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Music Theory on the Radio: Theme and Temporality in Hans Keller's First Functional Analysis

On the evening of 7 September 1957, listeners to the BBC Radio's Third Programme were treated to a unique broadcast of Mozart's String Quartet in D minor, K. 421. The performance, by the Aeolian String Quartet, was punctuated between movements by several minutes of additional music composed by the critic Hans Keller (1919–1985). The broadcast was the public's first exposure to what Keller called 'functional analysis' (abbreviated FA), or, as he more vividly put it in a magazine article previewing the broadcast, 'the *musical* analysis of music' (Keller 1994, pp. 126–8).[1]

The wheels that set this event in motion had begun turning nearly a year and a half earlier. On 28 April 1956 Keller sent an unsolicited proposal to Roger Fiske, the producer in charge of music lectures for the BBC. In it he described an idea for a radio broadcast that would build upon the analytical method he had recently sketched in a pair of essays on Mozart's music: a detailed study of Mozart's C major Piano Concerto, K. 503, in *The Musical Times* (Keller 1956a), and a more wide-ranging chapter titled 'The Chamber Music' in *The Mozart Companion* (Keller 1956b). In the letter, Keller describes his project and what the audience might hear:

> I propose an hour's broadcast, wordless throughout, which would attempt to analyse a work or movement of your own choice according to my method of analysis. [. . .] With a ten minutes' interval in the middle, this experiment would not, I think, prove too exhausting for the Third Programme Listeners.
>
> Not a word need be spoken, though the announcer may perhaps have to say an introductory word or two; in addition, an introduction in *The Listener* [a weekly magazine listing literary and musical lectures on the BBC] and/or the *Radio Times* would be useful, but nowise indispensable. For the rest, the sections played and repeated, the analytic extracts and outlines demonstrated, and the placing and length of pauses between the various 'exhibits' would make the trend of the analysis quite clear. [. . .] Like music itself, my method is more easily 'played' than described.[2]

Keller, born and raised in the suburbs of Vienna, had arrived in Britain in 1938 after fleeing the Nazi annexation of Austria.[3] In the spring of 1956 he was a freelance journalist, critic and violist, and his initial pitch to the BBC had the air of a parlour game to it: 'give me a piece, any piece, and I'll analyse it using my new method'. Keller emphasised this aspect of the proposal in a later piece of correspondence: 'I think it is much better if I don't choose the work, in order to preclude any possibility of special pleading on my part. It is, after all, my

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submission that FA applies equally to all masterpieces, the only condition being that one must understand the work'.[4]

Intrigued, Fiske and his BBC colleague Walter Todds accepted Keller's proposal, and the three men developed the idea over the next fourteen months. While the scope of the broadcast changed slightly, Keller's initial description more or less matches what was heard that autumn night a year and a half later. The proposed interval was shortened from ten minutes to three, and even in that reduced duration it must have seemed to the BBC bosses an excruciatingly long stretch of prime-time dead air.[5] Keller was also forced to sacrifice his initial plan of playing the entire programme twice in a row: an 'exposition and recapitulation' of his new method, as he put it (Garnham 2003, p. 33).

The broadcast began with a brief introduction from the presenter:

> 'The Unity of Contrasting Themes', an experiment in functional analysis, by Hans Keller. The Aeolian Quartet play Mozart's String Quartet in D Minor (K. 421) and analytic interludes between the movements designed to show how the contrasting themes and movements hang together. The analysis is entirely wordless. It consists of a continuous score, except for a three-minute silence, for the recreation of the listener, after the unity between the slow movement and the minuet has been shown. Mr. Keller calls his method 'functional analysis' because instead of descriptively dissecting a piece of music, it is intended to isolate the unifying functions of the organism that is a living work of art. The programme begins with the complete first movement and ends with the complete last.[6]

After the introduction, the form of the broadcast unfolded as shown in Table 1. The first two movements were played in their entirety, each followed by an analytical interlude. The third movement closed the first half, and was followed by a three-minute interval, during which the audience members were expected to reflect upon what they have heard. After the brief intermission comes the most ambitious of the analytical interludes, which seeks to tie the third movement (the Minuet) to the already-heard first movement and the upcoming fourth.

The broadcast seems to have been a moderate success. Internal BBC reports indicated that many listeners reacted positively: many were intrigued by Keller's premise, even if some admitted that they didn't fully understand the broadcast. (Reasons listeners cited for their confusion included their own lack of prior musical knowledge, the absence of verbal or sonic signposts to differentiate Keller's analytical contributions from Mozart's original and even sleepiness due to the late hour of the broadcast – ten o'clock in the evening).[7] Colin Mason, writing in *The Manchester Guardian*, was effusive in his praise of functional analysis: 'As a method of musical analysis it is an undoubted success – clear, strictly to the point, and free from the cumbersome jargon and inevitable laboriousness of any attempt to explain musical relationships in words' (1957, p. 4). And, describing one of the later re-broadcasts of the programme, an unnamed critic in *Time* magazine asserted that it 'convincingly demonstrated that a few snatches of music, pointedly juxtaposed, can make a sharper comment

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Table 1 Form of 'The Unity of Contrasting Themes: Mozart's String Quartet in D minor (K. 421)', broadcast 7 September 1957 on the BBC Third Programme

Functional analysis no. 1 (1957): Mozart, String Quartet in D Minor, K. 421	
As written	Added by Keller
I. Allegro	
	A1: incorporates primary theme and secondary theme (in both exposition and recapitulation forms) from mvt I
II. Andante	
	A2: incorporates themes from mvt II and mvt III (minuet), along with *new* triple-meter material
III. Menuetto	
Interval (3 minutes)	
	A3: extended interlude, incorporating mvt III's minuet and trio themes, along with primary themes from mvts I and IV
IV. Allegro ma non troppo [to bar 32]	
	A4: very brief, based on mvt IV, first variation [bars 25–32]
IV. Allegro ma non troppo [bars 25–48]	
	A5: incorporates mvt IV, first variation, and mvt I, primary theme
IV. Allegro ma non troppo [bars 49 to end]	

on a composition than a column of critical prose' (*Time*, 17 February 1958, p. 80).[8]

Keller himself was disappointed in the quality of the Aeolian Quartet's performance: '[n]ot a [very] good interpretation of my score, but [could] be worse', he wrote in a letter a few days after the June 1957 recording session.[9] This displeasure, however, did not stop him from making broad claims about the success and popularity of functional analysis, reporting that he had received many positive reactions by mail. 'Reactions to my first wordless FA', wrote Keller in a December 1957 letter to *The Music Review*,

> show that proportionately, my appreciative audience is pretty evenly distributed among composers, teachers, practical musicians, musicologists, critics, amateur musicians and music lovers. So far, the genuine success of the method – by 'genuine success' I mean explicit understanding – has in fact proved immeasurably wider than I hoped, but I should be the last to deny that it is too early to point to a victory of musical over unmusical analysis. We shall see. (1957, pp. 83–4)

The response, however, was not universally positive. For example, while one *Music Review* reader, John Boulton, was enthusiastic about FA and compared it to the revelation of learning to think in a foreign language, he also wondered who would actually benefit from it and was sceptical of Keller's claim that FA was accessible to non-experts (1957, p. 352). And the critic Eric Blom quipped in *The Observer:* 'If anyone succeeds in making me hate Mozart's music, it will be Hans Keller's boast to have done so' (1956, p. 10).

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The BBC must, on balance, have considered the broadcast a success: they commissioned more FAs and hired Keller as a full-time critic and broadcaster two years later, in September 1959 (Garnham 2003, p. 88). Keller produced four more functional analyses for the Third Programme, along with three more for Hamburg-based North German Radio (NDR [Norddeutscher Rundfunk], with which the BBC had a working partnership) and several more designed for live concert performances. In all, Keller produced a total of fifteen FAs; these are listed in Table 2, along with as much information as I have been able to compile about them.[10]

Debates over the efficacy of functional analysis developed for several years after the premiere of FA1 in September 1957 before cooling off considerably. In his 'Defence of Functional Analysis', Deryck Cooke admitted that 'the opponents of Functional Analysis are many and vocal' (1959, p. 456). While the reception of FA1 in the press was sparse, Cooke's essay came in the midst of a long exchange of letters to the editor in *The Musical Times* in 1959 and 1960 regarding several of Keller's follow-up efforts.[11] The Scottish academic Michael Tilmouth (1959, p. 147) found FA3 to be musically unconvincing, while R. J. Drakeford described Keller's analytical interludes as 'a maddeningly persistent statement of the obvious. [. . .] The actual music, by comparison, was utterly lucid, and I wonder why it was necessary for Mr. Keller to take such pains to demonstrate a unity which musical masterpieces inevitably possess and which the intelligent listener as inevitably perceives (whether consciously or unconsciously hardly matters)' (1959, pp. 604–5).[12] Andre Mangeot harshly criticised a presentation of functional analysis at Dartington Summer School (presumably of Haydn's String Quartet in D major, Op. 64 No. 5), echoing Drakeford's assessment and writing that 'worse still were the bits of so-called Haydn that Mr. Keller had composed to show us Haydn's "inner thoughts"' (1960, p. 29). Amidst these harsh critiques came defences from a few music analysts: Cooke declared that 'what Keller has done is to solve, once and for all, the awkward problem of music analysis, by inventing a method which reveals a work as the living organism it is, in the simplest and most comprehensive way possible' (1959, p. 456). Arnold Whittall wrote a letter in March 1959 reinforcing the notion that a composer's manipulation of their materials might be a partially or completely unconscious process.

Today, Keller's method of functional analysis is reasonably well-known (particularly in England) and is one of the most famous aspects of his musical output, even if the practice of functional analysis has been mostly relegated to history. Functional analysis is mentioned, for instance, in many of the major introductions to music analysis, from Ian Bent and William Drabkin's *Analysis* to Jonathan Dunsby and Arnold Whittall's *Music Analysis in Theory and Practice* and Nicholas Cook's *A Guide to Musical Analysis*.[13] Since his death in 1985, Keller's work has also been championed by such British musicologists as Christopher Wintle, who administers Keller's *Nachlass*, and Allison Garnham, whose detailed archival study (2003) of Keller's years at the BBC provides insight into the origins and reception of functional analysis, among other aspects of his musical career.

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Table 2 Hans Keller's functional analyses

FA no.	Composer	Piece analyzed	Broadcast(s)/ Performances	Performer(s)	Notes
FA1	Mozart	String Quartet in D Minor, K. 421	BBC3: 7 Sept. 1957, 11 Dec. 1957 NDR: 5 Feb. 1958 ISM: ISM Conference, Stratford-upon-Avon, 31 Dec. 1957	Aeolian String Quartet	Published in *The Score* 22 (Feb. 1958)
FA2	Beethoven	String Quartet in F Minor, Op. 95	BBC3: 2 Mar. 1958 NDR: 5 May 1958	Pro Musica (BBC3) and Hamann (NDR) Quartets	
FA3	Mozart	Piano Concerto in C major, K. 503	BBC3: 7 Dec. 1958	Denis Matthews, piano; Charles Mackerras & the Goldsbrough Orchestra	Described in *Music Review* essays (1956)
FA4	Haydn	String Quartet in D major, Op. 64 No. 5	DSS: August 1958 (repeated August 1959) NDR: Autumn 1959 BBC3: 11 Mar. 1960	Dartington (DSS, BBC3) and Benthien (NDR) Quartets	Commisioned by BBC
FA5	Haydn	String Quartet in F major, Op. 50 No. 5	NDR: recorded 17 Jan, 1959; also broadcast with FA4 in autumn 1959	Benthien Quartet	Commissioned by NDR
FA6	Haydn	String Quartet in E♭ major, Op. 20 No. 1	NDR: recorded 16 Jan. 1959; broadcast date unknown	Hamann Quartet	Commissioned by NDR
FA7	Haydn	String Quartet in D minor, Op. 76 No. 2	NDR: broadcast on 21 Jan. 1959; recording date unknown	Hamann Quartet	Commissioned by NDR

(Continued)

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Table 2 Continued

FA no.	Composer	Piece analyzed	Broadcast(s)/ Performances	Performer(s)	Notes
FA8	Beethoven	Piano Concerto in G major, Op. 58	BBC3: broadcast 6 May 1959; manuscript dated 29 Mar. 1959	Clifford Curzon, piano; Stanley Pope and the London Symphony Orchestra	Dedicated to Clifford Curzon
FA9a	Mozart	Piano Sonata in A minor, K. 310	*[unknown; performed in concert, not on the radio]*	Susan Bradshaw and Susan McGaw, piano	Keller (1960, p. 73) notes that 9b will be the piece for piano quintet; it was never written
FA10	Mozart	Clarinet Quintet in A major, K. 581	*[completed 9 Mar. 1961]* Hampton Music Club, 24 Mar. 1961 BBC: 3 Mar. 1962	Thea King, clarinet; English String Quartet	
FA11	Mozart	String Quartet in F Major, K. 590	1961 Aldeburgh Festival *[28 June–9 July 1961]*	Dartington Quartet	Commissioned by Benjamin Britten
FA12	Britten	String Quartet No. 2 in C major, Op. 36	Radcliffe Festival of British Music, 23 Oct. 1962 *[earlier broadcast possible; Keller (1984) claims that Britten commissioned FA11 after hearing FA12 on the radio]*		
FA13	J. S. Bach	Brandenburg Concerto No. 3 in G major, BWV 1048	Completed 5 May 1963; premiered at 1963 Tilford Bach Festival *[Surrey, May–June]*		
FA14	Mozart	String Quartet in G minor, K. 516	BBC: 4 Nov. 1978		Published in *Music Analysis* 4/i–ii (1985)
FA15	Mozart	Piano Quartet in G minor, K. 478	Manchester University, 10 May 1985	David Fanning, piano; the Lindsay Quartet	Described in 22 May 1985 letter from HK to Misha Donat

Abbreviations: BBC3 = BBC Radio Third Programme; NDR = Norddeutscher Rundfunk (Hamburg); DSS = Dartington Summer School (Devonshire, England); ISM = Incorporated Society of Musicians

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Yet, while Keller often speaks of functional analysis as a coherent project – writing at one point that FA constitutes both 'a body of knowledge which is gradually building up as a result of the method's musical fact-finding' and 'a theory of music which I have developed over the past decade or so' – there is little indication of what that knowledge actually is, nor of the precise methods by which FA exposes it (Keller 1994, p. 122). This is probably due to the fact that Keller's 'musical analyses of music' have been mostly inaccessible – Cook names this specifically as the reason that he omits any details of Keller's method from his book (1987, pp. 91–2). Until 2001 just three of the FAs were available in print, with the rest available only in manuscript form at the Hans Keller Archives in the Music Department at the Cambridge University Library.[14] In 2001 Gerold W. Gruber published a full edition based on Keller's manuscripts and notes, enabling scholars to study Keller's scores in detail, and I believe that they have much to offer to our understanding of twentieth-century tonal theory, and to teach us about Keller and his contemporaries. In this article I begin the work of analysing Keller's functional analyses in order to test his sometimes grandiose claims and lay out more clearly the contours of his theory. Taking Keller at his word, that 'Functional Analysis is to be understood like – indeed as – music' (Keller 1960, p. 76), I will analyse several passages from Keller's first functional analysis as pieces of music in themselves and extrapolate from them the beginnings of an interpretation of Keller's method of functional analysis as a theory of thematic-motivic relationships.

