Canon and Its Effect on Tight-Knit Organization within Classical Themes[1]

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It can hardly be disputed that composers such as Haydn, Mozart, and Beethoven revered the techniques of imitation, fugue, and canon.[2] Evidence of such techniques appears in many of their works from a variety of different musical genres from the Classical period, such as piano sonatas, chamber works, symphonies, and concertos.[3] Most intriguing about finding such contrapuntal devices within Classical works is the way they work in concert with form. Such techniques featuring repetition can either help to unify musical utterances or to obscure formal expression, depending on the manner in which they are deployed. The former aspect alludes to what William E. Caplin understands as 'tight-knit' formal organization, which "is characterized by harmonic-tonal stability, cadential confirmation, unity of melodic-motivic material, efficiency of functional expression, and symmetrical phrase groupings."[4] By contrast, obscuring formal expression relates to Caplin's notion of loose organization, the polar opposite of tight-knit. In his words, "loose organization is characterized by harmonic-tonal instability, evasion or omission of cadence, diversity of melodic-motivic material, inefficiency or ambiguity of

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[1] This article is based on an earlier paper entitled "Tying Up Loose Ends: Canon and Imitation and Their Effect on Tight-Knit Organization within Classical Themes," presented at the annual conference of the Canadian University Music Society, June 1, 2012, at Wilfrid Laurier University. I am especially grateful for the comments that I received on that paper, especially those by Scott Cook, Anna Ferenc, Peter Lea, Catherine Nolan, and Mark Richards.

[2] See Mann 1973, which discusses all three composers' learning and/or teaching of counterpoint through J. J. Fux's *Gradus ad Parnassum* (1725). Mozart's pedagogical application of Fux's *Gradus* also survives in Hertzmann, et al. 1965. Beethoven's learning of counterpoint from Fux's *Gradus* is also documented in Seyfried 1832 (though highly editorialized); this latter source is taken to task in Nottebohm 1872, which distinguishes between Beethoven's and Seyfried's contributions (for more on this issue, see Mann 1973, 202). Concerning Beethoven and his learning of counterpoint, see also Mann 1970 and Nottebohm 1873.

[3] In this respect, see Kirkendale 1979.

[4] Caplin 1998, 17.

functional expression, and asymmetrical phrase groupings."[5] Although presented here as exact opposites, the concepts of tight-knit and loose organization demarcate a continuum of compositional characteristics, the likes of which may tend towards one pole or the other.[6] Taking both types of formal organization as points of departure, this article examines how they interact with canon and imitation within a variety of different theme-types taken from works within the Classical repertory. Although some authors discuss topical and characteristic effects of canon and/or imitation within Classical theme-types, the way in which these techniques impact formal organization has largely gone unexplored.[7]

As a way of filling in the gaps left open by this prior research, this article demonstrates how canon and imitation impact tight-knit organization within Classical theme-types. The article is divided into four parts. The first part builds upon Caplin's notion of tight-knit organization and shows how canonical passages can either enhance or endanger it. The methodology involves the establishment of paradigms that demarcate zones where canon may reside within conventional theme-types.[8] As I will explain shortly, I consider strict imitation and canon to be equivalent; thus, I will henceforth refer to both techniques simply as *canon*. The following two parts apply the methodology by presenting analyses of canonical passages within tightly-knit themes and more loosely organized themes, respectively. The fourth part focuses on how canon can comprise entire themes, potentially loosening the formal bonds that hold them together. A conclusion rounds out the article by making associations between the types of themes presented here and the movements of which they are a part.

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[5] Caplin 1998, 17. The concepts of tight-knit and loose organization are derived from Arnold Schoenberg, who discusses them under the rubrics of "stable formation" (*feste Formung*) and "loose-knit formation" (*lose Formung*), respectively. See Schoenberg 1995, 177–79.

[6] Ibid., 84–85.

[7] For discussion concerning topical analysis, see Agawu 1991, 45; Allanbrook 1983, 6–8 and 35; Allanbrook 1992, 132; Ratner 1980, 161–62 and 260–61; and Sisman 1996; for discussion concerning characteristic effects of canon, see Hepokoski and Darcy 2006, 137–39.

[8] Caplin's models of theme-types are employed throughout the article.

I. Threading canon into themes

Classical themes that contain canon (hereafter, canonical themes) juxtapose two disparate compositional practices: canon, which brings to mind a continuous composition within which one melody constantly chases another,[9] and Classical thematic construction, which suggests tightly organized forms consisting of discrete formal units.[10] The continuous character of canon thus would seem to endanger the modular construction of a theme; as we will see within some themes, this is certainly the case. But we will also see in others that canon fits neatly within the confines of themes and indeed contributes to their tight-knit character. Grasping this principle requires a better understanding of how aspects of canonical and tight-knit thematic construction intersect with each other.

Canon consists of an initiating voice (the *dux*) and an imitating voice (the *comes*), both of which state the same material (disregarding transposition).[11] Since the *comes* repeats the material

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[9] Mann et al. 2011 explains two basic types of canon based on the *catch* and *round*: "…their names also suggest the two basic types [of canon] later recognized in the categories of 'concluded' and 'perpetual' canon. The former, stressing the principle of linear pursuit and 'capture', is most conspicuously represented by the Latin equivalent for *caccia*, the term *Fuga*, which was first used about 1330 by Jacques de Liège and remained the chief designation for canonic compositions until Bach's time. The latter, representing the principle of circular return, is expressed by the Latin 'rota' and its German equivalent 'Radel' ('wheel', 'roll')."

[10] In this vein, with respect to the use of canon in Clementi's Sonata in A Major, Op. 33/1, finale, Rohan H. Stewart-MacDonald writes, "the inherent continuity of Clementi's canonic material is opposed by a modern idiom that prevents the canon from having free reign" (2003, 96).

[11] For relatively recent studies on canon, see Gauldin 1996, Gosman 1997, and Gosman 2000. For all intents and purposes throughout this article, any set of voices occurring within a theme that features a *dux* and *comes*, regardless of length, will be referred to as a canon. Some may regard short imitative passages as simply instances of imitation; however, provided that the imitation is strict, and for ease of labeling, we can still group such passages under the rubric of canon. Mann 1965, 72, discusses the interrelation between these techniques (as well as fugue) as existing along a continuum of devices involving thematic restatement in different voices: "With the establishment of harmonic theory, the terms imitation, canon, and fugue found their final distinction. Imitation remained the general term for the casual application of the imitative manner, and canon remained the term for the strict application of this manner…"

first stated by the *dux* (regardless of the time-interval and pitch-interval that separates both voices), both are structurally equivalent to each other. Additional canonical voices may also be added to the texture by introducing multiple *comes* voices. Due to this canonical repetition scheme (either with a single *comes* or multiple *comes* voices), we can preliminarily conclude that consecutively entering voices that articulate the same motivic material would also very likely project equivalent or similar formal functions when placed into the context of a canonical theme.

Given a particular interval of imitation, only specific melodic motions will result in harmonic consonances between the canonic voices. In each of the themes featured in this article, the *comes* imitates the *dux* at the octave, fourth, or fifth. Robert Gauldin shows that for each of these intervals of imitation, there are only five possible melodic intervals that may be used within the *dux* to span the time-interval between itself and the *comes* such that the second pitch of these intervals creates one of the five possible harmonic consonances with the corresponding first pitch of these intervals in the *comes*.[12] Summarizing the relationship between these three types of intervals, Example 1 places each interval of imitation as a row header, each possible harmonic consonance as a column header, and the generative melodic interval—be it up (+) or down (-)—at the appropriate intersection. Here, numbers represent generic diatonic melodic intervals, where 1 is a unison, 2 is a second, and so forth. Although Example 1 only tabulates consonances, this does not preclude dissonances from participating as well; the example here, however, only includes consonances so as to provide a general template with which to understand basic canon construction.

As an illustration of a canonical theme, Example 2 shows the main theme from Mozart's Piano Sonata in C Major, K. 545, iii, which takes the form of a tight-knit period.[13]

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[12] See Gauldin 1996, 37–38.

[13] The abbreviations in this analysis and the remaining analyses within the article follow the practice expounded in Caplin 1998. The following rubric provides the complete names of these abbreviations: b.i. = basic idea; cad. = cadential; c.i. = contrasting idea; c.b.i. = compound basic idea; ext. = extension; and frag. = fragment.

Example 1. Possible melodic intervals within dux for canon at the fifth, fourth, and octave; adapted from Gauldin 1996

Interval of imitation between *dux* and *comes*	Consonances					
	unison	third	fifth	sixth	octave	tenth
+5		+3	1	-2	-4	-6
-5		-3	1	+2	+4	+6
+4	+4	+2	-2	-3	-5	
-4	-4	-2	+2	+3	+5	
+8		+6	+4	+3	1	-3
-8		-6	-4	-3	1	+3

Here a short canon, consisting of a single descending-third motive and its repetition (labeled as *a* and *b*, respectively), takes place within the basic idea of the antecedent.[14] The interval of imitation between the *dux* and *comes* is by descending fifth and the first melodic interval within the *dux* to span the time interval between both parts is a descending third (G_5–E_5/E_5–C_5 in the upper voices); thus, according to the information in Example 1, when the left hand enters in m. 1, the pitches C_4/A_3 create thirds (or tenths) respectively with E_5/C_5 in the right hand. For now, we will simply make the preliminary observation that the canon is neatly contained within a single formal unit (the basic idea), a circumstance that contributes to the tight-knit organization of the theme.

[14] In some of the analyses that follow, letters and brackets are used to facilitate explanation regarding the content within the *dux* and *comes*. In some cases, the content is noticeably motivic; in other cases, it expresses a lower motivic profile. Regardless of the nature of the content of both voices, the labelling employed here is meant primarily to provide points of reference within the analysis.

The same cannot be said for Beethoven's second subordinate theme from his Piano Sonata in A Major, Op. 2/2, i, which features a canon within a sentence (Example 3).[15] Here looser organization obtains. Whereas Mozart's theme limits its canon to only the basic idea, Beethoven's spreads out its canon over its entirety, providing little differentiation between formal units, and thus suggesting multiple analyses (three of which are shown above the staff). Each analysis involves truncation and/or extension of formal units, which are methods of formal loosening. Moreover, since each analysis is viable, ambiguity of formal expression results.

