

Temporal Asymmetries in the Fiddle Music of Oliver Schroer

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Preliminaries

Preface

Early drafts of many of the analyses that follow were initially posted to my blog as part of the writing process, and phrases, sentences and paragraphs from these early analyses may be duplicated in this thesis. A list of these initial explorations, along with links to the albums and tracks discussed below, can be found at <http://jacobdgm.com/temporal-asymmetries-in-the-music-of-oliver-schroer/>.

Many people facilitated the completion of this thesis. Among them, I would like to thank my thesis supervisor, Jon Wild, as well as the other members of the music theory faculty at McGill University, especially Nicole Biamonte and Edward Klorman, who offered guidance and feedback at various points in the process. I would like to thank Lindsay Rader, Catherine Swytink-Binnema, Maria Kouznetsova, Everest Witman, Robert Gooding-Townsend, Mimi Shaftoe, Apratim Chakraborty, Jason Neudorf, Evy Kassirer, Ryan Dunham, Juliana Skarecky Colwell, Jonathan Smith and Anaïs Tran Ngoc, all of whom helped keep me on-track and focussed while working from home during a pandemic. Finally, I would like to thank my family, Marlene, Greg, Anna and Caleb, for their unflagging support.

Introduction

Oliver Schroer (1956-2008) was a Canadian fiddle player. He drew inspiration from many musical styles, including the fiddle traditions of Ireland, Scotland, Canada and Scandinavia, as well as styles such as Balkan traditional music, pop, jazz, and Western classical music. He wove these disparate sources of inspiration into his compositions, writing over 1,000 pieces over the course of his life.¹

This thesis begins with a brief biographical account of Schroer's career, before continuing with a survey of the musical traditions Schroer was inspired by. It continues with a brief account of those musical traditions, before surveying current music theoretical literature on rhythm and meter. Following this, the thesis analyzes eight tracks—"Bright Eyes," "Into the Sun," "Horseshoes and Rainbows," "Chel's Bells," "Before Dreaming," "The Hub of The Wheel," "Tightrope in Space" and "The Humours of Aristotle"—from five albums from throughout Schroer's career, looking both at how these pieces refer to the styles the fiddler was inspired by and the ways in which he subverted the norms in these styles. As the forms of pieces in most of these musical styles display a high degree of temporal symmetry, these analyses focus especially on examples of temporal asymmetry—this term encompassing rhythmic, metric, hypermetric and formal asymmetries—while also exploring other musical concepts such as tonality, modality and motivic development.

¹ "About Oliver," *Oliverschroer.com*, <http://www.oliverschroer.com/about/>, archived at <https://web.archive.org/web/20200923225356/http://www.oliverschroer.com/about/>.

Biography

Oliver Schroer was born on June 18, 1956 in Toronto, Ontario, and grew up in Flesherton, Ontario.² In his childhood, Schroer briefly studied recorder and then classical violin.³ He focussed on guitar in his teens and early twenties, performing with the Traverston Band, a Western Swing group that played for dances in the area around Flesherton, before returning to the violin in his mid-twenties in order to play fiddle music with the band.⁴

While studying at York University in the late 1970s and early 1980s, Schroer began to attend traditional music sessions in Toronto. There, he met musicians such as Anne Lederman, who introduced him to Balkan music, and Ian Bell, who introduced him to artists such as Jean Carignan, Dave Swarbrick, and De Danaan.⁵ During the mid 1980s, Schroer busked full-time in the Toronto subway system, his repertoire largely consisting of Irish, Scottish, Canadian, Québécois and Balkan tunes.⁶ It was during this period that Schroer developed tendinitis, and it was during a bout of tendinitis that Schroer began writing tunes, later forming two groups, the Harbord Trio and Eye Music, to perform his compositions.⁷

² Gay Abbate, "Fiddler was a prolific composer and performer with a style all his own," *Globe and Mail*, July 19, 2008; Andrew Hillhouse, "Touring as Social Practice: Transnational Festivals, Personalized Networks, and New Folk Music Sensibilities" (PhD diss., University of Toronto, 2013), 311.

³ Andrew Hillhouse, "Touring as Social Practice: Transnational Festivals, Personalized Networks, and New Folk Music Sensibilities" (PhD diss., University of Toronto, 2013), 23-24.

⁴ *Ibid.*, 24.

⁵ *Ibid.*

⁶ *Ibid.*, 25.

⁷ *Ibid.*

In the early 1990s, Schroer released two albums, *Jigzap* and *Whirled*, which led to wider recognition in the trad music community. Schroer formed his group the Stewed Tomatoes in order to perform the music from these albums. Throughout the mid-1990s, Schroer released several recordings following the model of *Jigzap* and *Whirled*, with groups of musicians performing arrangements of his original compositions in albums such as *Oliver Schroer and the Stewed Tomatoes* and *Celtica*. In the late 1990s and early 2000s, however, Schroer's output became more individual and introspective, with two albums—*Restless Urban Primitive* and *O2*—consisting of what he referred to as “fractal music”: largely improvised, based on the repetition and modification of short motives, and with little or no accompaniment.

Beginning in the early 2000s, Schroer began to teach at fiddle camps run by fiddle organizations in British Columbia—the Youth Valley Fiddlers of Smithers, BC, starting in 2001, and the Coast String Fiddlers of Roberts Creek, BC, starting in 2003—becoming a mentor for many young fiddlers.⁸ Schroer became particularly involved in the community of Smithers, visiting several times each year until his death.⁹ Andrew Hillhouse discusses Schroer's involvement in these communities in detail in his 2010 article “Random Acts of Violins: Oliver Schroer and Two British Columbia Fiddle Communities.”

