Applying Transformational Theories: A Combined Approach Toward an Analysis of Debussy's *Ariettes Oubliées* no. 5, "Green"

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In recent years, theorists have aimed to develop new ideas in transformational theory and analysis; however, few in-depth analyses have been performed. Because these theories aim to present this repertoire in a way that is unique from existing forms of traditional analysis; such as Schenkerian theory or tonal harmonic theory, and because they have been little tested, they often do not address certain elements or structures present in the music. These theories do, however, contain many valuable analytical tools and it is my belief that they may be combined or applied to unique aspects of the same piece in order to explain musical phenomena which cannot be explained by a single transformational theory. As a process of examining the application of some fairly recent transformational theories, I have applied them in an analysis of Debussy's "Green", the fifth song in his *Ariettes Oubliées*.

The aim of my analysis of "Green" is to find some insight into whether these theories can do what they claim to do well in regards to this example of late 19th century repertoire, as well as locate other aspects of analysis which they are not designed to attend to, but may be provided by the use of additional theories or further development of existing theories. It is my belief that, though no single theory can provide a precise and unquestionable analysis of every aspect of a piece, that some of these theories may be fortified or combined with others in order to provide a more complete analysis

For the sake of a narrowed examination, my analysis was performed with the use of Richard Cohn's neo-Riemannian ideas about harmonic transformations, Julian Hook's theory of

triadic transformations, and Robert D. Morris's concepts of voice-leading from his 1998 essay, "Voice-Leading Spaces".[1] Some ideas from traditional set theory are applied in my analysis as well, primarily as a means of labeling musical entities which the other theories are not formatted to identify and to add some additional analytic perspective.

I. *Ariettes Oubliées* no. 5, "Green"

Composed in 1888, "Green" is the fifth of six settings of poems Debussy selected from Paul Verlaine's *Romances sans paroles.* The collection of songs was originally published under the name *Ariettes Paysages belges et aquarelles* but was retitled *Ariettes Oubliées* when reissued in 1903 (Wenk, 105). There exist many settings of Verlaine's poems by other notable composers. Some of the most well-known Verlaine songs are those by Gabriel Fauré, which include several of the poems used in the *Ariettes Oubliées,* including a setting of the poem "Green" composed in 1891.

In his analysis of the two settings of "Green", Arthur B. Wenk suggests that both Debussy and Fauré, "…employ the resources of harmony to suggest the ambivalence of intimacy and detachment, of effusiveness and diffidence, which Verlaine conveys through shades of literary styles," (Wenk, 52). Wenk further suggests the idea that a harmonic progression's stability or level of "expectedness" affects the listeners levels of interest and coherence, while the contrast of consonance and dissonance, simultaneous with a particular word of text, will, "…color our understanding of the word it sets," (Wenk, 52). The emphasis on harmony in Debussy's setting of the text, particularly with attention to progression and usual vs. unusual motion between harmonies enhances its candidacy for analysis using transformational techniques, as many transformational and neo-riemannian based theories focus heavily on

[1] Morris, Robert D. "Voice-Leading Spaces." *Music Theory Spectrum* 20.2 (1998): 175-208.

harmony and harmonic succession. Furthermore, this provides evidence that the selection of harmony and structuring of the piece may be strongly tied to the text, if the harmony is in fact driven by the text. [2]

Verlaine's poem combines natural imagery of nature ("*des fruits, des fleurs, des feuilles et des branches*") with imagery of the human body, particularly that of the woman *(beaux yeux, mains blanches*). According to Wenk, the text, "…expresses the confusion of feelings attending a new love, the ambivalent sensations of eagerness and diffidence, of intimacy and detachment," (Wenk, 50). Wenk suggests that Debussy's choices of harmonic motion reflect the feelings expressed by the text (Wenk, 52). The motion of a perfect fifth, which occurs frequently throughout the piece, – a prime example of which is the opening material of the piano accompaniment (mm. 1-4) – may have been a purposeful use of what is common or expected for the listener. Wenk explains this perfect fifth motion as, "The direct fulfillment of our expectations, at least on the chord-to-chord level, helps convey the effusiveness, perhaps even the naiveté, of the young lover," (Wenk, 52).