Functional Analysis and Unity: Deciphering Keller's Theory

Keller's descriptions of his own project are somewhat fragmented, scattered throughout the popular and academic press over the course of the late 1950s and early 1960s. Keller spent at least some of his time in the late 1950s developing a comprehensive book about his analytical method, but the text never materialised (see Garnham 2003, pp. 55–6). While his comments on FA are short and frequently cryptic, when read together they begin to circle around a few themes. Keller's project is animated by two central ideas, which are first laid out in one of his earliest major essays (1956b). The first of these is the distinction between the *description* of music (for which Keller had nothing but contempt) and the *analysis* of it; this distinction leads to his quest for a purely musical, non-textual form of criticism. The second central idea is an aesthetic one: the notion that 'a great piece grows from an all-embracing idea' (1956b, pp. 90–1). This latter notion is familiar from many of the twentieth century's structural theories of tonal music, but it finds a unique formulation in Keller's work. He lays out his opinions on analysis and criticism in no uncertain terms:

> What usually goes by the name of analysis [. . .] is nothing of the sort. Most critics have never grasped the essential distinction between analysis and description. Description gives a verbal account of what you hear, and is essentially unnecessary.

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> Can anyone seriously suggest that a music-lover has to be told that a contrasting theme is a contrasting theme? Verbal or symbolic analysis shows, on the other hand, the elements of what you hear. (1956b, pp. 90–1)

By 'description', it seems that Keller means the kind of narratively driven analysis most closely identified with critics like Donald Francis Tovey, whom he repeatedly names as a foil:

> Tautology is the greatest insult to the dignity of human thought. Yet most so-called 'analytical' writings about music, from the humble programme-noter who has absolutely nothing up his record-sleeve to the great Tovey who may or may not have withheld a lot, boil down to mere tautological descriptions. I maintain that if you want to open your mouth or typewriter to enlarge upon music, you must have a special excuse. Mere 'sensitivity', receptivity, and literacy will not do, for it will merely land you in describing the listener's own perception of the music, as distinct from promoting his understanding. [. . .] The descriptive is senseless, the metaphorical usually nonsense. [. . .] Faultless descriptions are Tovey's specialty: his 'analyses' are misnomers, even though there are occasional flashes of profound analytical insight. Otherwise, there is much eminently professional tautology. (1956a, pp. 48–9)

Invoking a common nineteenth-century metaphor, Keller frequently describes the application of analytical labels as mere anatomical dissection.[15] The reference to dissection in the presenter's introduction to 'The Unity of Contrasting Themes' echoes a longer passage from an earlier essay. In 1956 he had written:

> [D]issection is the traditional form of 'analysis' – 'first subject, bridge passage, second subject, closing section', and so forth. This kind of investigation is essentially *anatomical*. My own method, on the other hand, is essentially *physiological*: it attempts to elucidate the *functions* of the living organism that is a musical work of art. Accordingly, I propose to call my method *functional analysis*. (1994, p. 139)

But Keller objects to musical descriptions not only because of an aesthetic commitment to treating musical works as living organisms: in many contexts (including his declaration of the tautology of Tovey's descriptions) he simply believed them to be unnecessary. 'All conceptual thought about music is a detour', he wrote in 1970, 'from music, via words, to music, whereas functional analysis proceeds direct [*sic*] from music via music to music' (Keller 1994, p. 127). He had harsh words for those who purveyed verbal descriptions to their audiences, expressing hope in a 1957 essay that his wordless method will bring about 'the twilight of twaddle' and put descriptive critics out of work (Keller 1994, p. 128). And he declared a year later: '[w]ords about music, more often than not, are the unproductive mind's revenge upon the creator, the conceptual arrest of the right-doer' (Keller 1958c, p. 193).

The other aspect of Keller's thought – his interest in musical unity – is what occasionally sees him grouped with many of the influential figures of twentieth-century theories of musical structure. Keller's 'all-embracing idea'

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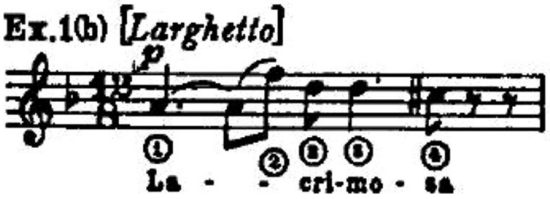
Fig. 1a Mozart, String Quartet in G major, K. 156/i, bars 1–4

Fig. 1b Mozart, 'Lacrimosa' from *Requiem*, K. 626, bar 3



bears at least a passing resemblance to Heinrich Schenker's *Ursatz* ('fundamental structure') and is also closely related to Schoenberg's *Grundgestalt* ('basic idea') and Rudolph Reti's 'motif'. Keller himself names these theorists as three of the four primary influences on his work: Reti, Keller writes, 'exaggerates the melodic aspect' of music analysis (Keller 1956b, p. 93). Schenker, he says, goes the opposite direction by emphasising harmony over melodic and rhythmic features.[16] Schoenberg, cutting a path between the two, gets it just right: Keller declares that both his music and writings are indispensable for any music analyst. Finally, Keller names his former viola teacher Oskar Adler, whose 'uniquely organic and motif-conscious way of playing taught [him] more about the essentials of chamber-musical forms and textures than any analytical teacher could possibly have done' (Keller 1956b, p. 93).

Keller's earliest musical writings give us a sense of what to look for. His chronological account of Mozart's string quartets in 'The Chamber Music' is primarily aimed at performers: he assesses the quartets based on their quality and difficulty, identifies difficulties that individual performers might face (i.e. a challenging cello part or an exposed second violin line) and highlights interpretative issues that may arise. In his introduction, however, he proposes the axiom that will guide his assessments of musical unity, and thus musical quality: 'the looser the manifest integration, the stricter the demonstrable latent unification' (Keller 1956b, p. 97). In this latter aspect of the essay, Keller's interest in connections between and among works is immediately apparent. Dismissing a few early works as mere juvenilia, the consideration of which might hold 'genuine musicological interest' but would 'insult Mozart's genius' (Keller 1956b, p. 95), Keller first turns his attention to the G major Quartet, K. 156 (1772). As shown in Fig. 1a, he begins by highlighting the similarity of the first movement's theme to the melody of the 'Lacrimosa' movement from Mozart's *Requiem* (K. 626, 1791). This lineage, he suggests, should inform the

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Fig. 2 Mozart, String Quartet in G major, K. 156/ii, bar 1: (a) as written, and (b) as recomposed by Keller (1956b, p. 97) to match 1a

performance practice of the earlier work. 'In playing the quartet', he writes, 'it will be good to remember both the theme's latent waltz rhythm, and its "Requiem" version, in order to prevent too reckless a speed and to invest the gaiety of the melody with the kind of flowing gracefulness which, by its very insistence on pure joy, warns us that sadness is around the corner' (Keller 1956b, p. 96).

As Keller continues his analysis of K. 156 with its second movement, he produces his first brief recomposition, re-purposing Mozart's materials in order to illustrate his axiom: that manifest diversity is underlain by latent unity. 'I shall save quite a few technical words', Keller declares, 'if I reshape [the *Adagio* theme] in the metre of [the opening], whereupon its relation to the theme of the opening movement will at once be clear' (Keller 1956b, pp. 97–8). This reshaping is shown in Fig. 2: Keller rewrites the second movement's theme in the metrical style of the first movement's primary theme; or, even more, in the metrical style of a mutual intertext, the much later 'Lacrimosa'. '[They] might be complementary phrases in the same period', Keller writes. 'The principle confronting us here is a forerunner of what I call "the principle of reversed and postponed antecedents and consequents", which I have found to obtain quite often in later Mozart' (1956b, pp. 97–8).

From these examples we can learn a few important details of Keller's approach to tonal music. First of all, he was interested in thematic similarities both among movements of a single work and between different works by the same composer. The latter aspect especially informed his theorising, which posits a kind of Freudian unconscious in which musical ideas are turned around, re-purposed, and reconnected in various ways. Along with his musical background, Keller was an enthusiastic student of psychology, particularly Freudian psychoanalysis.[17] His first professional publication (Keller 1946) was an essay entitled 'Male Psychology', which argued – in a rather progressive manner – against the typical Freudian emphasis on masculine normality and criticised the clinical tendency to pathologise women's experiences. Psychodynamic theories influenced some of his early musical writings as well, such as 'A Slip of Mozart's: Its Analytical Significance' (1956; reprinted in Keller 1994, pp. 139–43), which reads a missing accidental in the manuscript of the overture to *Le nozze di Figaro* as evidence of Mozart's preoccupation with the dominant-key secondary theme. Keller's distinction between the *manifest* diversity of the musical surface and the *latent* unity that underlies it mirrors exactly Freud's identification of 'manifesten und

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latenten Trauminhalt [dream content]' in *The Interpretation of Dreams*, using the clear English cognates found in both of the standard English translations.[18] In order to explain how even painful or frightening dreams can still engage in wish fulfilment (as his previous chapter argued), Freud wrote that the images, emotions and narrative elements of a dream – the manifest content – may be 'distortions' or transformations of hidden – or latent – content. Interpreting the meaning of a dream thus becomes a process of decoding the meanings that are hidden beneath the dream's disjunct or impressionistic surface. In borrowing these terms, Keller casts his theory of musical unity from its very outset (Keller 1956b, p. 91) as a musical version of Freud's therapeutic method: presented with the musical surface, the analyst traces common elements throughout the work, revealing deep, hidden meanings that elude the average listener and were perhaps even inaccessible to the composer.[19] This hidden knowledge, for Keller, underlies the connections between music that would become central to his first wordless functional analysis: both motivic and thematic similarities between movements, and also the compositional tendency for motives or phrases in disconnected movements to complement and complete one another, which Keller attributes to Mozart as 'the principle of reversed and postponed antecedents and consequents' (1956b, p. 98).[20]

The second thing we learn from these examples is Keller's frustration with words. As he writes in *The Mozart Companion*, a single recomposition might do the work of a whole paragraph (1956b, p. 97). That formulation is notably less polemic than many of his later descriptions, from the assertion (quoted above) that all conceptual thought is a 'detour' away from music to his later declarations that music is 'so far [. . .] removed from any pictorial or conceptual thought that it is almost impossible to talk about it without distorting it' (Keller 2013, p. 156), or even that the laws of musical thought are the 'definable opposite' to those of conceptual thought (2013, p. 128). While he never completely abandoned written text, he devoted increasing energy to the development of his analytical compositions throughout the late 1950s and '60s. The kinds of examples used here – the scale degree–based depictions of thematic similarities and other connections among movements and works – help to shed some light on the intentions that he might have had when writing his analytical scores: namely, the identification and development of motivic shapes, in much the same manner as such rough contemporaries as Schoenberg and Reti. And although the format remains rather conventional, Keller would insist in print that these two 1956 essays launched the entire project of functional analysis (1994, p. 126).

Keller's FA1: Mozart's String Quartet in D minor, K.421

Let us now turn to Keller's first functional analysis, written to fill the spaces between movements of Mozart's D minor String Quartet, K. 421. His first

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Table 3 Analytical annotations used in Figs 3–5 and Figs 9 and 10

P	Primary theme
TR	Transition
S_{MAJ}	Secondary theme, major form (exposition)
S_{MIN}	Secondary theme, minor form (recapitulation)
IS	Intermediate step
MINUET (MIN)	Minuet (third movement)
TRIO	Trio (third movement)
FINALE (FIN)	Finale (fourth movement)

Fig. 3 Common tonal trajectories for minor-mode sonatas

Exposition	Recapitulation
i → III	i → I OR i → i

analytical score attempts to demonstrate not only how the different themes within a movement are related to one another, but also how motivic ideas echo across different movements within the same work. In this sense he is frequently working at two different levels, showing how the piece should be heard in a linear fashion, as a series of transformations from one theme to the next, and reminding listeners to keep the whole quartet in mind by periodically exposing themes from different movements, whether they have already been heard or are yet to arrive.

In the analyses that follow, I have annotated Keller's analytical scores with brackets and a series of labels, for which I have given a legend in Table 3. The labels given for the parts of a sonata form are derived from James Hepokoski and Warren Darcy's *Elements of Sonata Theory* (2006, pp. 16–20); other labels and their abbreviations ought to be self-explanatory. I acknowledge that such annotations would be anathema to Keller: the very inadequacy of traditional labels chronological and analytical labels ('first theme' and particularly 'contrasting theme' formed the impetus for wordless functional analysis in the first place).[21] The annotation 'Intermediate Step' (IS) is especially important in this regard, as are the dual labels (such as P/MIN) found in later figures: I have used both in an attempt to convey how Keller frequently rewrites themes into one another through a series of steps, and to demonstrate how such incremental transformations emphasise the motivic features shared among themes.

We will deal first with the disposition of themes within the first movement. One of the principal challenges facing the composer of a minor-mode sonata is how to treat the secondary theme in the recapitulation. As shown in Fig. 3, the most common configuration of themes – the 'first level default' for Hepokoski and Darcy – is a primary theme in the tonic minor, with a secondary theme in major, most often on III.[22] When the recapitulation comes around, the secondary theme

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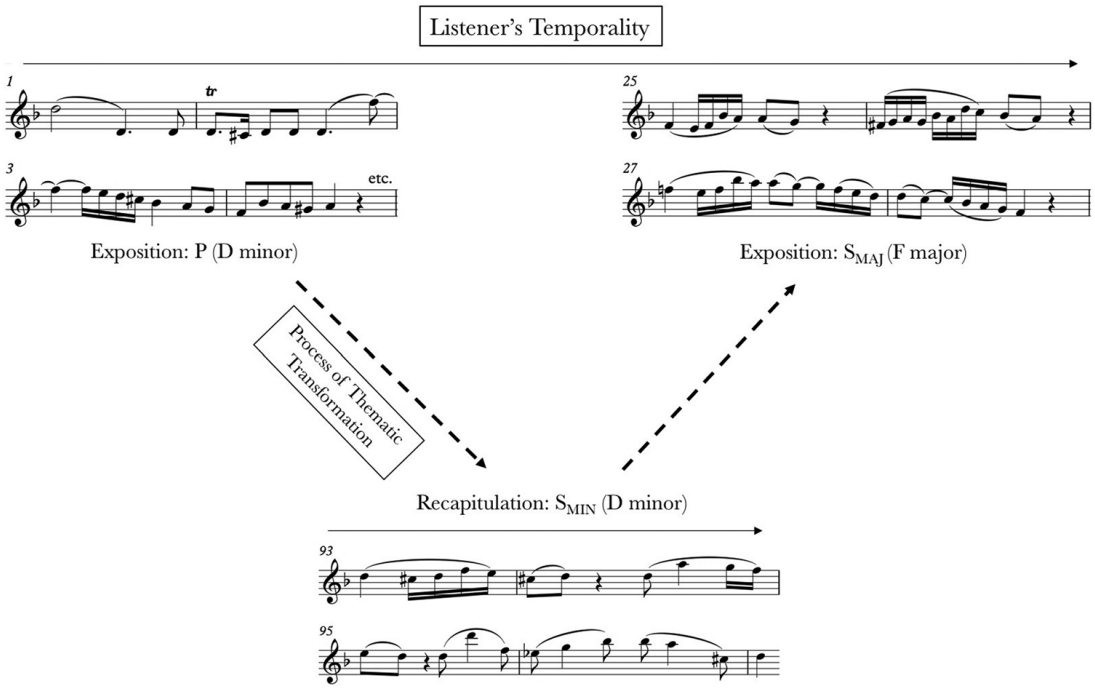
Fig. 4 Themes in Mozart, String Quartet in D minor, K. 421/i



is transposed to the pitch level of the tonic, but the composer faces a decision: whether to rewrite the theme in the parallel minor key or leave it in major.[23]

In the first movement of K. 421, Mozart chose to rewrite the major secondary theme in a minor key for the recapitulation. In fact, he altered it even more than necessary, testing the limits by which it can even be called the same theme. In Keller's hands (see Fig. 4) this recomposition of the exposition's secondary theme – which I have labelled S_{MAJ} – in minor becomes an analytical tool: Keller casts this additional theme (which I have labelled S_{MIN}, for 'secondary theme, minor version') as an equal player alongside the other two. For Keller, the theme is the linchpin in a transformational process by which the primary theme's rhythmic, melodic and harmonic contours are connected to the exposition's S_{MAJ} theme, *by way of* the recap's S_{MIN}. In one of his very few textual explanations of a specific functional analysis, Keller draws attention to this feature, calling it an 'intense if latent retrograde drive in [the movement's] structuralisation':