To clarify how canon affects the form of these two themes, we can turn to three criteria (out of a list of seven) that Caplin uses to characterize tight-knit formal organization. The three criteria are *grouping structure*, *functional efficiency*, and *motivic uniformity*.[16] Grouping structure addresses symmetrical unit-length within a group of units; functional efficiency refers to lack of redundancies, such as unnecessary repetitions and/or ambiguity; and finally, motivic uniformity addresses the uniform character of melodic/motivic and accompanimental material.[17] These criteria are relevant to our discussion, for they address formal units and motives, entities that comprise the essential content that is shared between the *dux* and *comes* of a canon. Conformance to these criteria tends to produce tight-knit formal organization whereas deviation from them leads to looser formal organization.

Since Mozart's and Beethoven's themes contain canons that articulate formal units and motives, we can determine whether or not they contribute to tight-knit organization by assessing the degree to which they conform to the criteria of grouping structure, functional efficiency, and motivic uniformity. Mozart's canon in Example 2 conforms to all three criteria. First, it projects a symmetrical grouping structure, since it articulates a motive and its repetition (*a* and *b*), which are of equal duration (two beats).

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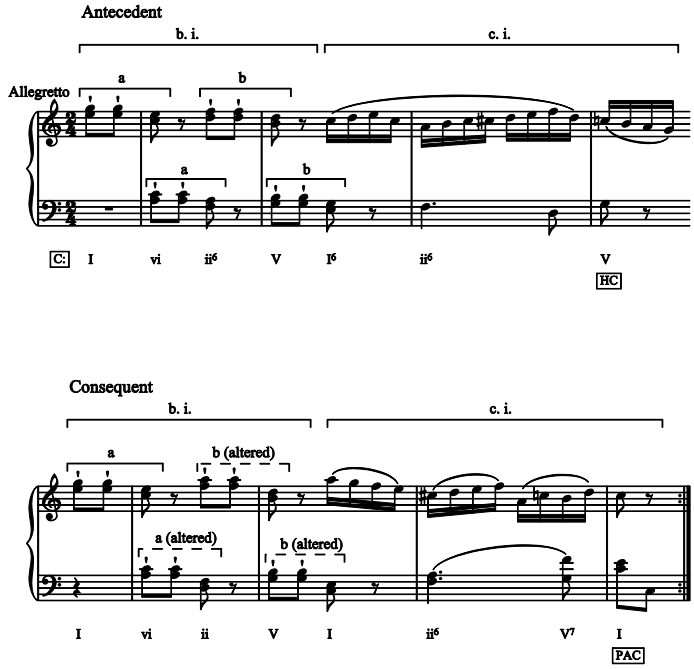
[15] The illustration begins with the *repetition* of the presentation [not shown], itself a means of loosening. See Caplin 1998, 99.

[16] The remaining four criteria are *tonality*, *cadence*, *harmony*, and *formal conventionality*.

[17] Paraphrased from Caplin 1998, 84–85.

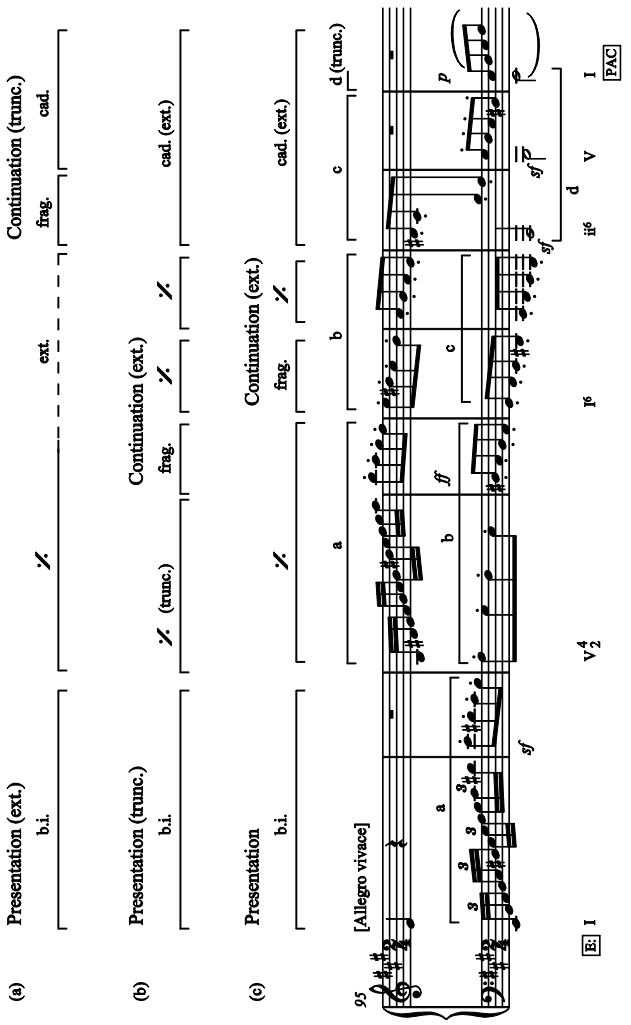
Example 2. Analysis of Mozart, Piano Sonata in C Major, K. 545, iii, mm. 1–8



Second, it contributes to a highly efficient expression since it is contained within the normative two-measure confines of a basic idea and does not articulate unneeded repetitions nor convey any ambiguity. Third, it contributes to uniformity since it consists of a single motive that is then transposed. Beethoven's canon in Example 3, however, deviates from all three criteria: it projects asymmetrical grouping structures (most notably in analyses [a] and [b]), is not highly efficient since it is not contained within a single formal unit, thus contributing to ambiguity, and is less motivically uniform than Mozart's canon, since it contains two motivic units (the ascending triplets [*a*] and the descending eighth-notes [*b* and *c*, combined]), rather than just one.[18]

[18] One can also experience the tight-knit metaphor through the time-intervals that separate the *dux* and *comes* in both canons. In Mozart's canon, the interval is a short two beats; in Beethoven's canon, however, the interval is stretched to four beats, conceptually *loosening* the formal ties that bind the sentence together. To be

Example 3. Analysis of Beethoven, Piano Sonata in A Major, Op. 2/2, i, mm. 95–103



sure, the concepts of tightening and loosening do not always correspond to shorter and longer time-intervals respectively between the *dux* and *comes*, but these correspondences represented within these particular themes dramatize the formal impact that canon can have upon tight-knit and loose organization.

Example 4. Canonical zones (measured in formal functions)

Normative length (in measures)		
2	4	6
basic idea	antecedent	compound basic idea + continuation
contrasting idea	consequent	
cadential	presentation	
	continuation	
	compound basic idea	
	cadential*	
	contrasting idea (no cadence) + continuation	

* As contained within a hybrid 2 (antecedent + cadential) theme-type.

Based on the short descriptions of canon and tight-knit organization I have just offered, we can identify *canonical zones* where discrete canons may reside within eight-measure themes (Example 4). Here, each zone, which is catalogued according to length, corresponds to a formal function, and in some cases, a combination of formal functions. Each zone also contains equivalent or similar formal units (if more than one obtains) that are uniform in length. Canons that remain within a zone produce canonical themes that are characterized as tight-knit; conversely, the more that canons exceed a zone or metrically alter the contents within such a zone, the looser in organization canonical themes become. More specifically, if a canon goes beyond the boundaries of one of the identified zones, and/or alters the length of formal units within such zones, it tends to create deviations from the norm, such as extended or ambiguous grouping structures,

unnecessary repetitions,[19] and insufficient motivic contrast between adjacent formal functions of differing character. Although a tight-knit theme may contain multiple canonical zones, not every zone must be filled out with a canon; rather, these zones simply denote multiple sections within a theme where canons *may* reside. Moreover, even if a tight-knit theme does fill out multiple zones with canons, the boundaries between zones remain clear.

Example 5 lists all possible ways that canonical zones may occur within tight-knit eight-measure themes (based on the theme-types found in Caplin 1998).[20] Each possibility is understood as a paradigm and is given a unique label (listed in Column One). The paradigms listed here will be referred to throughout the rest of the article. By understanding where canonical zones reside within different theme-types, we can gauge more easily the extent to which canons tighten or loosen formal organization. We will now explore more examples from the literature to see how this is so.

[19] Repetition of material is considered unnecessary if it causes a formal unit to exceed a normative measure-length. For instance, a presentation that contains *two* repetitions of a basic idea (rather than one) would cause it to expand from four measures (tight-knit) to six measures (loose-knit).

[20] Each theme-type listed here (save for the sentence) produces multiple paradigms, resulting primarily from canonical zones that are either two measures or four measures in length.

Example 5. Canonical zones within eight-measure theme-types

Paradigm	Theme-type	Antecedent	Compound basic idea	Basic idea	Contrasting idea	Presentation	Continuation	Consequent	Cadential
a1	Period			x	x				
a2	"	x						x	
b	Sentence					x	x		x
c1	Hybrid 1*			x	x		x		x
c2	"	x					x		x
d1	Hybrid 2†			x	x				x
d2	"	x							x
e1	Hybrid 3‡			x	x		x		x
e2	"		x				x		x
e3	"			x	**x****		**x**		x
e4	"		**x**				**x**		x
f1	Hybrid 4††			x	x				
f2	"		x	x	x				

* Antecedent + continuation.
† Antecedent + cadential.
‡ Compound basic idea + continuation.
** Paired entries in bold represent a single canonical zone comprised of two formal functions.
†† Compound basic idea + consequent.

