes the gong	D major	2#	2#
rh II.42	Children's chorus	D major	2#	2#
rh II.62+7	Chorus	Eb major	3b	C
rh II.64+13	Turandot /chorus	C major	1#	2b
rh II.65	Il Principe	C major	2b	2b
rh III.16+5	Entrance of Turandot	Gb major	"0"	C

After this Gb presentation of the "Mo-li-hua" a modulation to C minor at Turandot's words "Sei pallido, straniero!" leads to a sequence of the "Recognition" melody (rh.III.18+3) that unfolds descending major thirds from C minor to Ab minor to finally arrive at E minor in the next section (rh III.20). The modulation from Gb major to C minor finds its way by the enharmonic spelling of Gb as F# major that collapses into A minor followed by B minor and finally C minor. Example 27 presents a contrapuntal abstraction of the modulation from Gb major to C minor by means of enharmonicism and contrapuntal harmonic motions.

The Ab minor sequential passage that follows the C minor (rh.III.19) is still under the C matrix as it articulates the tritone Gb-C also spelled as C-F#. This sequential passage repeats the “Recognition” melody and corresponds to the moment where the Prince, Timur, and Liù are brought together since Act I. Liù confesses that she knows the Prince’s name, in order to save her master’s life, and at that moment she is unexpectedly interrupted by the bloodthirsty crowd that anxiously ask the soldiers to torture her to find out the Prince’s name (“Sia legata!” rh.III.20). This dramatic twist has its musical correspondence in a sudden modulation to E minor that is another descending major third from the previous Ab minor (see example 24).

The E minor section marks the beginning of the *tempo d’attacco* of Liù and Turandot’s duet (rh.III.20). This section functions as a lower neighbor tone to F natural that is the next harmonic area for Liù’s aria “Tanto amore segreto” (rh.III.24). The F natural is already present in this E minor section as the half-step motive F-E that is transposed in the ascending chromatic rising at the beginning of the *tempo d’attacco* (rh.III.20). F natural has a prominent position in the second half of this section when the soldiers start to torture Liù (rh.III. 21); first as a single pitch, but then as the passage advances the F natural becomes part of the F major chord (rh.III.23+7), an anticipation of Liù’s aria in F major.

Coming back to the entrance of Turandot the descending major-third sequential passage that starts at Turandot's "Sei pallido, straniero!" prolongs F# that had been introduced as Gb major (rh.III.16+6); the resolution of the F# prolongation to F natural coincides with Liù's aria in F major that is preceded by a E lower neighbouring tone (E pedal tone that supports E minor and G major harmonies). The E-F relationship of this passage is worked out throughout the E minor passage and is summarized right before Liù's aria. After Turandot asks Liù what gives her so much strength to endure the torture, she answers with the words "Principessa, l'amore!" to which Turandot replies "L'amore!" The last notes that coincide with the words "l'amore" are E natural and F natural in Liù's and Turandot's vocal lines, respectively (see example 28).—————

It is very significant that Puccini wants to stress the relationship between E-F throughout the whole passage and the last notes of the section encapsulate the lower-neighbor relationship. Prolonging the F natural, Liù's aria in F major extends the F natural as the controlling pitch, but this aria also introduces the 2# matrix as a parenthetical insertion within the larger C matrix, which was regained with Turandot's entrance (see diagram 8). The complementary system tritone of the 2# matrix (F-B) is articulated when Turandot orders her guards to torture Liù to find out the Prince's name

————— Turandot's words were added by Puccini, as explained in Ashbrook, and Powers, *Puccini's "Turandot,"* 38.

(rh III.25), which follows Liù's declaration of love and fidelity to the Prince. This parenthetical insertion finishes when the C matrix returns at the *tempo di mezzo* (rh.III.25+7) with the change of key signature and the projection of the tritone C-F#; at this moment material from the executioner's chorus in F# minor (rh I.4) returns in a moment of great despair because the executioners are about to torture Liù for a second time ("Sia messa alla tortura!").

The *tempo di mezzo* "Sia messa alla tortura!" symbolizes a return to F# as the controlling pitch supported by an F# minor harmony and also the arrival of the C matrix, defined by its matrix tritone C-F#. At the point of deepest suffering for Liù ("Più non resisto!" rh.III.26) there is a juxtaposition of F# in the bass line as a pedal note and F natural as part of a descending melodic line: G-F-E. The clash of these pitches at this moment portrays a desperate dramatic situation: Liù is no longer able to fight for her life because of the unbearable pain. This dramatic situation in the *tempo di mezzo* brings us to the final section of the duet, which is the suicide and funeral cortège of Liù (rh.III.27).

After the C matrix regains its dominant position at the entrance of Turandot, this section presents Gb and a key signature of 6 flats supporting Eb minor. In the aria "Tu che di gel sei cinta" Liù warns Turandot that she will succumb to the Prince's passion. Being unable to hold the unbearable pain, she grabs a sword from a nearby guard and commits suicide, a tragic action that has its response in the chorus interjection "Ah! Parla! Parla! Il nome! Il nome!" Right after that the Prince laments Liù's death ("Ah! Tu sei morta, o mia piccolo Liu!"), and his father Timur's kneels down to give her words of condolence and pity ("Liu! Liu! Sorgi! Sorgi! E l'ora chiara d'ogni

risveglio!”). The whole section is governed by the C matrix that projects a prominent tritone C-Gb (F#) with the dyad conflict, now the diatonic half-step F natural/Gb.

