

Synthetic Harmony, Roman-numeral Figuration and the “Tristan” Chord

Michael Galganski

This article introduces an analytical method for interpreting non-triadic and highly chromatic harmony, as exemplified by the celebrated “Tristan” chord in the Prelude of Richard Wagner’s opera, *Tristan und Isolde*. Initiating with research on synthetic harmony regarding Scriabin’s “Prometheus” symphony, the author borrows and enlarges the term, while considering similar passages in Wagner’s composition, as well as references from Wagner’s philosophical writings. Recognizing the high incidence of tritone intervals amid the Prelude’s contrapuntal technique, the author then proposes an expansion of tonality to include both higher and lower levels of theoretical function. Concentrating on those lower operations which are characterized by tritone pairings also, the author classifies these sonorities through a revised form of Roman-numeral figuration. Examining selections from Wagner’s published score, this paper illustrates several phenomena unique to synthetic harmony, before drawing a conclusion on ramifications for the analysis of other works, and critiquing other Tristan chord theories accordingly.

§1 THEORETICAL ORIGINS

The concept of synthetic harmony has an engrossing history, although its terminology has scantily survived in the body of theoretical analysis today. Exploration of the idea began with the musicologist Leonid Leonidovich Sabaneyev,¹ who studied Alexander Scriabin's *Prometheus: The Poem of Fire*, Op.60 (1910), and who thereafter became a published authority on the composer. *Prometheus* itself has earned a reputation as being among the more perplexing pieces in the

¹ Sabaneyev, Leonid Leonidovich. *Skryabin*. Moscow, 1916 (1923).

Western musical canon,² owing in part to what's been called the "Mystic" chord.³ Sabaneyev hence advanced a theory which deciphers the six-note pitch collection as springing from the outer segments of the overtone series,⁴ and so his notion of non-triadic harmony was born. Though "synthetic" was later coined by Nikolay Andreyevich Roslavets in 1924,⁵ its melodic foundation had developed earlier as Ferruccio Busoni experimented with unorthodox scales in his *Sketch of a New Esthetic of Music* (1907),⁶ and their assorted varieties were eventually compiled by James Murray Barbour (1929).⁷ Over time, the term diffused and failed to gain traction, beyond describing chords that generally cannot be analyzed with tonal structures.⁸ I would like to adopt "synthetic" as non-triadic harmony, but within a new method of analysis for a tritone-based branch of the tonal system. In addition to describing its mechanics and defining a discrete vocabulary, this study will culminate in a sample analysis of one of music's most obdurate sonorities: Richard Wagner's "Tristan" chord.

§2 HISTORICAL SURVEY

The Prelude to Wagner's *Tristan und Isolde* (premiere 1865) has long mystified music theorists when attempting to explain its harmonic content, especially as embodied within the opera's first sounding chord, popularly known as the "Tristan" chord. Succeeding generations of

² A notable anecdote is documented by Richard Taruskin in *Defining Russia Musically* (1997: 340-1). Citing a paper by Igor Boelza, Taruskin notes that "at an early rehearsal of *Promethie*, Rachmaninoff, stunned at the sound of [the chord], asked Scriabin, 'What are you using here?' Scriabin answered, 'The chord of the pleroma'." Though meaning "fullness" in Christian Gnosticism (Liddell & Scott), theosophical tradition, of which Scriabin was intensely interested, employs the word more expressly to mean "Infinite manifestation in manifestation (and) therefore, chaos." (Blavatsky: 491).

³ Hull, Arthur Eaglefield. *A Great Russian Tone Poet: Scriabin*. London: K. Paul, Trench, Trubner, 1916 (1920).

⁴ Sabbagh, Peter. *The Development of Harmony in Skryabin's Works*. Irvine: Universal, 2003.

⁵ Roslavets, Nikolay Andreyevich. "Nik. A. Roslavets o sebe i svojom tvorchestve" [Roslavets on himself and his work], *Sovremennaya muzika*, No. 1 (1924): 132-8.

⁶ Busoni, Ferruccio. *Entwurf einer neuen Asthetik der Tonkunst*, translated by Dr. Th. Baker. Trieste. New York: G. Schirmer, 1907 (1911).

⁷ Barbour, J(ames) Murray. "Synthetic Musical Scales." *The American Mathematical Monthly* 36, no. 3 (1929): 155-60.

⁸ Sitsky (42) discusses Roslavets' endeavor to create strange "fields of sound", though no attempt was apparently made by either the composer or writer to unequivocally define *sintetakkord* as an "unexplainable" chord or harmony. Popular encyclopedias like Wikipedia (2020), however, have more recently adopted "synthetic" to mean the latter idea.

scholars have contributed important work with a myriad of approaches,⁹ although Wagner himself was verbose on the subject of composition with clues that can be gleaned from his essay, *Oper und Drama*.¹⁰ While the exact meaning of the written prose is often metaphorical and difficult to grasp, let us apply those quotes to musical functions as they become relevant under discussion.

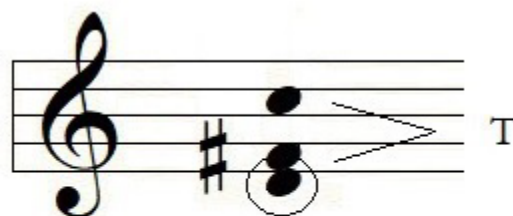
When examining the score of the Prelude, one cannot help but notice how the majority of passages are highly chromatic, particularly within the context of mid-nineteenth-century Western music. Although chromatic writing had become well-established by the opera's premiere, Wagner's artistic language nonetheless was revolutionary, specifically with regard to how frequently he alternated between extended triadic sonorities and harmonically ambiguous chords.

When next considering the prevalence of dominant seventh, diminished and other chromatic chords in the music which contain a tritone (e.g. m. 19; Example 1), a case can be made for elevating the interval to a more prominent status, rather than discarding it as a coincidental trait. Referring to the third chapter and second section of *Oper und Drama* (142) while advancing the chromatic tritone as a form of textural "growth", Wagner likewise professes that "This kinship of the tones, (however), is musical *harmony*; and we here have first to take it according to its superficial extension."

⁹ A current compendium of scholars dedicated to understanding the chord's greater meaning remains to be seen, however, and if chronology is a gauge of interest, the following lists published authors by decade: Kistler (1879), Jadassohn (1899), Arend (1901), Ergo (1912), Schenker (1925-30), Distler (1940), Schoenberg (1954), Chailley (1963), Erickson (1975), Gut (1981), Reiman (1998), Martin (2008), Ellis (2010), Groos (2011). An otherwise absorbing survey of Tristan-like sonorities preceding Wagner's opera has been compiled by Povilionienė and Šaltmirytė (2018).

¹⁰ Though five years elapsed between finishing the essay and the writing of *Tristan* by 1859, Wagner wrote a letter to Mathilde Wesendonck on October 29, 1858 and proclaimed that his musico-dramatic ideas were most perfectly realized in the opera: "My subtlest and deepest art I now might call the art of transmutation; the whole consists of such **transitions** (emphasis added by author): I have taken a dislike to the abrupt and harsh; often it is unavoidable and needful, but even then it should not enter without the mood being so definitely prepared for a sudden change, as of itself to summon it. My greatest masterpiece in this art of subtlest and most gradual **transition** is assuredly the big scene in the second act of *Tristan und Isolde* (212-3).

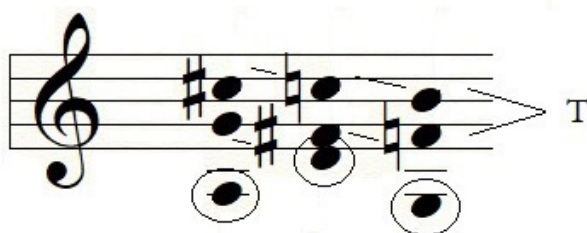
EXAMPLE 1. Encircled root and chromatic tritone (T)



C major: V^7/V

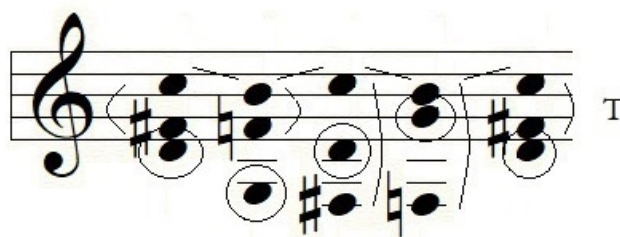
Here the course of momentum revolves around a technique where the semi-tone succession of paired tritones implies a sequence of dominant seventh harmony with roots descending in fifths (Example 2a) (or fourths [Example 2b]). Tritones assumed as being tonally “lesser” and roots being “chief”, Wagner continues as “the chief tones (have) to win their special light from the lesser tones, which must bear precisely the same relation to them as the up- and down-strokes bear to the ‘ridges’.” (142)

EXAMPLE 2a. Tritones in downward steps with descending roots in fifths



C: $V^7/V/V$ V^7/V V^7

EXAMPLE 2b. Tritones in variegated (upward/downward) steps, while “reallocating” roots texturally



C : V^7/V V^7 V^6/V V^4_2 V^7/V

The added possibility of “toggling” between invertible fourths and fifths through passing semi-tones amid four-part chords, thus means that one can prompt and sustain a process of harmonic transformation by tritone “rotation” (Example 3b) and root distribution indefinitely (Example 3a). Importantly, the composer declares that “If we keep in eye at present its aforementioned horizontal expression, we expressly reserve the all-determining attribute of harmony, in its *vertical* extension towards its primal base, for the decisive moment of our exposition.” (142)

EXAMPLE 3a. “Cyclic” inversion of Perfect intervals (P) amid four voices

C : $V^7/V/V$ V^4_3/V V^7

EXAMPLE 3b. “Conversion” of (P) and (T) between passing semi-tones

The image shows a musical staff in treble clef with a key signature of one sharp (F#). The staff contains a sequence of notes and chords. Above the staff, the label 'P4' is centered. Below the staff, the label 'P5' appears on both the left and right sides, with arrows pointing towards the central sequence. The sequence consists of three chords: $V^7/V/V$, $V^{\frac{4}{3}}/V$, and V^7 . The notes are connected by lines, and the intervals between them are labeled 'T' (tritone) and 'P' (perfect interval). The first chord is $V^7/V/V$ (F#4, G#5, A#6, B7), the second is $V^{\frac{4}{3}}/V$ (F#4, G#5, A#6, B7), and the third is V^7 (F#4, G#5, A#6, B7). The intervals between the notes are: P5 (F#4 to B7), T (B7 to A#6), P4 (A#6 to G#5), T (G#5 to F#4), P5 (F#4 to B7).

