Time–Pitch Isomorphisms in Die Walküre

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1 Introduction

D ESPITE THE OVERWHELMING primary and secondary literatures on Wagnerian studies, discussions of Wagner's temporal organization are decidedly rare. In this paper, I reveal a recursive temporal structure in *Die Walküre*, Act II. ► The presentation is in five parts. I begin with a brief discussion of the ANNUNCIATION OF DEATH *Leitmotiv* and a large-scale motivic parallelism in Scene 4.¹ I then present a network model of what I call the conceptual time spans of the excerpt before briefly engaging with other research on the *Todesverkündigung*. I then discuss the end of Act II, showing how the music resolves the drama and analysis left hanging from Scene 4, before concluding.

1.1 A Brief Survey of the Tonal Structure

► We will focus on the opening 156 measures of Scene 4, a common division dating back at least to Lorenz.² ► Example 1 shows the twelve-bar sentence that opens the scene;³ note

^{*}The paper, handout, and slideshow are all available at http://www.sambivens.com/research. Please include a direct link when citing this paper; a sample is given in the bibliography.

^{1.} The capitalized nomenclature comes from Warren Darcy's motivic guide to the *Ring* as found in an appendix to Bribitzer-Stull (2001, 331–408). The present author's current draft of this guide, with musical examples, is available at http://sambivens.com/research/darcy_ring_guide_draft.pdf.

^{2.} Note that these 156 measures correspond precisely to Lorenz's Period 10; see Lorenz ([1924] 1966) and McClatchie (1998).

^{3.} Measure numbers are in reference to the widely available Schirmer vocal score, arranged by Karl Klindworth, in the format page/system/measure. Thus 152/4/1 indicates the first measure on the fourth

especially the half-step motives labeled *x*, *y*, and *z*. Please listen as Daniel Barenboim leads the 1993 Bayreuth Orchestra in performing Example 1.



EXAMPLE 1: Opening of Act II, Scene 4, 152/4/1–152/5/6 (mm. 1462–1473)

► The ANNUNCIATION OF DEATH *Leitmotiv*, the initial appearance of which is shown in reduction in \blacktriangleright Example 2, appears no fewer than nine times throughout the excerpt. Most important for our purposes are the three descending semitones labeled *x*, *y*, and *z*.



EXAMPLE 2: Voice-leading reduction of the initial ANNUNCIATION OF DEATH *Leitmotiv*, 152/5/3–152/5/6 (mm. 1470–1473)

► Zooming out now to the excerpt at large, enharmonic resolutions of the V⁷ chord into a Ger₅⁶ occur three times throughout the excerpt. ► In the first instance, shown in Example 3, an A⁷ chord in 156/4/6 resolves not to its expected D triad but rather to a tonic $\frac{6}{4}$ harmony in Db major.⁴ Note the enharmonically spelled motive *x* in the bass at the double

system of page 152.

^{4.} Due to this $\frac{6}{4}$ chord's resolution, I hesitate to label it a cadential V_4^6 .

bar; the original A–G‡ is now spelled A–A♭ in order to create this harmonic sleight of hand. Consult Example 3 as Clemens Krauss conducts the Bayreuth Orchestra in 1953; Ramón Vinay is Siegmund and Astrid Varnay is Brünnhilde.



EXAMPLE 3: First enharmonic reinterpretation of V⁷, 156/4/3–157/1/2 (mm. 1561–1566)

► Similarly, the second instance, shown in Example 4, resolves a B⁷ harmony in 158/1/6 to a cadential ⁶/₄ in d♯; motive *y* in the bass brings about this resolution. The Vienna Philharmonic, conducted by Sir George Solti, performs Example 4; James King is Siegmund and Régine Crespin is Sieglinde.

► The third and final instance is shown in Example 5; motive z occurs as the C_{\sharp}^{77} in 158/4/6 resolves to an $e_{4}^{\#6}$. Though this final instance appears to resolve to a tonic or a cadential $_{4}^{6}$ as in the previous instances, closer examination reveals this as merely the first step in the unfolding of the dominant seventh chord in C \sharp major. The 1967 Bayreuth Orchestra, led by Karl Böhm, performs Example 5; James King is once again Siegmund.