II. Tight-knit canonical themes

Example 6 presents an analysis of Mozart's String Quartet in G Major, K. 156, iii, mm. 1–8, which is a tight-knit canonical theme, taking the form of Caplin's hybrid 1 (antecedent + continuation). The analysis is based on paradigm c2, a model of which is shown at (a). Here, boxes demarcate canonical zones, corresponding to the paradigms listed in Example 5.[21] The analysis at (b) shows that a short canon occurs within the antecedent: here, three entries appear in violin I, the cello, and violin II. The canon resides within the first canonical zone outlined by paradigm c2. With respect to grouping structure within the canon, symmetry obtains, as the basic idea and contrasting idea are both essentially two measures long. Additionally, the canon is functionally efficient, since there are no unnecessary repetitions, nor is there any ambiguity as to formal function. Finally, motivic uniformity prevails, due not only to the repetition scheme of the canon itself, but also to the fact that motives *c* and *d* are essentially transpositions of motives *a* and *b*, respectively.[22]

Since this canon encompasses both the basic and contrasting ideas, both ideas share the same motives, thus diminishing the contrast between them. In this respect, motives *a* and *b* are contained within the basic idea, but they also overlap the boundary between the basic and contrasting ideas in mm. 2–3 in the cello. Nevertheless, harmonic expression differentiates both ideas: the basic idea is tonic-prolongational whereas the contrasting idea ends with a HC. Due to this harmonic distinction, Mozart repurposes motives *b* and *c*, which initially articulate tonic harmony in mm. 2–3, to serve as the bass line in mm. 3–4 leading up to the HC. This clever re-contextualization of motivic material helps to give formal shape to the antecedent, despite the lack of motivic contrast. Due to the canon's containment within the antecedent, a formal function that resides within a canonical zone, we can say that this theme is relatively tight-knit.

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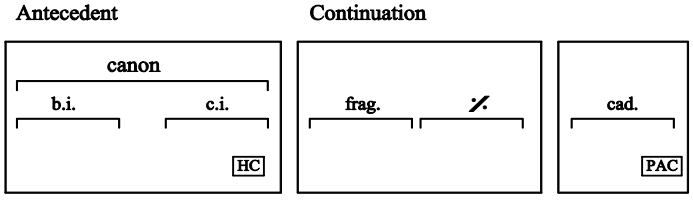
[21] Throughout this article, canonical zones within models will always be demarcated with boxes.

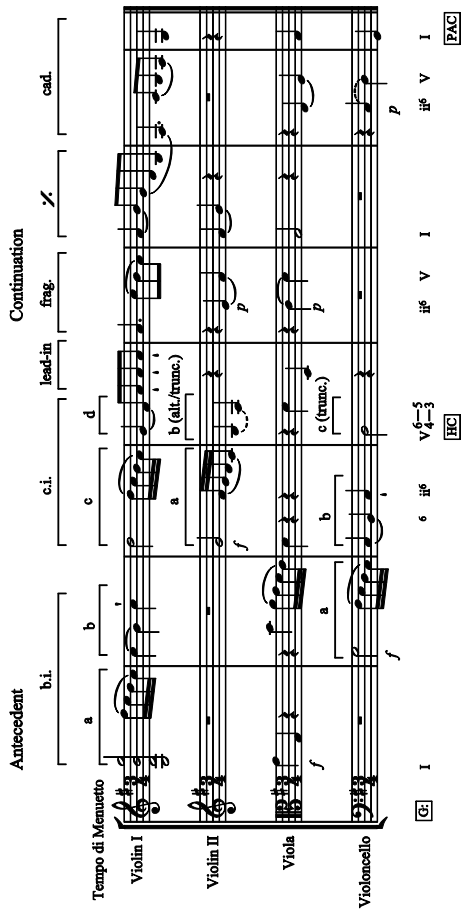
[22] Caplin writes, "In cases in which the contrasting idea seems to resemble the basic idea because of shared motives, the different underlying harmonies distinguish one idea from the other" (1998, 49).

Example 6. Model and analysis of Mozart, String Quartet in G Major, K. 156, iii, mm. 1–8

(a) Model based on paradigm c2; canonical zones outlined with boxes



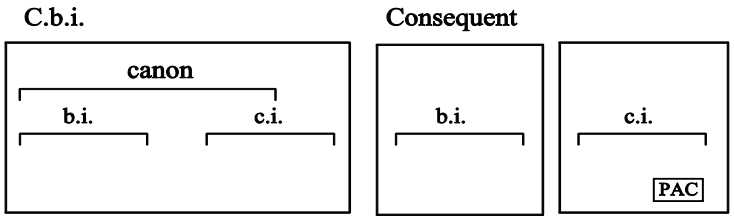
(b) Analysis based on model



The motivic overlap witnessed in K. 156 also prevails in Mozart's String Quartet in G Major, K. 80, iv (Example 7). The theme is based on paradigm f2, modeled at (a), and the analyzed score appears at (b). Referring to the score, a hybrid 4 theme (compound basic idea + consequent) is shown with a canon contained within the compound basic idea. The canon spaces out the *dux* (violin I) from the *comes* (violin II) by one measure, a situation that contributes to the aforementioned overlap between the basic and contrasting ideas in mm. 2–3.[23] Though shortly after the contrasting idea gets underway, violin II breaks off the canon on A_4 in m. 3 and instead joins forces with violin I by doubling it a sixth below. Although there is little motivic differentiation between the basic and contrasting ideas, the cello clarifies the formal shape of the antecedent by clearly marking out the roots of the harmonies that support it. Due to the containment of the canon within the first canonical zone within this particular paradigm, the theme here projects a tight-knit formal expression.

Example 7. Mozart, String Quartet in G Major, K. 80, iv, mm. 1–8

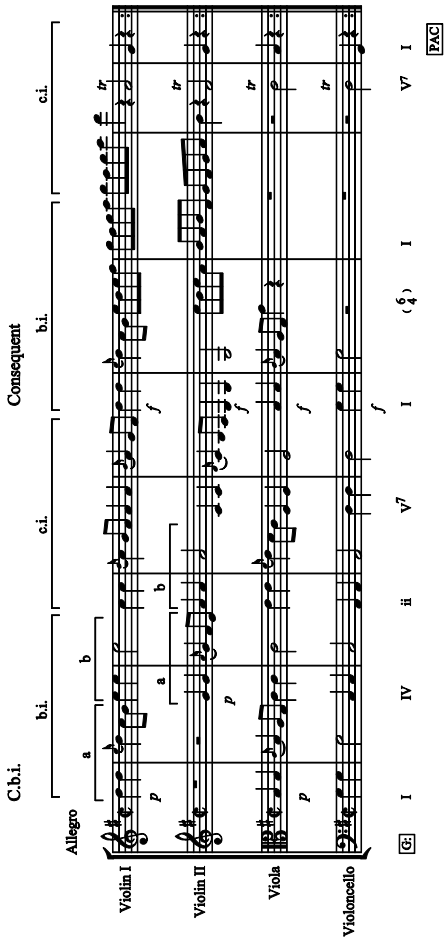
(a) Model based on paradigm f2



[23] A case could be made for a canon occurring between the viola and violin II; however, violin II deviates somewhat from the *dux* with the descending sixth A_4–C_4 in m. 3, corresponding to the ascending third C_4–E_4 in the viola in m. 2. Additionally, this alternate canon features imitation at the sixth, whereas the canon between the two violins is at the fifth, a more standard interval of imitation. Thus the reading given at (b) interprets the viola as a lower doubling of violin I.

Example 7, continued

(b) Analysis based on model



Before we continue, I would like to point out a couple of observations concerning the examples we have considered thus far and the paradigms that model them. With respect to each of the tight-knit themes we have analyzed (Examples 2, 6, and 7), all of them contain canon primarily within the first canonical zone only, even though the paradigms that model these themes include multiple canonical zones. The remaining zones either do not

contain any canonical material or, if canon does prevail, it is not as strongly maintained as it is within the first zone. Both scenarios demonstrate a tendency for canons to dissipate towards the end of a theme. This tendency becomes most striking in periods and hybrid 4 (compound basic idea + consequent) themes, where parallelism is one of the guiding forces behind both forms. For instance, returning to Example 7, even though canon prevails throughout most of the compound basic idea, it is entirely absent from the consequent, due in part to changes occurring within the basic idea in the latter (the change here being the eighth-note passage starting in m. 5). Here the form coheres as a hybrid 4 theme, yet at the same time, it is able to absorb significant changes to the basic idea within the consequent, even though this is construed as a repetition of sorts. Similar changes appear in the consequent from K. 545 (Example 2). Here, the canon begins as it did in the antecedent, but then very quickly disintegrates (evidenced by alterations to *a* and *b*) as the theme progresses towards the PAC. In both these themes, the closer a theme moves towards the concluding PAC, the more likely it is that the canon will break apart, if it has not already been jettisoned altogether. This diminishing tendency may be related to the technique of *liquidation*, which entails the flushing-out of characteristic motives.[24] Liquidation can occur immediately, such as in sentences, where there can be a stark contrast between the presentation and continuation phrases, or it can happen gradually (such as in K. 80 and K. 545), with complete liquidation occurring within the cadence.[25]

Although these tight-knit themes feature canons only within the initial canonical zones of the paradigms upon which they are based, all the themes discussed thus far—tight-knit and loose—show that canon can appear within any general formal function, be it initial, medial, or concluding. For instance, it appears within initiating functions in Examples 2, 3, 6, and 7, medial functions (such as continuation) in Example 3, and a concluding function in the same example. Determining whether or not canon behaves

[24] Caplin 1998, 11. This is a concept also formulated by Schoenberg. For his definitions of this concept, see Schoenberg 1967, 58–59 and 152–53; Schoenberg 1972 [1943], 11; Schoenberg 1978, 207–8; and Schoenberg 1995, 381–82.

[25] Ibid., 43.

differently within some functions than others, however, goes beyond the scope of this article. But a preliminary glance at the themes discussed thus far shows that canon is surprisingly flexible and is able to adapt to the functions within which it is contained, provided that it conforms to their harmonic constraints.