> [T]he recapitulation of the second subject is not only more closely related to the basic first than *is the exposition of the second*, but also, in many respects, more closely related to the first than to *the exposition of the second itself*. [. . .] [This] is the alpha and omega of the retrograde development in question. [. . .] In the end one wonders whether the static term 'second subject' is not downright misleading so far as the recapitulation is concerned. (1994, p. 148)[24]

In Fig. 4 we see reduced versions of all three first-movement themes. The thick black arrow across the top of the figure indicates the linear progression through

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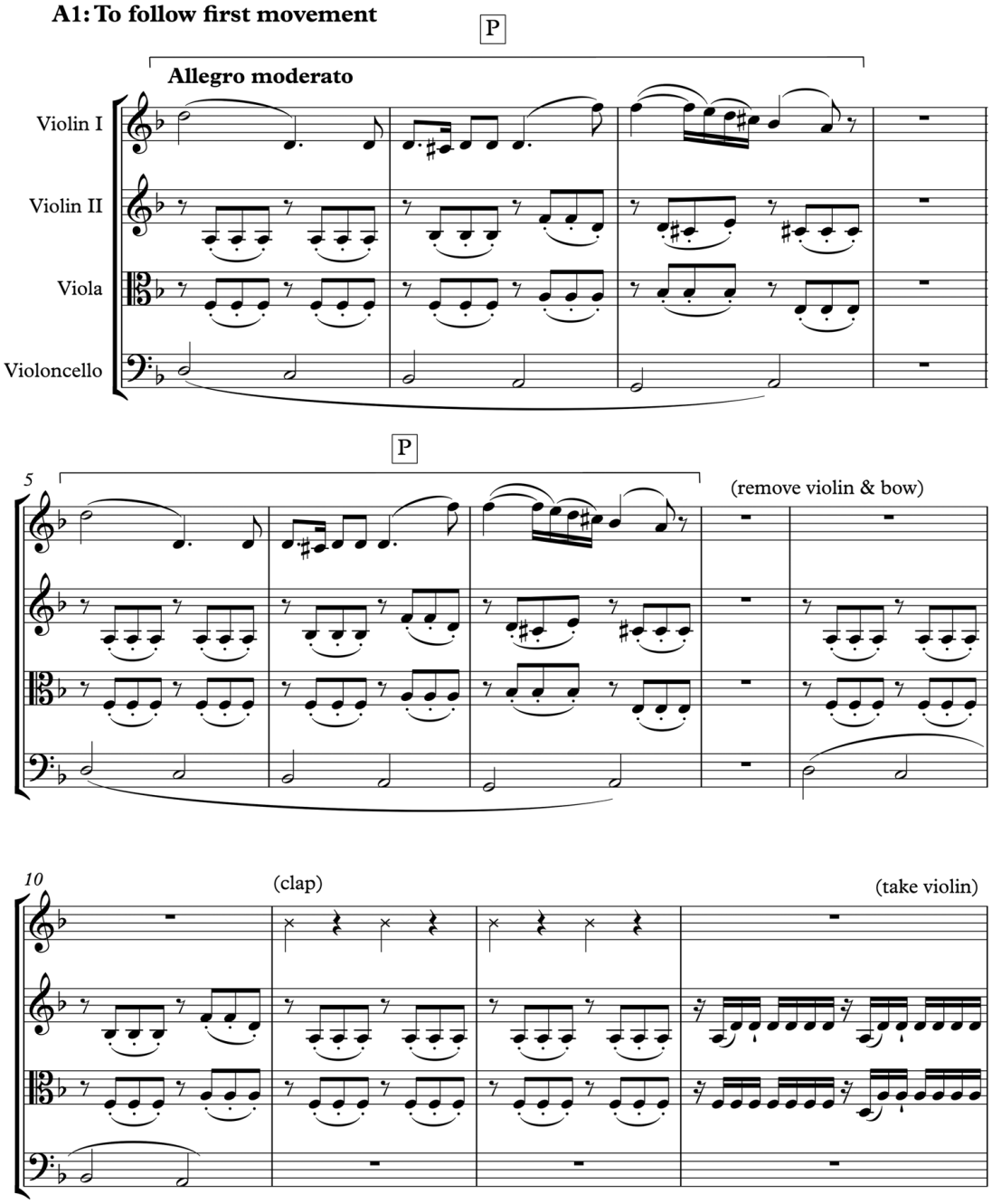
Fig. 5 Keller, functional analysis no. 1 (FA1), bars 1–18 (2001, pp. 11.15)



the piece. But, as we will see, Keller's functional analysis argues that they should perhaps be considered in a different order.

The beginning of Keller's analytical score is reproduced in Fig. 5. Section A1, which is played after the first movement, begins by reproducing the piece's opening phrase almost exactly. Keller omits the final bar of the first phrase, leaving silence in place of the original imperfect cadence and omitting the first

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Fig. 5 *Continued.*

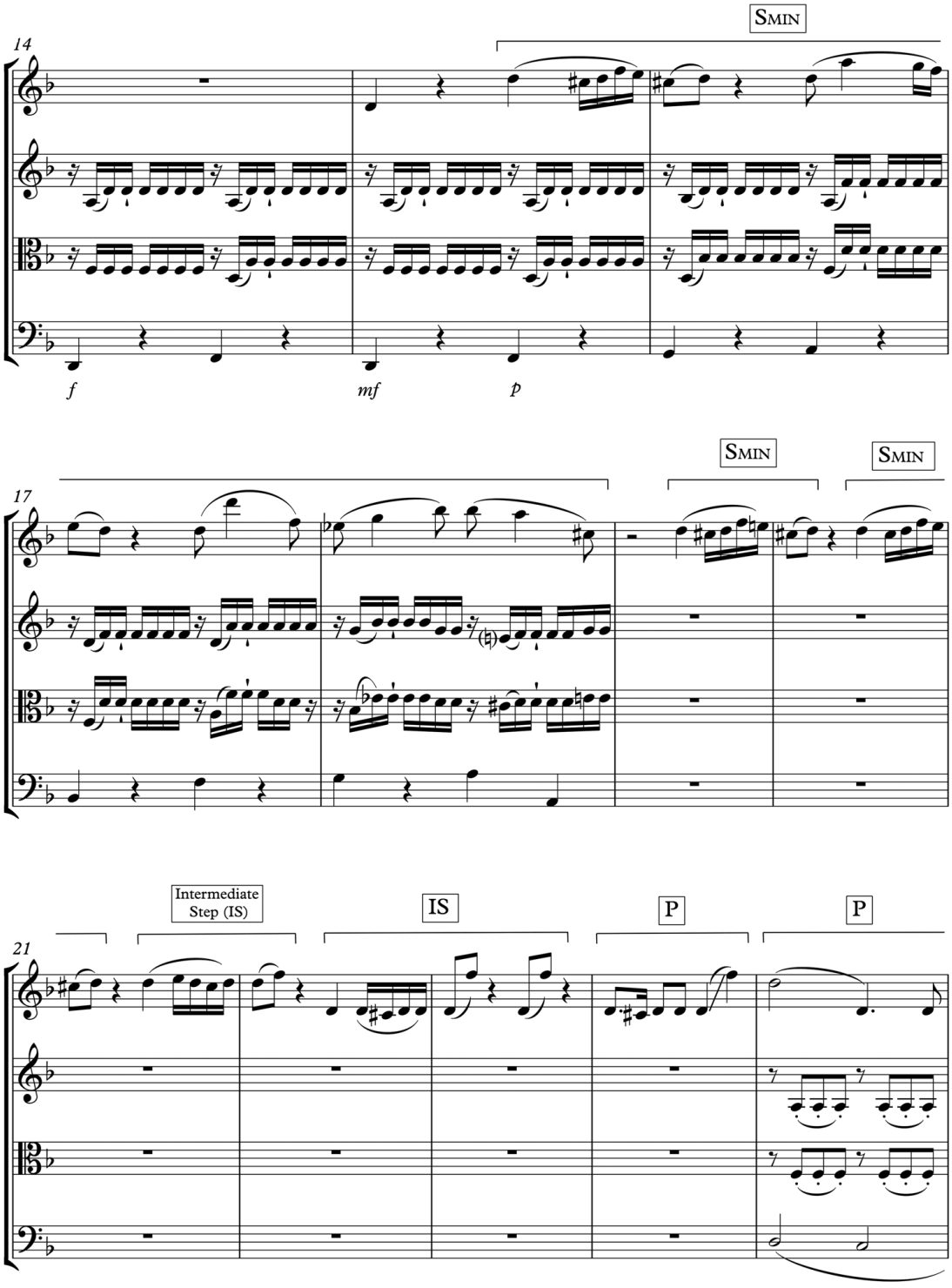

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Fig. 5 *Continued.*

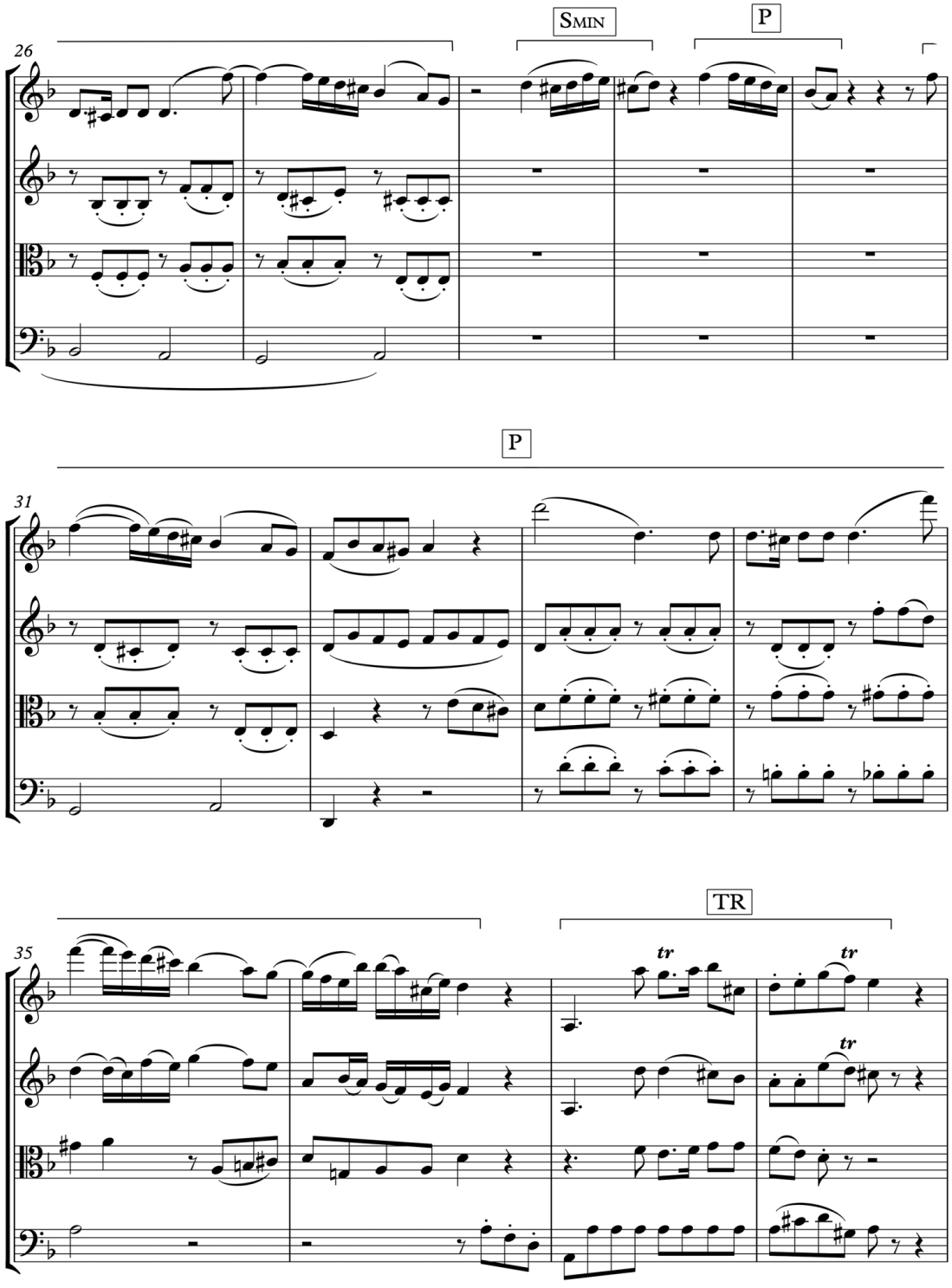

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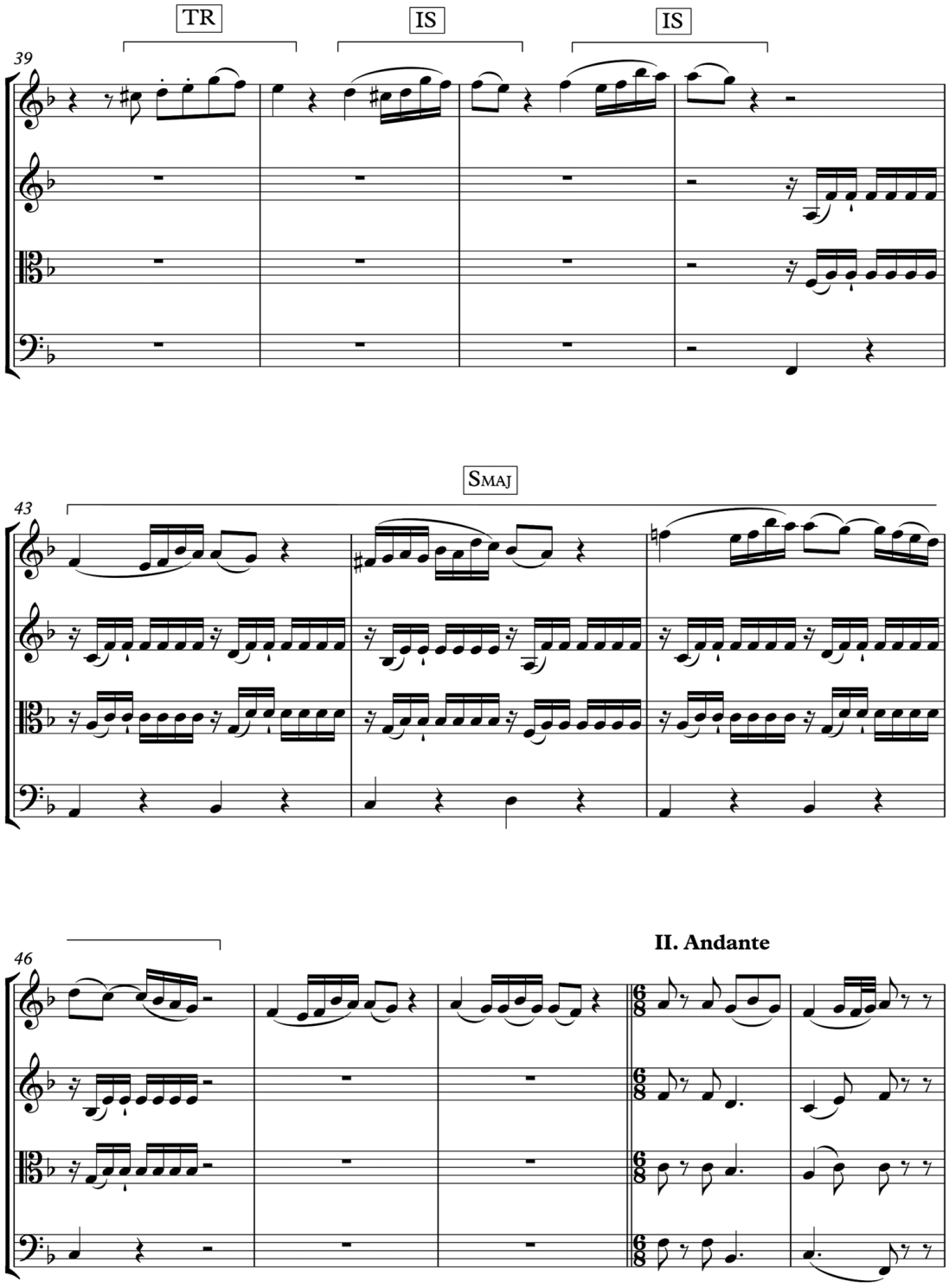
Fig. 5 *Continued.*



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violin's turn figure around A. After this bar of silence, he repeats the three bars we have already heard and again leaves a bar of silence. The first violinist is then instructed to 'remove violin and bow' and begin clapping on the downbeat in bar 11, replacing the cello's bass line as it goes silent and helping to emphasise the off-the-beat rhythm being played by the second violin and viola.