⁸ Andrew Hillhouse, “Random Acts of Violins: Oliver Schroer and Two British Columbia Fiddle Communities,” in *Crossing Over: Fiddle and Dance Studies from around the North Atlantic 3*, edited by Ian Russel and Kearney Guigné (Aberdeen: Elphinstone Institute, 2010), 106.

⁹ Hillhouse, “Touring as Social Practice,” 327.

Schroer's involvement in these communities led to three significant projects: Truffles, *Smithers*, and the Twisted String.¹⁰ Referred to by Schroer as an "ongoing composition project," Truffles began with a series of 20-minute workshops with young fiddlers in Smithers in 2004, with the goal of each session being the composition of a new fiddle tune. The project ultimately led to the production of a CD.¹¹ *Smithers* is an album by Oliver Schroer consisting of 59 original fiddle tunes, each dedicated to one of his students in the area.¹² The Twisted String was an ensemble, formed in 2003, of fiddle students from Smithers and Roberts Creek dedicated to the performance of Schroer's tunes.¹³

In May and June 2004, Schroer completed a pilgrimage to Santiago de la Compostela, beginning near Merseilles, France and ending in Santiago, Spain. While on the pilgrimage, he recorded himself playing and improvising in various churches, as well as other sounds he heard on the pilgrimage trail. Schroer gathered the recordings he made during this pilgrimage into the album *Camino*, which ultimately became his most successful commercial release.¹⁴

¹⁰ Hillhouse, "Random Acts of Violins," 110.

¹¹ Ibid.

¹² Ibid., 111.

¹³ Hillhouse, "Touring as Social Practice," 328.

¹⁴ "Camino - The Journal," Chapter 1, Oliverschroer.com, http://oliverschroer.com/about/camino_journal.html?chapter=1, archived at https://web.archive.org/web/20201024115528/http://oliverschroer.com/about/camino_journal.html?chapter=1; "Camino - The Journal," Chapter 8, Oliverschroer.com, http://oliverschroer.com/about/camino_journal.html?chapter=8, archived at https://web.archive.org/web/20201024121222/http://oliverschroer.com/about/camino_journal.html?chapter=8.

In 2007, Schroer developed leukemia, ultimately dying of the disease on July 3, 2008.¹⁵ The trend away from introspective, soloistic music and toward collective projects that had begun with his teaching at the BC fiddle camps accelerated following his diagnosis, with Schroer recording several collaborative albums—*Freedom Row* with the Stewed Tomatoes, *Enthralled* with Nuala Kennedy, and *Hymns and Hers*—in the months leading up to his death. A month before he died, Schroer gave his final concert, billed *Oliver's Last Concert on his Tour of this Planet*, which was attended by many of his musical collaborators as well as students he had mentored in Smithers and Roberts Creek. Schroer's struggle with leukemia is recorded in Eileen Thalenberg's documentary *Silence at the Heart of Things*.

Schroer's unique music, as well as his pedagogical activities and embeddedness within networks of traditional folk musicians, has already attracted academic attention. The following section briefly surveys existing scholarship on Schroer and his music.

¹⁵ "Leukemia," Oliverschroer.com, <http://oliverschroer.com/leukemia.html>, archived at <https://web.archive.org/web/20200919154624/http://oliverschroer.com/leukemia.html>.

Scholarly Writing on Oliver Schroer

Only one scholar, Andrew Hillhouse, has previously written on Oliver Schroer, first in his 2010 article "Random Acts of Violins: Oliver Schroer and Two British Columbia Fiddle Communities," and second in his 2013 doctoral thesis, "Touring as Social Practice: Transnational Festivals, Personalized Networks, and New Folk Music Sensibilities." In "Random Acts of Violins," Hillhouse discusses how Schroer appealed to the tradition of mentorship in order to maintain a sense of continuity within folk traditions while teaching at fiddle camps in two communities in British Columbia, even as he navigated the opposing values of innovation and tradition during his career. Schroer, Hillhouse suggests, was interested in creating new fiddle traditions at these fiddle camps, based not on a local style but rather on the creative processes operating among the members of those communities.¹⁶

In "Touring as Social Practice," Hillhouse holds up Oliver Schroer, as well as two of his frequent collaborators, Nuala Kennedy and Filippo Gambetta, as case studies of how musicians make use of social networks fostered by folk festivals as potential sources of collaboration and innovation. Hillhouse notes that many folk festivals in recent decades have become "transnational," pitching themselves as places of meeting where different traditional music styles can interact with and influence each other, and that this trend has been accompanied by the rise of cosmopolitan folk musicians such as Schroer, Kennedy and Gambetta who consciously draw on and fuse different folk traditions in crafting their own personal styles. Near the end of the dissertation, Hillhouse outlines

¹⁶ Hillhouse, "Random Acts of Violins."

the inspirations and impulses behind many of the creative projects Schroer undertook throughout his career, focussing especially on Schroer's late-career album *Camino*.¹⁷

Throughout these discussions, Hillhouse provides transcriptions of several of Schroer's tunes as representative examples of unique features of his music: his emphasis on groove in "Horseshoes and Rainbows," his use of mixed meter in "Shorelines," and his use of both polyrhythms and precomposed accompaniment lines in "Into the Sun."

Hillhouse focuses much more on social relationships between musicians and institutions, however, rather than on the musical characteristics of Schroer's tunes. His work, then, provides a useful starting point for a deeper theoretical investigation of Schroer's music.

In his teaching, Schroer emphasized the importance of becoming familiar with a range of musical styles. In the following section, several of the genres Schroer highlighted as particularly important to his musical development are identified and characterized.