III. Untying the knot: canonical themes with looser organization

Canon is so flexible, that not only can it serve to tighten up formal organization, it can also loosen it, depending on the manner in which it is deployed. This section explores such loosening properties of canon by showing how it can create formal expansion or truncation within opening and medial sections of main themes.[26]

Example 8 presents the main theme from Mozart's Piano Sonata in F Major, K. 332, i. This canonical theme is an instance of hybrid 3 (compound basic idea + continuation). As seen in the analysis, a short canon initiates the continuation function and involves a two-measure *dux* starting in m. 5.[27] The canon contributes to a loosening of the organization of the theme, since it extends the continuation by four measures. To be sure, the canon resides entirely within the second canonical zone as shown within the model, but it oversteps the normative two-measure length of the continuation function. Moreover, the canon does not introduce any new harmonic material—it is firmly planted within tonic harmony—nor does it provide any sense that the theme is accelerating towards cadential closure; indeed, it sounds like the theme is starting over again, but with new material.[28]

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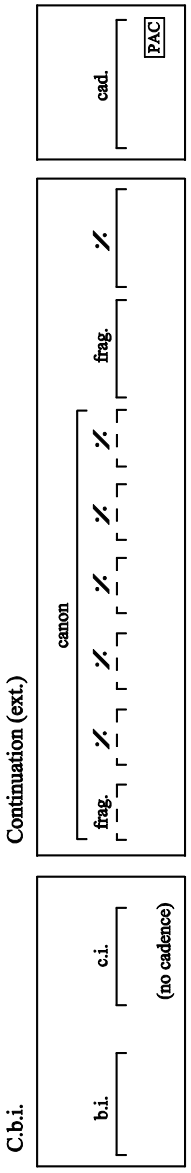
[26] Although all of the canonical themes that we have investigated thus far have involved tight-knit main themes and one loosely-organized subordinate theme, it is not necessarily the case that these thematic categories divide evenly along these characteristic lines. Indeed, canon can also act as a loosening agent in main themes. See ibid., 201, for loosening techniques within main themes.

[27] Allanbrook writes that the canonic passage is "a four-measure parody of learned counterpoint" (1983, 6); this assessment of the passage is repeated in Allanbrook 1992, 132.

[28] Hepokoski and Darcy state that this theme and the main-theme group (P) of which it is a part contribute to "P-overdetermination," which "involves the suggestion of a temporizing, smug, or static reluctance to get the sonata moving

Example 8. Mozart, Piano Sonata in F Major, K. 332, i, mm. 1–12

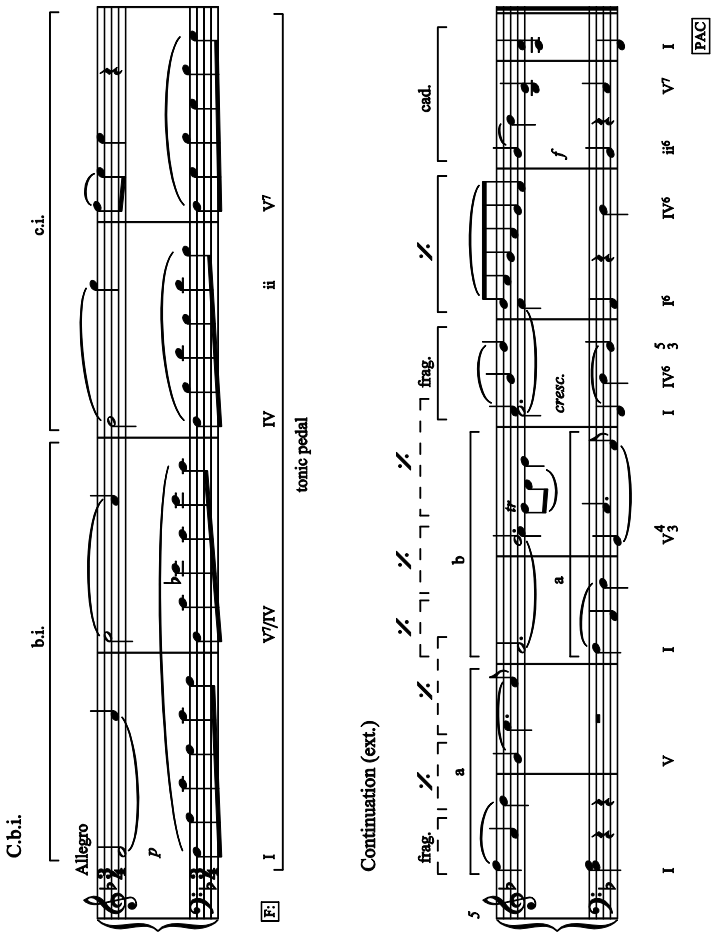
(a) Model based on paradigm e2



off the initial tonic" (2006, 74); Agawu notes, "How different this gesture is from that of the first five [*sic*] measures—the earlier 'song' has disappeared, and is replaced by a decidedly unsingable melody" (1991, 45).

Example 8. Mozart, Piano Sonata in F Major, K. 332, i, mm. 1–12, continued

(b) Analysis based on model



Part of this "starting-over" rhetoric stems from the canon's insertion into the middle of the theme, rather than the beginning.[29] Up until now, *all* of the themes we have looked at have situated canon at the beginning, a fitting placement given the usual initiating role that canon (or imitation, in general) usually plays. Due to the canon's medial positioning here and the extension it articulates, it loosens the formal fabric of Mozart's main theme.

Beethoven also takes advantage of a medially-positioned canon to loosen the formal bonds of a hybrid 3 (compound basic idea + continuation) theme-type within his Piano Sonata in F Major, Op. 10/2, ii (Example 9). The passage shown at (b) is contained within a rounded binary form, which itself functions as the A section of this large-scale ternary form movement. The theme illustrated here, at a lower level, serves as the recapitulation of the main theme within the rounded binary form. Even though the theme starts in the right hand, unaccompanied, the *dux* itself does not technically begin until the onset of the contrasting idea, a formal scheme consistent with the model of paradigm e3 shown at (a). The *comes* in the left hand then picks up the contrasting-idea material and re-contextualizes it within the continuation (mm. 20–22). But after the *comes* articulates this material, it then fragments it via two iterations of the D♭–B♭–E♮ motive in mm. 23–24, melodic content originally heard at the start of the *dux*. The articulation of these fragments contributes to the forward drive that most continuation phrases project, but at the same time, also extends the continuation by two measures, and thus loosens the overall organization of the theme. Although the canon itself does not loosen the formal expression of the theme, the subsequent fragmentation of the *comes* into one-measure units serves as the primary loosening agent.

As a way of "correcting" or tightening-up Beethoven's theme, one could imagine a recomposed version in which the *comes* in the left hand remains entirely within the two-measure confines of the continuation. But although such an idealized version would allow the theme to fit into a more normative eight-measure framework, Beethoven's solution accomplishes so much more. First, given its

[29] Due partially to this rhetoric, it is conceivable that mm. 5–8 could be excised altogether (provided minor changes are applied to the upper voices in m. 9), thus restoring the theme to a standard eight-measure framework.

role as the recapitulation of the main theme, it provides increased intensity, through metrical extension, as it approaches the concluding cadence of the binary form of which it is a part. This is in contrast to the exposition (shown at [c]) and contrasting middle of the form (not shown), both of which present neatly-packaged eight-measure units. Second, and more subtly, the upper voice employs a cadential formula that seemingly "corrects" the dead-end path that the lower had been trying to follow via the fragmentation of the *comes*; here the F–G–E♮ motive in the upper voice in m. 25 successfully secures closure in the following measure, a goal that the D♭–B♭–E♮ motive in the lower voice (mm. 23–24) had tried in vain to achieve. Additionally, the upper voice motive alludes to the opening gesture of the theme, F–A♭–E♮, thus ingeniously bookending the theme in a motivically satisfying manner.[30]

Both Mozart's and Beethoven's themes in Examples 8 and 9 involve formal loosening by introducing canon within the middle of a theme. But a theme can also be loosened by placing canon at its beginning, as shown in Example 10. Here the main theme from Beethoven's Piano Sonata in F Major, Op. 10/2, iii, is shown, which takes the form of a large-scale sentence.[31] Structurally, paradigm b provides the appropriate model (shown at [a]), though the theme here is based on a sixteen-measure sentence, not an eight-measure one.[32] Referring to the analysis at (b), canonical entries appear within the lower, middle, and upper registers in mm. 1–12. Loosening comes by way of an extra repetition of the compound basic idea in mm. 9–12, which ushers in the key of the dominant. This passage repeats the structural counterpoint of mm.

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[30] This is a case of structural framing, which entails the motivic association between opening and closing gestures. See Alegant and McLean 2007. Although not exactly the same, this is similar to Schenker's notion of linkage technique (*Knüpftechnik*), where a concluding gesture is transformed into an initiating one (presumably in an immediately subsequent phrase). For a recent reappraisal of this technique, see Smith 2007.

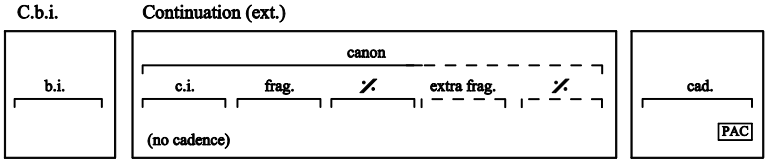
[31] Although Kirkendale 1979 lists this movement within a table outlining Beethoven's movements that include fugue or fugato, Kirkendale claims that the classification of this movement as fugato is "dubious" (1979, 224–25).

[32] A sixteen-measure sentence consists of an eight-measure presentation (containing two four-measure compound basic ideas) followed by an eight-measure continuation. See Caplin 1998, 69.

5–8, albeit with added embellishments (third-doubling of *b* in the inner voice) and transposition to the aforementioned key.[33] As with other themes discussed thus far in this section of the article, the canon here fits into a canonical zone—in this case, the zone consisting of the presentation—but Beethoven adds another unit (the extra repetition of the compound basic idea), thereby introducing redundancy, resulting in formal loosening. In response to the extended presentation, Beethoven truncates the continuation by halving the cadential function from four to two measures. But the entire theme, despite this modification, still covers eighteen measures, two measures longer than the sixteen-measure norm. Any further truncation, however, would have severely endangered the overall proportions of the entire theme.

