Septimal Time in an Early Finale of Haydn[1]

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Keyboard Sonata in A Major, Hob. XVI:12 falls relatively early in Joseph Haydn's output, possibly dating as far back as the 1750s.[2] Its third and final movement is an extremely early and, regardless of date of composition, a rare example of a self-standing movement of Western music based entirely upon seven-measure phrases or hypermeasures in its background, if not in its foreground.[3]

Before providing an argument for this claim, I should provide definitions for the last four nouns in the prior sentence, particularly channeling the foundational work of Heinrich Schenker, Fred Lerdahl, Ray Jackendoff, Carl Schachter, and William Rothstein. For the purposes of this article, a phrase ends with a cadence—following Rothstein's understanding of a phrase as tonal motion toward a goal—regardless of its metrical structure.[4] A hypermeasure, a term best used "when we need to speak of metrical phenomena apart from phrases,"[5] participates in this structure "at a level larger than the notated measure" but does not necessarily end with a cadence.[6] A foreground phrase length may

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[1] My thanks to Sam Ng for reading an early draft.

[2] Landon 1963 and Feder 1966–70 find Haydn's authorship of the sonata doubtful, although this doubt chiefly concerns the first movement; however, Badura-Skoda 1970 and Fruehwald 1984 (110–11, 114) argue in various ways for Haydn's authorship. Both Brown (1986, 69 and 119), and Somfai (1995, 354) note the weak sources but claim that the sonata is probably still authentic. Brown 1986, 119: "Hob. XVI: 1, 7, 9, 10, and 12 are possibly somewhat later products of the 1750s."

[3] Among several important books and critical editions that spend considerable time with Haydn's piano sonatas (Brown 1986, Feder 1966–70, Landon 1963, Harrison 1997, Somfai 1995, Taggert 1988, and Wackernagel 1975), only Wackernagel mentions that this movement has any seven-measure units at all, and is not concerned with recognizing a seven-ness that undergirds its entirety.

[4] Rothstein 1989, 5–11.

[5] Rothstein 1989, 12.

[6] Lerdahl and Jackendoff 1983, 20.

be a traceable expansion, extension, compression, or truncation of a background phrase length, whose norm derives either from inside the work (using, for example, what Schachter called "prototypes," such as an antecedent as prototype for a consequent) or from outside the work (using, for example, the statistical prevalence of duple lengths in common-practice music).[7] While a foreground (hyper)meter is made transparent through continuous reinforcement of its periodicity, a background (hyper)meter may temporarily lose reinforcement or even face a conflicting or superseding (hyper)meter, yet it emerges afterwards as something one could have counted all along.[8]

To be sure, the use of foreground seven-measure phrases in Haydn's finale is far from unique, as one can find such phrases in several different movements composed in the latter half of the eighteenth century, the time period during which Charles Rosen contends that "real" seven-measure phrases first became possible.[9] However, the last movement of XVI:12 is extraordinary—and perhaps even unique among Classical-era movements—in that the remainder of the music that does not belong to foreground seven-measure units can be derived from a seven-measure background.

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[7] Schachter 1987, 36 provides a discussion of prototypes. This use of "background" and "foreground" is consistent with terminology used by Schenker (1979, 119): "Measure orderings in odd numbers (such as 3 or 5) have their roots in a duple ordering in the background and middleground…"

[8] This is consistent with terminology used by Schachter (1987, 34–35) in discussing the first movement in Schumann's *Davidsbündlertänze*: "This scheme of partitioning comes across much more strongly than the other and constitutes a kind of metrical foreground syncopated against the background hypermeter. (A three-measure group in measures 69–71 brings the foreground meter into phase with the background meter.)"

My use of the rather awkward construction "(hyper)meter" here and elsewhere is meant to embrace all perceptible periodicities slower than the tactus.

[9] Rosen 1997, 58. Of course, there are usually exceptions to generalizations such as this. For example, "Lilk," from Matthew Locke's incidental music for *The Tempest* from 1674, is entirely composed of four "real" seven-measure phrases. Eighteenth century examples include portions of Haydn's keyboard sonata movements XVI: 5, iii, XVI: G1, i (both discussed in Wackernagel 1975, 132–33), and XVI: 4, i; string quartet movements op. 20/3, i and op. 76/5, i (the latter is discussed in Edwards 1991, 241); the second movement of his Symphony No. 40; and Mozart's string quartet K. 590, iii (as discussed in Lowinsky 1956, 164–65.)

This argument for a *Siebentaktigkeit* or "seven-(bar-)ness" that pervades this movement, which will be the preoccupation of the first part of this article, could simply contribute to the kind of historiography that earmarks (and sometimes fetishizes) firsts and outliers.[10] Yet there remains the question of whether the purported seven-measure background reduces to a yet deeper, and more normative, duple background; some of the second part of this article will address this question. The two kinds of research to which these two reciprocal pursuits respectively belong—a recognition of metrical uniqueness, and its normalization to a more prevalent standard—dominate the scholarship surrounding unusual measure lengths, although each activity has also received criticism.[11] However, less represented in modern scholarship is the kind of investigation that places norms aside and asks what makes non-normative measure lengths work in and of themselves. Although I know of one such study that asks this question of five-measure units in the music of Brahms, I know of no comparable study for seven-measure units or for any particular non-normative length in Classical-era music.[12] The preponderance of "seven-ness" in Haydn's finale affords a special opportunity to undertake such a study in the remainder of this article's second part, where I ultimately argue that the "seven-ness" of this movement cannot be reduced to a more normative standard.

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[10] Kofi Agawu has recently chimed in on this point in a response to Richard Taruskin: "For those who regard the musical language as a shared language, historical firsts (recorded in answers to questions such as "Who first used the whole-tone scale?" or "Who first wrote a five-bar phrase?") are rarely useful keys to unlocking creativity" (2011, 188).

[11] Regarding the former, Charles Rosen (1995, 258) has asserted that "[t]he four-bar phrase has had a bad press in our time. Grouping all the bars in fours is often considered mechanical and even thoughtless, and historians of music will hold up three- and five-bar phrases for our admiration as if they were gems of inspiration." Regarding the latter, Joel Lester (1986, 188) has claimed that "the normalcy of duple or four-measure groupings also fails to stand up to scrutiny." Furthermore, as suggested by Joseph Straus (2011, 109–10), a view through the filter of disability studies of the language and methodology used to analyze irregular measure groupings would likely reveal criticisms similar to those of the language and methodology undergirding certain theories of pitch and formal organization.