In the absence of anything but a rhythmic accompaniment, we can hear Keller's first transformation: the inner strings switch to semiquavers in bar 13, audibly illustrating the similarity between the guitar-like figure that accompanies the first theme and the more active semiquavers that underpin the second theme. We remain in D minor, however; we are about to hear the version of the secondary theme found in the recapitulation, not the exposition: S_{MIN}, not S_{MAJ}. In bar 14 the claps end, giving way again to the cello. The first violinist must quickly take up the instrument to play this minor version of the secondary theme. After four bars, Keller again leaves us hanging on the dominant, with an incomplete cadential ■ in bar 18.

The sparse texture that follows – in which only one instrument plays – would become a hallmark of Keller's analytical style, appearing again and again throughout the fifteen FAs. In bar 19 he introduces his most characteristic analytical technique: the repetition and gradual transformation of short melodic fragments. Here he breaks down what we have just heard. The violinist plays an identifiable fragment of S_{MAJ}, twice. Then we hear two altered versions of this fragment: the first emphasises the interval from D to F, the second the interplay of D and C♯. This latter fragment then expands the D–F leap from a third to a tenth, repeating again for emphasis. Bar 24 begins to put the pieces together by returning us to the first theme. The version of bar 2 presented in bar 25 is embellished by a *portamento* on the D string: Keller wants us to hear the physical connection between the two registers, as the violinist literally drags D upwards by a minor tenth.

After playing the piece's opening three bars yet again, Keller brings about the final analytical point of this segment: beginning in bar 28, he compares the incipit of S_{MIN} (which we have just heard, unadorned, several times) with the closing figure of the primary theme (bars 33–36). This leads finally to the transition (bars 37–38), the end of which is then compared back to S_{MIN}.[25] These motivic comparisons end in bar 43, in which a descent through scale degrees 3 and 2 sets up F major. The S_{MAJ} theme follows, the end result of a motivic process that Keller believes structures the music's 'background'. Finally we hear the beginning of the second movement (Andante), and Keller instructs the ensemble to continue the piece as written.

From Keller's A1 we learn how he thought of complete movements. Recalling the notion of the composer's unconscious knowledge as latent musical unity, it seems that Keller's goal in functional analysis was to illuminate the composer's background knowledge for us, the listener: to make explicit the implicit. Mozart's 'background', in Keller's psychological sense, is his pre-compositional activity such as planning or sketching; or it is perhaps his synoptic view of all his materials

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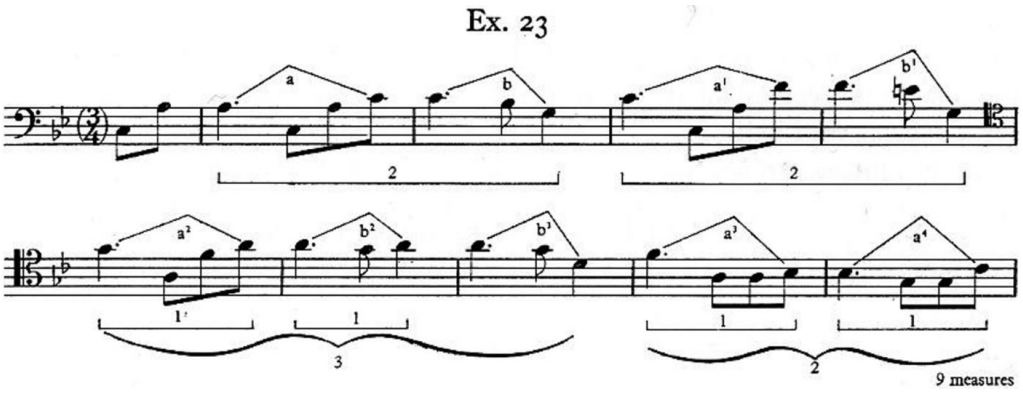
Fig. 6 Schoenberg's motivic analysis of Brahms, String Sextet No. 1 in B♭ major, Op. 18 (Schoenberg [1947] 1950, p. 74)



at once as he is writing the piece. Keller put this idea onto paper on at least one occasion, when recounting Benjamin Britten's enthusiasm for Keller's functional analysis of his Second String Quartet (FA12): 'When I asked [Britten] why he had commissioned me [to write FA11 for the Aldeburgh Festival], he told me that the analysis of his own work contained his pre-compositional thought, partly conscious and partly unconscious, and that so far as he could hear, it had contained nothing else' (Keller 2013, p. 250).

Keller's method thus strives to make that synoptic view of the piece into our, the radio listener's, own background, so that we might use it to interpret the foreground that we hear in a standard performance. By rearranging and stringing together the themes as he does, Keller makes the argument that Mozart conceives of the first movement's themes as a cohesive unity that is progressively elaborated as he writes the piece. He thus attempts to make this nonlinear temporality of Mozart's compositional process (in which P is transformed, through the recapitulation's S_{MAJ}, into S_{MAJ}) into a linear temporality of listening, in order to convince us of his analytical point without using any words.

Motivic Trees, Chains and Networks

Although it is laid out in the completely linear manner of a radio broadcast, Keller's analysis proposes a different kind of temporality than is usually found in motivic or thematic analysis. He tracks the development of musical ideas, but those ideas don't necessarily unfold in the order in which we would normally hear the piece. Keller's analytical recomposition in A1 helps us to jump around the first movement in order to hear its conceptual contours. In the other major example from his FA1, which we will consider shortly, his music leaps among all four movements, forging thematic connections between each.

In other words, Keller presents a somewhat different view of motives than Schoenberg's 'developing variation'. Fig. 6 reproduces Ex. 23 from Schoenberg's

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Fig. 7a Cassirer, analysis of Beethoven, Piano Sonata in F minor (*Appassionata*), Op. 57/i, bars 1–5 (Cassirer 1925, p. 41)

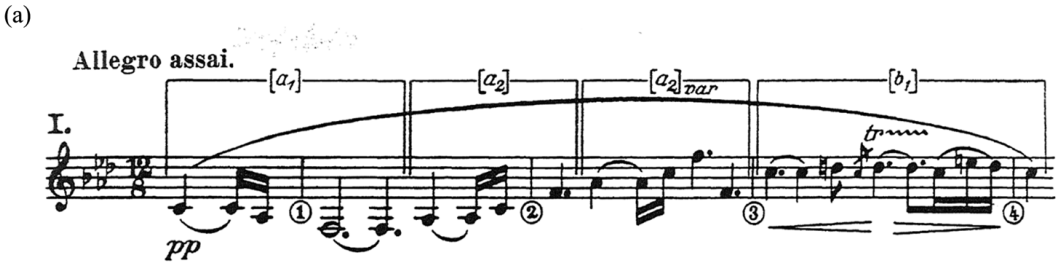
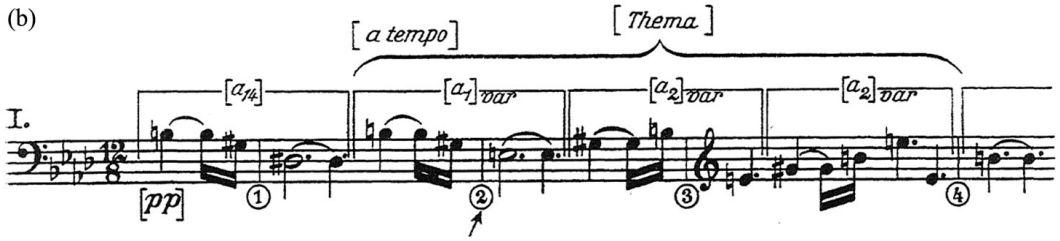


Fig. 7b Cassirer, analysis of Beethoven Op. 57/i, bars 65–69 (Cassirer 1925, p. 47)



essay 'Brahms the Progressive' ([1947] 1950), one of the most famous formulations of the idea.[26] In this analysis of the second theme from Brahms' First String Sextet, There are two motives here, a and b. Each iteration is marked by triangular brackets and an ever-rising number (a, a1, a2, and so forth) marking each motive's successive variation. This all unfolds in a larger argument about the asymmetry of Brahms' phrases, such as this nine-bar excerpt. The music, Schoenberg argues, is structured by the alternation and development of motives a and b, not by a conventional formal function.

We see something similar in an earlier, lesser-known treatise: the analytical method proposed in Fritz Cassirer's *Beethoven und die Gestalt* (1925) in many ways anticipates Schoenberg's approach to motives, and in some ways takes it even further by applying it across movements. Take, for example, Cassirer's (1925, pp. 39–50) analysis of the opening bars of Beethoven's *Appassionata* Sonata, shown in Fig. 7a. Here the musical surface is again saturated by a pair of contrasting motives: the descending minor triad of *a* and the elaborated upper-neighbour motion of *b*.

Cassirer, like Keller and Reti, was interested in showing motivic continuity across movements. He was as economical as possible with his motivic labels. For example, he quite rightly casts this moment from the opening of the development (Fig. 7b), in which Beethoven turns a G♯ minor chord into E major as a variation on the opening bar. Still, by the time we have reached the *Appassionata*'s second movement (Fig. 7c), we are already in the double digits in terms of motivic variations, and the analysis is in danger of becoming phenomenologically opaque. The simple upper-neighbour motion that opens the second movement is easy

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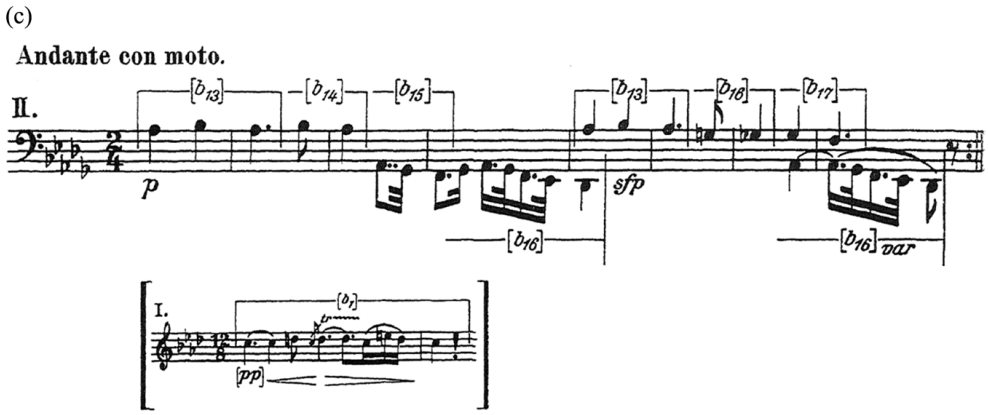
Fig. 7c Cassirer, analysis of Beethoven Op. 57/ii, bars 1–8 (Cassirer 1925, p. 48)



enough to hear, and its relationship to the opening movement's b motive is plausible, but a sceptic might stop to ask: 'How much is our listening experience informed by the knowledge that this is the 13th new variation on upper-neighbour motion that we have heard?'

Keller's functional analysis avoids this problem that bedevils other motivic analyses. Working in the form of analytical scores, Keller uses neither brackets nor labels to make his points. This is fine – the radio audience cannot hear a bracket anyway. The arguments are delivered in a purely auditory form, even though they require the kind of decoding that I am undertaking in this paper. Much as Allan Keiler says of Rameau's fundamental bass, Keller turns music into its own metalanguage: he uses music to make analytical statements about music.[27] In the case of his radio broadcasts, he effectively manages to use real, sounding performance rather than notation, although his scores are the most accessible aspect of his analytical legacy. As he shuttles back and forth and juxtaposes different melodic fragments, we may have the sense that the fragments he isolates – for he does not use a particular word for the objects of his analysis, such as *motive*, *figure*, *Grundgestalt*, or any other cognate – are all connected to one another, though not necessarily in a direct way. In other words, his conception of thematic process, of the latent unity in manifest diversity, ends up unfolding not through reference to singular, originary forms, nor through a successive chain of developing variations, either of which we might apply to the motivic analyses of Schoenberg and Cassirer and which are schematised in Figs 8a and 8b. Instead, his analyses might be productively thought of as representing a network of thematic resemblances, as depicted in Fig. 8c. The primary theme of the first movement appears first, of course, but it seems to assume no sense of primacy, at least as a coherent unit. In keeping with both Keller's methodological outlook and his medium, there are no labels to declare that one fragment or another is motive form a, or b, or a^1, and so forth. And even despite his temporal ordering, his analysis renders audible an entire series of transformations between and among the motive's various appearances throughout the D minor quartet, taking

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Fig. 8a Hierarchical organisation of motive forms

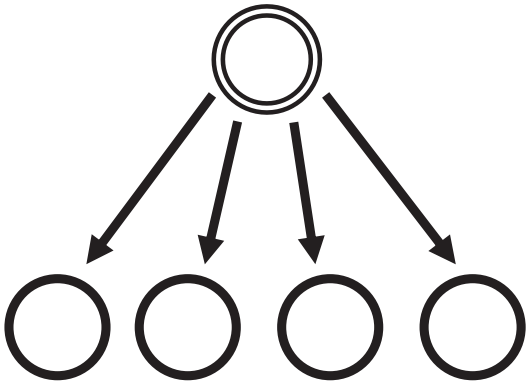


Fig. 8b Linear organisation of motive forms

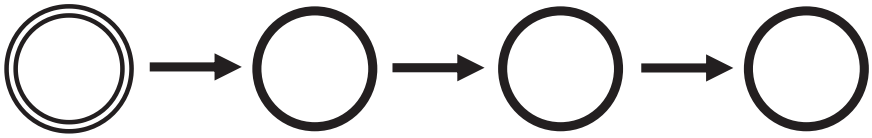
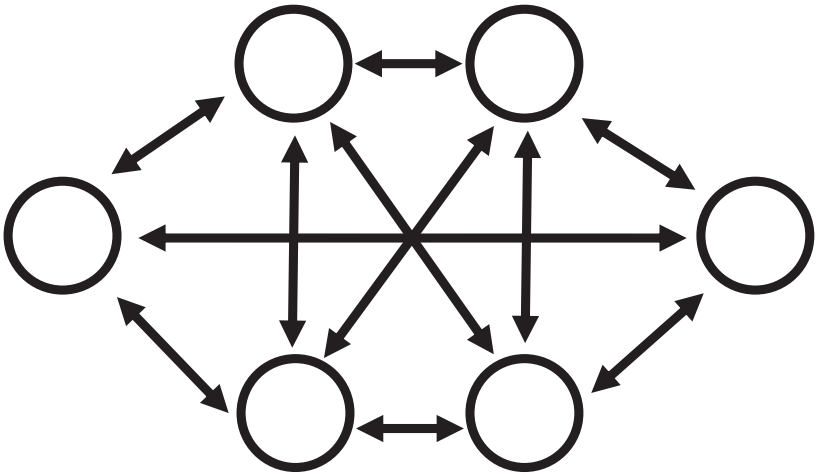


Fig. 8c Network of equal motive forms



care to connect not only adjacent movements, but also motives and themes from different parts of the work.