¹⁷ Hillhouse, "Touring as Social Practice."

Musical Influences


In interviews and on his website, Schroer identified a wide range of musical influences, spanning from Classical music (unaccompanied Bach sonatas and partitas) to popular styles (jazz, folk and blues). Many, however, can be described as traditional musical styles. Based both on the similarities between these styles and the ways in which Schroer referred to them, these music traditions can be divided into three main groups: music of the British Isles, Scandinavian music, and Balkan music. The first, broad category—the traditional music of the British Isles—includes the traditional music of Ireland, Scotland, England and Wales, as well as several North American traditions which were influenced by these musical traditions. This overview largely focuses on Irish, Scottish, Canadian Old-Time and Québécois fiddle traditions, as these are musical traditions Schroer singles out in interviews as central influences on his playing. For both the British Isles and Scandinavia, where the fiddle is a prominent instrument, this description focuses on fiddle playing in those traditions.

Fiddle tunes of the British Isles can be categorized into a range of types, characterized mainly by their meter and predominant rhythms, and these types are often associated with specific dances. Within Irish music the most common tune types are the reel, the jig, the hornpipe, and the polka (Table 1). Irish reels are felt with two beats to the bar, with each beat subdivided in four; these subdivisions are often played with a swing.¹⁸

¹⁸ James R Cowdery, *The Melodic Tradition of Ireland*, (1990; reis., Ashland: Kent State University Press 2009), 18. Citations refer to Kent State University Press edition. In my experience, Irish reels are often notated in 4/4, while Scottish reels are often notated in 2/4. In this thesis, I have notated reels in 2/2, to reflect the two beats per bar (a feature which is not reflected when reels are notated in 4/4) while allowing most of the notes of the tune to be notated as eighth notes rather than shorter note values (as occurs when a reel is notated in 2/4).

Tune Type	Beats per Measure	Subdivision of Beat	Tempo
Reel	2	Quadruple, eighth notes often swung	Faster than hornpipe
Hornpipe	2	Quadruple, eighth notes swung	Slower than reel
Polka	2	Quadruple, without swing	Faster than reel
Single jig	2	Triple; predominantly quarter-note—eighth-note pairs	Faster than double jig
Double jig	2	Triple; predominantly groups of three eighth notes	Slower than single jig
Slip jig	3	Triple	

Table 1: Metric and rhythmic features of various traditional Irish dance tune types

Hornpipes, like reels, have two beats in each bar, but are played more slowly than reels, are always played with a swing, and feature a characteristic  rhythm at the end of each strain.¹⁹ Irish polkas are also in duple meter, but are played at a faster tempo than reels and feature fewer streams of running eighth notes. Irish jigs are characterized by a triple subdivision of each beat, and can be further categorized as single jigs, double jigs, and slip jigs.²⁰ Both single and double jigs feature two beats per measure. The characteristic rhythm of the double jig is two groups of three eighth notes, while the single jig features more quarter-note—eighth-note pairs; single jigs are also played at a faster tempo than double jigs. Slip jigs, in contrast, feature three beats per measure.²¹

Jigs and reels both feature prominently in Scottish music, each tune type sharing many musical features with its Irish counterpart. A distinctly Scottish tune type is the

¹⁹ Ibid., 18.

²⁰ Dorothea E Hast and Stan Scott, *Music in Ireland: Experiencing Music, Expressing Culture* (New York: Oxford University Press, 2004), 66.

²¹ Cowdery, *Melodic Tradition of Ireland*, 17; Hast and Scott, *Music in Ireland*, 66.

strathspey, which has two beats per measure and prominently features the “scotch snap,” a rhythmic short-long pairing occupying the time of a quarter note often notated



Irish and Scottish tunes feature predominantly binary formal divisions. Each tune is composed of two or more strains, a strain being a repeatable section of a tune. Each strain can be divided into two phrases of equal length, and these half-strains can be further divided into shorter phrases. This leads to strains with a length of eight, or occasionally four or sixteen, measures. In addition, while tunes with three, four or more strains are occasionally found, tunes with two strains are in the significant majority, and each of these strains is usually repeated twice. Irish and Scottish tunes, then, feature many binary formal divisions, and thus display a high degree of formal symmetry at many levels.²³

While Canadian Old-Time music features many of the same formal characteristics as Irish and Scottish tunes, several other styles influenced by these traditions, including

²² Francis M Collinson, *The Traditional and National Music of Scotland* (Nashville: Vanderbilt University Press, 1966), 28-29.

²³ Lawrence E McCullough, “Style in Traditional Irish Music,” *Ethnomusicology* 21, no. 1 (1977): 88, <https://doi.org/10.2307/850853>. In the following chapters, I use several terms to refer to temporal units of music, each with a specific meaning. A *passage* is a catch-all term referring to any stretch of music; in the analyses that follow, “passages” are generally bits of music shorter than a phrase. A *phrase* is a passage with a clearly-defined beginning and end; in traditional fiddle tunes, many phrases are four or eight measures in duration. A *strain* refers to a repeatable portion of a tune, regardless of whether it is literally repeated; most strains consist of two or more phrases. A *section* refers to a group of successive repetitions of a strain, including literal repetitions (for example, a section with the form AA) and successions of strains that are varied as they are repeated (for example, BB’, AAA’, etc.), as well as single strains that are stated only once before the beginning of the following strain. A *tune* is the sum of all its sections, played in order. Finally, tunes are usually repeated two or more times over the course of an *arrangement*, which encompasses all repetitions of a tune as well as formal elements such as introductions, outros, interludes, and so on.