[12] Ng 2012a.

Part I

The annotations in the score to Haydn's finale, provided in Example 1, build upon the definitions offered in my introduction. The nine brackets above the music indicate nine sets of measures: a solid (as opposed to dashed) bracket indicates a seven-measure phrase or an expansion thereof, and a thin (as opposed to thick) bracket indicates a seven-measure hypermeasure.[13] In Example 1, thin, solid brackets indicate both foreground septuple phrases and foreground hypermeasures; thin, dashed brackets indicate units built on a background of septuple hypermeter; and thick, solid brackets indicate units built from a background of septuple phrases. The fact that all brackets are either thin or solid or perhaps both, but never neither, signifies that seven-measure units pervade the entire movement, either in the foreground or background.

Example 1. Haydn, Keyboard Sonata XVI: 12, iii (Peters edition) with analytical overlay.

Legend:

 Foreground seven-measure phrase and hypermeasure

 Background seven-measure hypermeasure

 Expansion of background seven-measure phrase

[13] Every set of seven measures, either a foreground seven-measure phrase or a seven-measure hypermeasure, further subdivides into 2+2+3, or at least 4+3, in Haydn's finale. However, my study will not account for the thicker metric grid inherent in these subdivisions.

Example 1. Haydn, Keyboard Sonata XVI: 12, iii

The interpretation of each of the nine sets of measures can be sufficiently justified, but some require more argument than others. The septuple groupings of the two foreground phrases that begin in mm. 1 and 8 are the clearest, for they end with cadences and are also flanked by the caesuras shown with apostrophes in Example 1. Although the seven-measure retransition in mm. 29-35 does not end with a cadence, thereby disqualifying it as a phrase, caesuras flank it as well, which, along with its formal position, easily permits its seven-measure length to support purported seven-measure hypermetric periodicities that adjoin it. The two expanded phrases in the second reprise, shown with the thick, solid brackets starting in mm. 36 and 45 of Example 1, relate through the formal symmetry of the movement to seven-measure background prototypes in the first reprise. My annotations indicate a conception of this movement's form as a small-scale Type 1 sonata form; the labels P, TR, S, C, and RT reflect James Hepokoski and Warren Darcy's Sonata Theory.[14] This form establishes a clear thematic parallelism between the two reprises, making evident what has been expanded from the first to the second. The first expansion, which starts in m. 36, involves the first reprise's seven-measure primary theme (marked with P) that spins into a nine-measure primary theme in the second reprise. This growth comes about quite straightforwardly through a "one more time" technique: the cadential gesture of mm. 41–42 is repeated as mm. 43–44, along with two playful written-out short appoggiaturas in m. 42.[15] The second expansion, which starts in m. 45, is more intricate, but it still creates an especial link with the original. It involves the first reprise's seven-measure transition (marked with TR) that grows into an eleven-measure transition in the second reprise. Example 2 suggests a relationship between these two transitions. The descending tenths in mm. 10–12 are fleshed out into a sequence in mm. 47–51, and each beat of m. 12 becomes its own measure in mm. 51–53. The bottom grand staff of Example 2 proposes that each transition as a whole can be reckoned as essentially the same series of first-species tenths.

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[14] Hepokoski and Darcy 2006, 17.

[15] Schmalfeldt 1992.

Example 2. Phrase-expansion relationship between transition zones: mm. 8–14 and mm. 45–55

Remaining to be defended are the two septuple hypermeasures in mm. 15–28 of the first reprise, along with the same in mm. 56–69 in the recapitulatory portion of the second reprise. Unlike the previously discussed units, these sections do not have the benefit of caesuras to demarcate them neatly: caesuras in mm. 21 and 62 would have otherwise accomplished this. However, these sections are each exactly fourteen measures long, enabling a plausible division into two groups of seven. Moreover, at least in the case of mm. 15–28, a strong hyperbeat follows immediately, either in m. 1 from playing the repeat, or in m. 29. The combination of these two factors would permit a willing and able listener to project into mm. 15–28 the septuple hypermetric periodicity initiated by the consistent phrasing of mm. 1–14, obstinately conserve the septuple hypermeter regardless of any reinforcement in m. 22 or other contrarian phenomena, and safely land the septuple hypermeter on the following strong hyperbeat in m. 1 (from taking the repeat) or m. 29 (going on).[16] This would technically and sufficiently qualify

[16] Here, the word "project" refers to its use in Hasty 1997, and the word "conserve" refers to the "conservative" (as opposed to "radical") way of perceiving hypermeter as defined in Imbrie 1973.

as a background septuple hypermeter per the definition given earlier, as "something one could have counted all along."[17]

Although this approach expedites the analytical argument, it still disappoints for a couple of reasons. First, these seven-measure hypermeasures last between four and five seconds with ♩. = 80 as a comfortable upper limit for performance. This duration is difficult or impossible to project accurately, especially without symmetrical divisions to support it at faster metric levels.[18] Second, even if this argument works for mm. 15–28, it does not account for mm. 56–69, which is not immediately preceded by an established septuple hypermeter due to the phrase expansions of mm. 36–55. However, both of these concerns may be mitigated by proposing, through close analysis, that m. 22 (and m. 63) has the potential to be interpreted as a hypermetric restart through an emergent and convergent process.

Figure 1 depicts this process using David Temperley's visual representation of diachronic hypermetrical interpretation, with some additional overlay and fine-tuning that, outside of my immediate purposes, suggest some ways in which Temperley's approach may be nuanced.[19] Columns indicate the measure whose level on the hypermetrical hierarchy is being determined, and rows indicate the vantage point from which the determination is made. The number of dots symbolizes the measure's position on the hypermetrical hierarchy: one dot represents a "weak" measure, and two dots represent a "strong" measure. For example, the two dots at the intersection of the column labeled 22 and the row labeled 23 means that m. 22 is considered hypermetrically "strong" from the vantage point of m. 23. After the immediately preceding caesura,