Though Wenk's analysis is very insightful in terms of text setting, the importance of harmony and various harmonic motions, and the expression of the poetic themes through music, he presents an analysis based on the assumption that Debussy's "Green" is a tonal piece.[3] Whether Debussy's music is entirely or even partly tonal is a matter of ongoing debate consisting of many valid and intriguing arguments.[4] I am willing to argue, however, that this piece, despite

[2] For text and translation see Appendix 2.
[3] I am basing Wenk's assumption of tonality here on a couple of factors which are commonly used to define a piece as tonal, or an analysis as a tonal analysis. These factors are the suggestion that the piece contains a tonic first scale degree (in the key of G-flat major) and a "familiar II-V-I cadential formula". Wenk uses roman numerals as a means of labeling harmonies, which identifies them as members of a key-centric progression. For Wenk's analysis of the piece see Wenk, pg. 52-58.
[4] Boyd Pomeroy presents several of these arguments in his essay, "Debussy's tonality: a formal perspective", Cambridge University Press, 2003.

its frequent fifth relations and though sections of it may be presented somewhat accurately through roman numeral analysis, the complex harmonies of the piece may be better explained through other analytic theories including some transformational theories.

In explaining the unique selections of harmonies for which Debussy is known, Boyd Pomeroy suggests that the "colouristic dissonances" which are a part of many of these harmonies, "…constitute static, colouristic embellishments of the basic triad," (Pomeroy, 158). If this is the case, that Debussy's harmonies are basic triads with coloristic additional tones, then the removal of those tones to reduce each harmony to a triad should not compromise the structural integrity of the piece's harmonic motion. In Richard Cohn's theory, which I used for the analysis of "Green", this triadic reduction was necessary in accordance with the theory. I soon found, however, that not all of these harmonies were so easily reduced, and, oftentimes, the result of removing the extraneous "colouristic" tones seemed an unsatisfactory explanation of the role of harmony in the piece.

II. Analysis using Cohn's theory from *Audacious Euphony*

In his 2012 book, *Audacious Euphony: Chromaticism and the Triad's Second Nature*[5], Richard Cohn proposes a theory that can be used in the analysis of mid-nineteenth through early twentieth Century music. Cohn's theory is designed to show transformations between adjacent triads in a harmonic space. The harmonic space is a species of pitch-class space which represents pitch-classes as triadic (or possibly seventh-chord) harmonic sets; these are represented

[5] Cohn, Richard Lawrence. *Audacious Euphony: Chromaticism and the Triad's Second Nature.* New York: Oxford University Press, 2012.

graphically by the tonnetz.[6] Transformations show the type of motion in one, two, or three of the members of a major or minor triad that create the next adjacent major or minor triad. These transformations are R (relative), N (nebenverwandt), S (slide), L (leittonwechsel), P (parallel), H (hexatonic pole) (Cohn, 2012)[7]. In order to analyze the piece for its harmonic space and transformations, I broke it up into four sections: (1) mm. 1-12 and 40-49 which are the same with the exception of m. 49, (2) mm. 13-23, (3) mm. 24-39, and (4) mm. 50-58. Discussion of the basis of this segmentation is addressed below.

Appendix B, Figure 1 shows a triadic harmonic reduction, and the transformations between adjacent triads according to Cohn's theory.[8] The harmonic reductions do not provide any representation of the harmonies in pitch-space or in inversion congruent with that of the notated music, but as root position triads. Representations of pitch space and inversion are not necessary for the analysis because Cohn's theory does not address issues of pitch-space or inversion, but focuses on transformations of triads. Figure 1 thus focuses on the movement from one harmony to another by transformation rather than voice-leading, motion through pitch space, or any other factors.

Upon examining the analytic materials; the tonnetzes, harmonic reduction, and transformations, we begin to get a sense of what this theory is able to do well, what it may not do

[6] The tonnetz in equal-tempered form which is used in the analysis was developed by Brian Hyer in his 1995 essay "Reimag(in)ing Riemann". *Journal of Music* Theory 39, no.1: 101-38.

In this analysis I have chosen to use a tonnetz which substitutes letter names for numerical pitch class designations (0 = C, 1 = C#,… t = A#, e = B). This tonnetz allows for more flexibility in terms of enharmonicism and the use of set theory in analysis.