Québécois, Métis and Newfoundland fiddling and Bluegrass music feature frequent departures from binary formal divisions. In his study of Old-Time Country and Bluegrass music, Joti Rockwell notes that performers in these traditions describe asymmetric tunes as “crooked,” as deviating from “square,” and as having missing or extra beats or “irregular rhythms,” while Québécois musicians also refer to such asymmetric tunes as *croche* or “crooked.”²⁴ Several musicologists have attempted to categorize these asymmetries: Anne Lederman outlines several ways in which tunes differ from four-square form in the Métis communities of Ebb and Flow and Camperville,²⁵ Christina Smith develops a system of “ohs,” “jogs” and “median jogs” to describe added beats in Newfoundland tunes,²⁶ while Joti Rockwell identifies three types of disruption found in crooked tunes from the Old-Time and Bluegrass traditions.²⁷ Jean Duval goes furthest in his study of historical Québécois fiddle recordings, developing an extensive taxonomy of asymmetries that considers the formal level on which the asymmetry occurs (whether it changes the length of a beat, the number of beats in a strain, or the arrangement of strains within a tune), the effect of

²⁴ Joti Rockwell, “Time on the Crooked Road: Isochrony, Meter, and Disruption in Old-Time Country and Bluegrass Music,” *Ethnomusicology* 55, no. 1: 58, <https://doi.org/10.5406/ethnomusicology.55.1.0055>; Jean Duval, “Revival of ‘Crooked’ Fiddle Tunes in the Performance of Contemporary Québec Traditional Music,” in *From Dancing to Listening: Fiddle and Dance Studies from around the North Atlantic* 5, ed. Liz Doherty and Fintan Vallely (Derry: Aberdeen University Press, 2019), 48.

²⁵ Anne Lederman, “Old Indian and Métis Fiddling in Manitoba: Origins, Structure and the Question of Syncretism,” in *The Canadian Journal of Native Studies* 8, no. 2 (1988; reis. in *Canadian Folk Music Journal* 19, (1991)). Citations refer to *Canadian Folk Music Journal* edition.

²⁶ Christina Smith, “Crooked as the Road to Branch: Asymmetry in Newfoundland Dance Music,” *Newfoundland and Labrador Studies*, 22 no. 1 (2007).

²⁷ Rockwell, “Time on the Crooked Road.”

the asymmetry (lengthening, shortening, or both), and where in a strain the asymmetry occurs (at the beginning, midpoint or end of a strain, and so on).²⁸

In each of these traditions, an entire tune is usually repeated two or more times during a performance, and several tunes are often played in succession to form medleys or “sets” of tunes. In Irish and Québécois music, most sets are composed of tunes of the same type, whereas in Scottish music, sets are often composed of tunes of several different types—for example, a slow air followed by a strathspey followed by a reel.²⁹ Many examples of sets of tunes of the same type, characteristic of Irish traditional music, can be found in Schroer’s oeuvre, such as “Toby’s Reel / The Job,” which features two reels played in succession, and “Ansgar’s Jig / Kari’s Jig,” which features two successive double jigs, while “Far Away By The Sea / Lady Diane Laundry / Seanaghan Kennedy’s” is an example of an air-strathspey-reel set characteristic of Scottish traditional music.³⁰

Tunes in the Irish and Scottish traditions are generally modal and largely diatonic, and these characteristics are present in derived styles. James Cowdery outlines four scales or modes heard in Irish music: the octave from D₄³¹ to D₅, the octave from E₄ to E₅, that from G₄ to G₅, and that from A₄ to A₅. For each of these scales, a key signature with an F-sharp is assumed while C-natural and C-sharp are treated flexibly, leading to a system

²⁸ Jean Duval, “Revival of ‘Crooked’ Fiddle Tunes in the Performance of Contemporary Québec Traditional Music,” in *From Dancing to Listening: Fiddle and Dance Studies from around the North Atlantic 5*, ed. Liz Doherty and Fintan Vallely (Derry: Aberdeen University Press, 2019).

²⁹ Hast and Scott, *Music in Ireland*, 59.

³⁰ All three tracks can be found on Oliver Schroer, *Jigzap*, Big Dog Music BD9301, 1993, compact disc, where they are tracks 2, 6 and 5 respectively.

³¹ That is, the first D above middle C. This thesis uses scientific pitch notation, with middle C referred to as C₄, the B a semitone below as B₃, and the C an octave above as C₅.

where tunes can move freely between mixolydian and ionian on D, aeolian and dorian on E, ionian and (rarely) lydian on G, and dorian and mixolydian on A.³² Francis Collinson observes that Scottish music uses the anhemitonic pentatonic scale, two distinct hexatonic scales (one in which the seventh degree of the major scale is omitted, and one in which the fourth degree is omitted), and the diatonic scale, as well as all modes of each of those scales.³³ A notable feature of Scottish music is its use of the so-called “double tonic” system, in which passages of music based on one triad alternate with passages based on a triad with a root a whole step lower. Of these, the lower triad is always major, while the upper triad is often major but can also be minor.³⁴ An example of a double-tonic passage in Schroer’s can be found in “Lady Diane Laundry,” where the second strain alternates between passages based on D major and C major triads.³⁵

Irish and Scottish music features the use of distinctive melodic and rhythmic ornaments. Fiddlers have borrowed many of these ornaments from other instruments such as the highland and uilleann pipes—where ornaments are necessary to separate successive notes of a melody while maintaining a steady stream of air through the instrument—though some ornaments, especially those effected by the bow, are specific to the fiddle. Scottish music features several distinctive bowings such as the “up-driven

³² Cowdery, *Melodic Tradition of Ireland*, 15-16.