► Wagner accelerates his presentation of this device within the scene; ► over one hundred bars separate the beginning of Scene 4 from the first enharmonic reinterpretation, though hardly twelve bars separate the final two instances. ► In addition, note that the



EXAMPLE 4: Second enharmonic reinterpretation of V⁷, 158/1/3–158/3/1 (mm. 1591–1600)

basslines of these three enharmonic reinterpretations present the very same half-step motives—x, y, and z—found in the original ANNUNCIATION OF DEATH *Leitmotiv*, thereby creating a large-scale motivic parallelism between the initial ANNUNCIATION OF DEATH and the excerpt at large. To my knowledge, this parallelism has not been recognized until now.

► There are of course clear dramatic implications for these resolutions, but in order to fully understand them we first must change gears ever so slightly.

1.2 Modeling Conceptual Time

▶ Let us identify the end of motive *x* as point *x*; points *y* and *z* similarly identify the conclusion of the remaining reinterpretations. ▶ Figure 1 shows these moments in reduction.

Let us also identify the opening of the excerpt as point p and the conclusion of the excerpt as point q. Table 1 collates these locations with their time points and two systems of measure numbers.

► A network approach can show several relationships between these time points. To begin, we can observe the duration from time-point p to time-point x as it relates to the duration between time-points p and q. Figure 2 shows a conceptual-time network



EXAMPLE 5: Third enharmonic reinterpretation of V⁷, 158/4/2–158/5/2 (mm. 1607–1613)



FIGURE 1: Bassline motivic parallelism with enharmonic dominant-seventh resolutions

Point	Schirmer Measure	Calibrated Measure	Libretto Text	Time Point
р	Beginning of 152/4/1	Beginning of m. 1	n/a	0
x	End of 157/1/1	End of m. 104	Wunsch mädchen	104
у	End of 158/2/5	End of m. 138	Siegmund dort nicht.	138
z	Beat 3 of 158/5/1	Beat 3 of m. 151	Wälse und al le	150.5
9	End of 159/1/1	End of m. 156	zu ih nen	156

TABLE 1: Outer boundaries (p and q) and completed motivic parallelism appearances (x, y, and z) matched with measure numbers and the libretto



FIGURE 2: Conceptual-time network relating time-points p, x, and q



FIGURE 3: Conceptual-time network relating time-points x, y, and q

displaying this information. Recall that points *p* and *q* are the boundary points of our 156measure excerpt, while point *x* is the location of the first enharmonic reinterpretation—and thus the appearance of motive *x*. Thus this figure quantifies the location of this bassline parallelism within the entire excerpt.

▶ We can now momentarily disregard the music up to the first enharmonic resolution, focusing instead on the excerpt from point x to the conclusion. Though we have a new starting time point, the procedure remains the same: measure the distance from the (new) beginning to the next enharmonic reinterpretation and compare that to the duration between the excerpt's boundary points. ▶ Figure 3 shows a basic conceptual-time network displaying the location of motive y within the time span from x to q.

Our concluding exercise relates the durations within the time span between points y and q; \blacktriangleright Figure 4 displays this relationship. As a reminder, these three figures quantify the location of the aforementioned enharmonic reinterpretations within the time span of the previous landmark and the end of the entire excerpt. Recall once again that the time spans shown in Figures 2–4 progressively diminish in size.

1.2.1 Lewin's FATE GIS

▶ When Lewin (1987) analyzed the opening of this excerpt, he emphasized the pitch structure of the opening FATE *Leitmotiv*. ▶ In his discussion, Lewin constructs a network for the opening three melodic pitches; Figure 5 reproduces his network.



FIGURE 4: Conceptual-time network relating time-points y, z, and q



FIGURE 5: Reproduction of Figure 8.7.b from Lewin (1987, 185)

1.2.2 Combining the Approaches

In order for Lewin's network to interact more directly with mine, ► Figure 6 presents a revised network of Figure 5 with the pitches in descending order; the network structure remains the same after the successive major second transpositions of FATE.

► We are left now with a collection of durational networks in Figures 2–4 and a consistent network from the FATE transpositions as shown in Figure 6. ► Figure 7 shows these networks to be isographic—more or less.