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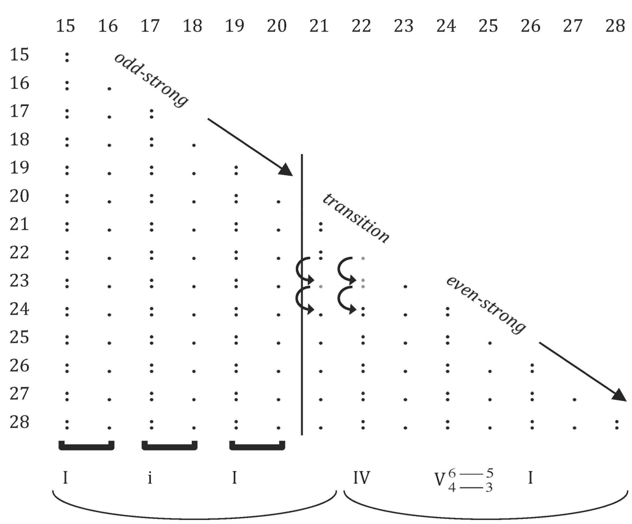
[17] This hypermetric analysis places the PACs in mm. 26 and 67 that end S and begin C within a hypermeasure. While this is unusual especially for full-fledged sonata-form first movements, this placement is not unheard of in later movements with more compact sonata structures, particularly very short S zones. For example, in the exposition of the finale to XVI:13, one is well primed to hear the S/C's four-measure hypermeasures (mm. 28-31, 32-35, 36-39, 40-43) running roughshod over a customary hypermetric restart in m. 42 with the onset of C.

[18] As discussed in London (2004, 27–33), empirical evidence puts the limit for an accurate projection of an unadorned isochronous pulse around two seconds.

[19] Temperley 2008.

the section starting in m. 15 (or, for that matter, the corresponding m. 56, although for the diagram to apply to the later instance, odd and even need to reverse roles) unswervingly begins what Temperley calls odd-strong (odd-numbered measures are hypermetrically strong) with three two-measure units (shown in brackets on the bottom of Figure 1), whose carbon-copy equivalence to one another is altered only by an audacious but delicious parallel shift to the tonic minor and back that prefigures one of Schubert's signature moves. (A performance using the terraced dynamics suggested by the Peters edition would back the odd-strong agenda even more.) Such a stalwart odd-strong opening seems to cast considerable doubt on whether a septuple hypermeasure will form at all: only one more iteration of the two-measure unit, besides perhaps overstaying its welcome, would brazenly defy the materialization of a septuple hypermeasure. However, just before this point of no return, m. 21 breaks the pattern of two-measure iterations and modal shifts, yet this does little to stem the odd-strong momentum. In fact, its high B5, echoing the same note on the downbeat of odd measures past, helps to perpetuate it.

Figure 1. Diachronic hypermetric analysis of mm. 15–28 (or, equivalently, mm. 56–69, although odd and even swap roles)



But m. 22, particularly with its undeniable change of harmony and the reintroduction of the bass register (more so in m. 22 than m. 63, which leaves the bass's downbeat silent), pushes firmly against the odd-strong impulsion. In Figure 1, the metrical interpretation of m. 22 from the vantage point of m. 22, despite the aforementioned factors in this measure competing against odd-strong, still considers the measure as weak, although the single dot has been grayed to indicate that this interpretation has been called into question.[20] Its status as clearly weak could easily be restored if the music were to continue as in the recomposition of Example 3. However, the subdominant harmony in Haydn's original persists into m. 23. This stipulates that the metrical weight of m. 23 should be less than that of m. 22, which initiates a local but significant cascade of retrospective reversals to even-strong (equivalently, odd-weak) represented by the top pair of curved arrows in Figure 1, bolstering m. 22's metrical strength, which in turn reduces m. 21's. The cascade of reversals logically peters out at this point, as it comes up against a sturdy odd-strong wall (depicted by the vertical line in Figure 1), built by the blatant two-measure units of mm. 15–20. In other words, it would be very difficult to promote m. 20 to metrically strong from the vantage point of m. 23. Yet I have chosen to gray out mm. 21 and 22's dots from the vantage point of m. 23, for it is still not too late to change the interpretation of m. 22 and reset the entire passage to odd-strong, as in the recomposition of Example 4.[21]

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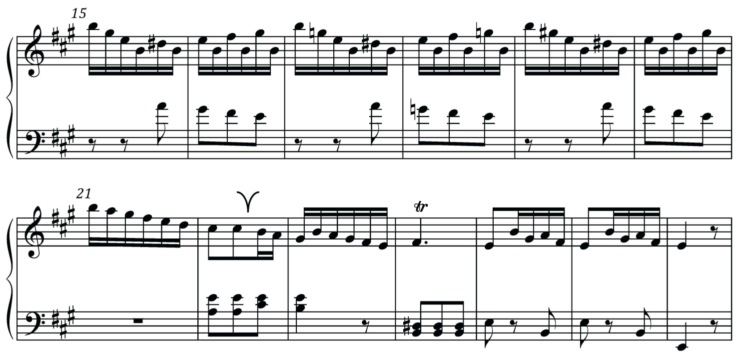
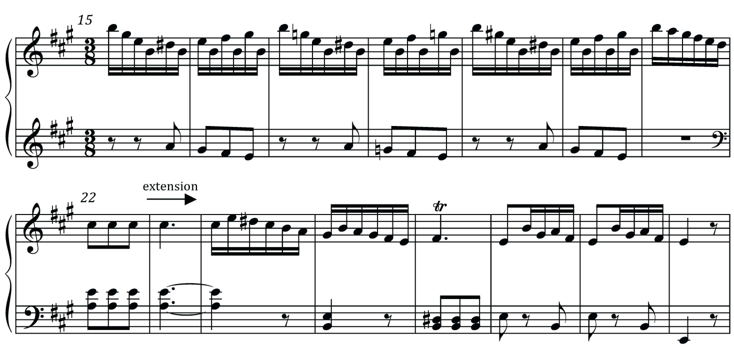
[20] In personal communication, Poundie Burstein rightly observed that the staccato eighth-note rhythm that fills up m. 22 also filled up mm. 16, 18, 20, supporting a perpetuation of the "even-weak" correspondence.

[21] By "grinding to a halt" in m. 23, the recomposition of Example 4 seems a rather meager alternative. However, this surprising stop on the cadential predominant before the PAC that ends the secondary theme alludes to similar feints in Haydn's music, such as mm. 34–35 of the last movement of XVI:47.