We can see this in action, for example, in the remarkable sequence that follows the intermission: Keller's A3, the beginning of which is depicted in Fig. 9. The second half of the performance begins with what would have sounded, to the home radio audience, like the third movement all over again. However, when A3 begins, we hear only the opening phrase of the minuet, its A section. Keller then skips ahead, bringing us to the first four bars of the Trio (bars 114–117). Next, he simplifies this gesture rhythmically, using accidentals to transform it from its

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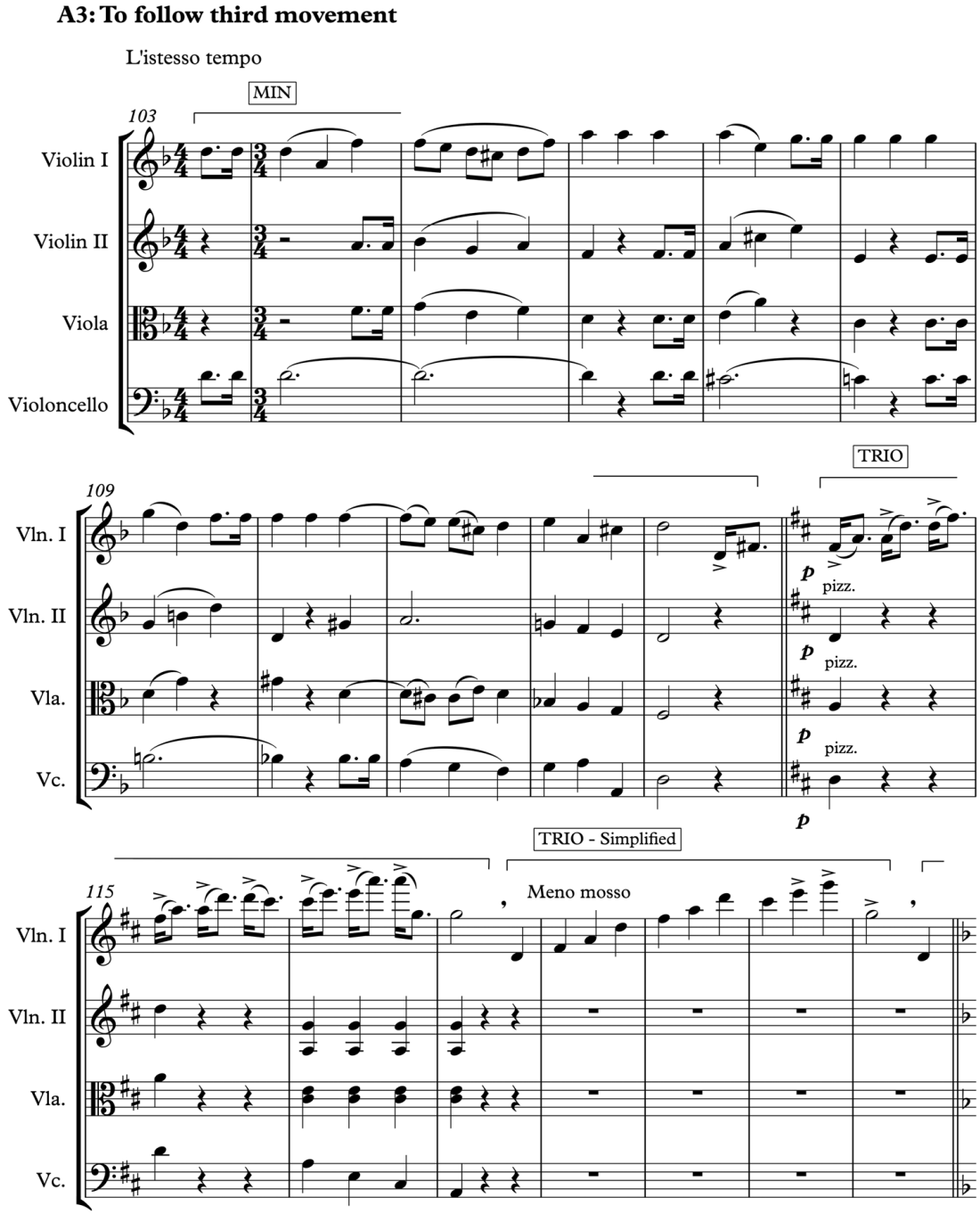
Fig. 9 Keller, FA1, A3, bars 103–161 (2001, pp. 21–4)



sunny, contrasting D major into K. 421's prevailing D minor (bars 118–121) and pausing to compare its contours to the Minuet's A section (bars 133–143). In bar 143 Keller begins to break the theme down, preparing to audibly compare it to the primary theme from the first movement. As will be shown in Fig. 12, he makes this comparison explicit in bars 148–152 by dropping the Minuet's

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Fig. 9 *Continued.*

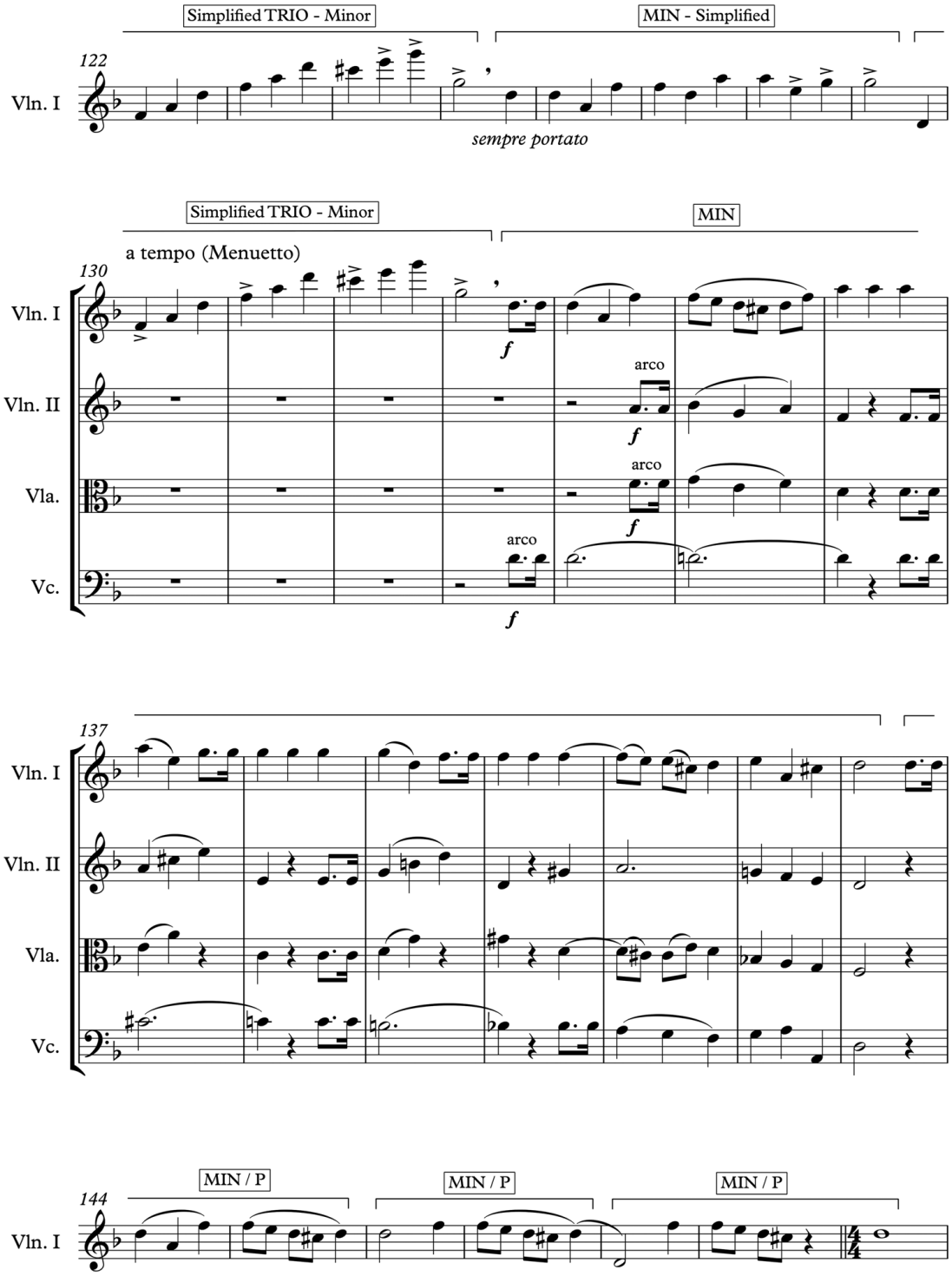

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Fig. 9 *Continued.*

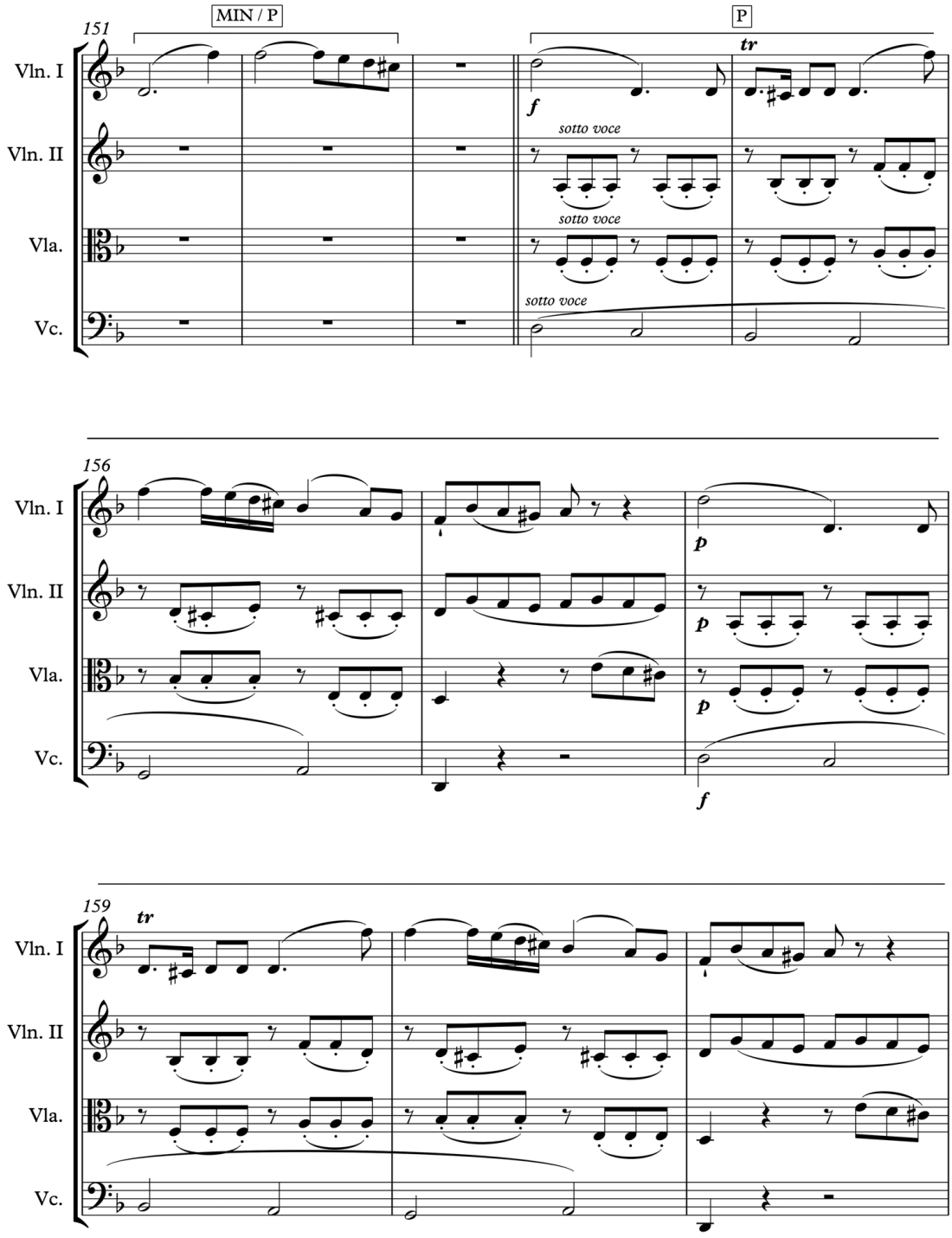

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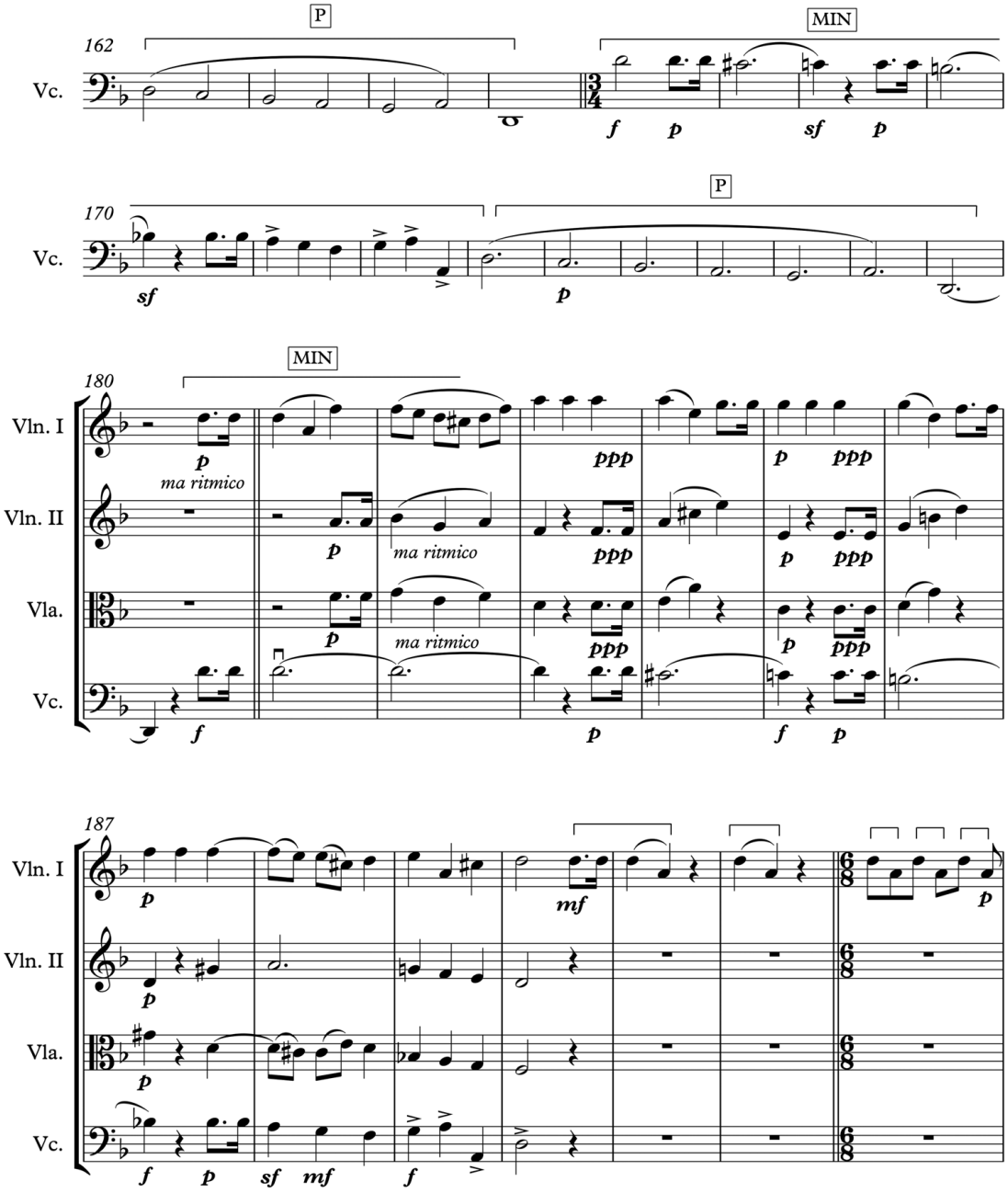
Fig. 10 Keller, FA1, A3, bars 162–231 (2001, pp. 24–8)



first note down an octave, turning MIN's minor third (i.e. D on beat 1 of bar 143 to F on beat 3 of bar 144) into the primary theme's characteristic minor-tenth leap and then isolating the first violin's stepwise descent from F to C♯, an important feature of both the Minuet theme's second full bar (i.e. bar 145 in Fig. 12) and the primary theme's third bar (bar 152). After running through