An even more penetrating interchange can be achieved when breaking the dominant seventh chord into two dyads that are capable of switching between P and T intervals (Example 4a). In doing so, atypical and non-triadic harmonies are generated during progression¹¹ (Example 4b) which curiously enough, resemble that of Wagner’s music; “That melody which we have seen appearing on the surface of harmony, is conditioned as to its distinctive, its purely musical expression by harmony’s upward-working depths alone: as it manifests itself as a horizontal chain, so it is connected by a plumbline with those depths. This plumbline is the harmonic chord, a vertical chain of tones in closest kinship, mounting from the ground tone to the surface.” (149-150)

¹¹ Noting a minor leading-tone moving to quintal-based chords (*including m. 10 in Example 5), synthetic theory, in my opinion, proffers a significant advantage to harmonic analysis when taking the spelling of notes at face-value. While the benefits of avoiding enharmonic speculation will be further discussed in this article’s Conclusion, Wagner himself did not use the terms, “chromatic” or “enharmonic” within his original writings, implying a practical acceptance of foreground vocabulary (as additionally argued by Lorenz [Everett] regarding Wagner’s score for *Parsifal*). Otherwise and though not unheard of in tonal music, a secondary diminished seventh of a minor mediant is seen far less commonly than diatonic chords.

EXAMPLES 4a and 4b. Linear variations producing secondary dominant and atypical harmony during progression

C : $V^7/V/V$ $V^{\frac{3}{4}}/V$ V^7 $vii^{\frac{2}{2}}$ $vii^{\frac{0}{3}}/iii$ Quintal

Lastly, boiling down the starting measures of the *Tristan* score by voice-leading, two groups of tritones emerge within passing 4-part chords (Example 5). If using chromatics to move across tonal centers, again through melodic strands over harmonic verticalities,¹² the fuller texture of Wagner’s art would appear to come to life (Figure 1); “Let us next see how musical modulation, hand in hand with the verse’s content, is able to lead back again to the first emotion. Let us follow up the verse *die Liebe bringt Lust und Leid* with a second: *doch in ihr Weh auch webt sie Wonnen* then *webt*, again, would become a tone leading into the first key, as from here the second emotion returns to the first, but now enriched, emotion.” (148)

¹² Sections §5.A.1-3 in this article are dedicated to musical analysis and more thoroughly illustrate this technique.

EXAMPLE 5. Prelude: Tritone relationships

The image shows a piano score for Example 5, focusing on tritone relationships. It consists of two staves: a treble clef staff on top and a bass clef staff on the bottom. The music is in 6/8 time. Measures 2, 3, 6, 7, 10, and 11 are specifically marked. In measures 2, 3, 6, and 7, the right hand plays chords with a tritone interval (marked with a '> T'), while the left hand plays chords with a tritone interval (marked with a '> T'). In measure 10, the right hand has a tritone chord (marked with a '> T') and an asterisk (*) above it, while the left hand has a tritone chord (marked with a '> T'). In measure 11, both hands have tritone chords (marked with '> T').

EXCERPT 1.¹³ Prelude: Chromatic counterpoint between melody and harmony

The image shows a piano score for Excerpt 1, consisting of two systems of two staves each (treble and bass clef). The music is in 6/8 time. The first system shows a melody in the right hand and a harmonic accompaniment in the left hand. The melody is marked with dynamics: *pp*, *p*, *cres.*, and *dim.*. The second system continues the melody and accompaniment, with dynamics: *cres.*, *f*, and *p*. The score illustrates chromatic counterpoint between the melody and the harmony.

Though continued investigation may be insightful regarding what deep-order roots are suggested when grouping these tritone “packets” harmonically (Table 1), this essay will primarily focus on the foreground of written notes, with occasional reference to Schenkerian theory.

¹³ Score excerpt from R. Wagner, *Tristano e Isotta*, Pianoforte solo, G. Ricordi & C. (editori), Nuovissime edizioni ricordi (1894), Richard Kleinmichel.

TABLE 1. *Tristan*: Middleground harmonic implications

	A	G#	F#	F	D	D#
	D#	D	C	B	G#	A
dominant seventh roots	B	E	D	G	E	B
	B	A#	A \flat	G		E#
	F	E	D	C#		B
dominant seventh roots	G	F#	B\flat	A		C#
measure	2	3	6	7	10	11

§3 SYSTEMATIC CODIFICATION

Having surveyed certain features and related issues within *Tristan's* Prelude, let us codify those mechanics of synthetic theory which are active in the musical system.

§3.A ARCHITECTONIC ECHELONS

Drawing inspiration from Schenkerian analysis, where its hypothetical model can be likened to tonal architecture, the author recognizes that the tritone has been historically, if not deprecatingly viewed as a “breaking down” of harmony.¹⁴ If dignifying the interval instead by postulating it as a “lower” structural function, “architectonic” theory thus asserts that there are three echelons of tonal operation:

1. The upper, or “Composite” level is produced when combining keys and is signified by bi- or poly-tonal syntax. For example and as is memorably found in Stravinsky's orchestral ballet, the “Petrushka” chord¹⁵ can be viewed as juxtaposing two chords from the C major and F# major scales.

¹⁴ Although the tritone has been routinely assimilated into modern musical writing, the earliest source discussing the interval's theoretical issues can be found in Guido d'Arezzo's treatise, *Micrologus* (c. 1028).

¹⁵ Just as analysts such as Alfredo Casella (1924) and Dmitri Tymoczko (2002) have endorsed a poly-tonal assessment of this chord, Stravinsky himself is recorded as saying that the music was conceived “in two keys” (Stravinsky and Craft. “Expositions and Developments”. New York: Doubleday, 1962).

$$C\sharp + F\sharp + A\sharp \times E + G + C$$

Richard Strauss' "Elektra chord" has also been assessed¹⁶ as putting two chords together from separate keys, although this interpretation works only if several notes are respelled with a common-tone enharmonically.

$$E + B + D\flat + F + A\flat = E + B + G\sharp \times C\sharp + E\sharp + G\sharp$$

2. The "Median" plane is identified by triadic properties, where the major chord is held as standard. Minor, diminished and augmented chords can thus be categorized as modifying, adapting and artificially rebuilding the customary ^{^1} ^{^3} ^{^5} degrees of pitch simultaneity. Classical and popular music abounds with different examples of harmonic progression, however, the tonal system's working order can be outlined as

C	(tonic)	I	C + E + G
B	(leading tone)	vii ^o	B + D + F
A	(submediant)	vi	A + C + E
G	(dominant)	V	G + B + D
F	(subdominant)	IV	F + A + C
E	(mediant)	iii	E + G + B
D	(supertonic)	ii	D + F + A
C	(tonic)	I	C + E + G

3. The "Synthetic", or lower tier is occupied by dyadic tritones and harmonic irrationality. For tritone pairs, diatonic notes are counted as the "pendants", or artificial "roots" within a synthetic chord, and a "mutation" would be its chromatic complement.¹⁷

¹⁶ Stückenschmidt, H. H., and Piero Weiss. "Debussy or Berg? The Mystery of a Chord Progression." *The Musical Quarterly* 51, no. 3 (1965): 453-59.

¹⁷ Double-diatonic tritones would have a "split" pendency and are notated by a virgule symbol ["/"] between pilots (see §4.A.D. Symbolic Tabulation).

“(T)he unit families of the broad-branched clan of *tone-varieties* display themselves [in open rank].”¹⁸ (*Oper und Drama*, 142).

C + F♯/Gb

Harmonic irrationality describes triadic sonorities within a harmonic progression, but not having a proper function.¹⁹ A great deal of Romantic and Twentieth-century music is typified by this stylistic feature, however, a hypothetical example would include a D dominant seventh chord (D + F♯ + A + C) in C major, without proper anticipation or resolution during harmonic progression.

CM: I - [V⁷/V] - vi - IV - I

Architectonic theory next maintains that each level within this hierarchy has distinct harmonic functions:

1) Supernal

Because the composite level operates with keys as a whole or in part, transposition, modulation and “accommodation”²⁰ can be thought of as higher functions. Tonicization can likewise be thought of as an “escalatory” function when including secondary dominant and secondary diminished

¹⁸ Reinterpreting Wagner’s technical language, “tone-families” (*Oper und Drama*, 146) can be seen as kinds of synthetic chords (classified in §4.B. Chordal Lexicon), and “tone varieties” perhaps as the respective signs, or flats and sharps of a chromatic tritone.