[7] For Cohn's definitions of transformations see Cohn 2012: R, pg. 62; N, pg. 61-62; S, pg. 64; L, pg. 29; P, pg. 29; H, pg. 31.

Cohn's definition of S (slide transformation) appears in Robert D. Morris *Class Notes for Advanced Atonal Music Theory,* 2001 as the transformation P'.

[8] Triadic reduction is shown as chord names below a harmonic rhythm diagram as a reference to where each harmony begins within a measure and for how long it is sustained. The rhythms do not reflect the actual rhythms associated with complete triads. Hook transformations appear below the Cohn transformations in Figure 1, and will be discussed in a later section.

as well, and what aspects of analysis may not be addressed by this theory but may be desired in general or in the context of this piece. Because this theory is for the analysis of harmony, it is there that we must examine its effectiveness. There are many other aspects of musical structure, the analysis of which may lead to a broader or more complete understanding of the piece, but the integrity of the theory depends largely on whether it produces the kinds of outcomes it is designed to produce. Harmonically speaking, Cohn's theory can highlight many of the aspects of harmonic motion which are audible to the listener, including those which are mentioned in Wenk's analysis, in a manner which does not rely on determining whether the piece is decidedly tonal.

The tonnetzes show the harmonic space of the piece to be largely fifth-related. This kind of horizontal alignment on the tonnetz might suggest tonality, in the traditional sense, or may simply indicate an intervallic relationship which is significant to the sound, structure, or expression of the piece (such as the "fulfilled expectations" suggested by Wenk).This piece, however, is not the kind of straightforward tonal piece of music suggested by strings of fifth-related triads. In fact, a great deal of the piece does not consist of triads at all, which is one reason why, I would argue, this is not a tonal piece. The benefit of this method of analysis, then, as opposed to a tonal/functional analysis (such as representing harmonies/harmonic functions with roman numerals) or another form of tonal analysis, is that we do not have to consider these complex, "colorful" harmonies as functioning triads leading to a II-V-I cadence, but can relate them by intervallic motion.

Though the analysis provides a clear representation of the relationships between triads in the piece, a potential problem may be that it only shows the relationships between *triads* in the piece. If we are to assume Pomeroy's opinion of Debussy's harmonic language – that many of

the chords which include sevenths, ninths, or are of greater cardinality are simply regular triads with "colouristic" embellishments – then the representation provided by this analysis is extremely accurate. It removes the coloring tones from the harmonic language to show the underlying structure of the piece in simple black and white. In this piece, however, I feel that the larger harmonies are not just fancy triads, but that they are musically significant in the form in which they appear.

It is my opinion that the triadic reduction that fits chords as triads onto the tonnetz accounts for much of the loss of the reality of the piece. It is important to note, however, that this is not necessarily a fatal flaw built into the theory, but a shortcoming in the context of this piece, or others with some of the same qualities. As I noted above, how the analyst views the harmonic language or the significance of certain harmonic tones, can be quite determinate in assessing the theory's effectiveness. For example, in a piece in which the majority of the harmonies are composed as major and minor triads arranged in a non-tonal syntax, this theory would be quite appropriate and could provide a lot of insight that other theories possibly could not. For the sake of tackling issues of analyzing this particular piece, and possibly others like it, using transformational theories, I will continue to identify problematic issues raised by the use of Cohn's theory in this context. The following sections outline the issues that were encountered in the analysis of this piece.

III. Harmonic cardinality

One of the most immediate issues encountered upon using Cohn's theory in the analysis of "Green" is the issue of cardinality, or the number of discrete pitches in a given chord. Cohn's

theory is designed to show transformations and harmonic spaces of triadic harmonies. This theory provides methods of reducing dominant-seventh and half-diminished seventh chords into major and minor triads by omitting either the root or the seventh of the chord; but, the theory does not provide a method for the triadic reduction of the minor-minor seventh chords (or a member of 4-26 [0358]) or major-major seventh chords (or a member of 4-20 [0158]) which can each be reduced to one major and one minor triad; hence there is not a given protocol for determining which of those triads should appear in the analysis. The theory does not give any mention of harmonies of a greater cardinality than 4, nor any method for their analysis. This omission can be a great disadvantage when attempting to analyze music of the mid-nineteenth through early twentieth Centuries. This is particularly an issue in many pieces by Debussy, and "Green" is a prime example. In order to accommodate the prevalent and characteristic harmonies of greater cardinalities within this piece, it may be necessary to use other theoretical methods. Pitch-class set theory and Robert D. Morris' theory in *Voice-Leading Spaces* may provide help to begin the process of gaining a clear analysis concerning harmonies of greater cardinality.