The isomorphisms get fuzzier as time proceeds. At first glance this might seem to weaken the argument of isomorphism. Instead, clear connections to the narrative actually strengthen the argument. The excerpt deals with Siegmund's impending death and entrance into Walhalla via Brünnhilde, an idea characterized musically as FATE, from which



FIGURE 6: Revised network of Figure 5



FIGURE 7: Revised networks of Figures 2–4



FIGURE 8: Nested conceptual-time networks in mm. 1462–1617 (some labels omitted for clarity)

we created Figure 6. The revised network of Figure 2 details the initial harmonic sleight of hand, the point at which Brünnhilde moves into Db (the associative key of Walhalla)⁵ in order to explain the splendor of what Siegmund will find there. The isomorphism nicely portrays the fact that there is no hint yet of Brünnhilde failing her task. The revised network of Figure 3 details the second enharmonic reinterpretation, which accompanies Brünnhilde explaining to Siegmund that Sieglinde must remain on earth. For the first time in the duet, we see that Siegmund might fight his fate if doing so will allow him to stay with Sieglinde. Now, of course, the isomorphism is less precise. The final enharmonic reinterpretation, shown in the revised network of Figure 4, accompanies the moment when Siegmund officially announces his refusal to follow Brünnhilde to Walhalla. At this moment in the narrative Brünnhilde's task seems most likely to fail, and the isomorphism is appropriately the fuzziest of all.

► We are left, then, with a series of nested 3- and (near) 2-arrows throughout the entirety of the excerpt ► as shown in Figure 8. The gradual breaking-down of the isomorphisms nicely mirrors the dramatic action of each time point.

1.3 Relationships to Prior Research

▶ These thoughts are especially intriguing in light of work by Matt BaileyShea (2007), who discusses how characters within the *Ring* can "control" the orchestra as a means of enhancing the drama. ▶ Connecting this to Robert Bailey's notion of associative tonality,
▶ we can imagine, at time-point *x*, Brünnhilde wrenching the orchestra away from their expected D major down to D♭ in hopes of persuading Siegmund to come with her to

^{5.} For more on associative relationships, see Bailey (1977) and McCreless (1982, 88–95); see as well my later note 11.

Walhalla—D \flat , as a reminder, is the associative key for Walhalla.⁶ \blacktriangleright Similarly, at time-point *y*, as she informs Siegmund that Sieglinde must remain on earth, she cleverly coerces the orchestra into D \sharp minor, the enharmonic equivalent of E \flat , what Darcy (1993) labels as the key of the natural world. Most poignant, however, is the ironic usage of associative tonality at time-point *z*. \blacktriangleright As Siegmund ultimately refuses to go to Walhalla, the C \sharp ⁷ suggests a resolution to F \sharp minor—the key associated with death, and the key of which Walhalla is the dominant. This C \sharp ⁷ instead moves to $e\sharp_4^6$. At this point, the classically trained listener might expect a resolution to an $e\sharp$ tonic, but instead we hear an unfolding of a G \sharp ⁷ chord, and Wagner forces us—and Siegmund—directly back to C \sharp major. The music thus first suggests that Siegmund will evade F \sharp minor, \blacktriangleright and that he will therefore evade death. Unbeknownst to him, however, some invisible hand—perhaps Wotan hiding in the shadows?—steers the orchestra immediately back to C \sharp —thus \blacktriangleright D \flat , thus \triangleright Walhalla, and thus \blacktriangleright death after all. It seems, then, that Siegmund's fate is determined long before the dramatic conclusion to Act II.

1.4 Siegmund's Death

► I think this analysis is compelling enough on its own, but an obvious question remains: how does it relate to the actual moment of Siegmund's death? ► For this I will consult the entirety of Act II, Scene 5.⁷

Whereas the prior analysis focused on a bassline motivic parallelism, there is no similar parallelism here. Instead, I will focus on the main dramatic events of the conclusion to this act. As we consider the scene, a few moments stand out within the drama: \blacktriangleright Sieglinde's dream, \blacktriangleright the "Wehwalt" call (the moment Siegmund first hears Hunding's voice), \blacktriangleright and of course Siegmund's tragic defeat. \blacktriangleright Table 2 collates these locations with their time points in the manner of Table 1.⁸

^{6.} One may wonder how Brünnhilde can control the orchestra at the precise moment in Example 3 where she quits singing. BaileyShea (2007, 10n26) references this exact issue in a charming footnote connecting the concept to "the Force" in *Star Wars*.