¹⁹ A term cultivated by the author, where to date and outside of religious mysticism (Kinnes) and a popular song title (Revendeads), harmonic “irrationality” appears to be scholastically unused and semantically available. Metric irrationality is a more elemental dimension of duration and thus, a separate topic of discussion.

²⁰ Noting how transposition would broadly describe a shift between keys (theoretically in music or between score notation and performing instruments, for example; Rushton), modulation and accommodation illustrates how a tonic might function “underneath” a scale or how a scale might adjust over a “fixed” tonic prospectively. Other scholars have similarly pursued tonic “bases” and harmonic analysis as recently developing topics (deClercq and Stephenson), with earlier prototypes found in Schenkerian studies (Schachter). This article will adhere to these informal definitions, while greater discussion on the topic properly belongs to the article’s counterpart on composite harmony.

chords, and as a “bridge” between composite and median tectonics.²¹

E.g. Music transposing from C major to D major

E.g. Music modulating from C major to A minor

E.g. Music modulating from C major to C minor

E.g. V/V or vii°/ii

2) Normative

Since the median tectonic is characterized by triadic formulation, normative harmony is distinguished by the dominant function, be it cadential or progressive

E.g. V - I

E.g. iii - vi - ii - V

3) Subsidiary

Owing to the synthetic level being noted by dyadic tritones, subsidiary harmony has three functions:

A. “Cardinal”²² = the tritone portions of a chord proceeding, either with one note or both, by semi-tone/half-step. Because key identification is often difficult in highly chromatic music²³ and since subsidiary harmony is a lower “grade” of tonal tectonic, the author will be using the term “monotone” as a universal one-step interval accordingly.

E.g. C > (C#)²⁴/Db

²¹ Though Schenker used “tonicalization” to describe how keys can modulate away from the tonic as a form of harmonic prolongation (*Harmonielehre*, §136), secondary chords could be thought of as a “reversed” form of *Auskomponierung*, when anticipating the resolution of a tonicized chord.

²² While recognizing that cardinality has been previously defined in post-tonal theory (i.e. “the number of elements in a set” [Forte 1973: 3]), the author’s intention in this article is to complement the idea of the dominant function within tonal theory. Whether one meaning or the other survives amid competing phraseology is a matter of speculation, and perhaps how the psychosomatic influence of tonality will be viewed academically over time.

²³ Definitively answering the question of tonal composition is often elusive in post-Classical music, however, the task may best be addressed by historical scholarship and intentional authorship for each individual piece.

²⁴ For written notes in tonality, the signs of chromatics may be determined by their contrapuntal context in a key signature (e.g. C [diatonic] moving to Db [chromatic] in C Major, or B# [chromatic] moving to C# [diatonic] in A major). Those notes inconsistent with scalar grammar will be notated in parentheses.

B. “Subordinal”²⁵ = the root of a triadic chord proceeding by monotone (often involving chromatic alteration²⁶). By incorporating triadic formulation, this function may be conceived as a bridge between median and synthetic tectonics.

E.g. vii^o - I

E.g. N^{6[27]} - i⁶

E.g. iii - IV

C. “Disintegral”²⁸ = root of triadic chord proceeds by tritone, as another bridge between median and synthetic tectonics

E.g. V₃⁴ - bII^{7[29]}

E.g. iii - bVII³⁰

§3.B SYNTHETIC OPERATIONS

Having clarified distinctions between architectonic levels, let us concentrate on those operations that are unique to the synthetic tier of tonality.

Synthetic grammar is derived from how each subsidiary chord performs within its environment. Such operations are capable of supplying assumed triadic roles with “diversional” note mixtures, or “mitigating” irrational chords when elaborating triadic

²⁵ Being newly coined and a suffix variation of “subordinate”, this term expands upon the original word’s meaning of “placed in a lower order or rank”, as well as rhyming with cardinal in a class of functions.

²⁶ As seen in §5.A.8 and Figure 8, sonorities with chromatic tritones, but without a cardinal function, can be viewed as altered triadic harmony.

²⁷ For some analysts such as Clendinning (2010), “Neapolitan” is less preferred than bII since the latter indicates the chord’s root position when resolving to the tonic in harmonic progression. Still it can be argued that Neapolitan highlights a class of functions, if emphasizing contrapuntal motion, again by monotone.

²⁸ Following the adaptation of language, “disintegrate” is altered into an adjectival form and again, rhyming as part of a class of functions.

²⁹ It is of interest to note the voice-leading for tritone substitution in Jazz, where the tritonal 7th and 3rd of a dominant seventh chord are retained, diatonically and enharmonically, while the fifth and root typically invert by half-steps to an altered pre-cadential chord (Sarath: 177). The comparison to augmented-sixth chords containing tritones is of additional note and will be further discussed under §4.B. Chordal Lexicon.

³⁰ Though unusual, it is of greater likelihood to find this progression within modal harmony (e.g. Mixolydian mediant to a flattened major leading-tone).

harmony.

E.g. iii - vi - *synthetic chord* (rather than a customary ii) - V - I

E.g. I - [V⁷/V] (tonic prolongation) - I - IV - I

By dissolving normative harmony and regressing into subsidiary sonority (or conversely rising upward), synthetic chords can now assume the following qualities:

- i. “Transient” harmony would be a sonority without an implied triadic function between chords

E.g. IV - *synthetic chord* - vii^o - V - I

- ii. “Indicative” harmony includes sonorities having an implied triadic function between chords

E.g. iii - vi - ii - *synthetic chord* (suggesting dominant harmony) - I

- iii. “Exchangeable” harmony has sonorities with an implied triadic function between chords, while including the assumed root

E.g. iii - vi - ii - *synthetic chord* (dominant harmony suggested with a G note in C major, for example) - I

- iv. “Analogous” sonority would be a dominant seventh or diminished seventh chord (half or fully) that is irrational. As a cross between composite level, triadic median and tritone synthetics, this is a complex example of tectonic bridging

E.g. I - [vii^{o7}/ii] - I - IV₄⁶ - I

- v. “Amalgamate” resolution describes a tonic sonority that is implanted with tritone membership, explicitly as the dominant seventh of an extended triad; tectonic bridging occurring again between median and synthetic levels

E.g. vi - IV - V - I^{Dom7} (C + E + G with a B^b note in C major, for

example)

vi. Key “transfer” recognizes how a subsidiary chord may be used to transpose between keys, even though its sonority may not be harmonically “solid” as a triadic chord; tectonic bridging occurring here between composite and synthetic levels

E.g. C major - {*synthetic chord*} - Ab major

§4 NOTATIONAL ADAPTATION

In the author’s opinion, musical notation represents a vital aspect of theoretical study, when attempting to explain the “mechanical” workings of the tonal system. Correspondingly, Roman-numeral figuration represents an important contribution to musical analysis, in part through its economic depiction of chordal voicing and harmonic progression. Because of this efficiency, I am proposing that the adaptation of Roman-numeral figuration presents a suitable method for tabulating synthetic chords.

§4.A SYMBOLIC TABULATION

Synthetic notation adopts and broadens conventional Roman-numeral figuration, where the harmony is calculated within a designated key (for simplicity’s sake, instructive tabulations will assume C major; modal variations would appositely adjust):

A. A note “equation” makes the basic association between key and sonority,

CM: I

while triadic formulation appoints note members by interval.

CM: I (^1 ^3 ^5) = C + E + G

With the following symbolization for subsidiary harmony,

T³¹

dyadic tritones show which notes are “synthesized” within a specified key

³¹ Despite transient harmony being the most rudimentary operation of subsidiary tectonics, T may stand for any synthetic chord. Given synthetic harmony’s required tritone membership, the coincidental meaning of T equaling “tritone” is not wholly objectionable.

signature; articulating the tonic with its chromatic counterpart can thus be considered emblematic.

$$\text{CM: } T = C + F\#/G\flat$$

Referring back to Wagner's *Oper und Drama* (145), "The bond of kinship of those tones whose rhythmic-moving chain, with its links of 'ridge and hollow', makes out the verse melody, is first of all made plain to feeling *in the key*; for it is this which prescribes the particular tone ladder [or scale] in which the tones of that melodic chain are contained as separate rungs."

B. A tritone set is enumerated by "pilots" on the left of T and their scalar position within a tonal key.

$$\text{CM: } 3T = E + A\#/B\flat$$

"Remnants", on the right of T, enumerate the non-tritonal, or residual notes of a set by their relative position in the key also.

$$\text{CM: } T_2^{[32]} = C + F\#/G\flat + D$$

Multiple combinations can naturally occur between pilot and remnant tabulations. Because synthetic harmony is tonally subordinate, notating a subsidiary chord's voicing or inversion rank is incidental and pendants are indexed first in ascending scalar computation.

$$\text{CM: } 2-4T = D + G\#/A\flat + F + B/C\flat$$

$$\text{CM: } T_3^6 = C + F\#/G\flat + E + A$$

$$\text{CM: } 6T_4^7 = A + D\#/E\flat + F + B$$

C. When stipulating accidental scale degrees within a featured sonority, chromatic notes are tagged with additive or subtractive symbols.

$$\text{CM: } T_3^{-6+} = C + F\#/G\flat + E\flat + A\sharp$$

D. Analogous chords use single quotation marks, exhibiting a subsidiary standing once more.

$$\text{CM: } '2T_3^7' = D + G\#/(A\flat) + E + B$$

³² Reflecting synthetic harmony's subsidiary status, remnants are first notated by subscript and then proceed (by medials) to a final superscript (e.g. T_2 , T_2^3 , T_{23}^4 , T_{234}^5 , etc.). In contrast, triadic inversions and extensions traditionally start with superscripts and then proceed through subscript figuration (e.g. V^6 , V^7 , V_5^6).