In a despairing moment, Timur accuses everybody of killing innocent Liù (“Ah! Dellito orrendo!”). Then the crowd is seized by a superstitious fear: they are afraid that Liù’s ghost will revenge the injustice perpetrated on her (“Non farei del male!”) in an Ab minor passage that projects Cb-Fb, which functions as upper neighbour to the Eb-Bb primal fifth of Eb minor. As the funeral cortège resumes in Eb minor the crowd starts to disperse until the Prince and Turandot remain alone, facing each other.

“The opera ends here, because at this point the Maestro died. Death was stronger than art.”——— At the première of *Turandot*, after Liù’s funeral cortège, Toscanini laid down his baton and pronounced those words finishing the performance of the work. Since this is the last music that Puccini wrote we end our analysis here, following George A. Marek’s comment: “Now the duet between the Prince and Turandot begins. It is followed by the final scene, in which Turandot avows her love. This music is Alfano’s and need not be commented upon here.”——— This study does not degrade Franco Alfano’s ending but, on the other hand, it would be out of context to the purpose of this study. First of all, at the time of his death Puccini “appears to have left no instructions for the disposition of his *Turandot* sketches and drafts,”——— therefore the materials he left are in their embryonic stage. An

——— Weaver, *The Golden Century of Italian Opera*, 242.

——— George R. Marek. *Puccini*. (New York: Simon and Schuster, 1951), 393.

——— Fairtile, “*Duetto a tre*,” 166.

analysis of these materials would not provide more than hypothetical conclusions of what might have been the final product.—————

On the other hand, an analysis of Franco Alfano's ending with the method of analysis used here would provide results that might not be Puccini's intention. Furthermore, a study of Alfano's ending would not provide an argument by which to judge Puccini's ability to successfully finish the opera (i.e., successfully resolving the dyad and systems conflicts in a convincing way). Not knowing how Puccini would have finished this opera is no reason to "accuse" him of being unable to solve the musical and dramatic problems he had set forth in the previous acts. In this respect Ashbrook and Powers are right when explaining that the dramatic problem of Act III, where a secondary character (i.e., Liù) had gained much dramatic weight right before Turandot's transformation, was difficult to solve, but "if Puccini had received the almost definitive text in April 1924 instead of in October, the month before his death, he would surely have found the energy to compose and orchestrate those last fifteen minutes of music."—————

————— A comprehensive study on Puccini's sketches and drafts is Jürgen Maehder, "Studien zum Fragmentcharakter von Giacomo Puccinis *Turandot*," *Analecta musicological* 22 (1984): 297-379. The primary bases for his analysis is the correspondence between Alfano and Ricordi officials, as well as Puccini's manuscripts and Alfano's scores.

————— Ashbrook, and Powers, *Puccini's "Turandot*," 87-88.

Even though the resolution of the dyad and systems conflicts, apart from the dramatic resolution of Liù's death, would burden him to finish the opera there is no definite reason to believe that Puccini's inability to successfully solve these problems was the main cause for leaving the opera unfinished. In this respect, Julian Budden's assertion that "there is no denying that the *dénouements* of *Suor Angelica* and *Turandot* call for a sublimity to which his creative imagination did not extend, possibly inhibited by a deep, underlying pessimism,"————— remains, in the case of *Turandot*, a hypothesis inspired by the fact that Puccini did indeed suffer health problems. This study, instead of stressing his inability to finish this opera, prefers to speculate on how he would have solved the matrix conflicts: if the C matrix would have been replaced by the 2# matrix, or the C matrix would still govern the harmonic events of the piece, or even, if they would have coexisted finishing the piece in a system conflict (the key signature belonging to one matrix but the other matrix being the one that controls the harmonic events). Also, would the dyad conflict F#-F natural have been resolved to F#/Gb or, on the contrary, would F# have collapsed into F natural to depict Turandot's change of heart at the end of the opera.————— Unfortunately, all these questions will remain unanswered but maybe that is the way it should be.

————— Julian Budden, *Puccini. His Life and Works* (Oxford: Oxford University Press, 2002), 479.

————— In the last paragraph of his study on *Simon Bocanegra*, Edward T. Cone explains how Verdi expressed in the last measures of the opera the descending half-step motion from Fb to Eb as the resolution of the conflict of the opera. Cone, "On the Road to *Otello*," 98.

CONCLUSION

As it has been demonstrated in this thesis Puccini's *Turandot* holds a special place among the great opera masterpieces not only because of the extra musical circumstances that surround the composition of this opera, but also and primarily because of Puccini's attempt to adopt his musical language to the new modernist tendencies flaring up at the turn and first quarter of the twentieth century.

The object of this thesis was to demonstrate that Puccini became interested in presenting "a *Turandot* by way of the modern mind," not only in the dramatic aspect of "presenting the heroine in terms of the repression and release of sexual conflict,"————— but also in his musical language. In this respect, Puccini's influences are oriented toward tritone symmetries that control the large-scale harmonic

structure.

In spite of being an unfinished work, in *Turandot* Puccini achieved the highest levels of harmonic complexity that match a very ambitious libretto, becoming a monument to his long and successful career.———— The fact that it is an unfinished work does not take away its prominent place in the operatic genre. As his librettist Giuseppe Adami wrote: “This opera was stopped at the point in which the Maestro must have abandoned it. So *Turandot* happened like a life symbol of the artist’s life: a brief story of applause and success interrupted by a pause of eternity.”————

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