³³ Collinson, *Traditional and National Music of Scotland*, 4-9.

³⁴ Mary Anne Alburger, *Scottish Fiddlers and their Music* (London: Victor Gollancz Ltd, 1983), 36-37; Collinson, *Traditional and National Music of Scotland*, 26. Double tonic tunes can also be found in the Irish repertory. Contrary to what the term may suggest, a tune that uses the double tonic system does not feature two tonal centers operating at once: the root of only one of the two triads functions as the tonal center of a tune, strain or phrase. While the root of the upper of the two triads usually functions as the tonal center, there exist Irish tunes in major keys where passages based on the tonic triad are played in alternation with passages based on the supertonic triad.

³⁵ Lady Diane Laundry is the second tune of “Far Away By The Sea / Lady Diane Laundry / Seanaghan Kennedy’s,” the fifth track of Schroer’s *Jigzap*. The passage in question begins at approximately 3:30.

bow” used to articulate a scotch snap followed by even eighth notes—a full down-bow for the initial, short note of the snap, followed by detached up-bows for each of the three subsequent notes.³⁶ Even within individual traditions, ornaments are quite varied, with Lawrence McCullough identifying ornamentation as a “decisive stylistic determinant” in distinguishing between different Irish regional and personal styles.³⁷

Scandinavian music encompasses the music of Norway, Sweden and Finland. While these are distinctive traditions, they display many musical affinities, and both Schroer and Andrew Hillhouse frequently refer to them in the aggregate. Whereas Irish and Scottish tunes exist in a range of modes, most traditional Norwegian music is in major keys, with fewer tunes in minor keys; while there exist traditional Norwegian tunes in modes other than major or minor, these are relatively rare.³⁸ Tonality in traditional Norwegian fiddle music is closely tied to both the melodic compass of the tune and the tuning of the instrument, with tunes in specific keys often played only in specific tunings. Chris Goertzen identifies the key of D major as the most common key for Norwegian fiddle tunes by a large margin, while tunes in G major, A major and D minor are also fairly common.³⁹

Scandinavian fiddle tunes feature several distinctive formal and metrical asymmetries. Chris Goertzen notes that Norwegian tunes usually have two strains, though tunes with

³⁶ Ibid., 96.

³⁷ McCullough, “Style in Traditional Irish Music,” 86.

³⁸ Chris Goertzen, *Fiddling for Norway: Revival and Identity*, (Chicago: University of Chicago Press, 2007), 132.

³⁹ Ibid., 134-136.

three strains are also common.⁴⁰ While the first strain of a tune normally has eight measures, a tune's second strain, which often features repeated figures and melodic sequences, will sometimes "spill into an 'extra' measure or two."⁴¹ Such a "spilling-over" can be heard at the end of the final strain of Schroer's "The Hub of the Wheel," discussed in greater detail on p. 82.⁴² One distinctive characteristic of Scandinavian music is the frequent occurrence of non-isochronous beats, particularly in tune with a triple meter.⁴³ This has been a topic of much scholarly interest over the years, with different musicologists arriving at differing conceptions of this beat asymmetry. Mats Johansson provides a useful summary of the various approaches toward notation and methodology in his 2010 study of rhythmic asymmetry in traditional Norwegian triple-meter dance tunes known as *pols* or *springar*.⁴⁴ After noting that the Swedish *polska* is "equivalent" to the Norwegian *pols/springar*,⁴⁵ he notes that these tunes fall into two general types, with short-long-average and long-average-short variants,⁴⁶ that the relative durations of beats can vary significantly from measure to measure even if they have the same number of subdivisions, and that even the individual tones that subdivide a beat can vary significantly in length.⁴⁷ Such a non-isochronous division of the beat can

⁴⁰ Ibid., 142.

⁴¹ Ibid., 143.

⁴² Oliver Schroer, "The Hub of the Wheel," track 9 on *Jigzap*, Big Dog Music BD9301, 1993, compact disc.

⁴³ Goertzen, *Fiddling for Norway*, 128-129.

⁴⁴ Mats Johansson, "Rhythm into Style: Studying Asymmetric Grooves in Norwegian Folk Music" (PhD diss., University of Oslo, 2009).

⁴⁵ Ibid., 64.

⁴⁶ Ibid., 69.

⁴⁷ Ibid., 227.

be heard in the final strains of Schroer's "Chel's Bells," discussed in more detail on p. 66.⁴⁸

Similar to Scandinavian music, Balkan music refers to a wide variety of musical traditions, though in his interviews, Schroer generally refers to the collection of styles as a single genre. One of the most notable features of Balkan music is its use of asymmetric meters. In spite of several problematic assertions characteristic of mid-century ethnomusicology, Boris Kremenliev's 1952 book on Bulgarian-Macedonian folk music offers a thorough and methodical summary of these metrical features. Many tunes are in simple duple meter, though there also exist tunes with groupings of three, four and five beats of equal length.⁴⁹ There also exist many tunes in a range of asymmetric or additive meters, composed of a succession of long and short beats; Kremenliev assigns these beats durations of three and two respectively, though other scholars have noted that the relative durations of these beats is more flexible in practice.⁵⁰ Kremenliev offers examples in meters ranging from 5/16 (with a 2+3 grouping in each measure)⁵¹ up to 11/16 (3+2+2+2+2)⁵² and beyond, going on to state that pieces may alternate between measures with two different beat groupings, or even to freely combine different meters.⁵³ Several of Schroer's tunes, most notably "The Humours of Aristotle"

⁴⁸ Oliver Schroer, "Chel's Bells," track 6 on *Hymns and Hers*, Big Dog Music BDO701, 2007, compact disc.