Example 3. Recomposition of secondary and closing zones (mm. 15–28) by subtracting one measure



Example 4. Recomposition of secondary and closing zones (mm. 15–28) by adding one measure



However, as shown by the bottom pair of curved arrows in Figure 1, the cadential $^6_4$ chord of m. 24 irrevocably solidifies the cascade's switch to even-strong, as this sonority nearly always falls on a relatively strong beat in common-practice music.[22] The following measures further buttress an even-strong hearing with

[22] From two of their metrical preference rules, Lerdahl and Jackendoff (1983, 89) derive "the traditional principle that the cadential $^6_4$ chord should be on a stronger beat that the dominant it precedes."

the resolution to tonic harmony and the cadential arrival in m. 26. Therefore, although m. 22 started out as weak even though it demonstrated potential for strength, as it was swept up by the dogged odd-strong prospective force created by the music that closely preceded and subdued it, the measure emerges as strong, primarily because of the powerful even-strong retrospective force created by the music that closely follows and bolsters it. Moreover, these two forces—prospective metric inertia and retrospective metric revision—converge at exactly one point: a strong m. 22. The sturdy odd-strong wall of mm. 15–20 pushes back against even-strong revision at just the point where a new septuple hypermeasure should begin.[23] While retrospective metric revision conducts especially well through musical materials that could readily be heard either odd-strong or even-strong, mm. 15–20, with their single-minded focus on change of harmony (or, rather, modality), likewise focus metric attention, and build a bulwark, squarely on odd-numbered measures. Even if one were to suggest a crack in this wall, the sheer homogeneity of its iterative structure thwarts locating within it a precise beginning of the retrospective reversal to even-strong—the switch could equally be anywhere; therefore, it is equally nowhere. All of this suggests a possible rationale for the stylistically atypical redundancy of mm. 15–20. Therefore, this focused retrospection provides for mm. 22–28 and mm. 63–69 what the phrase structure provides for the measures that precede them: a prompt toggle between odd-strong and even-strong, which is continuously required for hypermeasures of odd length to persist.

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[23] It is typical for a secondary (subordinate) theme to begin with what William Caplin calls a presentation function, the immediate statement of a block of measures followed by one or perhaps more repetitions, all prolonging tonic harmony (Caplin 1998, 99). Compared with this norm, Haydn's mm. 15–20 are unusual in that the block of measures that is repeated is chronologically quite short (around 1.5 seconds), its repetitions maintain tonic harmony and are nearly literal, and the number of repetitions exceeds one. I cannot think of another secondary theme in a Classical-era sonata-form exposition that opens with such rapid-fire redundancy.

Part II

Some Theories of Irreducibility

In one significant way, the analysis in the first part of this article is an insufficient argument for my opening claim, for while seven-ness may be one plausible background for the finale, it may not be its only, or the ultimate, background. For example, the opening fourteen measures of the finale, while divided into two seven-measure phrases, might be argued to convey duple hypermeter throughout, establishing an odd-strong parity that persists until the metric perturbations that begin in m. 22. This was precisely Schachter's judgment of the fourteen measures that open the third movement of Mozart's String Quartet K. 590: while he espoused Edward Lowinsky's reading of the opening as divided into two seven-measure phrases, he further heard these fourteen measures as entirely in duple hypermeter due to an extended upbeat to the first phrase.[24] Similarly, just as I have derived the finale's nine- and eleven-measure phrases in the foreground from seven-measure units in the background, could one not similarly derive the finale's seven-measures phrases in the foreground from phrases of more customary length in the background? Bettina Wackernagel takes this approach when analyzing the opening two seven-measure phrases of this finale, which she cites as examples of how seven-ness "comes into being through the shortening of an inner component of an eight-measure period,"[25] in particular, "by delimiting the cadential segment [the second four-measure unit] to *three* measures."[26] If her analysis rings true, then any claim of a background composed entirely of seven-measure units for this finale rings hollow.

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[24] Schachter (1987, 26).

[25] Wackernagel (1975, 130): "Siebentaktigkeit entsteht durch Verkürzung eines Gliedes innerhalb einer achttaktigen Periode (12^{III})…." Her use of the term "period" is outside the anglophonic meaning of the term.

[26] *Ibid.*, 132: "Abrupt wird dem Penden I | V^3 | … (T. 1–4) bzw. IV | I^3 | … (T. 8–11) taktweise durch die kadenzierende Wendung in jeweils *drei* Takten Einhalt geboten."

Therefore, my opening claim further requires a robust tactic for defending the irreducibility of a phrase of non-normative length to a phrase of normative length. Given the overall primacy of duple hypermeters and duple phrase lengths in tonal music, this kind of irreducibility tactic is a battle waged unavoidably uphill. Yet a foot soldier in this battle might rally around the words of Anton Reicha, who observed in 1814 that, regarding phrases of uneven length, "if they do not produce the expected effect, this is not the fault of the phrase lengths (which nature has reserved for certain melodies), but rather the fault of composers who force the melody into uneven phrase lengths which nature requires to be even, and vice versa."[27] Reicha's "vice versa" is the key here: assuming that there exist certain melodies that nature requires to be uneven—melodies that composers (or analysts) should not force into even phrase lengths—what are the distinguishing characteristics of such melodies? It makes sense to look first for these characteristics in the writings of Haydn's contemporaries.

In great contrast to late nineteenth-century approaches to phrase rhythm by Hugo Riemann and his adherents, who sought to reduce *all* phrase lengths to a duple background, late eighteenth-century music theorists such as Joseph Riepel, Johann Philipp Kirnbeger, and Heinrich Koch, while recognizing the primacy of the four-measure phrase, also acknowledged that phrases of other lengths could be effective.[28] In discussing these theorists, Rothstein has written that "some of these non-duple phrases may be produced by modifying regular (that is, duple) phrases in various ways; others, however, cannot be so produced and must be considered as irregular phrases independent of duple models."[29] Rothstein's précis, however, partly distorts the fact that, in at least the germane treatises by Kirnberger and Koch, the only kind of irregular phrase that is consistently irreducible to a phrase of more normative length is a phrase with one or more clear resting points before its end; these theorists derive all others from a more regular

[27] Reicha 2000, 28.

[28] Caplin 2002.