Example 9. Beethoven, Piano Sonata in F Major, Op. 10/2, ii, mm. 17–26

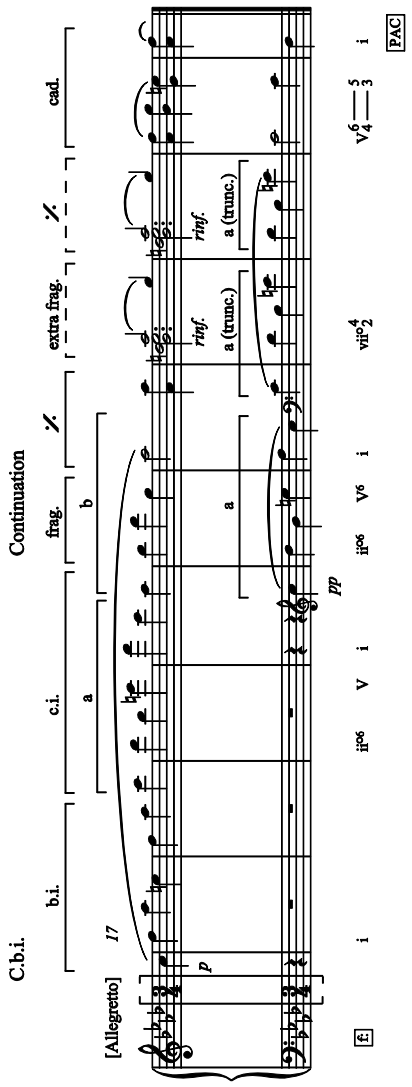
(a) Model based on paradigm e3



[33] Along with the third-doubling, *b* also undergoes a slight melodic and rhythmic change in m. 9 (compare this to *b* in m. 5). This deviation from strict repetition perhaps downgrades the passage in mm. 1–12 from canon to imitation. Both techniques, however, occur on a continuum involving thematic repetition (stated earlier). In this sense, the canon starts off in a strict manner, but becomes less strict as it goes on, thus changing from canon to imitation. But the slight change to *b* in m. 9 is not enough to counter the canonical *process* that begins at m. 1. Moreover, the reading in Example 10(b) concerns itself more with the three canonical entries and how they expand the presentation from eight to twelve measures, and less with the exact strictness with which the canonical technique is applied.

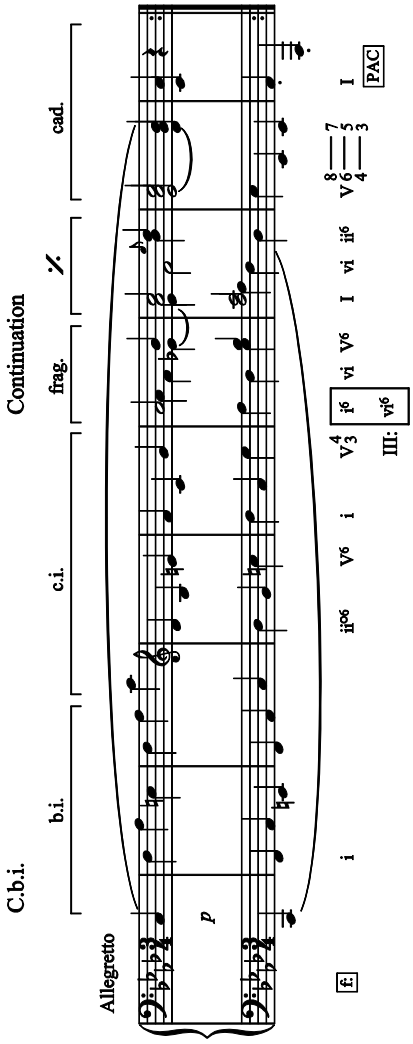
Example 9. Beethoven, Piano Sonata in F Major, Op. 10/2, ii, mm. 17–26, continued

(b) Analysis based on model



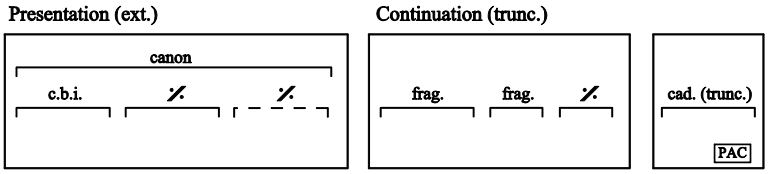
Example 9, continued

(c) Analysis of mm. 1–8

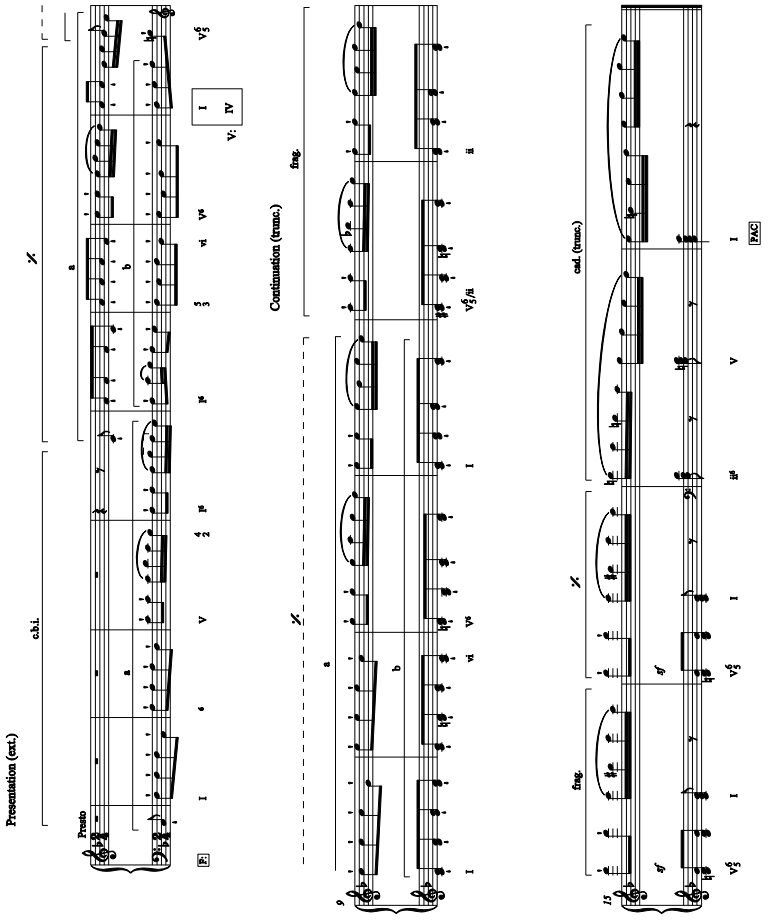


Example 10. Model and analysis of Beethoven, Piano Sonata in F Major, Op. 10/2, iii, mm. 1–18

(a) Model based on paradigm b



(b) Analysis based on model



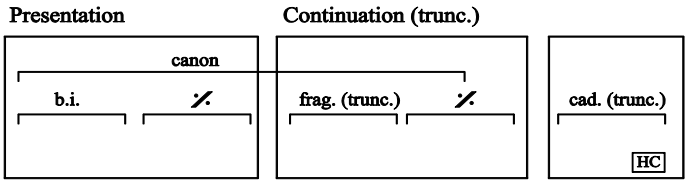
Mozart also employs canon at the beginning of a sentential theme in his String Quartet in F Major, K. 158, ii, shown in Example 11. (Models are shown at [a] and corresponding analyses at [b]; the following discussion integrates both perspectives.) Each member of the quartet takes part in the canon, entering the texture from high to low. Although mm. 1–4 articulate presentation function, the grouping structure here is not entirely clear; this is so for two reasons. First, the canonical entries occurring on each downbeat create one-measure groupings, units that may or may not be contained within two-measure basic ideas. Second, the tempo indication (*Andante un poco Allegretto*) suggests a tempo slow enough for each measure to be reevaluated by a listener as standing for *two* measures.[34] Based on how one integrates these aspects, two analytical readings result. The reading at (i) is based on the notated measure, whereas the reading at (ii) involves the aforementioned metric reevaluation. The former analysis demonstrates normative two-measure basic ideas, an aspect of tight-knit construction; however, the canonic interjection of violin II disturbs this tight-knit organization. The latter analysis, which features four one-measure basic ideas, also displays aspects of loose construction, due to the two extra statements of the basic idea. Additionally, canonic bleed between the presentation and continuation (see violin II and the cello in m. 5) creates loosening in both readings, since the canon cuts across two canonical zones (clearly demonstrated in the models at [a]). Finally, even though both readings show the same grouping structure within the continuation, the two interpretations differ from each other with respect to metrical organization. That is, the continuation is truncated at (i) but not at (ii). Overall, the two competing analyses create formal ambiguity: both are possible, yet are incommensurate with each other.

[34] Caplin addresses this phenomenon as a conflict between *real* measures (which are perceived by listeners) versus *notated* measures, which exist on the page of the score (1998, 35).

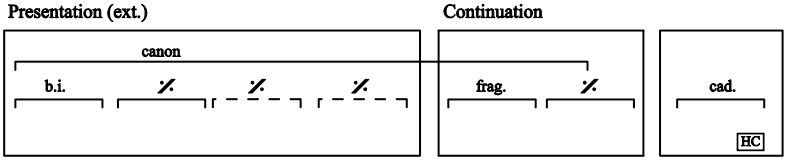
Example 11. Mozart, String Quartet in F Major, K. 158, ii, mm. 1–6

(a) Two models based on paradigm b

(i) Version based on notated measure

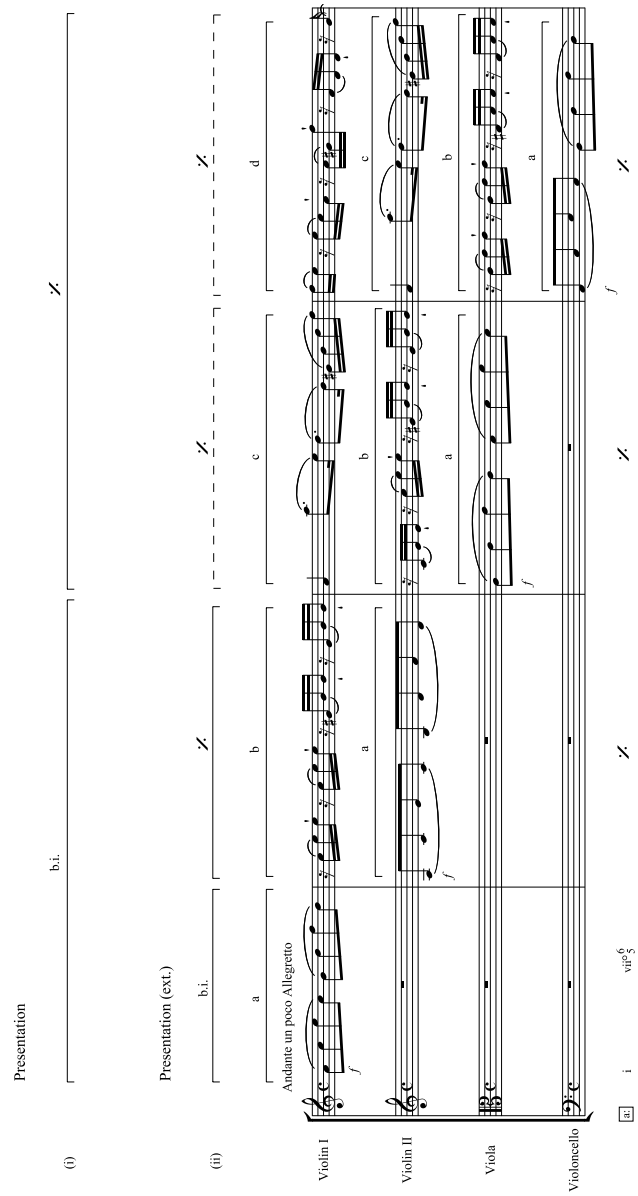


(ii) Version based on R = 1/2N (one real measure = 1/2 notated measure)