Species of analogical chords can likewise be ascertained by modular permutations between pilots and remnants (diatonic sonorities in parentheses, amalgamate sonority in brackets)

E.g. Dominant seventh

$$\text{CM: } \{3T_1^5\}, 'T_2^6, 2T_3^7, 6T_1^4, (7/4T_2^5), 5T_3^6, 6T_{4+}^7'$$

E.g. Half-diminished seventh

$$\text{CM: } 'T_3^{7-}, 2T_1^4, 3T_2^5, 4T_3^{6-}, 5T_4^{7-}, 6T_1^5, (7/4T_2^6)'$$

E.g. Fully diminished seventh (including two subtraction signs for double flats)

$$\text{CM: } 'T_3^{7--}, 2-4T, 3-5T, 4T_3^{6-}, 5T_4^{7-}, 6(1)T, 2-7T'$$

E. When implanting a tritone within a tonic sonority, an “S” (for synthetic or subsidiary) is placed below those amalgamate chords accordingly.

$$\text{CM: } I^7 = C + E + G + (A\#)/Bb$$

s

$$\{\text{equivalent to } 3T_1^5 = E + (A\#)/Bb + C + G\}$$

F. Synthetic transposition “hinges”, or pivots when transferring keys by a common subsidiary sonority, and this is represented by 2 beamed Ts. Hinging as a term, being preferable also, when recognizing how the common tones of a synthetic sonority may include more than one, if not all of its notes between chords.

$$\text{CM: } E + A\#/Bb + D + G$$

$$3 \overline{T_2^5} \quad 5 \overline{T_4^{7-}}$$

$$\text{AM: } E + A\#/Bb + D + G\sharp$$

Synthetic notation diagrams harmonic intimation with Roman numerals above those subsidiary sonorities in question.

Indicative chords therefore use parentheses,

(V)

$$\text{E.g. CM: } V^7/V - 2T_3 - I$$

and exchangeable chords do not use parentheses.

V

E.g. CM: ii - 2T₅ - I

The contrapuntal exercise of synthetic harmony applies a C, S or D below linked chords for cardinal, subordinal and disintegral functions (tritone relations can also be marked by ties with the letter T, as found in §5.A.1., Figure 1).

E.g. Cardinal

CM: T₇ - V

F# G

—

c

E.g. Subordinal

CM: vii^o - I

B C

—

s

E.g. Disintegral

CM: vii^{o7}/V - I

F# C

—

D

§4.B CHORDAL LEXICON

Having established a vocabulary for the synthetic echelon, families of subsidiary chords may be recognized after deducing pertinent intervals from tritonal arrangements. The following inventory itemizes correlations from the key of C major. Owing to the “animated” nature of art as well, lexical terminology often reflects a “genealogical” element.

Since the premise of synthetic theory assumes the tonic and tritone as its principal expression and its elemental constitution is set within a key,

CM: T

suffusing this association with tonal content, again presents a compound equation.

$$T = C + F\sharp/Gb$$

“Chief” ascriptions therefore catalog dominant and sub-dominant tritone variations.

$$4T = F + B/Cb$$

$$5T = G + C\sharp/Db$$

$$T_4 = C + F\sharp/Gb + F(b)$$

$$T_5 = C + F\sharp/Gb + G(\sharp)$$

“Cognate” affiliations catalog non-dominant and non-subdominant tritone variants.

$$2T = D + G\sharp/Ab$$

$$3T = E + A\sharp/Bb$$

$$6T = A + D\sharp/Eb$$

$$7T = B + E\sharp/F$$

$$T_2 = C + F\sharp/Gb + D(b-\sharp)$$

$$T_3 = C + F\sharp/Gb + E(b-\sharp)$$

$$T_6 = C + F\sharp/Gb + A(b-\sharp)$$

$$T_7 = C + F\sharp/Gb + B(b)$$

“Fraternal” attributions catalog tonic with non-tonic tritonal groupings (pilots only).

$$2(1)T = C + F\sharp/Gb + D + G\sharp/Ab$$

$$3(1)T = C + F\sharp/Gb + E + A\sharp/Bb$$

$$4(1)T = C + F\sharp/Gb + F + B/Cb$$

$$5(1)T = C + F\sharp/Gb + G + C\sharp/Db$$

$$6(1)T = C + F\sharp/Gb + A + D\sharp/Eb$$

$$7(1)T = C + F\sharp/Gb + B + E\sharp/F$$

“Propagal” affiliations catalog multiple non-tonic tritonal groupings (on either side of T). Being newly coined and a suffix variation of “propagate”, this term expands upon the original verb’s meaning of “to multiply by generation or

successive production”.³³

$$2-3T = D + G\#/Ab + E + A\#/Bb$$

$$T_2^3 = C + F\#/Gb + D(b-\#) + E(b-\#)$$

$$2-3-4T = D + G\#/Ab + E + A\#/Bb + F + B/Cb$$

$$T_{23}^4 = C + F\#/Gb + D(b-\#) + E(b-\#) + F(b)$$

(computations not exhaustive) +..

“Propagary” attributions catalog multiple tonic with non-tonic tritonal groupings (on the pilot side).

$$2-3(1)T = C + F\#/Gb + D + G\#/Ab + E + A\#/Bb$$

$$2-3-4(1)T = C + F\#/b + D + G\#/Ab + E + A\#/Bb + F + B/(Cb)$$

+..

“Disseminial” affiliations catalog multiple non-tonic tritonal groupings on both sides of T. Being newly coined also and a prefix addition to “seminal”, this term expands upon the original adjective’s meaning of “contributing (to) or containing the seeds of later development”.³⁴

$$2T_2 = D + G\#/Ab + D(b/\#)$$

$$2-3T_2 = D + G\#/Ab + E + A\#/Bb + D(b/\#)$$

$$2T_2^3 = D + G\#/Ab + D(b/\#) + E(b-\#)$$

$$2-3T_2^3 = D + G\#/Ab + E + A\#/Bb + D(b/\#) + E(b/\#)$$

$$2-3-4T_{23}^4 = D + G\#/Ab + E + A\#/Bb + F + B/Cb + D(b/\#) + E(b/\#) +$$

$$F(b/\#)$$

+..

“Disseminary” attributions catalog multiple tonic with non-tonic tritonal groupings on the pilot side, and multiple non-tonic tritonal groupings on the remnant side of T.

$$2(1)T_2 = C + F\#Gb + D + G\#/Ab + D(b/\#)$$

³³ “Propagate.” Webster-Dictionary.com. 1913. <https://www.webster-dictionary.org> (6 October 2021).

³⁴ “Seminal.” Webster-Dictionary.com. 1913. <https://www.webster-dictionary.org> (6 October 2021).

$$2-3(1)T_2^3 = C + F\#/G_b + D + G\#/A_b + D(b/\#)$$

$$2-3-4(1)T_2^3^4 = C + F\#/G_b + D + G\#/A_b + E + A\#/B_b + F + B/C_b +$$

$$D(b/\#) + E(b/\#) + F(b/\#)$$

+..

Interestingly in those pre-cadential sonorities which have been traditionally labelled as augmented-sixth chords,³⁵ their contrapuntal tendency is for the flat sixth and raised fourth to proceed by contrary motion into the neighboring fifth scale degree. Synthetically however, the “Italian, French and German” chords have arguably been given a more comprehensive identity when recognizing their tritones as part of a larger class of harmony. Synthetic notation, likewise proffers a more suitable representation with “subtractive”³⁶ sixths and their cardinal functions to the dominant (rather than +6 suggesting motion to the seventh degree of the scale; Examples 6-8). Though some analysts have assigned a French sixth to the Tristan chord,³⁷ where accepted voice-leading has the fourth degree (D \sharp) move into \wedge^5 as the resultant chord’s harmonic root, Wagner lowers the note’s outlining thread into a dominant \wedge^7 (D \flat) instead, while the soprano’s line chromatically ascends and fulfills once again, the tritone’s pervasive influence.

Example 6. Italian +6

$$\text{CM: } T_6 = C + F\#/(G_b) + A_b$$

Table 2. Customary progression

$$F\# \quad > \quad G \quad > \quad G$$

³⁵ Referring back to the commonality of augmented-sixth chords and tritone substitution and because Classic and Jazz styles have different purposes (Martin and Waters: 9), I believe that the former genre reveals a formal nature, while the latter is suited to spontaneous effect. Without going into excessive detail, it is appropriate then to discern the harmony of the first as an objective manifestation of the tonal system, while the second expresses the subjective world of a performer; said another way, tritone substitutions are outside the convention of Wagnerian composition, if expecting notes to behave with the same tendencies. It is worth noting that some analysts have assessed the Tristan chord as belonging to tritone substitution (Hansen: 165-83), but as just argued, Jazz harmony would appear to operate freely concerning the mechanics of tonality, while Classical harmony functions according to the customary “rules” of counterpoint, cadence and orchestration, to name a few.

³⁶ Just as accidentals indicate plausible voice-leading (e.g. flats resolving downward or sharps resolving upward to diatonic notes), addition and subtraction signs under synthetic notation provide the similar advantage of exacting counterpoint (e.g. minus resolving downward and plus resolving upward) within a key signature.

³⁷ Perhaps the most wide-spread interpretation of the chord, as disputed by a long train of reputed authors, including Schoenberg (1954), R. F. Goldman (1965), and Piston (1987).

C	>	D	>	E
C	>	B	>	C
<u>Ab</u>	>	<u>G</u>	>	<u>C</u>
T ₆ ⁻	-	V	-	I

Example 7. French +6

CM: T₂⁶⁻ = C + F[♯]/(G^b) + D + Ab or

CM: 2(1)T = C + F[♯]/(G^b) + D + (G[♯])/Ab

Table 3.