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Fig. 10 *Continued.*

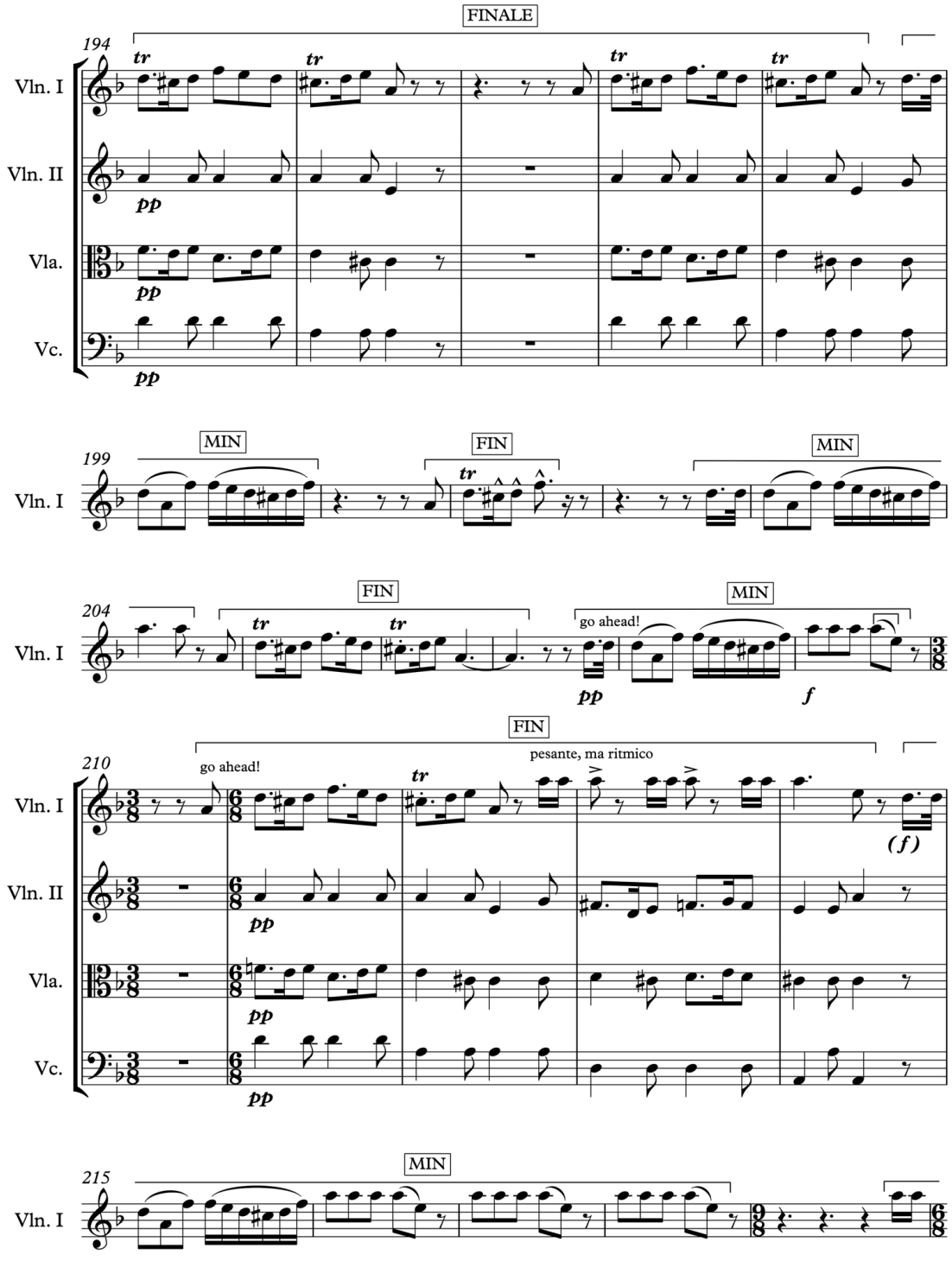

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Fig. 10 *Continued.*

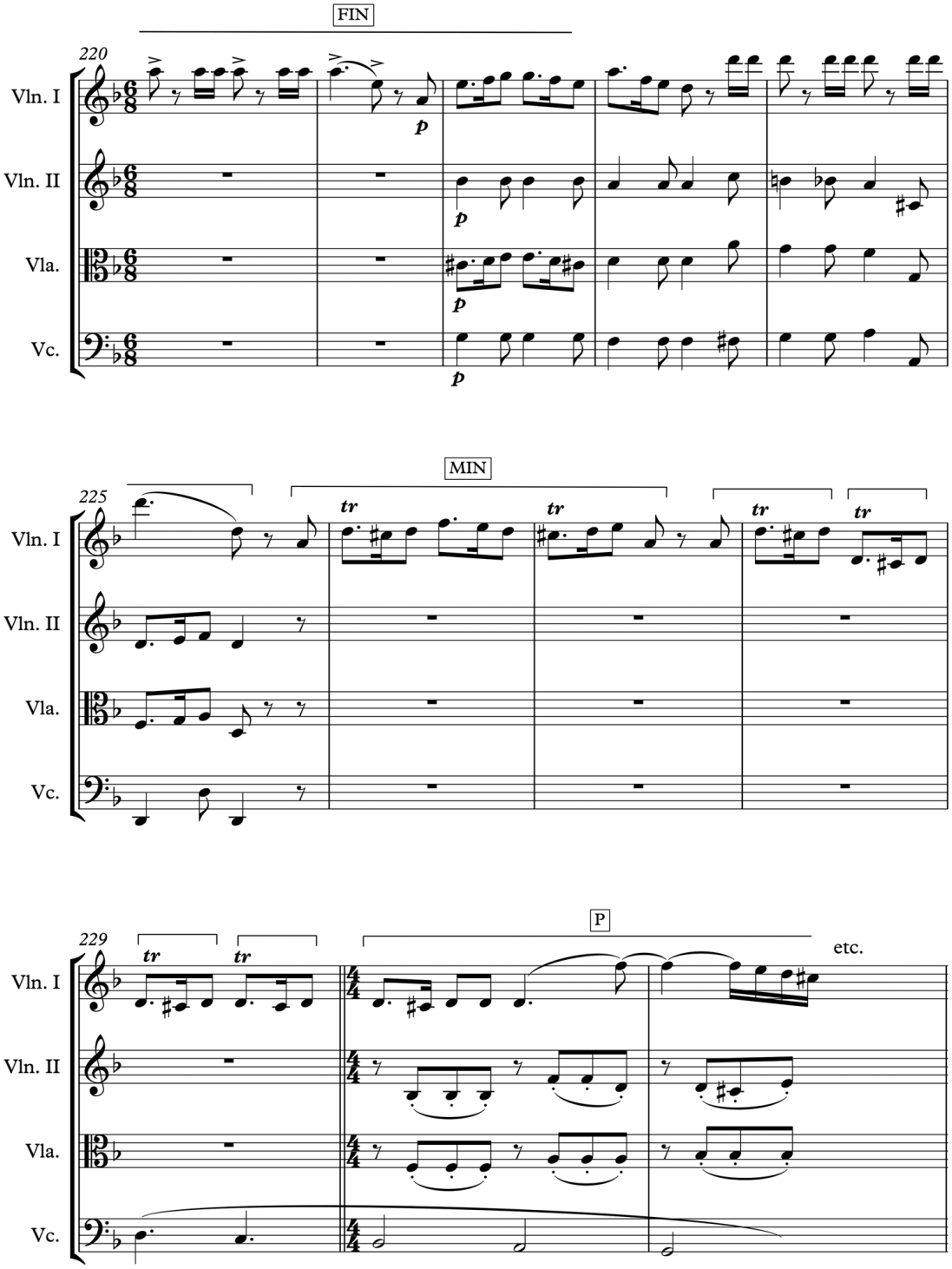

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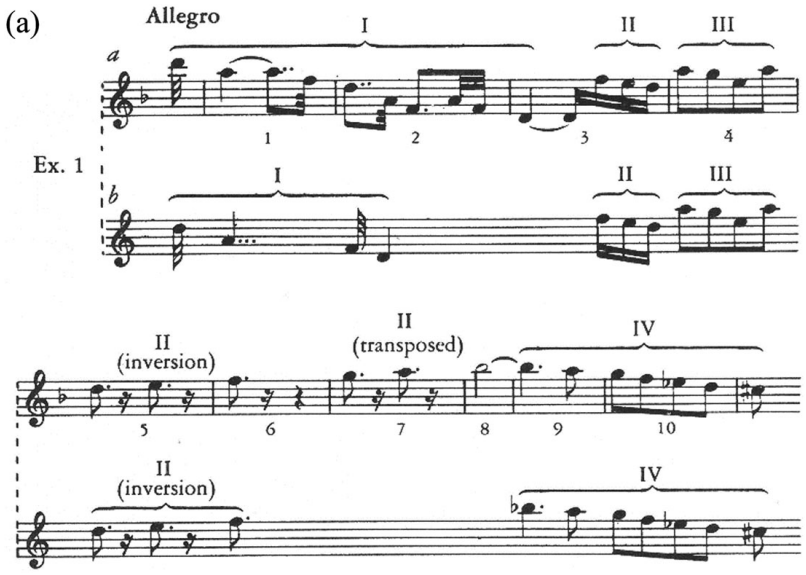
Fig. 11a Reti's motivic analysis of Beethoven, Symphony No. 9 in D minor/i (1951, p. 11)



the primary theme again, he audibly compares the cello lines of the primary theme and the Minuet in bars 162–180. The former is a diatonic lament bass, the latter a chromatic one.

As he approaches bar 194, Keller sets up another connection, this time between the MINUET theme and the FINALE. He alternates progressively shorter fragments from these two figures several times in order to highlight their motivic similarities before finally completing the FINALE's consequent phrase, which begins in bar 222. In bars 226–229 Keller makes his final comparison: he connects the FINALE theme to the PRIMARY theme. Finally, in bar 242 (not shown), Keller gives us a full statement of the FIN theme to close off section A3.

Listening to Abstraction

We can draw another distinction between Keller's method and the main tradition of motivic analysis. Consider the notation of Reti, shown in Fig. 11. These examples are taken from Reti's *Thematic Process in Music* (1951) and represent his analysis of the motivic resemblance among the first three movements of Beethoven's Ninth Symphony.

Reti's idea of thematic process focuses on simple motivic shapes that form a common thread through multiple themes of a single movement, or among movements of a single piece. In his analyses he performs visual abstractions on standard notation using one of two techniques. He uses either a second stave to

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Fig. 11b Reti, analysis of Beethoven, Symphony No. 9/ii (1951, p. 12)

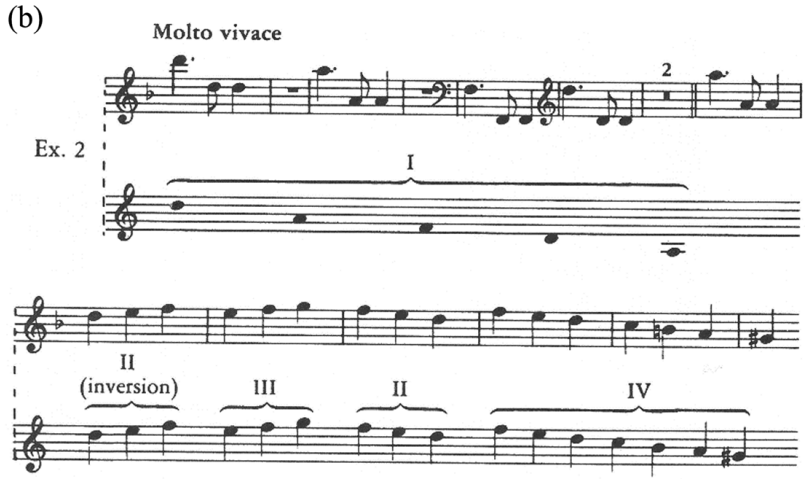
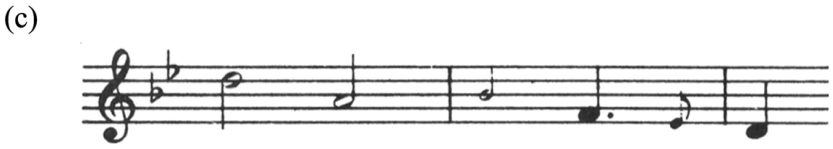


Fig. 11c Reti, analysis of Beethoven, Symphony No. 9/iii (1951, p. 14)



show the notes that form his basic pitch cells (as in the first two movements of the Ninth Symphony, Figs 11a and 11b) or full-sized notes to represent his basic motivic shapes while printing the other notes in a smaller font (as he does with the third movement, in Fig. 11c).

The visuality of Reti's work has drawn frequent criticism, but it is the aspect on which I wish to focus here, as another useful contrast with Keller's work.[28] While the styles of motivic analysis we have seen from Cassirer and Schoenberg highlight surface features, Reti's work uses visual signifiers to point to deeper structures below the musical surface.[29] His basic argument – that connections are forged between movements by means of imitation, variation and transformation – is not so different from Keller's. Indeed, Reti's views on musical unity anticipate those of Keller, who acknowledges this influence. The composer, writes Reti, 'strives toward homogeneity in the inner essence, but at the same time toward variety in the outer appearance. Therefore, he changes the surface but maintains the substance of his shapes' (1951, p. 13). Reti highlights these 'inner essences', or what Keller might term the background, by means of notation. In a sense, he does all of the necessary abstraction for us. Keller, on the other hand, shows no notation to his audience: they only *hear* his analyses. The argument that Keller makes might have been represented in visual notation that would look something like Fig. 12, which identifies the motivic connections that Keller's section A3 highlights. Because this argument is presented in the form of recorded

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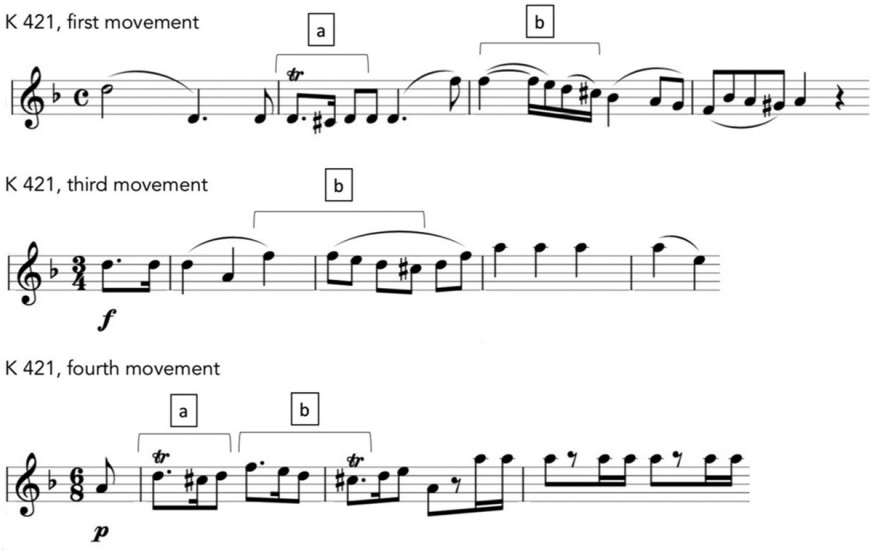
Fig. 12 Prominent motives in Mozart, K. 421/i, ii and iv



music, however, the audience is left to do a great deal of work through active listening. Keller wants to give the home radio listener the synoptic overview – the background, or the latent unity – but he wants to do so by means of the listener's linear temporality, not the composer's spatial one.