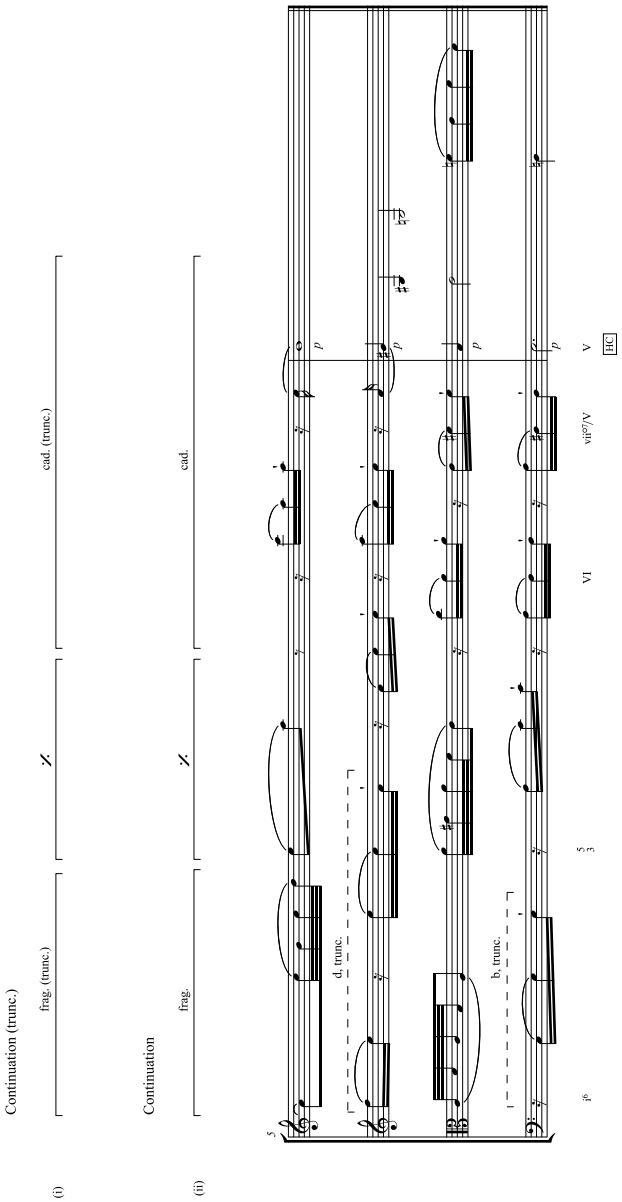


Example 11. Mozart, String Quartet in F *Major, K. 158, ii, mm. 1–6, continued*

(b) Analyses based on both models; reading at (i) based on notated measure; reading at (ii) based on R = *1/2N (one real measure = 1/2 notated measure)*

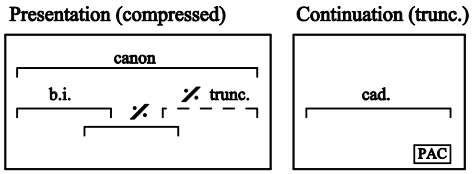


Example 11. Mozart, String Quartet in F *Major, K. 158, ii, mm. 1–6, continued*

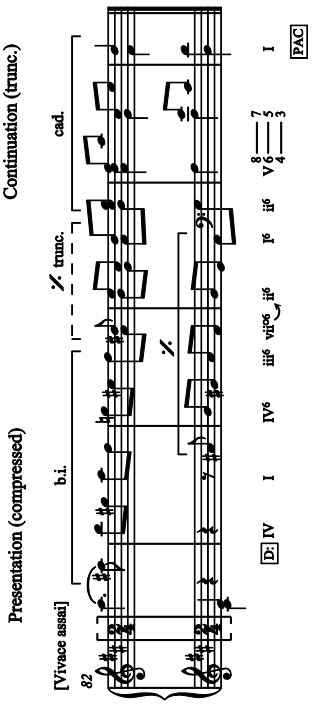


Example 12. Haydn, Piano Sonata in D Major, Hob. XVI:42, ii, mm. 82–87

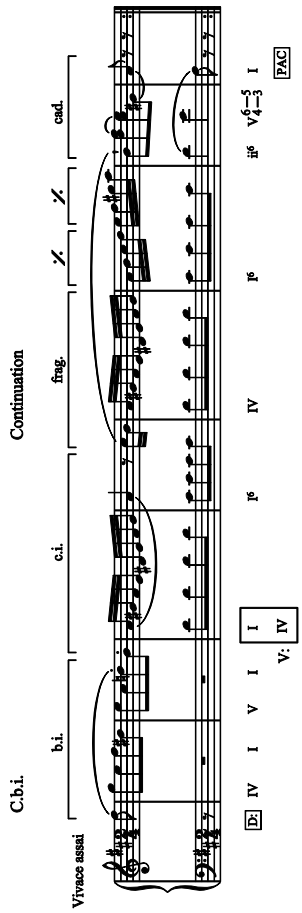
(a) Model based on paradigm b



(b) Analysis based on model



(c) Analysis of mm. 1–8



Finally, canon can also be a way of truncating a theme, as evidenced in the main theme from Haydn's Piano Sonata in D Major, Hob. XVI:42, ii (Example 12). Here the theme, based on a sentence and paradigm b, is heard for the last time within this rapid-fire final movement. As shown at (b), three entries appear in stretto, with each successive entry separated by the time-interval of one measure. (Compare this to the first iteration of the theme in mm. 1–8, shown at [c].) The canon takes place within the presentation, the first canonical zone within paradigm b, as diagrammed at (a). No fragmentation (or canon) occurs after the presentation; instead, a cadential progression immediately ensues. As with the previous example, the multiple entries here lead to confusion as to grouping structure, which can be shown through multiple analyses. The tack taken here, however, involves demonstrating how stretto compresses the presentation such that the repetition of the basic idea *overlaps* with its initial statement (indeed, stretto literally means 'to compress'); likewise, the truncated second repetition overlaps with the first repetition. To be sure, overlapping basic ideas in this manner takes conventional notions of repetition to the brink (at least, with respect to models of Classical theme-types). But the analysis here captures the canonical play between the different parts and dramatizes, in formal terms, the effect that such play creates.

IV. Completely canonical themes

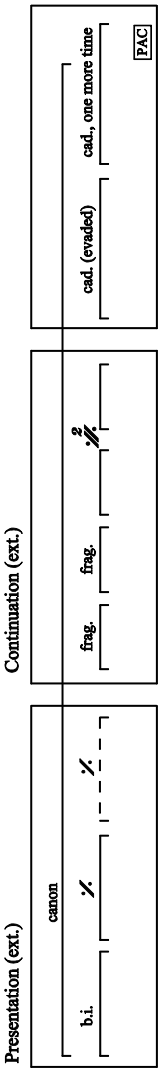
The canonical themes analyzed within the previous two sections of the article utilize canon within only a section of a theme. We will now look at how canon can comprise virtually an entire theme.

Example 13 illustrates the main theme of the minuet from Mozart's String Quartet in B♭ Major, K. 172. Here the formal organization is sentential, and thus the theme is based on paradigm b. Despite Mozart's efforts to demarcate the boundary between the presentation and continuation phrases—in this respect, note how the *dux* in the viola drops out of the texture in mm. 5–6, which are the last two measures of the presentation—a canon, stated primarily between the viola (*dux*) and violin I (*comes*) and separated

by a two-measure time-interval, runs throughout the entire theme (save for the cadence), thus cutting across three canonical zones and therefore loosening up the overall formal organization.[35]

Example 13. Mozart, String Quartet in B♭ Major, K. 172, iii, mm. 1–14

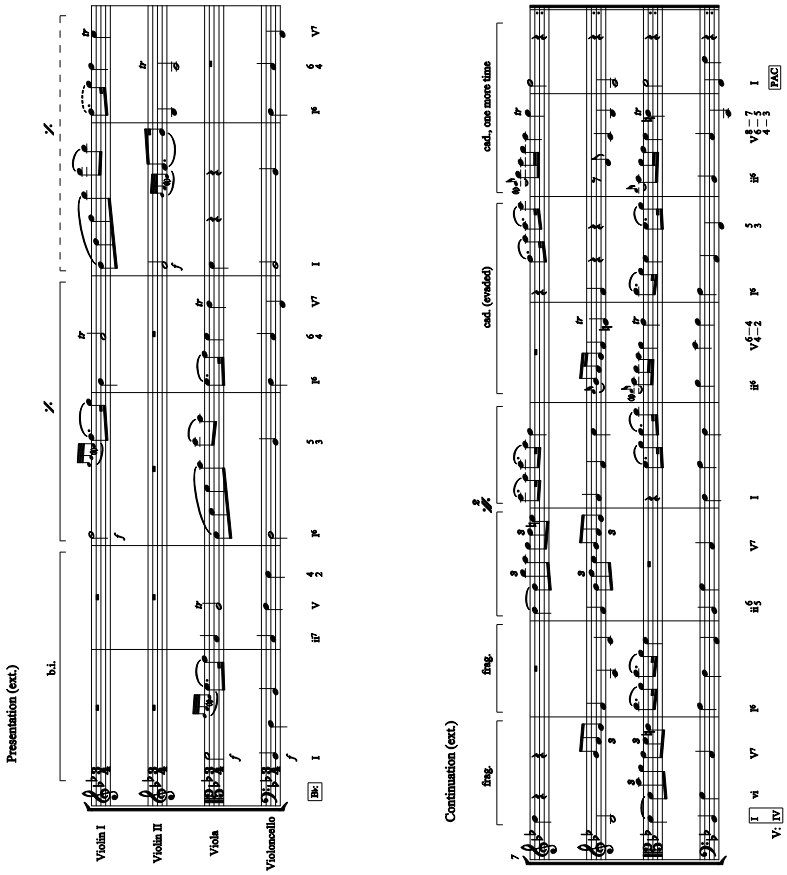
(a) Model based on paradigm b



[35] The analysis does not outline motivic units, as in the previous analyses, since the discussion here does not refer to formal organization at this level.