The majority of the harmonies in Debussy's "Green" are triads or seventh chords which can be reduced to triads according to Cohn's theory. There are, however, several related pentachords which occur frequently enough and in a contextual manner which makes them very worthy of inclusion in analysis. The pitches involved in these structures all appear to be chord tones; that is, they are not non-chord tone products of voice-leading, such as passing or neighboring figures, suspensions, or appoggiaturas. In order to complete an analysis according to Cohn's theory, and because Cohn's theory is not designed or equipped to include harmonies of this sort, some assumptions must be made on the part of the analyst in order to incorporate them into the harmonic progression.

I have made the assumption that in order to reduce these harmonies to a major or minor triad, I will have to omit certain tones in a similar manner to the reduction of the seventh chord (as that is the given example of reduction). The reduction of the seventh chord implies that the triad is the significant structural component of the chord, and the seventh is an additional tone. The obvious difficulty then arises: in a harmony that does not show evidence for obvious non-chordal members (such as sevenths resolving down), which do we discard in favor of a particular triad? Additionally, in a theory that unbinds harmonies from the concepts of functional tonality, why do we favor a particular triad over another? I show that the pentachords in this piece are musically significant, and that the method of analysis must be rethought in order to accommodate them.

Before determining how these pentachords function within the piece and related to each other and their surrounding harmonies, we must first determine what these pentachords are. I used set theory to label these chords as "things" in a way that could potentially show how they relate to one another. I found that the majority of the pentachords were transpositions of set class 5-34 (02469). Other pentachords are frequently quite similar to the 5-34 pentachords in rhythm, metrical placement, and pitch-space voicing. These pentachords are fairly close to 5-34 intervallically, particularly 5-31(01369) and 5-25 (02358). **Figure 1**, below, is a list of the three pentachords in their prime forms, the transpositions which appear in the score, and the measures in which they occur.[9]

Figure 1.

Pentachord	PCs used	Loacation (measure)

[9] The pentachords are labeled above the measures in which they appear in the annotated score in Appendix 1.

Set Class 5-34 (02469) A, 5-31 (01369) B, 5-10 (01346)	(e,1,3,5,8), (6,8,t,0,3) (1,4,6,7,t), (e,0,2,5,8) (1,3,4,6,t)	mm. 9, 11, 19, 26, 46, 48 mm. 10, 12, 39, 47 m. 49

In addition to the pentachords, there are two occurrences of a hexachord (mm. 14 and 19) that is made up of two disjunct triads. This is an especially problematic harmony to reduce to a single triad. In this instance one is forced to make a decision based upon some criteria. In *Audacious Euphony*, as mentioned before, Cohn does not discuss any criteria for handling the reduction of anything greater than n = 4. If we make assumptions about chordal reduction, we may need to base it upon criteria such as the provided methods for handling seventh chords or notions of traditional tonal harmonic progression, which may or may not be the most accurate way to make assumptions in the context of this piece.

IV. Aspects of hierarchy

It is not only the frequency with which the pentachords occur that distinguishes them as especially important to the harmonic space of the piece, but their placement within the larger structure. Cohn's theory focuses mainly on local transformations and an overall image of the harmonic space. The phrase structure and location of harmonies within it can introduce new levels of complexity that reach beyond the capabilities of the theory, one of these levels; which significantly affects the relationship of one harmony to the next, is a perceived hierarchy.

Several factors indicate that the pentachords may be high on a perceived harmonic hierarchy which is significant to the structure of the piece. The structure of the piece can be segmented based on the structure of the text and melodic line, the changes of texture and motive in the piano accompaniment, and rhythmic indications such as duration and pause.[10] Segmenting the piece according to these criteria places the pentachords at moments which begin, end, or connect musical segments.