⁴⁹ Boris Kremenliev *Bulgarian-Macedonian Folk Music* (Berkeley: University of California Press, 1952), 16-19.

⁵⁰ See, for example, Daniel Goldberg, "Timing Variations in Two Balkan Percussion Performances." *Empirical Musicology Review* 10 no. 4 (2016): 306, <https://doi.org/10.18061/emr.v10i4.4884>.

⁵¹ Kremenliev, *Bulgarian-Macedonian Folk Music*, 24.

⁵² *Ibid.*, 35.

⁵³ *Ibid.*, 44-45.

(discussed below, p. 112) and “The Humours of Plato,” make use of changing meters, revealing them to be inspired by tunes from Balkan musical traditions.⁵⁴ Beyond its use of asymmetric meters, Balkan music also stands out from Irish, Scottish and Scandinavian traditions for its use of non-diatonic scales. Many of its melodies feature intervals smaller than an equally-tempered semitone, or make use of the Hicâz tetrachord which, when rendered in equal temperament, features an augmented second positioned between two semitones.⁵⁵ The opening of Schroer’s “The Humours of Plato” features a prominent ascending Hicâz tetrachord.⁵⁶

This summary of some of the musical traditions Schroer identified as influential to his playing has necessarily glossed over many important details. Those interested in more information on these styles may wish to refer to James R. Cowdery’s *The Melodic Tradition of Ireland* for an overview of the Irish tradition⁵⁷ (Fintan Vallely’s *The Companion to Irish Traditional Music* is another invaluable resource⁵⁸), Francis M. Collinson’s *The Traditional and National Music of Scotland* for an introduction to the Scottish tradition,⁵⁹ Jean Duval’s “Revival of ‘crooked’ fiddle tunes in the performance of contemporary Québec traditional music” for an examination of formal and metrical

⁵⁴ Both tracks can be found in Oliver Schroer, *Whirled*, Big Dog Music BD9302, 1993, compact disc, where they are tracks 4 and 5 respectively.

⁵⁵ Jim Samson, *Music in the Balkans* (Boston: Brill, 2013), 135; Kremenliev, *Bulgarian-Macedonian Folk Music*, 71.

⁵⁶ Oliver Schroer, “The Humours of Plato,” track 5 on *Whirled*, Big Dog Music BD9302, 1993, compact disc.

⁵⁷ Cowdery, *Melodic Tradition of Ireland*, 18.

⁵⁸ Fintan Vallely, *Companion to Irish Traditional Music*, (Cork: Cork University Press, 2011), muse.jhu.edu/book/15065.

⁵⁹ Collinson, *Traditional and National Music of Scotland*.

asymmetry in Québécois fiddle music,⁶⁰ Chris Goertzen's *Fiddling for Norway: Revival and Identity* for an overview of Norwegian fiddle styles,⁶¹ and Boris Kremenliev's *Bulgarian-Macedonian Folk Music* for an introduction to Balkan musical traditions.⁶²

One of the most striking features of Schroer's compositions is the frequent incorporation of rhythmic and metric asymmetries within tunes, and several scholars have proposed theories to explain such asymmetries in specific musical styles from which Schroer drew inspiration. Before exploring these theories in detail, however, it is worth turning our attention to several more general theories of rhythm, meter and hypermeter which will prove useful in looking at more specific examples.

⁶⁰ Duval, "Revival of 'Crooked' Fiddle Tunes."

⁶¹ Goertzen, *Fiddling for Norway*.

⁶² Kremenliev, *Bulgarian-Macedonian Folk Music*.

Theories of Rhythm, Meter and Hypermeter

Rhythm and meter have been topics of active scholarship over the past several decades. Nicole Biamonte offers a useful summary of the various approaches scholars have adopted in her 2020 chapter "Rhythmic and Metric Theorization in Rock Music," offering three broad ways in which scholars have thought about the relationship between rhythm and meter.⁶³ First, scholars such as Fred Lerdahl and Ray Jackendoff have conceived of meter as a regular background layer upon which other rhythmic layers are superimposed; metric consonance or dissonance can be created when rhythmic events do or do not align with this underlying meter.⁶⁴ Second, scholars such as Christopher Hasty conceive of rhythm and meter as a single phenomenon, with meter being a specific type of rhythm.⁶⁵ In Hasty's model, meter is a phenomenological process that arises from the potential of a duration to be repeated, and is thus constantly being reinvented by the listener. Finally, scholars such as Maury Yeston and Richard Cohn have conceived of meter as composed of multiple nested pulse layers.⁶⁶ I appeal to several of these models, as well as the work of scholars who have expanded upon them, in my analyses below.

⁶³ Nicole Biamonte, "Rhythmic and Metric Theorization in Rock Music," in *The Bloomsbury Handbook of Rock Music Research*, ed. Allan Moore and Paul Carr (New York: Bloomsbury Academic & Professional, 2020), 138.

⁶⁴ See, for example, Fred Lerdahl and Ray Jackendoff, *A Generative Theory of Tonal Music* (Cambridge, Mass.: MIT Press, 1983).

⁶⁵ See, for example, Christopher Hasty, *Meter as Rhythm* (20th Anniversary Edition; New York: Oxford University Press, 2010).

⁶⁶ See, for example, Maury Yeston, *The Stratification of Musical Rhythm* (New Haven: Yale University Press, 1976), and Richard Cohn, "Meter," in *The Oxford Handbook of Critical Concepts in Music Theory*, ed. Alexander Rehding and Steven Rings (New York: Oxford University Press, 2019), 207-230.