F [♯]	>	G	>	G
D	>	D	>	E
C	>	B	>	C
<u>Ab</u>	>	<u>G</u>	>	<u>C</u>
T ₂ ⁶⁻	-	V	-	I

Example 8. German +6

CM: T₃⁶⁻ = C + F[♯]/(G^b) + Eb + Ab

Table 4a. Contrapuntally avoiding parallel fifths

F [♯]	>	F [♯]	>	G	>	G
E ^b	>	D	>	D	>	E
C	>	C	>	B	>	C
<u>Ab</u>	>	<u>Ab</u>	>	<u>G</u>	>	<u>C</u>
T ₃ ⁶⁻	-	T ₂ ⁶⁻	-	V	-	I

CM: ‘T₃⁶⁻’ = C + (F[♯])/G^b + Eb + Ab

Table 4b. Spelled as analogous sonority

G ^b	>	G	>	G	>	G
E ^b	>	E	>	D	>	E
C	>	C	>	B	>	C

<u>Ab</u>	>	<u>G</u>	>	<u>G</u>	>	<u>C</u>
‘T ₃ ⁶⁻ ’	-	I ₄ ⁶	-	V	-	I

$$\text{CM: } T_{2+}^{6-} = C + F\#/(G\flat) + D\# + A\flat$$

Table 4c. Enharmonic equivalency

F#	>	G	>	G	>	G
D#	>	E	>	D	>	E
C	>	C	>	B	>	C
<u>Ab</u>	>	<u>G</u>	>	<u>G</u>	>	<u>C</u>
T ₂₊ ⁶⁻	-	I ₄ ⁶	-	V	-	I

§5 MUSICAL ANALYSIS

Before analyzing the Tristan chord, the reader will benefit from scanning the Prelude from a global perspective. Although debate may ensue on finer points, the author submits the following so as to give greater meaning to those excerpts diagnosed with synthetic theory:

Key signature: A minor (m. 1), A major (m. 43), C major (m. 71)

Key areas (characterized by dominant-tonic cadence and resolution): A minor (m. 1), C major (m. 4), E major (m. 8); C major (m. 16), A major (m. 21), C major (m. 31), A major (m. 40) | A minor (m. 58), A major (m. 62) | C major (m. 70), C minor (m. 76), E \flat minor (m. 79), C major (m. 83), A minor (m. 90), C major (m. 95); G minor (m. 111)

§5.A LOCAL ASPECTS

Returning to our main theme and in order to tackle the Tristan chord, its immediate surroundings next are assessed: agreeing with a majority of analysts who interpret the [A] in the opening monophonic line as a subtle tonal center,³⁸ measure 2 presents unstable harmony before

³⁸ Advocates for the Tristan chord being a type of chromatically altered triad include: Arend (1901: 160-9) for “a modified minor-seventh chord”; D’Indy (1903), altered sub-dominant; Ergo (1912), altered secondary dominant; Lorenz (1924-33), altered augmented sixth.

being succeeded by an E dominant seventh chord. A minor is thus articulated, however its appearance is short-lived when halting at a half cadence (m. 3). Measures 4-7 present a similar chordal sequence, but transposed a 3rd degree higher in presumed C major. Here Wagner's dramatic style becomes evident when noting how unstable chords “resolve” to more stable harmony, yet those are suspended (m. 7) before moving to yet another musical episode. Adorned with more elaborate counterpoint, a third sequence pauses on another half cadence within a surmised E major at m. 11. From a Schenkerian perspective, the outlining of [A-C-E] tonoi reinforces the argument that Wagner was inclined to tonal composition and that synthetic harmony is a natural outgrowth of the musical system.

This now presents an opportunity to dissect a series of subsidiary chords, and eventually represent a greater portion of the synthetic catalog (a glossary is appended at the end of this article for a re-familiarization with unique terms):

5.A.1. While the Tristan chord can easily be admitted as pre-cadential, synthetically it would be classified as transient harmony with two “activated” tritones (F + B, D \sharp + A), if taking the soprano G \sharp in m. 2 as an appoggiatura.³⁹ F and D \sharp move correspondingly by cardinal function to E and D \natural in m. 3, while the soprano line proceeds and resolves the top of a tritone pair on the down-beat of the measure, into the members of a triadic dominant seventh. Properly then, the famed fraternal sonority is written as

$$\text{Am: } 2(1)\text{T} = \text{A} + \text{D}\sharp/(\text{E}\flat) + \text{B} + \text{F}/(\text{G}\flat\flat)$$

³⁹ Though beyond the scope of this article, it is compelling to ponder how non-chord tones are contrapuntally weighed across tectonic levels. In addition to G \sharp “resolving” to a subsidiary chord in Figure 1, numerous other instances can be found within the Prelude. For example in m. 10 of Figure 3, a D \sharp in the soprano is passing between a tritonal and triadic sonority. In m. 56 of Figure 6 also, G \sharp in the soprano/alto parts anticipates when leaving a propagal affiliation, but then becomes a suspension over tertiary dominant harmony.

FIGURE 1. The “Tristan” chord formed synthetically through fraternal family, transient operation and cardinal function

A minor: 2(1)T V⁷

- 5.A.2. Its preceding melody is not strictly duplicated, but m. 6 presents a similar transient harmony in m. 2, which can be considered pre-cadential with two “activated” tritones again (A^b + D, F[#] + C). In a new key, but “rotating” by appoggiatura and cardinal function into the next measure once more with two tritones, this sonority is formulated as

$$\text{CM: } 2(1)\text{T} = \text{C} + \text{F}\# / (\text{G}\flat) + \text{D} + (\text{G}\#) / \text{A}\flat$$

Wagner’s sixth section of chapter III (148) adds: “Now, in a far higher measure can musical modulation make such a union [of speech-roots] perceptible to the feeling. If we take, for instance, a Stabreimed⁴⁰ verse of completely like emotional content, such as: *Liebe giebt Lust zum Leben*, then, as a like emotion is physically disclosed in the accents’ Stabreimed roots, the musician here would receive no natural incitement to step outside the once

⁴⁰ Wagner placed a high value on the literary technique of “stave-rhythm”, which “unite(s) the physical expression of one sensation with that of another.” (*Oper und Drama*: 137) “Norse mythology was often based on alliteration, and Wagner, attempting to be authentic in his appropriation of source material, incorporated this technique into his *Ring* libretto. (T)he repetition of initial consonants at key points within the poetic line.. has proven challenging to translators... and as is often the case, they have sometimes had to prioritize the meaning of the text over Wagner’s alliterative scheme (or his exclusive use of German root words, or the complex use of puns that saturate the text).” (Vollen) Abbate argues that this technique is not restricted to poetry, but that Wagner’s inspiration is to symbolize music’s ability to transcend to a higher realm of artistic freedom. (40-42)

more convincing argument identifies the synthetic signature of a tritone ($G\sharp + D$), where one note is prolonged by a cardinal function ($G\sharp$ through a natural C augmented chord to A as part of a B dominant seventh chord in E major) while the other melodically moves through a chromatic passing tone ($D > D\sharp > E$) and the same submediant chord. After the initial subsidiary chord, a subordinal function carries the altered submediant's root to the aforementioned dominant in m.11.

$$EM: 3T_2^{-6} = G\sharp + (Cx)/D\flat + F\flat + C\flat$$

FIGURE 3. Third phrase of the Prelude with a disseminal affiliation, and both a prolonged cardinal and interpolated subordinal functions

E major: $3T_2^{-6}$ $\flat VI^+$ V^7

While the first three phrases of the Prelude have been most frequently analyzed in the academic canon,⁴² let us continue into the piece for other notable instances of synthetic harmony:

5.A.4. One approach of the music (Figure 4) has escalations that include tertiary and then secondary dominant chords, while enabling both composite and synthetic tectonic

perfect intervals may afford an intriguing clue towards the proliferation of composite harmony; greater discussion on this topic can be found in this article's dual counterpart.

⁴² Roger Sessions dedicated his essay, "The Opening Bars of the Prelude", to these beginning measures, as did Kurth in his "The Tristan Prelude", and Anheisser likens the specified bars to a formal introduction.

levels. Thus while anticipating a resolving tonic, subsidiary harmony intensifies dramatic suspense by intimating a cadential dominant chord with two tritones (A + D#, F# + C#). Further displacing D# by an octave while C# is prolonged, C# and E are cardinally “produced” in m. 30, and measure 29’s indicative chord is subsequently written as

$$\text{AM: } 6(1)\text{T} = \text{A} + \text{D}\sharp/(\text{E}\flat) + \text{F}\sharp + (\text{B}\sharp)/\text{C}\natural$$

FIGURE 4. A phrase within the Prelude with an indicative attribution

AM: $V^7/V/V$ V^7/V $\overset{(V^7)}{6(1)\text{T}}$ I^6

5.A.5. Exiting a section of repeated flourishes over dominant harmony, Wagner prepares a key transfer synthetically from A major to C major in m. 70 with four common tones. In this case, hinging is accomplished contrapuntally through passing (E \flat > D) and prolonged (F \natural > F \sharp) tones, and two cardinal monotones (A \flat > G, F \sharp > F \natural), before an imperfect cadence “resolidifies” in the next triadic region (m.72).

$$\begin{aligned} \text{AM: } & \text{D} + (\text{G}\sharp)/\text{A}\flat + \text{F}\sharp + (\text{B}\sharp)/\text{C}\natural \\ & 4-6 \overline{\text{T}} \text{ } 2(1) \overline{\text{T}} \\ \text{CM: } & \text{C} + \text{F}\sharp/(\text{G}\flat) + \text{D} + (\text{G}\sharp)/\text{A}\flat \end{aligned}$$