^{7.} Lorenz ([1924] 1966) labels this as Period 13, though he includes the four bars leading into Scene 5, as well. I disagree; the material leading into Scene 5—which Lorenz includes in the period—is very similar to the music immediately preceding Scene 4, which Lorenz labels as a part of the transitional *Übergang*. I read both segments as transitional material outside of either formal unit.

^{8.} Many may wonder why the initial appearance of Hunding's *Stierhorn* is missing from this list. In my reading, this is not a moment that suggests a change in the subsequent drama. The audience learned earlier in the drama to expect a fight, and at this moment the audience has no reason to believe Siegmund will not emerge victoriously. I return to this issue in note 12.

Point	Schirmer Measure	Calibrated Measure	Libretto Text	Time Point
а	Beginning of 172/5/1	Beginning of m. 1	n/a	0
b	Beginning of 175/4/1	Beginning of m. 66	n/a	247
С	Beginning of 177/1/3	Beginning of m. 94	Wehwalt!	359
d	Beginning of 180/3/4	Beginning of m. 144	n/a	554
е	Beat 2 of 183/5/4	Beat 2 of m. 213	n/a	831

TABLE 2: Outer boundaries (a and e) and select dramatic events (b, c, and d) of Act II, Scene 5



FIGURE 9: Nested proportions in Act II, Scene 5 (some labels omitted for clarity)

Recalling the procedure from the prior analysis, Figure 9 \triangleright shows the simplified networks nested into a single graph. Whereas the prior analysis handled increasing fuzziness as Siegmund's fate came more and more into question, these networks show a *decreasing* fuzziness. Astoundingly, the double bar at time-point *d* is the precise point that creates the exact isomorphism emphasized in the *Todesverkündigung* analysis. At first glance this time point may seem to be "too late" in the music. The isomorphism relates to the FATE *Leitmotiv*, yet this time point is after the pronouncement of Siegmund's death in the stage cues written in both the piano-vocal and orchestral scores. The question then becomes whether we can pinpoint the moment of Siegmund's passing.

► The obvious answer seems to be the stage cue clearly stating "Siegmund falls dead to the ground," but a few measures later Wagner writes "*Mit Siegmunds Fall* the two lights disappear" (emphasis added). How, then, can two simultaneous events occur at separate points in the music?⁹ According to a witness at the stage rehearsals for the first Bayreuth Festival in 1876: ►

In the catastrophe that now inexorably unfolds, Wagner insisted that the rapid

^{9.} For a different viewpoint on temporality in an operatic context—one where an aria by Donna Anna occurs simultaneously with Giovanni's *earlier* farewell speech in Mozart's *Don Giovanni*—see Schachter ([1991] 1999, 222).

Producer	Conductor	Orchestra	Year	Moment of Death
Patrice Chéreau	Pierre Boulez	Bayreuth	1980	ca. 181/5/1 (m. 2023)
Nikolaus Lehnhoff	Wolfgang Sawallisch	Bavarian State Opera	1989	ca. 181/3/2 (m. 2014)
Otto Schenk	James Levine	Metropolitan Opera	1989	ca. 180/3/1 (m. 1993)
Harry Kupfer	Daniel Barenboim	Bayreuth	1992	180/3/4 (m. 1996)
Robert Lepage	James Levine	Metropolitan Opera	2011	181/5/1 (m. 2023)
Frank Castorf	Marek Janowski	Bayreuth	2016	ca. 180/4/2 (m. 1998)

TABLE 3: Interpretations of Siegmund's death in six productions

sequence of events and corresponding themes should strictly coincide. Every thematic entry must be given its full significance, even at those moments when the sheer volume of sound has the force of a hurricane; only this will prevent the outlines of the truly gigantic structure from being blurred.¹⁰