The melodic structure of the vocal line is directly linked to the poetic structure of the text. Rests in the melodic line occur in the places where a line break, mark of punctuation, or end of a stanza occurs in the poem. The rising and falling motion of the melodic line occurs within the duration of these textual fragments. For example, the first segment of text, "*Voici des fruits, des fleurs, des feuilles et des branches*," begins on A4, climbs an octave to A5, and descends to conclude on A4. Not every musical segment contains only a single line of text, such as that in mm. 13-20 which includes a sentence of text as opposed to a line. These fragments can be segmented according to other accompanying factors such as the motive or the piano accompaniment.

The change of textural and motivic material in the piano accompaniment is often abrupt and simultaneous with the change of a textual line or phrase. Mm. 5-8 share the same material as the opening gesture and begin a new motivic gesture in m. 9 at the start of the next line of text. This method of segmentation accounts for the segment in mm. 13-20 which includes more than a single line of text. It is between these motivic fragments in the accompaniment that the pentachords most frequently occur. The pentachords are placed in metrically superior positions

[10] Segmentation is indicated in the annotated score in Appendix 1, above the measure in which the segment begins by the designation of "seg. 1" for segment one and so on.

as well. In terms of duration, the pentachords generally occupy a relatively long temporal space of up to two measures, as in mm. 11-12.

If the other harmonies in the piece are subordinate to these pentachords as a function of some type of harmonic hierarchy, there is not a way to investigate or represent it in Cohn's theory, as hierarchy is not a topic of much discussion in transformational theory in general. In order to preserve the cardinality of the pentachords and show how subordinate surrounding harmonies are related, a system which can account for a range of harmonic cardinalities and provide some explanation for how they relate is necessary.

I use ideas from Robert Morris' *Voice-Leading Spaces* to connect the pentachords to their surrounding harmonies. This theory is appealing because it accounts for changing cardinality by setting the total number of voices throughout the piece as the number of voices overall, and explains the changing cardinality as a merging and diverging of doubled pitches.

The relationships between adjacent harmonies can be explained multiple ways according to Morris' theory. With some cardinalities it is possible to show the voice-leading space on a tonnetz, somewhat similar to Cohn's transformational harmonic space. In the case of "Green" and its numerous pentachords, the voice-leading can be shown very simply as types of motion between adjacent voices. I chose to begin exploring the analytic possibilities of Morris' theory in this piece by mapping the pentachords and their surrounding harmonies using this method. [11]

The labels of types of motion; S (similar), P (parallel), O (oblique), and C (contrary), don't say much of anything about the perception hierarchy. What they can do, is show how the voices move in and out of the pentachords, and point out any potential patterns in the voice-leading. Because some of the triadic and seventh-chord areas of the piece, that occur between the

[11] A diagram of voice-leading in pentachord areas is provided in Appendix 1, Example 5

pentachords, can be explained using Cohn's theory, combining these two theories may provide the beginning of a solution. Set theory provides us with a label for what the pentachords are and how they are similar to or different from one another, Morris' theory can show how the voices converge and diverge into and out of the pentachords, often between segments, where the cardinality changes, and Cohn's theory can show the transformations and harmonic space for the areas which can logically be reduced to regular triads. In a theoretical system which does not account for hierarchy, it may be possible to not only show the perceived hierarchy, but treat its members uniquely in an analysis by using multiple theoretical tools.

Although the Morris analysis did not show any significant patterns of voice-leading in this piece that I have been able note, a system for dealing with changing cardinality in transformational theory will likely be a valuable tool for analysis. If transformational theories are created or amended to include ways to analyze or graphically represent greater cardinalities, the concept of doubling may be very useful when mapping chords of different cardinalities onto one another.

V. Counterpoint and dissonance

Non-harmonic voice-leading is another element which is prevalent in "Green" and in music in general. The "non-chord-tone" has been shown in analysis for a long time and in many ways. Tonal harmonic analysis can show some voice-leading dissonances through figured bass. Unfortunately, none of the theories I have used in this analysis can explain these types of dissonances in a way that relates them meaningfully to the rest of the music.