FIGURE 5. Key transfer by propagal and fraternal synthesis

5.A.6. A good example of analogous sonority would be in m. 55. Chord tones (F \sharp + A \sharp + C \sharp + E) may be tallied as an F \sharp dominant seventh, although the harmony becomes irrational when considering that there is no proper relationship for the succeeding E major second-inversion chord within the presiding key. The disparaging analyst might dismiss this chord choice as inadvertent, however, Wagner appears to be deliberate when noting how the bass notes rise in a cardinal sequence and “discharge” the subsidiary tension.

$$\text{AM: } '5T_3^6' = E + A\sharp/(Bb) + C\sharp + F\sharp$$

Synthetic harmony may also hint at “reverting” secondary dominant progression with indicative chords (for example in m. 56), though such a complicated subject is worthy of greater discussion outside of this article.⁴³

$$\text{AM: } 5-6T = E + A\sharp/(Bb) + F\sharp + B\sharp/(Cb)$$

⁴³ Scholars wrestling with directional possibilities of the circle of fifths have included Clough and Myerson (1985), McCartin (1998), Inoshito and Katto (2009), and Thompson (2014), while the idea of moving “backwards” during tonicization remains a larger question and, perhaps, a fertile field of research.

amalgamate chords might be considered a stylistic link between music with radically functioning harmony and that with purely atmospheric sound.

$$\text{CM: } I_5^6 = E + C + G + (A\sharp)/B\flat^{45}$$

S

Note m. 36's inclusion of exchangeable harmony also, where G (circled) is in common as a member between 4/7-5T [CM = F + B/(C \flat) + G + (C \sharp)/D \flat] and the root of a suggested V⁷ [CM = G + B + D + F]

FIGURE 7. Two amalgamate and one exchangeable operations

CM: $V_{3/4}/V$ V^7 vii°_4 I_5^6
S

V V_{5^6}/ii ii $4/7-5T^V$ I
S

5.A.8. Finally, Wagner exercises the tritone⁴⁶ through a disintegral function within E \flat minor at m. 80, with a natural diminished seventh vii^o (D + F + A \flat) progressing to a first inversion augmented subdominant iv⁺⁶ chord (C \flat + E + A \flat). This subdominant chord is repeated on the first beat of the following three measures,

⁴⁵ Short-hand (non-score) notation for amalgamate chords intermixes a parenthetical S within harmonic tabulation (e.g. CM: I(S)₅⁶ = E + G + (A \sharp)/B \flat + C). Since amalgamates are “hybrids” of median and lower tectonics once again, a parenthetical S for synthetic counterpoint when scoring is apt.

⁴⁶ As discussed earlier in §3.A.3)B. and seen in the first chord of m. 80, where F-C \flat is without a cardinal resolution, the sonority is properly functioning as a half-diminished seventh supertonic, rather than a 4T₃⁶ harmonic subsidiary. F could be displaced from the bass and resolve to E \natural in the soprano voicing on the third beat, but as a neighboring tone within the chord, its contrapuntal standing is weak. A second case can be made that synthetic harmony is enacted for the first chord in measure 81, where C \flat is succeeded by B \flat on the second beat, but the alto voicing's upward chromatic melody thereafter is a convincing argument otherwise for altered triadic progression.

History will doubtless continue to write and research about the tumultuous life and commanding music of Richard Wagner, but when addressing the matter of the Tristan chord from a critical stand-point, I would disagree with four major camps:

A number of scholars contend that the sonority can be translated enharmonically and then more fully understood as an amended triadic chord (e.g. $F + B + D\sharp + G\sharp \sim F + A\flat + C\flat + E\flat =$ half-diminished seventh moving to the dominant in A minor).⁴⁷ The chord's intractability persists, however, given that its function beyond this singular instance is debatable and could be deemed irrational within a standard tonal progression. Further, the creative license of rewriting any chord enharmonically that contravenes explanation as a triadic phenomenon, seems arithmetically unreasonable and authoritatively unrealistic at best.

Other analysts, the most prominent being Robert Bailey (1985), assert that the opening harmony is a fabrication of broader trends within the opera. Hence the argument compiles notes between A minor and C major and their plausible triads into a "double-tonic complex", A - C - E - G. Approaching a kind of "meta-analysis", each sonority becomes a manifestation of sliding between the music's flanking keys. Although crafting a fascinating model of tonality, no criteria is given as to how one might discriminate chords from either key, and what determines their chromatic deviations. While the basis for this paper is taken from synthetic theory, a composite approach of higher architectonics may be advantageous for future analytical studies of the entire *Tristan* opera.

Some theorists hold that the Tristan chord is among the earliest examples of a post-tonal statement, which to some degree, is historically accurate. If tritone synthesis likewise epitomizes the collapse of triadic preponderance, then luminaries such as Allen Forte⁴⁸ would be correct. Yet when construing the fabled harmony as Set-class 4-27,⁴⁹ such an

⁴⁷ Henning, Karl. "The German Sixth, the 'Tristan Chord'—and Stravinsky". *Classical Music UK*, members.tripod.com/karl_p_henning/old/tristan. Accessed 6 Oct. 2021.

⁴⁸ "New Approaches to the Linear Analysis of Music." *Journal of the American Musicological Society* 41, no. 2 (1988): 315-48.

⁴⁹ Forte [1988] continues within the context of linear analysis and then "elects to place that consideration in a secondary, even tertiary position compared to the most dynamic aspect of the opening music, which is clearly the large-scale ascending motion that develops in the upper voice, in its entirety a linear projection of the Tristan Chord transposed to level three, $g\sharp'-b'-d''-f\sharp''$."

estimation falls short when acknowledging that Wagner employed a key signature and the weight of reiterated transpositions underscores triadic relations to an even deeper tonic. Stressing tonality thus in the composer's own words (148): "Here, to realize the poetic aim, the musical modulation would have to be led across to, and back from, the most diverse keys; but all the adventitious keys would appear in an exact affinitive relation to the primary key, which itself will govern the particular light they throw upon the expression, and, in a manner, will lend them their first very capability of giving that light. The chief key, as the ground tone of the emotion first struck, would reveal its own ur-kinship with all the other keys."

Lastly in modern Neo-Riemannian theory, as more recently fostered by Cohn,⁵⁰ Lewin⁵¹ and Gauldin,⁵² the Tristan chord is approximated through the transformational points of ostensibly major and minor chords. While contiguous voice-leading closely aligns with synthetic theory, the Neo-Riemannian school holds the aforementioned chords as codependent properties, and somewhat detached from a central tonic. Disagreement springs beyond this idea though, since the aural potency of consonance and dissonance is essentially disregarded and yet in tonality of which synthetic harmony is a part, the tritone is strongly psycho-acoustically driven, usually to its pleasurable triadic neighbors. If Neo-Riemannian theory is thus without a tonal reference and if its focus is routing rather than destination, the content of the Tristan chord could be judged as fairly arbitrary and superficial. Synthetic theory, however, regards the Tristan chord as meaningful for both its "animated"⁵³ intervals and contrapuntal "gravity" within the system of tonality.

⁵⁰ "Maximally Smooth Cycles, Hexatonic Systems, and the Analysis of Late-Romantic Triadic Progressions." *Music Analysis*, 15 (1996): 19-40.

⁵¹ "Cohn functions." *Journal of Music Theory*, 40 (1996): 181-216.

⁵² "The DOUTH2 Relation as a Dramatic Signifier in Wagner's Music Dramas." *Music Analysis* 20, no. 2 (2001): 179-92.

⁵³ Wagner's exhortation to the vitality of emotion should not be discounted and his writings are replete with veneration for its guiding principle. As stated in *Oper und Drama* (142), "From the instant of the musical intonation of the vowel in word speech, the feeling has become the appointed orderer of all further announcements to the senses, and henceforward musical feeling alone prescribes the choice and significance both of lesser tones and chief tones; and that, according to the nature of the tone clan whose particular member has been chosen to give the necessary emotional expression to the phrase."

Coming to solutions tendered by synthetic harmony and as claimed previously, the subsidiary echelon of the tonal system permits composers the freedom to energize or discharge dramatic moments with prolonged suspense, particularly under pre-cadential settings. The demands of Wagner's opera clearly necessitated using powerful tools,⁵⁴ so as a complement to triadic harmony which manages more sonically stable and concordant qualities, tritone formulation can serve as a reliable, yet explosive factor for the adventuresome composer.

While the sensational effect of the tritone is hardly new to the practicing musician and academic historian, synthetic theory may impact other scholarly branches such as Schenkerian analysis and Neo-Riemannian theory. In the former discipline, which postulates how the less significant notes of a musical composition may be removed before arriving at a fundamental structure, synthetic conception could make the clearing of foreground material more efficient, and warrant inquiry if both composite and subordinate levels should receive their own layers of tonal elaboration. In the latter, prospective research may discover if there is a correlation between the theory's "negative" harmony and synthetic harmony's subsidiary tier.

Whatever the outcome may be and since the imagination is creative and free, those tasks are best left to future thinkers and scholars.

⁵⁴ The love story within *Tristan* embroils classic tragedy, however the fervor of its passion is no less diminished by watchful practice: "Here, in music's own most unrestricted element, the musician who chose this theme as introduction to his love drama could have but one care: how to restrain himself, since exhaustion of the theme is quite impossible. So in one long breath he let that unslaked longing swell from his first avowal of the gentlest tremor of attraction, through half-heaved sighs, through hopes and fears, laments and wishes, joy and torment, to the mightiest onset, most resolute attempt to find the breach unbarring to the heart a path into the sea of endless love's delight." (Wagner, Prelude to *Tristan und Isolde*).