Example 13. Mozart, String Quartet in B♭ Major, K. 172, iii, mm. 1–14, continued

(b) Analysis based on model



Loosening first occurs within the presentation, where the basic idea undergoes two repetitions, instead of one: the first *comes* appears in violin I and the second *comes* in violin II in mm. 5–6. (After its entry, violin II refrains from continuing with the canon.) Thus the presentation covers six measures, rather than the usual four. Loosening also occurs in the continuation and cadential functions that follow; both are extended by two measures each, resulting primarily from the canonic repetitions articulated by violin I. Thus the continuation function covers four measures, as does the cadential function. The latter passage is noteworthy, as the first attempt to achieve closure within the subordinate key of F major is evaded by virtue of the move to V_2^4 in m. 11. The cadence is approached one more time and achieved in mm. 13–14, this time with violin I repeating the viola's melody from the previous cadential attempt, but stated an octave higher.[36] The actual point of closure in m. 14 requires violin I to break away from the canon. Significantly, however, the canonical repetition leading to the cadence allows Mozart to regain $\hat{5}$ in the same register that had been established with the initial entrance of the first *comes* in m. 3. Thus despite the formal loosening that the canon produces—here, a fourteen-measure sentence resulting from the expansion of an eight-measure model—it helps to articulate structural pitches throughout its duration.

Another of Mozart's works that utilizes canon virtually throughout an entire theme—in this case, the first reprise of a rounded binary form that is entirely canonic—is his String Quintet, K. 406, iii, shown in Example 14.[37] The canon itself takes place between violin I (*dux*) and the cello (*comes*), with both parts separated by the time-interval of one measure. The *comes* holds

[36] The process of repeating a cadential progression after an evaded cadence is a formal technique that has been enshrined by Janet Schmalfeldt within the music-theoretic literature as the "one more time" technique. See Schmalfeldt 1992.

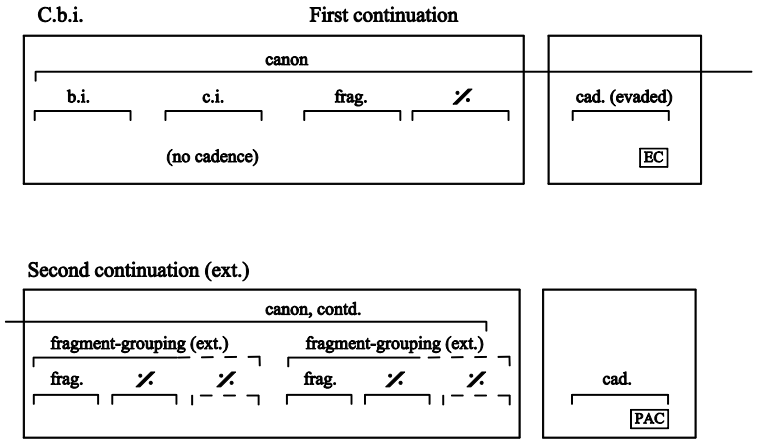
[37] Hepokoski and Darcy describe this work (and its earlier guise as the Serenade in C Minor for Eight Winds, K. 388) as an example of one of "Mozart's four-movement serenades [that] took on the serious tone of higher genres…" (2006, 321). In addition to the minuet, the trio is set as a double canon and realized *al roverscio*, with both *comes* voices imitating their respective *dux* voices in melodic inversion. Due to space constraints, only the minuet will be considered here. For a more technical understanding of the canon within the minuet, see Ratner 1980, 260–61 and Gosman 2000, 65–76.

onto the canonical imitation throughout mm. 1–14 (beats 1 and 2), before breaking away to provide bass support for the cadence to E♭ major in m. 16. Here we see a theme based on hybrid 3 (compound basic idea + continuation), which in this case, utilizes paradigm e4, depicted by the model at (a). The hallmarks of this theme-type, however, are not simple to see (or hear), due to the continuous nature of the canon that is woven throughout it. The canon, generally speaking, loosens the phrase structure of the theme, details of which I will now address.

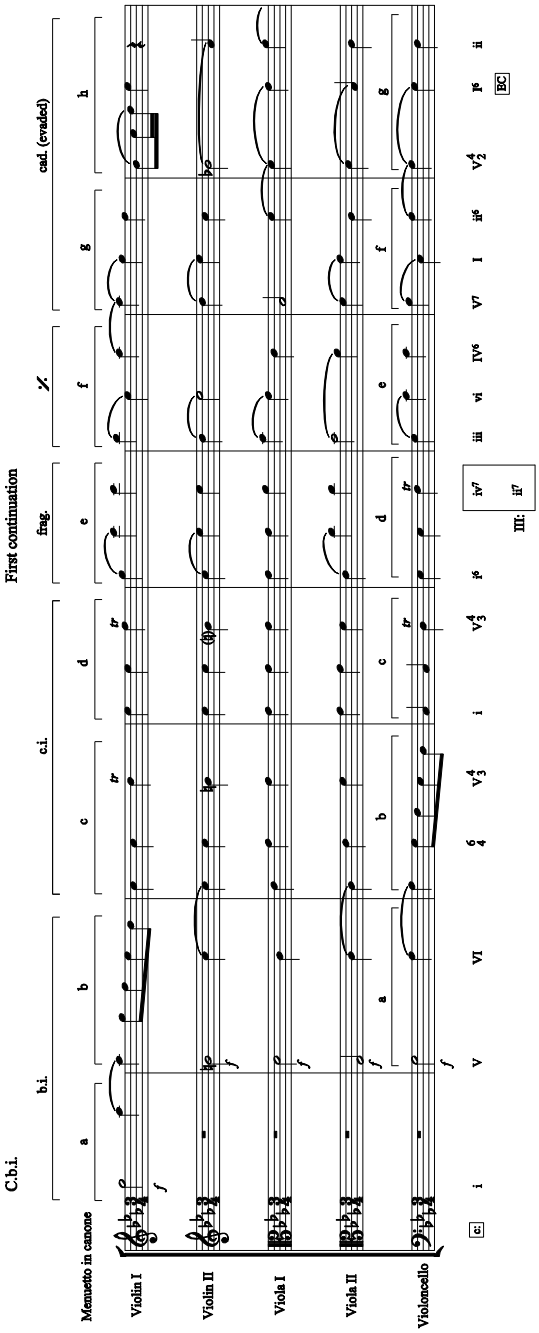
The canon loosens the phrase structure of the theme in three ways: 1) it cuts across boundaries of formal units, 2) lengthens some of the groupings within its confines, and 3) precludes cadential closure from obtaining.

Example 14. Model and analysis of Mozart, String Quintet in C Minor, K. 406, iii (minuet), mm. 1–16 (EC = evaded cadence)

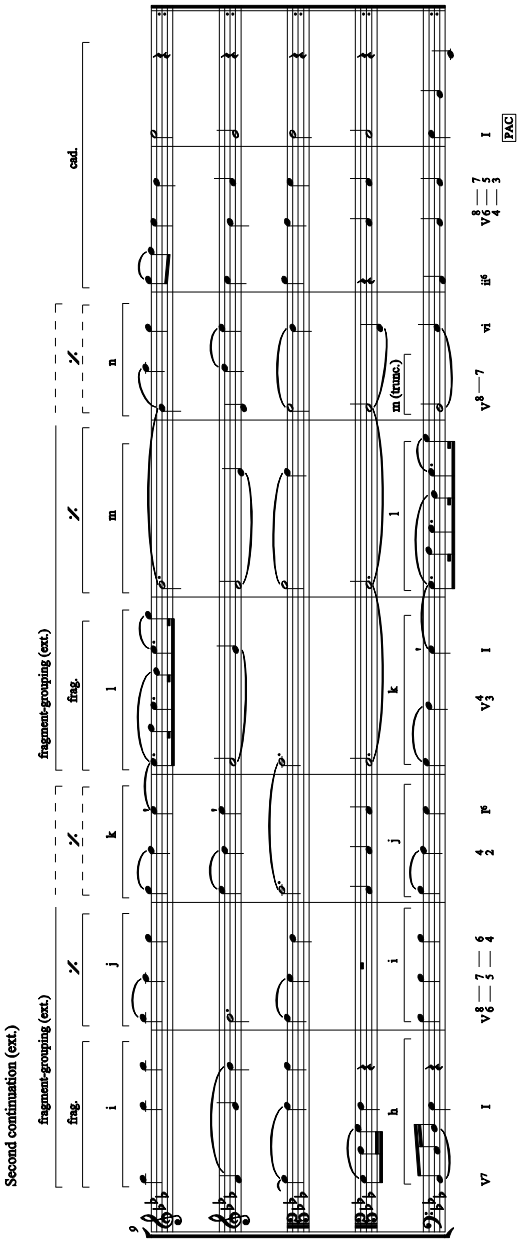
(a) Model based on paradigm e4



(b) Analysis based on model (bars 1 – 8)



(b), continued (bars 9 – 16)



Cutting across formal boundaries occurs within the first half of the theme (mm. 1–8). Although this passage begins to exhibit aspects of loose organization near its completion, its beginning is somewhat tighter-knit. This is due inpart to the double-duty that many of the canon's motives perform. For instance, motive *b* occurs within the basic and contrasting ideas, and motive *d* in the contrasting idea and (first) continuation.