Richard Cohn defines meter as an "inclusionally related set of distinct, notionally isochronous time-point sets."⁶⁷ Cohn refers to each time-point set as a *pulse*, and these pulses are *notionally isochronous*—in spite of human variation in performing them, the time-points are thought of as equally spaced.⁶⁸ To form a meter, several pulses must be *inclusionally related*—the pulse with a larger cardinality must be a superset of each pulse with a smaller cardinality.⁶⁹ Cohn uses this definition of meter to discuss several types of minimal meter changes, identifying *syncopation-type meter changes*, where a faster pulse continues uninterrupted while a slower pulse becomes displaced, and *hemiola-type meter changes*, where the groupings in two adjacent pulses are exchanged (as occurs in a meter change from 6/8 to 3/4).⁷⁰ Cohn also notes two ways in which his definition of meter can be extended: First, to accommodate *hypermeter*—a meter which contains a hyperpulse, isochronous but too slow to entrain to—and second, to include *non-isochronous meter*—a meter which involves a quasi-pulse, a set of time points that is non-isochronous but can be entrained to.⁷¹

In an earlier paper, Cohn attempts to stake out a middle ground between syncopation and polymeter in specific rhythmic patterns he terms “platonic.” Platonic rhythms involve two groupings of an underlying unit pulse, filling a span of time that is a multiple of one grouping but coprime with the other. Since the second grouping is coprime with the larger time span, a “comma” is created when this pulse layer nearly,

⁶⁷ Richard Cohn, “Meter,” in *The Oxford Handbook of Critical Concepts in Music Theory*, ed. Alexander Rehding and Steven Rings (New York: Oxford University Press, 2019), 4.

⁶⁸ *Ibid.*, 5.

⁶⁹ *Ibid.*, 11.

⁷⁰ *Ibid.*, 16-19.

⁷¹ *Ibid.*, 27.

but not exactly, aligns with the beginning of the larger cycle. In order for this second rhythm to be platonic, the final pulse grouping is adjusted—either lengthened or shortened—in order to bring the two cycles into alignment.⁷² There are several instances of such platonic rhythms in Schroer’s music, in particular the tresillo (three groups of three units, the last of which is truncated to fit within a cycle lasting eight units: 3+3+2) and other tresillo-like rhythms (groups of three, with the final group adjusted to align with a cycle with the length of a power of 2).⁷³ Tracks in Schroer’s oeuvre that feature prominent platonic rhythms include “Horseshoes and Rainbows,” in whose A strain can be found a displaced tresillo in the accompaniment part, and “Into the Sun,” which features an extended tresillo-like rhythm lasting sixteen beats.⁷⁴ Both these tracks are discussed in greater detail in the analyses that follow (pages 52 and 43 respectively).

Scott Murphy extends Cohn’s theory of platonic rhythms, choosing to refer to rhythms Cohn calls “platonic” as “platonic-trochaic.” Choosing to ignore rhythms in which unit pulses are gathered in groupings other than 2’s and 3’s, Murphy calls a rhythm “platonic” if it consists entirely of a series of 2-groupings followed by a series of 3-groupings, or a series of 3-groupings followed by a series of 2-groupings. He refers to the initial series of groupings as the “run” and the final series as the “comma,” and calls

⁷² Richard Cohn, “A Platonic Model of Funky Rhythms,” in *Music Theory Online* 22, no. 2 (June 2016), 2.7. <https://mtosmt.org/issues/mto.16.22.2/mto.16.22.2.cohn.html>.

⁷³ *Ibid.*, 6.1.

⁷⁴ Oliver Schroer, “Horseshoes and Rainbows,” track 4 on *Jigzap*, Big Dog Music BD9301, 1993, compact disc; Oliver Schroer, “Into the Sun,” track 1 on *Whirled*, Big Dog Music BD9302, 1993, compact disc.

a rhythm “trochaic” if the duration of the run is greater than the duration of the comma, and “iambic” if the duration of the comma is greater than that of the run.⁷⁵

Harald Krebs identifies two kinds of metric dissonance occurring between metric or rhythmic layers in his study of the music of Robert Schumann: displacement dissonance and grouping dissonance. *Displacement dissonance* involves two layers with the same period and the same number of pulse events which are not aligned with each other.⁷⁶ *Grouping dissonance*, in contrast, involves two layers with differing periods or cardinalities.⁷⁷ With grouping dissonance, the pulse layers shift in and out of phase with each other, while pulse events never align in displacement dissonance.

Keith Waters draws a distinction between measure-preserving and tactus-preserving polymeter while analyzing situations where the grouping of accents suggests a meter different from the underlying structural meter of a piece in the piano solos of Herbie Hancock.⁷⁸ In *measure-preserving polymeter*, the downbeats of the implied meter align with the underlying meter, with the pulse events of the two meters distributed differently between those downbeats. In *tactus-preserving polymeter*, however, the duration of the basic pulse in both the underlying and the implied meter is held constant, causing the downbeats of the two meters to shift out of phase with each other.

⁷⁵ Scott Murphy, “Cohn’s Platonic Model and the Regular Irregularities of Recent Popular Multimedia,” in *Music Theory Online* 22, no. 3 (September 2016). <https://mtosmt.org/issues/mto.16.22.3/mto.16.22.3.murphy.html>.

⁷⁶ Harald Krebs, *Fantasy Pieces: Metrical Dissonance in the Music of Robert Schumann* (New York, Oxford University Press, 1999), 33.

⁷⁷ *Ibid.*, 31.