GLOSSARY

Given the substantial amount of newly introduced terms, the following lists those which are integral to synthetic theory:

1. Amalgamate resolution: a tonic sonority that is implanted with tritone membership, explicitly as the dominant seventh of an extended triad
2. Analogous sonority: a dominant seventh or diminished seventh chord (half or fully) that that is irrational
3. Architectonic theory: a musical theory which proposes that the tonal system operates on higher, middle and/or lower planes. These echelon, or composite, median and synthetic “tectonics” are characterized by scalar, triadic, and tritone-based harmony respectively
4. Cardinal function: a contrapuntal technique where the tritonal portions of a chord proceed, either with one note or both, by “monotone”
5. Chief ascription: a family of synthetic chords that are cataloged by dominant and subdominant tritone variations
6. Cognate affiliation: a family of synthetic chords that are cataloged by non-dominant and non-subdominant tritone variants
7. Composite echelon: the higher plane of tonality, characterized by polytonality and key operations
8. Disseminal affiliation: a family of synthetic chords which are cataloged by multiple non-tonic tritone groupings on both sides of T
9. Disseminary attribution: a family of synthetic chords that are cataloged by multiple tonic with non-tonic tritone groupings on the pilot side, and multiple non-tonic tritone groupings on the remnant side of T
10. Disintegral function: a contrapuntal technique where the root of a rational chord proceeds by tritone
11. Escalatory tonicization: a harmonic device where secondary dominant chords are conceived as forming a “higher” bridge between composite and median tectonics
12. Exchangeable operation: synthetic harmony with an implied triadic function between chords, while including the assumed root
13. Fraternal attribution: a family of synthetic chords that are cataloged by tonic with non-tonic tritonal groupings (pilots only)

14. Indicative operation: synthetic harmony having an implied triadic function between chords
15. Irrationality (harmonic): triadic sonorities situated within a harmonic progression, but without a proper function
16. Key transfer: a bridging method between composite and synthetic tectonics, where a subsidiary chord is used to transpose between keys
17. Median echelon: the middle plane of tonality, characterized by triadic modification, harmonic progression, and the dominant function
18. Monotone: a universal term for a tonal one-step, or semi-tones and half-steps without the determined context of a key.
19. Mutation: the chromatic (rather than diatonic) pairing of a tritone within a synthetic chord
20. Normative tectonics: a class of harmonic operations in the median echelon, distinguished by the dominant function
21. Pendant: the diatonic (rather than chromatic) pairing of a tritone within a synthetic chord, and hence the sonority's artificial "root"
22. Pilot: the left number of a synthetic chord under tabulation
23. Propagal affiliation: a family of synthetic chords that are cataloged by multiple non-tonic tritone (groupings on either side of T)
24. Propagary attribution: a family of synthetic chords that are cataloged by multiple tonic with non-tonic tritone groupings (on the pilot side)
25. Rationality (harmonic): triadic sonorities moving by proper counterpoint and resolution within a harmonic progression
26. Remnant: the right number of a synthetic chord under tabulation
27. Subordinal function: a contrapuntal technique where the root of a triadic chord proceeds by monotone
28. Subsidiary tectonics: an array of harmonic operations in the synthetic echelon that includes cardinal, subordinal and disintegral functions
29. Supernal tectonics: a set of harmonic functions in the composite echelon that is associated with key transposition, modulation and accommodation, and escalatory tonicization
30. Synthetic echelon: the lower of plane tonality, characterized by tritonal dyads, irrational harmony and triadic intimation

31. Tectonic level: an alternate name for the higher, median and lower echelons of architectonic theory
32. Tectonic bridging: when operations interchange functions between higher, median and lower tectonics including escalatory tonicization, or amalgamate resolution and analogous sonority, or key transfer accordingly
33. Transient operation: synthetic harmony without an implied triadic function between chords

WORKS CITED

- Abbate, Carolyn. "Wagner, 'On Modulation', and *Tristan*." *Cambridge Opera Journal* 1, no. 1 (1989): 33-58.
- Anheisser, Siegfried. "Das Vorspiel zu *Tristan* und seine Motivik", *Zeitschrift für Musikwissenschaft*, vol. 3 (1920-1921): 257-304. Cited in Bailey, 1985.
- Arend, Max. "Harmonische Analyse des *Tristan*-Vorspiels." *Bayreuther Blätter* 24 (1901): 160-69. Cited in Nattiez, 1990.
- Bailey, Robert. "An Analytical Study of the Sketches and Drafts." In *Wagner: Prelude and Transfiguration from Tristan und Isolde*. New York: Norton, 1985.
- Barbour, J(ames) Murray. "Synthetic Musical Scales." *The American Mathematical Monthly* 36, no. 3 (1929): 155-60.
- Baroni, Mario, Simon Maguire, and William Drabkin. "The Concept of Musical Grammar." *Music Analysis* 2, no. 2 (1983): 175-208.
- Blavatsky, Helena Petrovona. 1889. *Collected Writings*, XI. Wheaton, IL: Theosophical Publishing House, 1973.
- Brown, Michael. "Tonality and Form in Debussy's 'Prélude à l'après-midi d'un faune'." *Music Theory Spectrum* 15, no. 2 (1993): 127-43.
- Busoni, Ferruccio. *Entwurf einer neuen Aesthetik der Tonkunst*, translated by Dr. Th. Baker. Trieste. New York: G. Schirmer, 1907 (1911).
- Casella, Alfredo. "Tone Problems of Today". *Musical Quarterly* 10 (1924): 159-71.
- Chailley, Jacques. *Tristan et Isolde de Richard Wagner. Les Cours de Sorbonne*. 2 vols. Paris: Centre de Documentation Universitaire, 1963.
- Clendinning, Jane Piper. *The Musician's Guide to Theory and Analysis*. New York: W. W. Norton,

2010.

- Clough, John and Gerald Myerson. "Musical Scales and the Generalized Circle of Fifths." *American Mathematical Monthly* 93, no. 9 (1986): 695-701.
- Cohn, Richard. "Maximally Smooth Cycles, Hexatonic Systems, and the Analysis of Late-Romantic Triadic Progressions." *Music Analysis*, 15 (1996): 19-40.
- Craft, Robert and Stravinsky, Igor. *Expositions and Developments*. Garden City, New York: Doubleday & Co., 1962.
- D'Indy, Vincent. 1903. *Cours de composition musicale*, 1. Paris: Durand.
- DeClercq, Trevor. "The Logic of Six-Based Minor for Harmonic Analyses of Popular Music." *Music Theory Online*, 27, no. 4 (2021): 1.4.
- Deutsch, Diana. "A Musical Paradox." *Music Perception*, 3, no. 3 (1986): 275-80.
- DeVoto, Mark. "Aural Images: Debussy's Recycling." In *Debussy and the Veil of Tonality: Essays on his Music*, Dimensions and Diversity Series, no. 4. Hillsdale, NY: Pendragon Press, 2004.
- DeVoto, Mark. "The Strategic Half-diminished Seventh Chord and The Emblematic Tristan Chord: A Survey from Beethoven to Berg". *International Journal of Musicology*, vol. 4 (1995): 139-153.
- Distler, Hugo. *Funktionelle Harmonielehre*. Basel: Bärenreiter-Verlag, 1940.
- Ellis, Mark. *A Chord in Time: The Evolution of the Augmented Sixth from Monteverdi to Mahler*. Farnham: Ashgate, 2010.
- Ergo, E.. "Über Wagners Harmonik und Melodik." *Bayreuther Blätter*, no. 35 (1912).
- Erickson, Robert. *Sound Structure in Music*. Oakland, California: University of California Press, 1975.
- Everett, Derrick. "Richard Wagner and his Mystical Chord as Analyzed by Alfred Lorenz", *Montsalvat – The Parsifal Pages*, (accessed October 8, 2021), <https://monsalvat.no>
- Forte, Allen. *The Structure of Atonal Music*. New Haven, London: Yale University Press, 1973.
- _____. "New Approaches to the Linear Analysis of Music." *Journal of the American Musicological Society* 41, no. 2 (1988): 315-48.
- Frisch, Walter. "Tonal-Harmonic Relationships." In *The Early Works of Arnold Schoenberg, 1893-1908*. Berkeley, Los Angeles: University of California Press, 1997. Accessed via

UC Press E-Book Collection, 1982-2004.
publishing.cdlib.org/ucpressebooks/view?docId=ft5t1nb3gn

Gauldin, Robert. "The DOUTH2 Relation as a Dramatic Signifier in Wagner's Music Dramas." *Music Analysis* 20, no. 2 (2001): 179-92.

Goldman, Richard Franko. *Harmony in Western Music*. New York: W. W. Norton & Co., 1965.

Goldman, Albert and Evert Sprinchorn. *Wagner on Music and Drama; A Compendium of Richard Wagner's Prose Writings*, translated by H. Ashton Ellis. New York: E. P. Dutton & Co., Inc., 1964.

Groos, Arthur, ed. *Richard Wagner: Tristan und Isolde*. Cambridge: Cambridge University Press, 2011.

Guido of Arezzo. Circa 1028 (1943). *Micrologus*, translated and edited by Leone Bernice La Duke. University of Oregon: Bachelor of Arts Thesis.

Gut, Serge. Écoute et toujours: "L'accord de Tristan". *L'avant-scène Opéra*, nos. 34-35 ("Tristan et Isolde") (1981): 148-151.