[29] Rothstein 1987, 33.

phrase through expansion, phrase elision, and so forth.[30] This would seem to be a good choice for one distinguishing characteristic of an irreducible irregular phrase. However, at least in Koch's case, more recent scholarship suggests that even these melodies can be derived from a four-measure unit using the theorist's own methods.[31] Granted, Koch still dubbed as basic these derivable five-, six-, and seven-measure phrases, in that they contain no more than is absolutely necessary for their completeness. However, although they do not *have* to be derived from a four- or eight-measure background, as Hugo Riemann would insist, they still *can* be derived from such a background: in most cases, one trades a less regular basic phrase for a more regular basic phrase, and, in terms of statistical metric norms, clearly trades up. Any irreducibility argument needs something stronger.

Some analyses using Schenkerian methods suggest one way to arrive at a stronger argument. In particular, Schenker, Schachter, and Rothstein have all offered examples where a (hyper)metric grouping of a certain number of equal units of time coincides with a tonal grouping of the same number of structural pitches, such as a linear progression or an arpeggiation, pairing up one pitch with

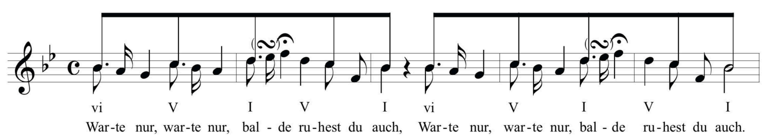
[30] Kirnberger 1982, 411: "Phrases of five, seven, and nine measures must be divided into smaller segments by appropriate caesuras if they are not to sound unpleasant." Of Kirnberger's three examples of irregular phrase length that do not contain caesuras—all five-measure examples—two (Examples 4.37 and 4.40) are internal expansions of a four-measure background. The third is an aria by Graun, which "consists almost entirely of five-measure phrases, some even without caesuras. But the words require something extraordinary and almost frantic." (412)

Koch (1983, 15–19) contains seventeen examples of five-, six- and seven-measure basic phrases. Of these seventeen examples, six are derived from shorter phrases through internal expansion (Examples 39–41, 51, and 57), and three are derived from shorter phrases through motivic repetition and thus, by the composer's admission, are not basic phrases at all but extended phrases (Examples 46–48). The remaining eight, whose irregular lengths are all justified by the combination of two discrete components separated by a resting point, are not reduced to another phrase.

[31] Waldbauer and Riemann 1989, 340: "[Koch] actually derives most of his own examples for such larger phrases from basic four-measure units, and the method he uses for these reductions can be easily applied to his few remaining examples." Waldbauer provides an example of two such applications in his Examples 6a and 6b on p. 352.

one unit.[32] This permits a pitch progression of an odd number of elements, ordinarily constrained by what Schachter calls the "necessity of unequal pacing" in metrically normative duple music, to stretch its legs, resulting in a (hyper)meter that matches its cardinality. [33] For example, in Schubert's song "Wandrers Nachtlied" D. 768, Schachter's analysis of two phrases each comprised of two-and-a-half 4/4 measures toward the end of the song allocates one note of a middleground pitch succession B♭-C-D-C-B♭ to each of the phrase's five half-note units, as shown in Example 5.[34]

Example 5. An adaptation of Schachter's analysis of Schubert, "Wandrers Nachtlied," D. 768, mm. 9–13.



Could the equal distribution of middleground pitches serve as a distinguishing characteristic of irreducible phrase lengths? If the unequal distribution of structural pitches is a norm in tonal music, then a reduction of Schubert's phrase to a duple length would be more normative both tonally and hypermetrically. By not reducing Schubert's phrase as such, Schachter's analysis demonstrates that the quintuple unit delivers a certain musical good—in this case, the emancipation from a certain limitation inherent in the prevailing system that combines tonal rhythms with duple meters—that a

[32] Rothstein 1989, 34: "Of particular significance is the construction of a phrase on the basis of the *number* of principal tones contained in that phrase." His example is the five-measure phrase that opens the Waltz from Dvořák's Serenade for Strings, where "each of five bass tones, E-A-F♯-G♯-C♯, is given exactly one measure." He also cites Schachter 1987, 22 and 41, who offers three examples of this from Schubert and Mozart, and pages from his dissertation (1981, 70–72), which relays four examples from Schenker.

[33] Schachter 1987, 41.

[34] Ibid, 22.

reduction would necessarily lack. This benefit then musters some resistance to the default reduction to a duple background, and would seem to qualify as one distinguishing characteristic of an irreducible phrase of irregular length.

However, in looking for distinguishing features of irreducible phrases, this particular characteristic of equal pacing of middleground structural pitches falls somewhat short. My dissatisfaction with this approach as it stands is not a result of lofty expectations: I am merely searching for one of probably multiple sufficient characteristics of irreducibility, instead of a single necessary characteristic. As there are many phrases of irregular length without an even distribution of a commensurate number of middleground structural pitches, such a characteristic would need to fall into the former category of sufficiency. However, if, regardless of phrasing, unequal pacing of middleground structural pitches is the norm in tonal music, it is only slightly in the majority, for there is still an abundance of equal pacing of such pitches on levels comparable to the degrees of reduction used by Schenker, Schachter, and Rothstein in their analyses relevant to the present discussion. This abundance can be observed by skimming through, for example, Schenker's analyses in *Free Composition* and noting how often a series of pitches on the same middleground level achieves a regular periodic interval that is between a half-measure to two measures in length. Such abundance makes this characteristic less statistically significant. In other words, borrowing a method and a term from David Huron, who finds that Allen Forte's alpha-motive is not "distinctive" of Brahms's first string quartet by noting the motive's equal or higher prevalence in Brahms's two other string quartets, I assert that an even middleground tonal pacing is not distinctive of phrases of non-duple length. [35] Consequently, I submit that any analytical justification of an irregular phrase length's irreducibility to a duple norm is as effective as the justifying characteristic is distinctive.

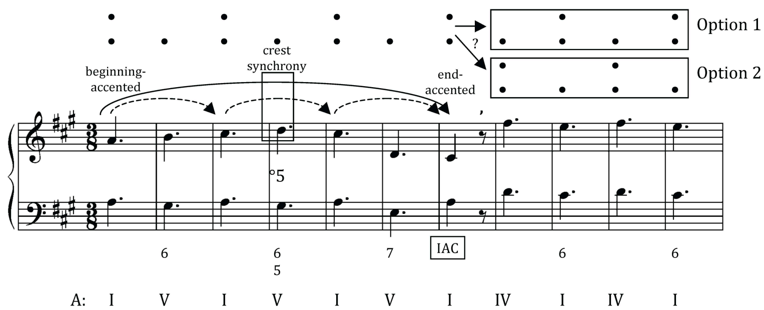
[35] Huron 2001.