Demanding this kind of rigorous engagement was considered entirely appropriate for the BBC's Third Programme in the late 1950s. As Jenny Doctor writes:

> Functional Analysis was particularly suited to the philosophy and identity of the Third Programme. [. . .] A mixed cultural arts programme, the Third nightly presented music, drama, experiments in arts broadcasting and talks, with no hampering of 'fixed points' (such as news or time signals). It was intended for culturally aware audiences who would devote their full attention to listening. (2004, p. 618)[30]

The audible nature of Keller's medium thus shapes the way that his analyses work. As mentioned above, Keller had initially hoped to have the whole program played twice so that listeners could hear the music with the analysis again. Even though his broadcasts were never directly repeated, Keller held out hope that at least the chamber-music recordings might be heard again. Live performances, particularly with orchestras or well-known soloists, he admitted, were those most unlikely to be rebroadcast. Early on he acknowledged in writing that this affected the way that he wrote his FAs for orchestra, such as FA3 and FA8:

> [T]he question of immediate accessibility is indeed at its tensest in the case of an orchestral score. [. . .] The reason is, of course, that an orchestral performance is a costly undertaking, still moreso with a first-rate soloist. From the standpoint of analytic composition, this means that when writing an orchestral score, I must

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> always try to hit the listener as directly as possible, so that, whatever happens to him in the intellectual dimension, his intuitive experience of the analytic music's development remains intense throughout at the first hearing, and without there being any immediate hope of 'another time'. (Keller 1960, p. 75)

Even with an audience of culturally literate and musically engaged listeners, then, it seems that it was frequently not enough merely to play two themes back to back in order to suggest a connection – recall, for instance, that some listeners claimed they were confused by the format, or too tired to follow the thread of the broadcast. Keller was aware of this challenge and attempted to compensate for it by performing minute transformations that are immediately audible – such as the transformation of the Trio theme from major to minor (see again Fig. 9). He also repeats and alternates short fragments a number of times to make sure his listeners can follow. So, while Keller intends for his functional analyses to represent and draw out the 'background' of the piece, as depicted in Fig. 12 (and in much the same way as Reti and Schoenberg expose their readers to deeply buried patterns), he does so almost entirely by means of the foreground or surface of the music. His sometimes repetitive functional analyses thus take on a didactic tone: they are not unlike a teacher explaining the piece to a listener – or, perhaps more democratically, a conversation among friends. 'Listen to this', Keller's analysis seems to say; 'Doesn't it sound like this other thing? Isn't it interesting how they both outline the interval from D to F, then walk down through C ♯ . . . ' and so forth. 'Next, listen to *this*'. . . .

Put another way, Keller's functional analyses work in a similar way to psychoanalytic free association – not only in their repetitive nature, but in their intention as well.[31] Performed as interludes during a continuous broadcast, Keller's FAs seek to expose the music without verbal commentary or formal labels. Such commentary might be taken as analogous to the interpretative interjections that the analyst must suppress, or even the patient's own resistance to analysis, manifested in embarrassment or editing of their own therapeutic monologue.[32] What the patient tells the therapist, Freud wrote,

> must differ in one respect from an ordinary conversation. Ordinarily, you rightly try to keep a connecting thread running through your remarks and you exclude any intrusive ideas that may occur to you and any side-issues, so as not to wander too far from the point. But in this case you must proceed differently. You will notice that as you relate things various thoughts will occur to you which you would like to put aside on the ground of certain criticisms and objections. . . . You must never give into these criticisms, but must say it in spite of them. ([1906] 1958, pp. 134–5)

Conversely, Freud writes that analysts must suppress their own interpretations in favour of creating and developing a close understanding (transference) with their patients.[33] Rather than being given the answers, persons undergoing analysis are meant to arrive at answers themselves, with as little prodding as possible from the therapist. The therapeutic benefits of direct intervention, Freud warns, 'will

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be nil; but the deterring of the patient from analysis will be final' ([1906] 1958, p. 140).

We might thus read Keller's analytical method as a way of imitating the therapeutic process, and not merely the theoretical underpinnings, of Freudian psychoanalysis, a topic which fascinated him throughout his life. Through his manner of presentation – a barely differentiated stream of music that blurs the auditory boundaries between the work and its interpretation – he intended his radio broadcast listeners to arrive at structural conclusions on their own. FA1 unfolds like a freely associative therapeutic monologue, unfettered either by the compositional superego (in the form of conventional formal and temporal divisions) or by the verbal critical interventions that he so disdained.[34] The medium of performance – whether via radio as with the early FAs, or at a concert or festival as in later ones – is therefore crucial to Keller's presentation of a latent musical background, and it helps to contextualise his frequent characterisations of functional analysis as a method. It is not merely a method of analysis carried out by him (for it would seem to have no other adherents, save for brief experiments such as Cooke 1959 and, decades later, Lefkowitz 1999a and 1999b); rather, it is a method for teaching someone how to listen. Just as Freudian patients are taught to work through their own life experiences in order to identify, contextualise and conquer their neuroses, so too are Keller's listeners meant to learn how to listen for and how to connect the structural and thematic elements that make up his understanding of musical masterworks. Although he offers us a model of developing variation that is different from such established practices as Schoenberg's or Reti's, it is a model that – in its audible, temporal mode of presentation – shows us directly *how* developing variation works, exemplifies the kinds of details that make it audible and highlights the connections within and among movements that must be forged by the listener in order for it to be meaningful.

Keller's chosen medium might also give us pause, however, before declaring his experiment a success. The *Music Review* reader John Boulton, quoted in brief near the beginning of this essay, offers several cogent points from which to begin an assessment of an analytical radio broadcast:

> I wonder who precisely [Keller] is aiming to reach. [. . .] His style and his ranging erudition do not, I believe, make him easily approachable by those who must yet learn to begin to listen. (Here he is already certainly on the right track in aiming to work wordlessly.) But what of those who already believe they listen to music with pleasure and responsiveness and who do so without the benefit of modern analysis? I am thinking of concert- and opera-goers who can sometimes be seen to be deeply moved by what they hear; who are capable of tears whilst listening, who admit to a tickling of the scalp, to 'walking on air', to a nervous agitation or to a feeling of repose, according to the kind of music that is reaching them. What can we analysts tell them that matters? (1957, p. 342)

Boulton's description of listeners who are 'deeply moved' by what they hear, who are 'capable of tears [. . .] a tickling of the scalp [. . .] nervous agitation', is

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strikingly close to the figure of the naïve listener identified by Keller's sometime foil Donald Francis Tovey. Such a figure 'has no specific musical training, only a willing ear and a ready sensibility' (Kerman 1975–6, p. 796). Tovey's writings employ the figure of the naïve listener as a rhetorical device, signalling the well-educated but analytically inexperienced reader that Tovey imagined for himself.[35]

Although Keller often criticised Tovey's writings for their focus on 'tautological' descriptions rather than penetrating analyses, the two critics were sometimes in sympathy. Both of them were concerned with music as a temporal phenomenon, unfolding in time in order to develop from a 'unified', 'latent' background (Keller) or to enact a process in time (Tovey). As Tovey wrote:

> The first condition for a correct analysis of any piece of music is that the composition must be regarded as a process in time. There is no such thing as a simultaneous musical *coup d'œil*; not even though Mozart is believed to have said that he imagined music in that way. Some students begin their analysis of a sonata by glancing through it to see 'where the Second Subject comes' and where other less unfortunately named sections begin. This is evidently not the way to read a story. The listener has no business even to know that there is such a thing as a 'Second Subject' until he hears it. (1976, p. 1)

Tovey and Keller also shared a distaste for conventional musical labels and forms. Tovey wrote:

> Music, which often combines the symmetry of architecture with the emotional range of drama, has the misfortune to be accurately describable only in technical terms peculiar to itself. [. . .] After a series of good musical illustrations has been digested, verbal analogies from perspective, colour, values, and any other visual facts may become useful. But this is because the naïve listener already possesses the right musical sensations. These are as direct as the colours of the sunset or the tastes of a dinner. Connoisseurship comes from experience, not from verbal explanations. [. . .] Since, then, the accurate description of any piece of music is inevitably technical, it follows that a great length of such description goes but a short way. (1964, pp. 271–2)

While Keller would have disagreed vehemently with Tovey's solution as expressed in this paragraph, he would have agreed with Tovey on the inadequacies of technical language. Tovey, in turn, might have been intrigued by Keller's premise, had he lived to hear it, though he would have disapproved of FA's focus on organicism and thematic/motivic content, preferring instead a conception that rested on modular construction by phrases and proportions.[36]

In his own way, Keller himself embraces the ideal of naivety not only in the intended listeners to his functional analyses but also in his own (re)compositions:

> My method is essentially naïve, [. . .] though I think I have worked out for myself a firm theoretical foundation; its formulation, however, would fill my entire space, and must therefore be reserved for a later occasion. By 'naïve' I mean that I listen inwardly to contrasts until their unity emerges, and without any theoretical preconceptions. Usually, since I know all these works very well,

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> my self-analytic reaction is immediate, and in formulation amounts to no more than a rationalization of spontaneous emotions, sifted, to be sure, by my technical knowledge. (Keller 1956b, p. 92)

Keller locates naivety of yet a different kind in the artistic outlook of FA's most prominent endorser: Benjamin Britten. As mentioned above, Britten's response to Keller's functional analysis (of his music and of Mozart's) was enthusiastic. Keller took Britten's enjoyment of FA as a sign of his 'naïve' character as an artist: naivety not in the sense of Tovey's listener, but in that of the famous distinction made by Friedrich Schiller in his 1795 essay 'On Naïve and Sentimental Poetry'.

> I watched [Britten's] face when my Mozart analysis [FA12] was performed at Aldeburgh, and saw from his multiple grins, often two or three per second, that he got every single point. [. . .] Britten's successive quick grins when listening to such an analysis were indistinguishable from his facial reactions to a development section he liked: the 'naïve' artist loves watching the search he doesn't need, whether the searcher is a seeker (composer) or a researcher (analyst). (Keller 2013, p. 250)

This anecdote complements an early declaration of Keller's: 'I shall not often mention development sections', he wrote in one of his 1956 essays, 'because usually the working-out brings the latent background to the fore anyway. A development tends to contain its own analysis, expressed in musical terms' (1956b, p. 92).

Schiller's naïve artist, as Keller's interpretation goes, 'is in tune with nature, expressing it, its laws, its truths spontaneously – the mouthpiece, as it were, of physical, metaphysical, and psychological truth' (Keller 2003, p. 155). For Keller, both Britten and Mozart exemplified artistic naivety, and the endorsement of the prominent English composer seems to have given him the confidence that his method was well suited to understanding the music of his most famous countryman. The metaphor of a sonata form's most mercurial segment, the development section, signified the activities of a playful, effortless, naïve composer who delights in fast-paced transformation among a variety of pre-compositional shapes. And because the naïve artistic character is also suspicious of words about music (Keller 2013, pp. 159–60), their effortless mode of listening should be made available to the layman, stripped of technical labels and turgid prose. To Keller the trickster and polemicist, it must have been all the more satisfying that academic analysts – the very apotheosis of *sentimentalische* pedantry, perpetually striving 'in search of lost nature' – seemed unwilling or unable to experience music in this way (Keller 2013, p. 155).[37] As Cooke put it, 'Keller overestimates [professional musicians'] ability to *hear* unifying elements in music, without having them very clearly explained in technical terms or in music-type; in attempting to get at the layman by dispensing with all technicalities, he has deprived himself of the only means of convincing the professional musician – words and printed music examples' (1959, p. 456).

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It is thus in the formulation of Keller's intended listener that contradictions emerge. Functional analysis is meant to be accessible to those without musical training, and yet Keller enforces minimum standards for musical acumen, potentially excluding those who, as Boulton puts it, 'must yet learn to begin to listen' (Boulton 1957, p. 392). For instance, reacting to the colourful metaphors of Cuthbert Girdlestone – who describes the 'slow stateliness' and 'hastening' of the 'succession of majestic chords' that opens Mozart's Piano Concerto in C major, K. 503 – Keller writes:

> If you are so deaf that you don't hear that these C major chords [. . .] 'hasten' in the third bar [. . .] I don't see that you will profit much by Girdlestone's assertion that they do so. And if you believe his metaphor that the chords 'draw near you', 'descending from realms above', you are so utterly stupid harmonically that, frankly, you aren't worth bothering about. (1956a, p. 48)

Couched in Keller's harsh terms, to be sure, is an indictment of flowery language more than of the listener's acumen: metaphors, for Keller, are unlikely to remedy a novice listener's inexperience or undeveloped musicality. Yet Keller is often unclear about whether language and labels are to be avoided because they distract a naïve listener or because they are redundant for a serious musician. This emerges, for example, in the passage from 'Knowing Things Backwards' that deals with FA1:

> Listeners to my wordless functional analysis of [K. 421] may have noticed that in regard to the first movement, my analytic score proceeded from the first subject straight to the *recapitulation* of the second, thence back to the first and only finally to the *exposition* of the second. If they noticed this course of events I am glad; if they didn't I'm even gladder. For that would mean that they spontaneously accepted my composing the analytic structure backwards, from the recapitulation to the exposition. (Keller 1994, p. 148)

Here Keller encapsulates his greatest hope for functional analysis: that in bypassing language, his work could also bypass conscious thought and perception and speak directly to its listeners: a fantasy steeped in a Freudian model of psychoanalytic listening.

But although Keller hoped that the musical twists of his analytical recompositions would be accepted without resistance, he also assumed that his listeners would have at least an implicit, if not formally theoretical, knowledge of Classical music: 'Can anyone seriously suggest that a music-lover has to be told that a contrasting theme is a contrasting theme?' (Keller 1956b, p. 90). The response of the BBC Third Programme audience embodies this contradiction: most audience members reported enjoying the music, even if they weren't able to tell what was going on (Garnham 2003, p. 38). The broadcast might thus have been reasonably successful as music, even if its theoretical argument was not always clearly conveyed. And regardless of the ability of a Toveyan 'naïve listener' to follow and enjoy a piece of music without access to a whole vocabulary

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of theoretical terms, it seems very unlikely that a listener hearing Mozart's D minor String Quartet for the first time would be able to follow the broadcast as Keller intended. Either the familiarity with a given piece that allowed Keller to detect the unity between contrasting themes 'immediately' or the sharply honed musical instincts that produced Britten's multiple grins would seem necessary in order to decipher his broadcasts. Without an existing knowledge of the piece, any aural signifiers to separate the original work from Keller's analytical interludes (recall that both portions were performed by the same musicians) or any verbal narration, it seems that an amateur would have little hope of following the thread of Keller's musical argument. And although Keller's listener, like Tovey's naïve listener, is meant to experience the music vividly and without overt critical intervention, he or she is not meant to perceive image, narrative or emotion, but rather the very same academic principles of thematic-motivic variation that are of interest to professional analysts – a tall order for a listener who has never had a formal introduction to those concepts.