► Referring to Example 6, measure 180/1/3 consists of both THE SPEAR and THE SWORD Leitmotive. THE SWORD as stated here is actually an evolution between itself and THE SWORD GUARDIAN, and the latter is intriguingly chopped in half (!) right as THE SPEAR motive enters between beats three and four; the motivic narrative here is clear. The fortissimo chords that begin in 180/2/3 are reminiscent of the LIGHTNING chords from the opening of the music drama; perhaps this is Siegmund again trying to evade the attacks of his foe. The D minor that appears at the double bar announces both THE VOLSUNG RACE and the associative key of Wotan's spear.¹¹ If I understand Wagner correctly, I posit that the actual moment of death comes at the double bar with the appearance of THE VOLSUNG RACE. As such, our networks return to the precise FATE isomorphism at the moment Siegmund passes. Please listen as James Levine, James Morris, and the Metropolitan Opera Orchestra perform Example 6.

► I am not the first to be so liberal with the placement of Siegmund's death, and indeed my reading is quite tame compared to the liberties taken by others. ► Table 3 shows the score locations of Siegmund's death in six productions. Although the sample size is far too small to draw any firm conclusions, the span of over thirty measures within which Siegmund's death takes place is enough to show the liberties by which producers interpret this moment in the drama.

^{10.} Porges (1983, 64).

^{11.} Darcy (1993, 218) provides a terrific chart of associative relationships in Das Rheingold.



EXAMPLE 6: Siegmund's death, 180/1/1–180/4/1 (mm. 1986–1997)

Point	Ratio (to 3)	Difference (from 3)	Fuzziness
Act II, Scene 4			
p	n/a	n/a	
x	2	0	inci
у	1.96	0.04	reas
z	2.08	0.08	sine.
<i>q</i>	n/a	n/a	14
Act II, Scene 5			
a	n/a	n/a	
b	2.07	0.07	deci
С	1.94	0.06	reas
d	2	0	sine
е	n/a	n/a	+ ⊂I

TABLE 4: Changes in conceptual-network fuzziness in Scenes 4 and 5

1.5 Summary

▶ Both prior analyses ▶ have Siegmund's fate as their focal point. In the initial *Todesver-kündigung* analysis, a repeated bassline motivic parallelism based off of the ANNUNCIATION OF DEATH *Leitmotiv* created a series of conceptual-time networks. These networks were joined into a single recursive structure creating isomorphisms with the pitch construction of the FATE *Leitmotiv*. In this analysis we saw increasing fuzziness with these isomorphisms that aligned precisely with the fulfillment of Siegmund's fate (that is, his death); ▶ Table 4 shows these changes. The initial time point created an exact isomorphism because there was not yet any indication that Siegmund would escape his fate. Only as Siegmund begins to win Brünnhilde over do the isomorphisms correspondingly become fuzzier.

In Scene 5, however, we see the opposite case: the initial time point here creates the fuzziest isomorphism of the scene because the audience is still unsure if Siegmund will actually perish. As evidence of his impending doom mounts, the isomorphisms now decrease in fuzziness until the moment of Siegmund's death, when we return once again to the exact isomorphism of FATE. In short, these time-pitch isomorphisms narrate the end of Act II exactly.¹²

^{12.} As mentioned in note 8, one may also wish to include the initial entrance of the *Stierhorn* in the set of main dramatic events. If one wishes to do so, the temporal analysis creates a ratio of 1.70 to 3. As such, the narrative of increasing and decreasing fuzziness still holds. The *Stierhorn*, which enters between points *a* and *b*, would create an isomorphic difference of 0.30. I think this isomorphism is much too fuzzy to be included here, but if one wishes, the narrative remains; one may thus have their analytic cake and eat it, too.

1.6 Conclusion

I admit some apprehension that I may be lumped into the spurious tradition of the \blacktriangleright Golden ratio hunters. But I hope I have made clear first that this is *not* a Golden-ratio analysis; \triangleright second, that my time points are of both musical and dramatic significance; and third, that instead of *a priori* privileging some ratio, I am instead focusing on an isomorphism drawn from one of the most densely used and iconic *Leitmotive* in the Act—indeed, in the entire cycle.

With the powerful narrative role that the FATE isomorphism has in Act II, one is left to wonder if similar structures exist elsewhere in the cycle where FATE permeates the musical surface: obvious examples for future study include the *Feuerzauber* from the present drama and Siegfried's death in *Götterdämmerung*.

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