Some Idiosyncrasies and Irreducibilities in Haydn's Finale

The finale to Haydn's XVI:12 suits a preference for distinctive justifications rather well, as it is quite unusual not only for its pervasive septimal time but also for certain other peculiarities that appear to take advantage of the finale's seven-ness, or vice versa. These correlations abound particularly in the opening phrase, which is crucial in establishing the seven-measure unit as the norm for the movement. This opening phrase resists the forcing of its septuple round peg into a duple square (Riemann's *carrure*) hole through multiple maneuvers. Most of these maneuvers aim for something like the aforementioned musical good of equal spacing, but manifest this good in a much more precise and idiosyncratic manner than previous examples from Schenkerian scholarship.[36] One maneuver is simply the phrase's isochronous alternation between tonic and dominant foreground harmonies as shown with the roman numerals below Example 6, which interpret the cadential $^6_4$ chord in m. 6 as a surface embellishment of a dominant chord. Assuming an opening on tonic harmony and an imperfect authentic cadence as essential components of the phrase, this alteration means that any analytically reasonable adjustment of the phrase to a duple length by adding, deleting, expanding, or compressing measures would necessarily distort the regular harmonic rhythm. The least disruptive solution might be something like the recomposition of Example 7a, which stretches out the final tonic chord and the cadence with a 4–3 suspension and another sixteenth-note flurry that mimics that of m. 5. To be sure, the regularity of the foreground harmonic rhythm of Haydn's phrase certainly resembles the even pacing of middleground structural pitches, but there is a crucial difference: although the latter is fairly common, the former—a uniform, foreground, and six-fold toggling between two harmonies—is an extremely rare opening gambit. For example, of the 151 keyboard sonata movements in the Hoboken catalog, the finale to Sonata no. 12 is the only one that uses this figure at its outset.

[36] These maneuvers parallel Huron's (2001) follow-up to his critique of Forte's analysis: he shows a refinement of Forte's alpha-motive with rhythmic, metric, and articulatory details to be distinctive of Brahms's first string quartet.

Example 6. Some analytical interpretations of mm. 1–11 (shown in reduction)



Example 6 also proposes a middleground soprano line that moves with a frequency of one note per measure and entirely by step, if one permits mm. 6–7 to be heard as a middleground echo of mm. 4–5 down an octave. This stepwise, gently undulating melody collaborates with the harmonic oscillation to create a smoothness and evenness that suits the "round peg" descriptor quite well. A duple model from which mm. 1–7 might be readily shown as derived would unavoidably lack some of this middleground smoothness and evenness in its top voice; for instance, the middleground reduction of Example 7a that allots one soprano note per measure dawdles on the D in its sixth and seventh measures. Granted, the analysis of Example 6 purports an even pacing of the first phrase's middleground structural pitches in both soprano and bass; therefore, as previously argued, the isochrony of each middleground line is not uncommon in tonal music and thus could not be highly correlative with the phrase's seven-ness. However, the first four measures in Example 6 represent both the melody's middleground *and* foreground. Only the quick ornaments distinguish mm. 1–4 of the right-hand music of Example 6 from that of Haydn's original, thus barely keeping each of these four measures of melody from being what Riepel would describe as "dead"—his label for a measure filled with a single melodic duration, a type of measure he instead reserves for the end of phrases.[37] Fundamentally, the result is four half-clothed measures of first-species soprano-bass counterpoint, where each measure uses rhythmic articulations and linear contours identical to those of the others. Again, of the 151 Hoboken keyboard sonata movements, this is the only one to start in this manner. Using this criterion, I propose that this is the most homogenous and nondescript opening among this set of works.

Yet this blandness not only sets this opening apart, but also makes a great deal of sense as the start of a seven-measure phrase. This beginning conspicuously lacks not only a clear phrasal division in m. 4 but also what William Caplin calls a characteristic opening: a usual delineation into distinctive motives and the combination of motives into distinctive two-measure basic ideas or contrasting ideas.[38] This seamlessness frees the music from obligations to form proportionate duple symmetries at higher levels, either an antecedent-consequent period or a presentation-continuation sentence, both of which typically occupy eight measures. Therefore, the seven-measure phrase that ultimately transpires comes across as considerably less egregious.[39] Even though the second seven-measure phrase starts with clear two-measure units, it follows the first seven-measure phrase; therefore, expectations of symmetry between phrases mitigate the expectation of duple length within the second phrase.

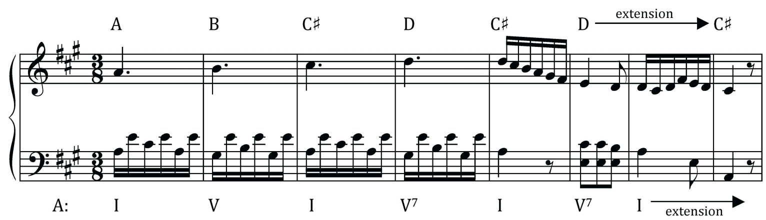
One may experience this difference by comparing the recompositions of Examples 7b and 7c with Haydn's original. Each recomposition articulates a two-measure periodicity through motivic repetition either obvious (7b) or slight (7c). To my ears, these recompositions work much better when stretched out to eight measures, as Example 7a is, thereby creating a satisfactory eight-measure theme, than how they are notated in a seven-

[37] Riepel 1752–68, 5.

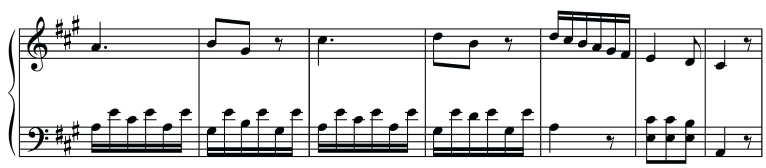
[38] Caplin 1998, 11.

[39] This is not to say that an eight-measure phrase could not begin with such a seamless beginning. Wackernagel (1975, 132) compares the opening of the finale to XVI:12 with the very similar opening to the fourth movement of Georg Wagenseil's op. 3/5, which offers an eight-measure phrase instead. However, such a seamless beginning remains extremely rare in this repertoire.