Hamilton, Kenneth. "Liszt's Early and Weimar Piano Works." In *Cambridge Companion to Liszt*, edited by Kenneth Hamilton. Cambridge University Press, 2005.

Hansen, Finn Egeland. "The Tristan Chord Is Nothing but a Tritone Substitution of the Characteristic Subdominant." *Festskrift Jan Maegaard*, edited by Andersen, Mogens, Claus Rollum-Larsen, and Niels Bo Foltmann. Copenhagen: Engstrom and Sodring (1996): 165-83.

Henning, Karl. "The German Sixth, the 'Tristan Chord'—and Stravinsky". *Classical Music UK*, members.tripod.com/karl_p_henning/old/tristan. Accessed 6 Oct. 2021

Hindemith, Paul. *The Craft of Musical Composition, Book I*, translated by Arthur Mendel. New York: Associated Music Publishers, 1937 (1945).

Hull, Arthur Eaglefield. *A Great Russian Tone Poet: Scriabin..* London: K. Paul, Trench, Trubner, 1916 (1920).

Inoshita T., Katto J. "Key Estimation Using Circle of Fifths". Huet B., Smeaton A., Mayer-Patel K., Avrithis Y. (eds) *Advances in Multimedia Modeling*. MMM 2009. Lecture Notes in Computer Science, 5371. Springer, Berlin, Heidelberg.
https://doi-org.libproxy.temple.edu/10.1007/978-3-540-92892-8_31

Jadassohn, Salomon. *Zur Einführung in J.S. Bach's Passions-Musik nach dem Evangelisten Mattheus*. Berlin: Harmonie, 1899.

- Jensen, Claudia. "A Theoretical Work of Late Seventeenth-Century Muscovy: Nikolai Diletskii's 'Grammatika' and the Earliest Circle of Fifths". *Journal of the American Musicological Society* 45, no. 2 (1992): 305-331.
- Jeppesen, Knud. *Counterpoint: the Polyphonic Vocal Style of the Sixteenth Century*, translated by Glen Haydon, with a new foreword by Alfred Mann. New York: Dover, 1939 (1992).
- Kinnes, Tormod. "Irrational Harmony: Is It Fit?" *The Gold Scales* (blog). 5/28/2020. oaks.nvg.org/hollimo.html.
- Kistler, Cyrill. *Harmonielehre für Lehrer und Lernende*, Opus. 44. Munich: W. Schmid, 1899.
- Kleinmichel, Richard. Wagner, "*Tristano e Isotta*". Pianoforte solo, arranged by Richard Kleinmichel and trans. by Pietro Florida. Milan: G. Ricordi & C., 1894.
- Kurth, Ernst. "The Tristan Prelude." *Romantische Harmonik und ihre Krise in Wagner's "Tristan"*, 2nd ed., Berlin (1923). Reprinted from Hildesheim (1968): 45-53, 62-67, 318-27. Cited by Bailey.
- Lendvai, Ernő. *Béla Bartók: An Analysis of his Music*, Introduction by Alan Bush. London: Kahn & Averill, 1971 (1979).
- Lewin, David. "Cohn functions." *Journal of Music Theory*, 40 (1996): 181-216.
- Liddell & Scott. *A Greek-English Lexicon*. Oxford: Clarendon Press, 1940.
- Lorenz, Alfred. *Das Geheimnis der Form bei Richard Wagner*. 4 vols. Tutzing: H. Schneider, 1924-33 (1966).
- Everett, Derrick. "Richard Wagner and his Mystical Chord (as Analyzed by Alfred Lorenz)". *Monsalvat – the Parsifal pages*. (1996-2021). monsalvat.no/index.htm
- Martin, Henry and Keith Waters. *Jazz: The First 100 Years*. Schirmer Inc., 2002.
- Martin, Nathan. "The Tristan Chord Resolved." *Intersections* 28, no. 2 (2008): 6-30.
- McCartin, Brian J.. "Prelude to Musical Geometry." *The College Mathematics Journal*, 29, no. 5 (1998): 354–370. JSTOR, www.jstor.org/stable/2687250. Accessed 31 Mar. 2021.
- Nattiez, Jean-Jacques. *Music and Discourse: Toward a Semiology of Music (Musicologie générale et sémiologie)*, translated by Carolyn Abbate. Princeton: Princeton University Press, 1987 (1990).
- Nestle, Eberhard. *Greek New Testament*. British and Foreign Bible Society, 1904.
- New American Standard Bible (NASB). La Habra: Lockman Foundation. Used by permission,

1995.

Partch, Harry. *Genesis of a Music: An Account of a Creative Work, its Roots and its Fulfillments*. New York: Da Capo Press, 1974.

Persichetti, Vincent. *Twentieth Century Harmony: Creative Aspects and Practice*. London: Faber and Faber Limited, 1962.

Piston, Walter. *Harmony*, revised by Mark DeVoto. New York: W. W. Norton & Company, Inc., 1978 (1987).

Povilionienė and Šaltmirytė. “Of One Chord: Pre- and Post-Wagnerian Interpretation and Adaptation of the Tristan chord.” *Menotyra*, 25, no. 3 (2018): 195-215.

Reiman, Erika. “The ‘Tristan’ Chord as Music-Historical Metaphor.” *University of Toronto Quarterly* 67 (1998): 768-773.

Revendeas. “Irrational Harmony.” *YouTube* (Topic), May 28, 2020. youtu.be/gYHysyWAVo.

Roslavets, Nikolay Andreyevich. “Nik. A. Roslavets o sebe i svojom tvorchestve” [Roslavets on himself and his work], *Sovremennaya muzika*, no. 1 (1924): 132-8.

Rothgeb, John. “The Tristan chord: Identity and origin”, 1 of *Music Theory Online*, 1995. mto.societymusictheory.org.

Rushton, Julian. “Transposition.” *Grove Music Online*, 2001; Accessed 17 Mar 2022. <https://www-oxfordmusiconline-com.libproxy.temple.edu/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000028274>.

Sabaneyev, Leonid Leonidovich. *Skryabin*. Moscow, 1916 (1923).

Sabbagh, Peter. *The Development of Harmony in Skryabin’s Works*, Universal, 2003.

Sarath, Edward. *Music Theory through Improvisation: A New Approach to Musicianship Training*. Routledge, 2009.

Schachter, Carl. “Analysis by Key: Another Look at Modulation”, *Music Analysis*, 6, no. 3 (1987): 289-318.

Schenker, Heinrich. *Das Meisterwerk in der Musik* 4. Edited by William Drabkin, translated by Ian Bent, Alfred Clayton, William Drabkin, Richard Kramer, Derrick Puffett, Jon Rothgeb, and Heidi Siegel. Cambridge Studies in Music Theory and Analysis. 4 vols. Cambridge and New York: Cambridge University Press, 1925-30 (1994-7).

Schoenberg, Arnold. *Die formbildenden Tendenzen der Harmonie*, translated by Erwin Stein.

- Mainz: B. Schott's Sohne, 1954.
- Serotsky, Paul. "Beethoven (1770-1827) - Coriolan Overture". *MusicWeb International* (blog), May 28, 2020. musicweb-international.com/Programme_Notes/lvb_coriolanov.htm.
- Sessions, Roger. "The Composer and His Message" in Augusto Centeno, ed., *The Intent of the Artist* (1941), Princeton: 113-25.
- Sitsky, Larry. *Music of the Repressed Russian Avant-garde, 1900-1929*. Westport: Praeger, 1993.
- Slonimsky, Nicolas. *Thesaurus of Scales and Melodic Patterns*. New York: Charles Scribner's Sons, 1947.
- Stephenson, Ken. *What to Listen for in Rock: A Stylistic Analysis*. Yale University Press (2002): 42-47. <https://doi.org/10.12987/yale/9780300092394.001.0001>.
- Stuckenschmidt, H. H., and Piero Weiss. "Debussy or Berg? The Mystery of a Chord Progression." *The Musical Quarterly* 51, no. 3 (1965): 453-59.
- Taruskin, Richard. *Defining Russia Musically*. Princeton: Princeton University Press, 1997.
- Thompson, W. F. "Circle of fifths". In *Music in the Social and Behavioral Sciences: An Encyclopedia*. SAGE Publications, Inc. 1 (2014): 176-177. <https://www-doi-org.libproxy.temple.edu/10.4135/9781452283012.n62>
- Tymoczko, Dmitri. "Stravinsky and the Octatonic: A Reconsideration". *Music Theory Spectrum* 24, no. 1 (2002): 68-102.
- Vollen, Guy. "Alliterative Insult: an Operatic Example." *Medleyana* (blog), 2013. December 4, 2020. medleyana.com/tag/stabreim.
- Wagner, Richard. *The Art-Work of the Future 1 of Richard Wagner's Prose Works*, translated by William Ashton Ellis. 8 vols. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1849 (1895-1912).
- _____. *Oper und Drama 2 of Richard Wagner's Prose Works*, translated by W. A. Ellis. 8 vols. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1849 (1895-1912).
- _____. *Prelude to Tristan und Isolde 8 of Richard Wagner's Prose Works*, translated by W. A. Ellis. 8 vols. London: Kegan Paul, Trench, Trubner & Co., Ltd., 1849 (1895-1912).
- Wikipedia, The Free Encyclopedia, s.v. "Synthetic chord," (accessed May 30, 2020), https://en.wikipedia.org/wiki/Synthetic_chord
- Wikipedia, The Free Encyclopedia, s.v. "Synthetic scale," (accessed May 30, 2020), https://en.wikipedia.org/wiki/Synthetic_scale