Organization becomes looser, however, in mm. 6–8, where the canon breaches the first canonical zone and enters the second (shown in the model), thus diminishing, somewhat, the distinction between the continuation and cadential functions. Augmentation of groupings also creates loosening and results, partially, from the one-measure time-interval separating the *dux* and *comes*. In general, this interval causes two-measure groupings to expand into three-measure groupings. Such is the case in the second continuation, where the two-measure grouping consisting of motives *i* and *j* expands by one measure due to the canonic imitation by the cello. The same situation occurs in the next grouping with motives *l* and *m*. In both situations, three-measure groupings result. Cadence evasion is also a kind of formal loosening. This occurs in m. 8, where the cello articulates the progression V^4_2–I^6 in E♭ major and therefore prevents any sense of closure from obtaining. The lack of closure elicits a second continuation to begin in the following measure, which culminates in a III:PAC in m. 16.[38] This expansion of the continuation, stemming from the evaded cadence, noticeably loosens up the formal organization of Mozart's theme. Despite these three methods of formal loosening, the entire theme, ironically, covers sixteen measures, symmetrically divided into two eight-measure groups. Thus the theme projects a tighter-knit organization at a higher level of structure, but with more loosely-organized content at a lower level.

Such is not the case with the return of the opening material (or recapitulation), where it is expanded to twenty measures (model and analysis shown in Example 15).

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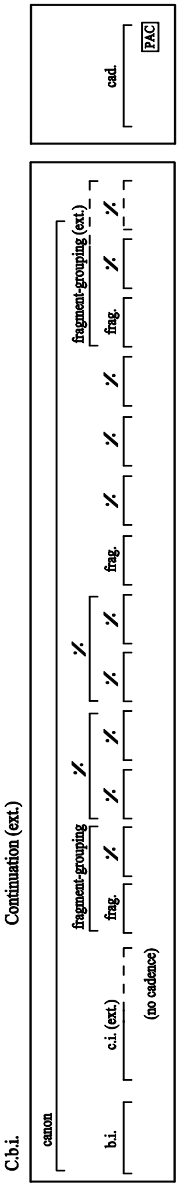
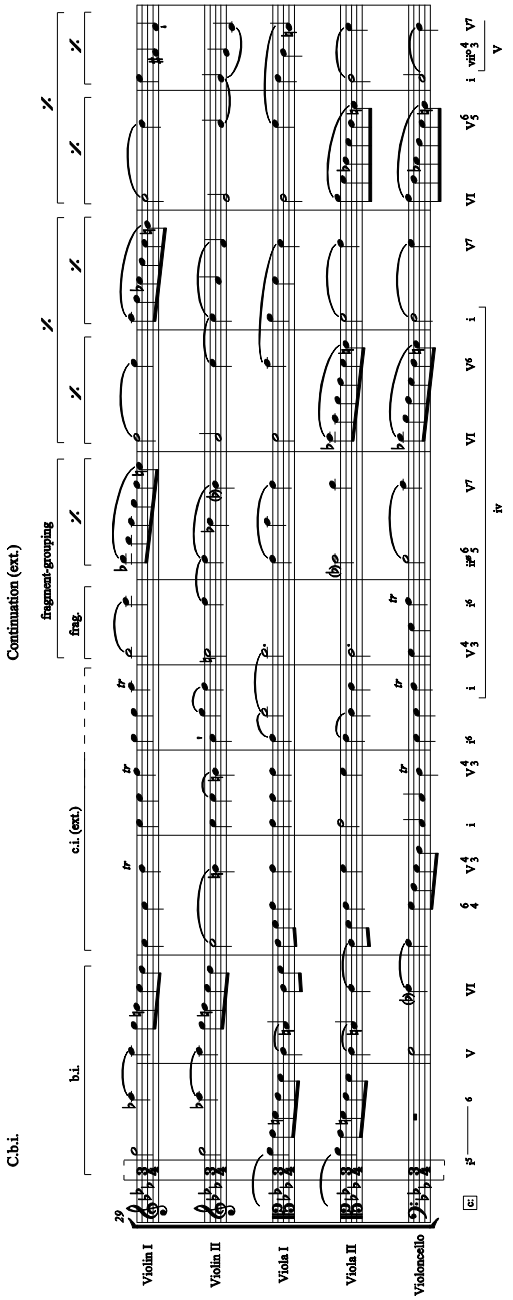
[38] Although the first continuation does not conclude with an authentic cadence, an *attempt* to achieve closure is made, as evidenced by the cadential function in mm. 7–8. The second continuation, thus, represents a second attempt at achieving closure.

Example 15. Model and analysis of Mozart, String Quintet in C Minor, K. 406, iii (minuet), mm. 29–48

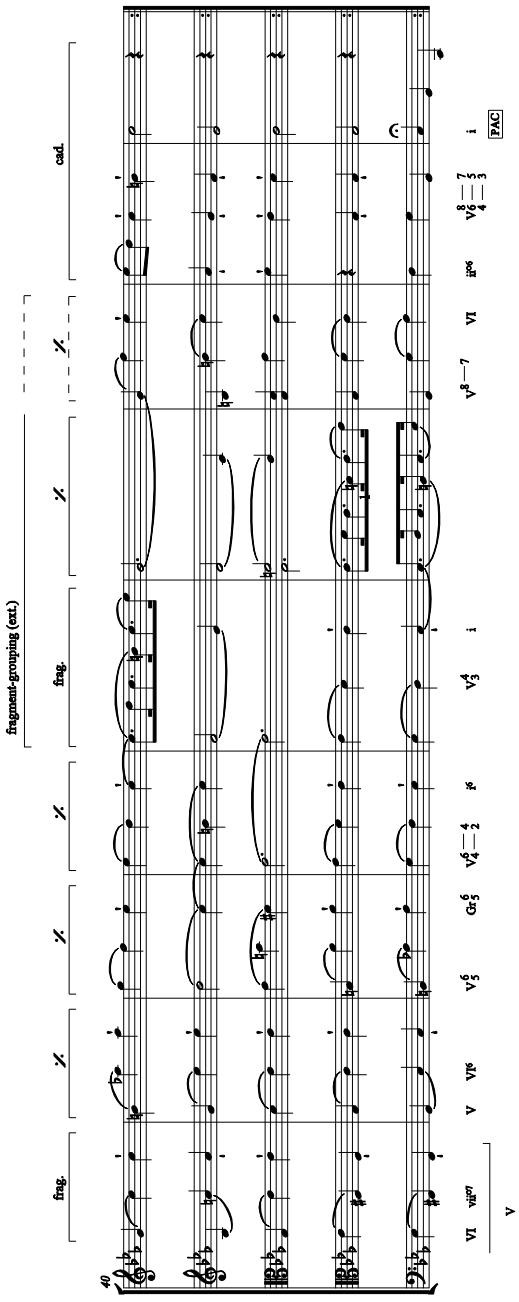
(a) Model based on paradigm e4



(b) Analysis based on model



(b), continued



As expected, the theme begins the same as it did at the beginning of the movement, and the cadence and the three-measure fragment-grouping that immediately precedes it return as well, save for their transposition to the home key of C minor. Changes occur, however, within this frame. These include the one-measure extension of the contrasting idea, the two-measure fragment-groupings that initiate the continuation, and the following one-measure fragment-groupings starting in m. 40. The maintenance of the home key (rather than a modulation to the relative major) largely necessitates the changes presented here. Additionally, the overall grouping-structure of the recapitulation is not symmetrical, dividing into an eleven-measure group (mm. 29–39) followed by a nine-measure group (mm. 40–48).[39] Thus, the recapitulation not only extends the theme by four measures, but also disturbs the high-level grouping structure. Although the canon stays within the first canonical zone (shown in the model at [a]), the extensions and extra fragmentation it creates within this zone noticeably contribute to formal loosening.

In general, both the exposition and recapitulation take advantage of paradigm e4, a hybrid-3 model that affords ample formal space for canon to flourish. But despite the room that this paradigm affords, Mozart still stretches the formal dimensions of the themes in both the exposition and recapitulation by enabling the canon to breach canonical zones, and/or to extend and/or add formal units and groupings. Thus Mozart pulls at the seams of the canonical zones that clothe both themes.

Conclusion

As I have demonstrated throughout this article, canonical themes occur in a number of Classical-period works. Within such themes, canon can contribute to creating either tight-knit or loose formal organization. Using three of Caplin's criteria concerning tight-knit organization as a point of departure—namely grouping

[39] The grouping here is based on the change in grouping-length that takes place within the continuation, where the final two-measure fragment-grouping in mm. 38–39 closes off the first group and the change to one-measure groupings in m. 40 initiates the second group.

structure, functional efficiency, and motivic uniformity—paradigms outlining canonical zones within conventional theme-types were proposed. According to these paradigms, the more a canon remains within a zone and articulates equivalent or similar formal units of uniform length, the more likely that it will be part of a tightly-knit theme. But the more a canon exceeds a zone boundary and/or deviates from criteria that pertain to a zone, the more likely it will contribute to formal loosening. Although looser organization is more often reserved for subordinate themes within sonata forms, main themes containing canon can also exhibit a loose formal profile.

To be sure, canon contributes to tightening or loosening formal structure in a wide variety of theme-types, articulating multiple formal functions, and within many kinds of movements, but the way these three categories correlate to each other requires more research. For instance, the short canon in K. 332 (Example 8), which contributes to formal loosening, occurs in a medial position within a first-movement main theme. Is the formal placement of this canon dependent upon this passage's main-theme status? That is, would it be unlikely for such loosening to occur at the *beginning* of a first-movement main theme? Such loose beginnings seem to be reserved for interior movements, such as slower second movements (Example 11) and minuets (Examples 12, 13, and 14), and energetic final movements (Examples 10 and 12). Indeed, contrapuntal devices, such as canon and fugue, crop up more within latter movements of multi-movement works, such as within 'learned' minuets[40] and (of course) fugal finales,[41] but the way in which they are formally deployed within the themes of such movements remains largely unexplored. In general, uncovering correlations between formal positioning of canons within themes, the formal function of the themes of which they are a part, and the movements within which they reside, requires further scrutiny.

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[40] Hepokoski and Darcy 2006, 331.

[41] Sisman writes, "appealing as it does to both intellect and imagination, learned style thus works particularly well in the peroration, the final part of the oration or piece in which arguments are summed up in a last attempt to secure the emotions of the audience. It is no accident that full-movement fugues appear most often as the second of a pair of movements and in finales" (1996, 220). For more on fugal finales, see Grier 2010 and Hepokoski and Darcy 2006, 333.

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