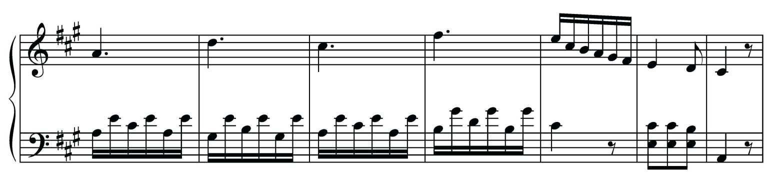
Example 7a. Recomposition of mm. 1–7 that fits an eight-measure length, with structural soprano pitches and harmonic analysis



Example 7b. Recomposition of mm. 1–7 that opens with a clear two-measure periodicity



Example 7c. Recomposition of mm. 1–7 that opens with a two-measure periodicity somewhat less transparent than that of Example 7b



measure length, where the start of the next phrase in m. 8 registers as premature. Notice how Example 7b would reduce to the same middleground of Example 6, and Example 7c uses basically dead right-hand measures, yet neither feature in of itself makes its four-measure opening work with Haydn's mm. 5–7 as well as his original first four measures. In particular, Haydn's stepwise ascent is an important facet of this opening's seamlessness, as its linearity admits no perturbations of contour around which groupings could coalesce and higher-level phrase structures could be projected. The opening phrase of the second reprise (mm. 29–35), which rhymes with the opening of the first reprise, also uses a stepwise ascent—albeit with measures more rhythmically and motivically alive—that correspondingly smoothes out any duple wrinkles.

Koch's investigation of basic irregular phrases conveys aspects of this understanding, although this understanding is not made explicit. After examining various types of five- and six-measure basic phrases, Koch describes two types of seven-measure basic phrases.[40] His second type is an incomplete segment of three measures followed by a complete four-measure phrase, presumably separated by a resting point; this type is nowhere to be found in Haydn's finale. However, his illustration of the first type of seven-measure basic phrase, reprinted in Example 8a, bears a striking resemblance to the seven-measure phrase that opens Haydn's finale: in their first four full measures, both phrases begin on $\hat{1}$ and methodically climb the major scale one note and one measure at a time. Koch derives the seven-measure basic phrase of Example 8a from the five-measure basic phrase reprinted in Example 8b by assigning the two notes in each of the first two measures in the latter to their own measures in the former. This derivation initially appears both strange—an uneven basic phrase is reduced to another uneven basic phrase—and not at all applicable to Haydn's finale, for which five-measure units are considerably less appropriate as an ultimate background than units of either septuple or duple length.

Example 8. Koch 1983, 18–19 (a) Example 57 (b) Example 56

[40] Koch 1983, 18–19.

However, this strangeness, among other oddities, invites Koch's reader to infer another lesson from his examples. First of all, Koch also derives from four-measure basic phrases three five-measure basic phrases and a six-measure basic phrase in the same exact manner: the two notes in its first measure, or in each of its first two measures, are given their own measures.[41] If a basic phrase is a phrase that contains no more than is necessary for its comprehension as "an independent section of the whole,"[42] then it holds that any one of several kinds of expansion—one that stretches the durations of one or more notes yet leaves the essential pitch sequence intact—would theoretically transform any one of several kinds of shorter basic phrase into a longer basic phrase. But, in these six examples, why does Koch expand the beginning in particular? Why not the middle or end instead? And why, in these six examples, are their opening measures "dead"? Why not maintain a "living" rhythm—like the dotted rhythm of Example 8b—but simply repeat the pitches?[43] Throughout his *Versuch*, Koch almost never begins a four-measure phrase with one or more dead measures. And why, in five of the six four-measure phrases to which these longer phrases reduce, do the melodies begin with a straightforward stepwise ascent? Again, combing through all of the examples in Koch's treatise, there are surprisingly very few melodies that employ such an opening trajectory. These features—expansion particularly at the beginning into one or more dead measures, and a stepwise ascent—that markedly set apart Koch's examples of irregular phrase length from his other basic phrases are also those features that, as I have argued, work toward liberating the music from expectations of duple symmetry, and hence mollify and justify the irregular phrase length.

Turning to other possible corroborations of this music's irregular phrases, the seven-ness of Haydn's opening phrase permits the phrase to exhibit two features that are mutually

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[41] *Ibid.*, 14–18.

[42] *Ibid.*, 3.

[43] These two particular manners of expansion—protracting the beginning in particular, and creating "dead" measures in the process—are also the exclusive means that Kirnberger (1982, 411–12) uses to derive five-measure phrases from four-measure phrases.

exclusive in any such phrase with an even number of measures: Haydn's phrase is both beginning-accented and end-accented. It is generally understood that, barring any information to the contrary, common-practice movements begin odd-strong (returning to terminology from the first part of this article). Example 6 depicts the odd-strong nature of Haydn's first phrase with two dots over odd measures and one dot over even measures (returning to symbology from the first part of this article). However, in a duple phrase, the concluding cadence, typically in the fourth or eighth measure, invariably falls on an even-weak measure. Riemann, most infamously, found this counterintuitive and argued for an odd-weak, even-strong conception of duple phrases so that the hypermeter could still alternate between strong and weak measures and pitch and meter could resolve simultaneously in a duple phrase's last measure. Haydn's seven-measure phrase has it both ways.

Of course, most seven-measure phrases with a cadence in the final measure enjoy this same property: Haydn's phrase is nothing special in this regard. However, its particular contour and harmonies correspond well to one interpretation of the phrase's metric properties. In Example 6, I have bent the long, solid arrow connecting the beginning-accented measure with the end-accented measure into an arch to represent the metaphoric conception of meter on various levels as waves of energy, imitating approaches to meter such as that of Victor Zuckerkandl.[44] Courtesy of the aforementioned descending octave transfer in mm. 6–7, the bowed shape of the melody follows fairly closely the arsis and thesis of the wave, and both crest in m. 4.[45] This wave crest, arguably the maximization of metaphorical tension or potential energy on the level of the phrase, also coincides with a highly charged diminished fifth between the two outer voices and the local tension of an even-weak measure. In contrast, the crest of a phrase's beginning-accented/end-accented wave for a five- or nine-measure phrase would instead coincide with an odd-strong measure.

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[44] Zuckerkandl 1973, 168, 171–72. Example 6's visual amalgam of dots and projective waves has a precedent in Mirka 2009.

[45] Malin 2008 explores in more detail the notion of an "energetic correlation of rhythm and melodic contour" (69).