Morris' theory can show any type of voice-leading motion from one harmony or tone to another. In this system, it is possible to include non-harmonic tones in the analysis. What this theory doesn't demonstrate as well as Cohn's theory is the relationship between the adjacent

harmonies to which the non-harmonic tone does or does not belong. A theory which primarily focuses on voice-leading can only say so much about the harmony to which the voice-leading is related.

Cohn's theory does not account for these types of voice-leading phenomenon. By segmenting the piece into a harmony-by-harmony outline and geometric representation, all figurations, voice-leading dissonances, or intriguing voice-leading phenomena are lost.

VI. Analysis using Hook's theory from, *Uniform Triadic Transformations*

Hook's theory possesses some similarities to Cohn's theory, in that the basis of analysis is on transformations between adjacent harmonic entities, particularly triads. The two methodologies, however are quite distinct. Hook's theory is based on algebraic concepts rather than the neo-Riemannian concepts of Cohn's theory. Hook's theory also allows for the inclusion of all seventh-chord types within the analysis. Though the two theories both identify adjacent harmonic transformations, the way in which they identify and label transformations are quite different, and thus, yield very different results. Though both theories have their respective strengths and shortcomings, viewing them side-by side demonstrates what those strengths and shortcomings may be and how each may lead to a certain musical analytical interpretation.

The transformations shown in Figure 1 in Appendix B are transformations of the triads to which the piece has been reduced for the Cohn analysis. Using the same chordal reduction allows for a clearer comparison of the two methods. One of the most obvious distinctions between the two theories is the representation of the transformations in a visual space (Cohn's use of the tonnetz) and the representation of transformations in a mathematical form. The transformation labels that Cohn uses (P, L, R, S, N, H) signify a type of motion that can be traversed through the

space of the tonnetz. Hook's transformations, on the other hand, do not represent motion through a graphical space, but identify changes of mode and root motion by transposition.

The results of the Hook analysis of "Green" contain some intriguing patterns which may lend some understanding to how the piece may be experienced as having a cohesive sound. This may be an important discovery, particularly when analyzing the piece under the assumption that it is "non-tonal". This may also be something which we desire from an analytical theory – the ability to allow us to pinpoint factors which may make the piece cohesive, harmonically or otherwise.

The labeling of root motions between adjacent triadic transformations points out a distinctive quality of the piece which was also quite obvious upon viewing the tonnetz of the Cohn analysis, and that is the root motion of a perfect fourth or perfect fifth. The most frequent transformations found in the Hook analysis are <+, 7, 5>, <+, 5, 7>, <-, 7, 5>, and <-, 5, 7>. This shows the root motion by interval classes 5 and 7, the perfect fourth and perfect fifth. The frequency with which these occur is quite striking. Whether or not the harmonies are in root position, whether they are of a cardinality greater than 3, or whether they are not a clearly defined major or minor triad, this intervallic motion is still contained within them, and may be a factor in lending the piece a unified sound.

Segmentation and other aspects of larger or global form are not addressed in Hook's theory, as it is not a theory of form, but of triadic transformation. It does, however, have the capabilities to address some issues of voice leading and inversion.

Conclusions

Neither Cohn, Morris, nor Hook include issues of form or segmentation or how it should affect the harmonic analysis in the theories explored in this essay. In discussing the notion of hierarchy, above, I mentioned the "segments" and their boundaries as important harmonic locations which suggest the possibility of a perceived hierarchy which relates harmonically to the frequently occurring pentachords. My segmentation of the piece relied heavily on the melodic line as well, which is not drawn from Cohn, Hook, or Morris because the focus of these theories is harmonic and harmonic voice-leading transformation. Though these theories fulfill many of their intended purposes well, there are other musical aspects which it may be desirable to consider when performing an analysis. New theories or additional principles within these theories which include melody and phrasing or segmentation as factors in determining harmonic sections and harmonic significance, as well as the relationship of a melodic line to a harmonic space are another necessary step toward creating transformational theories that are equipped to provide a more complete analysis.

All three of the theories that I have tested in the analysis of Debussy's "Green" contain elements which can be very useful for explaining or representing aspects of this repertoire. No one of these theories, however, can explain all of the most important aspects of the piece completely and definitively, as no single theory can. Combining these three theories (as well as possible others) can show different types of musical relationships in different structures of the piece. There are still many elements, however, which could benefit from additions to these theories or from different theoretical ideas.

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