It is thus difficult to declare FA a success, given the apparent barriers to comprehension faced by its early BBC audiences, the critiques that followed its early years (from musicians and critics alike) and the method's relative obscurity among the tools of late twentieth and early twenty-first-century music analysis. There is also the problem of density: FA is challenging not least because its audible insights, even when grasped quickly by some listeners, are often cumbersome to summarise by other means. The very same phenomenological richness and immediacy which we often love in music, and which gives functional analysis its great potential, is its greatest liability when the time comes to combine it with other approaches or distil it into more readily acceptable academic forms. Even so, in trying to assess the method anew and from a generous distance, Keller's approach might still have wisdom to offer to contemporary music theorists, as both a point of historical reference, a model for enthusiastic and adventurous research in an otherwise emotionally restrained field, and a cautionary tale about the pitfalls of methodological purity.

One aspect of music analysis for which Keller's work might be especially relevant is music theory for a wider audience. Keller's broadcasts are an early example of this practice, a topic that has received a great deal of scholarly attention in recent years as musicologists and analysts have shown increasing interest in reaching out to the general public.[38] Keller's example of a purely musical form of discourse, which avoids engaging in disciplinary debates and eschews technical terminology, might inspire us to invent new ways of doing analysis that would be more accessible to audiences not already well-versed in music theory. His ideas might also be useful for the analysis of non-notated music, such as pop music or folk traditions. As Timothy Warner (2009, p. 138) has recently pointed out, Keller's functional analyses operate on principles not unlike those used by DJs when they identify songs that can be smoothly bridged by musical transitions, or by mashup artists who identify and highlight common features of two different recordings. An increased emphasis on addressing a

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broader public, then, might bring a new suite of tools for doing so. As technology develops and music scholars take increasing advantage of recordings, graphics and interactivity, the nonverbal techniques used by Keller take on new relevance. Keller's analytical scores provide a wealth of models for audible illustration. Thinking about ways in which we can follow his lead (without necessarily adopting every aspect of his project) in order to turn the kinds of music-theoretical insights that are often expressed through complex and specialised visual diagrams into insights than can be clearly heard by someone who has never seen an *Ursatz* or a transformational network will sharpen our theorising of all repertoires and help music analysis continue to develop and thrive in the twenty-first century.

NOTES

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1. Keller's primary writings on functional analysis appeared in a variety of venues in the 1950s and '60s. Many have been anthologised in Keller (1994), which is cited when possible.
2. Letter from Hans Keller to Roger Fiske, 28 April 1956, reproduced in Garnham (2003), pp. 32–3.
3. For biographical information on Keller, see Wintle (1986) and Garnham (2011).
4. Letter from Hans Keller to Roger Fiske, 5 October 1956, reproduced in Garnham (2003), p. 34.
5. In a letter to *The Musical Times*, Tilmouth quipped that 'Mr. Keller will go down in history as the first to persuade the B.B.C. to put out three minutes of *silence* as part of a musical broadcast' (1959, p. 91).
6. Typescript from the Hans Keller Archive: Radio Scripts, Ex. 4/1, Cambridge University Library. I am very grateful to Susi Woodhouse for a transcription of the radio script.
7. Keller originally proposed that a pianist should play his analytical interludes in between the movements of a string quartet recording, and a later plan was set to use a live quartet in conjunction with a record. Fiske had initially wanted to ensure a timbral difference between Mozart's original and Keller's analysis, though he later offered to have the Aeolian Quartet play the entire programme; Keller jumped at the chance. See Garnham (2003),

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pp. 36–7. As for the time of the broadcast, it was reported in BBC Written Archive Centre document 'R9/6/69 Audience Research' (reproduced in Garnham 2003, p. 38) that '[s]everal [listeners] wished they had armed themselves with a score, or that the programme had been timed earlier, as they found themselves "unable to make the necessary effort for sustained concentration" so late in the evening'.

8. The reception of FA 1 is chronicled in greater detail in Garnham (2003), pp. 38–42.

9. Letter from Hans Keller to Geoffrey Sharp, 30 June 1957, quoted in Garnham (2003), p. 38.

10. Table 2 is compiled from Keller (1960), Atcherson (1986) Keller (2001) and documents in the Hans Keller Archive at Cambridge University Library. I am grateful to Susi Woodhouse for passing along relevant information from the archive.

11. See the 'Letters to the Editor' section of the February 1959, March 1959, November 1959, January 1960, February 1960, March 1960 and April 1960 issues of *The Musical Times*. Cooke's essay was published as a stand-alone piece in March 1959.

12. It is not clear which analysis Drakeford heard; he mentions a piano sonata in his November 1959 letter, but Keller's first sonata analysis (of Mozart's Sonata in A minor, K. 310) did not appear until 1960. It is possible that the letter refers instead to FA 3 (December 1958), which dealt with Mozart's Piano Concerto in C major, K. 503.

13. See Bent and Drabkin (1987), pp. 57–61 and 85–8; Dunsby and Whittall (1988), pp. 89–91 and Cook (1987), pp. 91–2 and 221–3.

14. FA 1 was published in the music magazine *The Score* (Keller 1958a); FA 14 appeared as Keller (1985). After Keller's death, FA 9a was printed in Keller (1994), pp. 129–38.

15. On the legacy of organicist thought in music theory and analysis, see, *inter alia*, Solie (1980) and Chua (1999), pp. 199–208.

16. In his remembrance of Keller, Babbitt argues that '[Keller's] coupling of Reti and Schenker in his writings' actually weakened the argument for functional analysis: 'the Schenker he appeared to know and value was the Schenker of "diminutions" at the foreground level or of context-free communalities rather than the richer Schenker which Hans should have savoured as often revealing the more embracing, singular bases of structured musical individuation through parallelism of processes at a subsuming succession of temporal and structural levels'. See Babbitt et al. (1985), p. 376.

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17. Many of Keller's drafts, fragments and early articles on the topic are collected in Keller (2003). In his preface to the volume, Wintle, the editor, credits Keller with introducing psychology into British musical criticism and emphasizes the importance of Keller's studies on 'English culture, German philosophy, Stalin, Zionism, and sexuality', among other topics, to the unified worldview that produced his distinctive theory of music; see Keller (2001), p. xi.

18. Keller, who hailed from Vienna, would have been familiar with the original German terms. See Freud (1906) or its English translations: Freud ([1906] 1913), p. 114 and Freud ([1906] 1953), p. 148.

19. Keller boasts, for example, that his functional analysis of Britten's Second String Quartet successfully taught the composer – a friend of Keller's – something about his own compositional process: 'When Benjamin Britten heard my FA of his second string quartet', Keller writes, 'he immediately commissioned an FA of a Mozart quartet for a performance at his Aldeburgh Festival. When I asked him what had made him so enthusiastic about my method, he replied that it was the only type of music analysis that interested him, because it confined itself to the composer's own pre-compositional thought, partly conscious, partly unconscious. He had thus learnt a lot about himself from my FA of his Second Quartet' (1985, p. 73). Keller's articles on Britten's music, as well as his correspondence with the composer, are collected in Keller (2013). In the preface (pp. ix–xx) and an extensive running commentary on the correspondence (pp. 225–316), Wintle sketches the friendship between the two men. In an early footnote, Wintle shares an anecdote similar to the above from his private correspondence with Keller, who wrote to him in 1984 that 'it was, of course, a great satisfaction when Britten went into considerable, specific detail about every single point I had made in my analysis; he remembered them all' (2013, p. 17n).

20. The identification of musical surface and depth is yet another point of contact between Keller's ideas and those of Heinrich Schenker. Schenker's contributions to music theory have often been compared to Freud's paradigm-shifting contributions to psychology. As Forte (1959, p. 4) writes: 'Just as Freud opened the way for a deeper understanding of the human personality with his discovery that the diverse patterns of overt behaviour are controlled by certain underlying factors, so Schenker paved the way for a deeper understanding of musical structure with his discovery that the manifold of surface events in a given composition is related in specific ways to a fundamental organization'. Nathan Fleshner (2012), pp. 156–227, reads the mechanics of Schenker's theory directly against Freud's *Interpretation of Dreams*, applying the results to Robert Schumann's 'Ich hab' im Traum geweinet', from *Dichterliebe*. Cook (2007), pp. 199–

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217, highlights the rootedness of both Freud's and Schenker's theories in Jewish traditions of scriptural interpretation (particularly with regard to surface and depth), though he also cautions his readers against essentialism. Approaching Schenker from a more contemporary perspective, Watkins (2011), pp. 163–91, argues – via a close reading of Henri Lefebvre's *The Production of Space* ([1974] 1991) – that Schenker's invocation of musical depth is both indebted to a long-running German intellectual tradition and indicative of a turning point towards modernity in that tradition's conceptualisation of space (Lefebvre 1991).

21. Keller was fond of asserting that Mozart and his contemporaries would not have known or employed the kinds of formal labels that appear frequently today; see Keller (1994), p. 127. Of the labels used both in traditional and contemporary *Formenlehren*, S is the most problematic in general, and for Keller's approach in particular: both traditional and contemporary labels imply its lesser importance either directly (as in Caplin's 'subordinate theme') or by implication in temporal shorthand. In this article I have used S_{MAJ} and S_{MIN} in an attempt to label the parts of K. 421's first movement as contemporary theorists might recognize them. Keller's argument, however, is that the two may hardly be called the same theme, and that the motivic features of S_{MIN} mean that it is in many ways more closely related to P than to the S_{MAJ} theme with which it shares a label.

22. For more on the tonal expectations of minor-mode sonatas, see Hepokoski and Darcy (2006), pp. 306–17; on 'default' compositional options, see pp. 9–13.

23. While Keller makes no reference to musical narrative or hermeneutic interpretation, modern commentators such as Hepokoski and Darcy imbue this choice with a heavy burden of narrative implication: a secondary theme recapitulation in major is often read as indicating triumph over struggle, while a far less common recomposition into minor (as heard in Mozart's first movement) depicts tragedy, defeat, or loss. See Hepokoski and Darcy (2006), pp. 307–10.

24. To be clear once again, Keller does not give this theme its own label; the designation S_{MAJ} is my own. In one brief essay, however, he argues in reference to Mozart's G minor String Quintet that functional analysis might solve the problem of how to describe a second theme that is not truly a second theme; see Keller (1958b), p. 657.

25. In 'Knowing Things Backwards' (1958), Keller singles out this moment as an application of Rudolph Reti's concept of 'interversion' – the rearrangement of notes within a melodic span (Keller 1994, p. 149). On interversion, see Reti (1951), pp. 72–5; on the relationship between Keller and Reti, see section 3 of this article.

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26. See Schoenberg ([1947] 1950), p. 74. Schoenberg first wrote of developing variation in his unfinished manuscript 'Zusammenhang, Kontrapunkt, Instrumentation, Formenlehre', published posthumously as Schoenberg ([1917] 1994). For more on Schoenberg's concept, see Schoenberg ([1917] 1994), particularly pp. lxiii–lxviii and 26–65); Frisch (1982); Boss (1992 and 2000–1); Schoenberg (1995) and Haimo (1997).

27. See Keiler (1981). Just as many in Keller's radio audience had trouble differentiating Mozart's original music from Keller's analytical interludes, Keiler chronicles how Jean-Philippe Rameau's early readers (many of whom were not musicians) found it difficult to tell the difference between Rameau's fundamental bass analyses and actual written music.

28. Critics include Bauman (1952), pp. 139–40 and Kivy (1997), p. 191, both of whom accuse Reti of an a priori fixation on detecting patterns; and Opper, who complains that in Reti's analyses, 'notes are arbitrarily added, changed, or ignored to suit his purpose' (1973, p. 101). Auerbach declares Reti's notion of 'interversion' (the reordering of notes within a motivic shape) to be 'problematic' (2005, p. 77) and excludes it from his revived method of motivic analysis. Babbitt, in his remembrance of Keller, notes without further detail that Keller's willingness to associate himself with Reti's work damaged his standing in the eyes of his audiences at Princeton; see Babbitt et al. (1986), p. 376. In the same set of remembrances, Puffett disputes Keller's indebtedness to Reti (p. 389). Elder (2016) reads Reti with a more sympathetic eye, contextualising his work against a background of process philosophy and emphasising its independence from the theories of Schoenberg and other contemporaries. The example shown in Fig. 11c has been especially singled out for criticism; see Elder (2016), pp. 14–16 and 23–4 for a comprehensive discussion.

29. While I do not mean this in a negative way, Bauman makes the same observation in an accusatory tone, calling Reti's work 'the application of the field of painting to music—what one might call analysis for the eye' (1952, p. 141).

30. For a comprehensive history of the Third Programme, see Carpenter (1996).

31. I am grateful to Maxwell Silva for pointing me down this very productive avenue of inquiry.

32. Freud's free-associative method was developed between 1892 and 1895 (Jones 1964, p. 242). Freud refers to it in his and Breuer's *Studies in Hysteria* ([1895] 1955), first in connection with the cases of 'Lucy R' (p. 110n1) and 'Elisabeth von R' (pp. 137ff.), and later in a chapter on therapeutic method (pp. 267–83). He gives a much more complete account of it in Freud ([1906] 1913), and the method is discussed extensively in biographies of

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Freud (Jones 1964, pp. 241–2 and Thurschwell 2009, pp. 24–6) and by other therapists (Reik 1948, pp. 107–26).

33. On Freudian transference, see, *inter alia*, Freud (1958), pp. 97–108 and Lacan (1998), pp. 121–35.

34. Kittler (1999, pp. 87–94) appeals to radio even more directly in his account of radio broadcasting and recording, offering an anecdote about psychoanalysts using recordings and transcriptions of patient monologues in order to achieve both greater distance and greater precision.

35. Tovey invokes his naïve listener throughout his *Essays in Musical Analysis* (1935–39). For a sampling of scholarly responses (which have drawn attention this rhetorical device but not fully grappled with it), see Kerman (1975–6), Levinson (1997), pp. 40–42 and Spitzer (2005).

36. On Tovey's famous critique of the 'jelly-mould' concept of form and his rejection of organic growth in music, see Kerman (1975–6), p. 82; Burnham (2002), pp. 897–901 and Spitzer (2005), p. 447.

37. For another reading of compositional personalities (this time Mozart and Beethoven) in terms suggested by Schiller's *On Naïve and Sentimental Poetry*, see the essay 'The Man and the Music', reprinted in Keller (1994), pp. 114–17.

38. For instance, in March 2018 public music theory and musicology were the focus of a conference titled 'Public Music Discourse' at the University of South Carolina and were the topic of a special session at the joint meeting of the American Musicological Society and Society for Music Theory in November 2018. Speaking to a broad audience has been an important part of the mission of *SMT–V*, the Society for Music Theory's new video-based journal; see Jenkins (2017) in particular on an unfinished instructional documentary that Schoenberg was producing for the BBC at the time of his death.

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ABSTRACT

Hans Keller described his 'functional analysis' (FA) as 'the musical analysis of music'. Heavily influenced by his studies in Freudian psychology, he believed that his method would reveal 'the latent unity behind manifest contrasts' without using any labels or descriptive prose. In an effort to make explicit to his listeners what he believed to have been the composer's own unified perception of the work, he composed sets of between-movement interludes that extracted, juxtaposed and modified prominent themes; he also included intervals of silence during which listeners were to reflect on what they had just heard. This article explores Keller's first functional analysis, of Mozart's Quartet in D minor, K. 421, which reveals his interest in the relationships between the motives and themes of a given movement, and in the motivic connections and thematic transformations across movements. Through Keller's re-arrangements of motives and themes, the listener is meant to hear one motive gradually transforming into another. The FA is thus revealed as a style of analysis whose form – a musical performance – mirrors its content: a mediation between the listening experience and the non-linear temporality of compositional labour.

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