A case for background seven-ness should adequately account for both septuple phrase structure and septuple hypermeter, and a claim for one is not necessarily a claim for the other. Measures 1–14 of Haydn's finale may clearly break into two seven-measure phrases by virtue of the cadence in m. 7, but are they also splayed atop a continuous duple hypermeter? This interpretation is shown as Option 1 in Example 6, an option that allows odd-strong measures to perpetuate but forces the second phrase to begin hypermetrically weak. Although Option 1 cuts against the agogic emphases of the melody of mm. 8 and 10, Haydn's chords support this hearing, in that the first eleven measures are all odd-tonic, which would support Option 1's persistence of odd-strong.

But I hear this ultimately as a clever harmonic foil for the better interpretation of Option 2, which allows the second phrase, like the first, to begin hypermetrically strong. This satisfies Lerdahl and Jackendoff's second metric preference rule and Temperley's fourth metric preference rule, which advocates for the location of a strong beat near the beginning of a clear group of measures.[46] However, I submit that a listener may experience the peculiar effect of successive strong hyperbeats in this particular situation not only because of this rule, but also because of a rhetorical role the caesura commonly plays in Classic-era music. Especially at critical formal junctures, caesuras in this repertoire function as musical reset buttons, curtailing (or, following the word's etymology, cutting off) any prior activity and making room for something potentially new to emerge. In terms of tonal activity, this function of a sonata form's medial caesura in particular is well studied.[47] The bifocality of Robert Winter's "bifocal close" refers to the fact that the medial caesura following a half cadence in the home key at the end of a sonata form's transition may be followed by a secondary theme equally either in the dominant (as in the exposition) or in the tonic (as in the recapitulation).[48] One may equally observe this tonal reset function as well with final caesuras, the well-articulated break at the end of expositions and recapitulations. Like a medial

[46] Lerdahl and Jackendoff 1983, 76; Temperley 2001, 38.

[47] Hepokoski and Darcy 1997, 2006.

[48] Winter 1989.

caesura, a final caesura may be followed equally and effortlessly with a continuation, reversion, or an incursion of a key with no sounding mediation required.[49]

The reset function of caesuras can be also applied to hypermetric activity, especially since they perform this function rather often in Classical-era sonata forms, particularly by cutting the pattern of duple hypermetric alternation between the end of a reprise and its repeated first measure.[50] It may continue the alternation or it may not; as with the bifocal close, either option is as reasonable as the other to follow. Example 9 offers an instance of this from Haydn's XVI:6 where both the final measure and the repeated first measure of the exposition are both strong, but the final caesura in between them helps to remove any strangeness from the adjacent strong beats. A hypermetric reset occurs in such a formal position at least once, if not more often, in 33 (63%) of the 52 keyboard sonatas in the Hoboken catalog, and about as frequently in Mozart's piano sonatas.[51] XVI:6 also demonstrates in mm. 10–11 a rarer, but only a somewhat rarer, event in this repertoire: successive strong hyperbeats across the medial caesura.[52] I propose that the frequency to which medial and final caesuras accommodate successive strong hyperbeats in this literature can sway a listener into accepting this otherwise contrarian metric phenomenon at other moments in the form where caesuras occur. The finale of Haydn's XVI:12 contains no less than seven

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[49] Winter (1989, 291–92) compares and contrasts the tonal functions of essentially what I am calling medial and final caesuras.

[50] Sam Ng discusses such hypermetric resets between transition zones and secondary-theme zones in Ng 2009, and between both secondary-theme zone and closing zones, and between primary-theme zones and transition zones in Ng 2012b, although he does not correlate such resets with caesuras as much as I am suggesting, nor does he acknowledge the possibility of a caesura-reset between a primary-theme zone and a transition zone, as happens in XVI:12, iii.

[51] In each sonata, the first clear instance of a final-caesura reset occurs in XVI:1/i, 3/i, 5/i, 6/iv, 7/i, 10/i, 11/ii, 12/i, 13/iii, 14/ii, 15/i, 16/iii, 17/i, 19/ii, 20/i*, 21/ii, 23/i, 24/i, 27/i, 28/ii, 29/iii, 33/i, 35/ii, 36/i, 39/iii, 41/ii, 42/ii, 44/i*, 45/i*, 46/i*, 47/i, 49/i, and 50/i. An asterisk marks a reset that occurs on a metric, instead of a hypermetric, level.

[52] The successive strong hyperbeats that Rothstein (1989, 59) points out in the first movement of Beethoven's Piano Sonata op. 49, no. 1 (also cited in Ng 2009, 148) take place across the medial caesura.

caesuras—an unusually high ratio of one caesura for every ten measures—that facilitate successive strong hyperbeats and ultimately sanction all of the finale's hypermetric seven-ness that was not endorsed in the analysis of Figure 1. Note that the two extensions of a seven-measure phrase—the nine-measure phrase in mm. 36–44, and the eleven-measure phrase in mm. 45–55—are still of an odd length: thus, every caesura in this movement consistently mediates between successive strong hyperbeats.

Example 9. Haydn, Piano Sonata XVI: 6, iv (a) mm. 1–13 (b) mm. 29–34 (plus written-out repeat)

Conclusion

I hope this study does more than simply nominate this little movement for some Musical Hall of Fame. To be sure, the seven-ness in Haydn's finale to XVI:12 merits acknowledgement as being extremely unusual when compared to the vast majority of Classic-era movements that, if not dominated by duple-ness, at least reject constructing their entire hypermetric and phrase-rhythm edifices on a cornerstone of a single irregular length. But I also intend this study to broaden how scholars might approach irregular lengths of phrase or hypermeasure in general. A common reaction to such a length is to normalize the abnormal by either deriving the irregular length from a duple length through one or more well-established techniques, or show how the irregular length plays an antithetical role in broad metric or phrase-rhythm dialectical narratives. Yet a second perspective less often adopted, but one that I have striven to take in this article, is to celebrate the irregular phrasal or hypermetric length in of itself, to focus not on how the length is defective *a priori*, but on how the length, perhaps in corroboration with distinctive features of the music, is effective *a posteriori*, asking questions such as: Of what does this particular length allow the composer to take advantage? What may the composer do with this particular length that one could not typically do with another length, especially a more common length? I suspect that any investigation of irregular lengths in the music of Western art composers that includes this second approach along with the first will achieve a more well-rounded appreciation for compositional craft.

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