⁷⁸ Keith Waters, “Blurring the Barline: Metric Displacement in the Piano Solos of Herbie Hancock,” in *Annual Review of Jazz Studies* 8 (1996): 24-25.

Both types of polymeter Waters identifies are specific instances of grouping dissonance, and Schroer employs both tactus-preserving and measure-preserving polymeter at different moments in “Horseshoes and Rainbows,” which is discussed in more detail below (p. 52).⁷⁹

Brad Osborn draws a similar distinction with regard to metric modulation, distinguishing between beat-preserving and beat-changing meter changes in his study of the music of Radiohead.⁸⁰ *Beat-preserving* meter changes “do not ask us to reinterpret the primary beat,” Osborn states, “but only to consider... what sorts of larger metrical structures are affected.” *Beat-changing* meter changes, in contrast, “ask listeners to entrain to some unit smaller than the beat which will act as a pivot between two different meters.”⁸¹ Both of these metric modulations would be thought of as varieties of syncopation-type meter change in Cohn’s model of meter. Osborn assumes that the duration of the “primary beat” is clear—studying, as he does, music with a prominent backbeat—though this model can be extended by considering which specific pulse duration is preserved or changed. He also addresses instances of grouping dissonance in his analyses—in all cases, the grouping dissonance is of the type Waters would call tactus-preserving—as well as instances of what he calls “polytempo,” involving concurrent pulse layers that differ in both cardinality and speed. Osborn notes that in most cases, the larger periods of the two pulses are the same, causing the competing

⁷⁹ Oliver Schroer, “Horseshoes and Rainbows.”

⁸⁰ Brad Osborn, *Everything in Its Right Place: Analyzing Radiohead* (New York: Oxford University Press, 2017), 65.

⁸¹ *Ibid.*, 66.

meters to periodically align.⁸² This suggests a comparison with Waters's measure-preserving polymeter, where rather than two pulses aligning on the downbeat of every measure, a larger, hypermetric unit is preserved. Oliver Schroer's "Before Dreaming," discussed in greater detail below (p. 72), features instances of both beat-preserving and beat-changing meter changes.

We have now seen several theories that describe rhythm, meter and hypermeter, as well as several theories that explain particular metric or rhythmic effects. Several of the styles Schroer was inspired by feature numerous examples of temporal asymmetries; the following section outlines several theories that have been proposed to categorize and explain such "crooked" tunes in the context of specific fiddle traditions.

⁸² Ibid., 77.

Theories of Temporal Asymmetry in Fiddle Music

Traditions

“Crooked” tunes have been an active area of discussion within scholarship on traditional music. The most thorough study of temporal asymmetry in traditional music has been Jean Duval’s “Revival of ‘Crooked’ Fiddle Tunes in the Performance of Contemporary Québec Traditional Music.” In it, he identifies three main categories of asymmetry found in crooked Québécois tunes: Morphological, syntactical, and pulsative. *Morphological asymmetries* are irregular arrangements of the strains of a tune, while *syntactical asymmetries* change the length of a strain (or a phrase within a strain) while preserving the pulse. *Pulsative asymmetries*, meanwhile, change the pulse by shortening a beat. These larger categories are subdivided depending on the effect of the asymmetry, such as whether it results in the lengthening of a strain, the shortening of a strain, or a combination of both.⁸³

Within the category of syntactical asymmetries, Duval further distinguishes between *caudal*, *final*, *cadential*, *medial*, *initial* and *intermediary* asymmetries, based on where the metrical addition or subtraction occurred (Table 2).⁸⁴ Duval offers specific terms for many of these types of asymmetry, such as *anacrusis*, an initial syntactical lengthening whereby a motive is added before the “normal” beginning of a strain, or *rhythmical imparity*, a syntactical process whereby an otherwise square strain is divided into

⁸³ Duval, “Revival of ‘Crooked’ Fiddle Tunes,” 51-52.

⁸⁴ Ibid.

Type of Asymmetry	Location within Strain
Caudal	After or beyond the final note of the strain
Final	Final note of strain extended
Cadential	Cadential motive that could have been "square" replaced by a longer motive
Medial	Asymmetry occurring at or near the end of a half-strain
Initial	Asymmetry occurring at the beginning of a strain
Intermediary	Asymmetry occurring anywhere else in the strain

Table 2: Types of syntactical asymmetries in Jean Duval’s “Revival of ‘Crooked’ Fiddle Tunes in the Performance of Contemporary Québec Traditional Music”

unequal parts (as when a strain is composed of two phrases of 9 and 7 measures respectively). Schroer’s “The Hub of the Wheel” (discussed in greater detail on p. 82) features numerous formal asymmetries that bear resemblance to the asymmetries noted by Duval.⁸⁵

Anne Lederman outlines several ways in which tunes differ from four-square form in the Métis communities of Ebb and Flow and Camperville. While she does not offer a thorough taxonomy of types of asymmetry as Duval does, a look at her description is illuminating, as she identifies some processes that do not appear to occur in Québécois fiddle tunes, as well as others that do. She notes that some tunes feature phrases lasting 2, 3, 5 or 7 beats interspersed among phrases of other lengths, and some strains feature three or five phrases rather than four. Some tunes have only one strain, often consisting of five or six phrases; occasionally, this takes the form of a strain plus a 1- or 2-phrase extension that is played only on some repeats. Some strains are composed of a single

⁸⁵ Oliver Schroer, “The Hub of the Wheel.”

phrase, repeated several times; in tunes with strains such as these, the cadential figure at the phrase is varied on subsequent repetitions. In some tunes, phrases are elided such that a new phrase begins on the final note of the previous phrase, cutting out a beat in the process (with a parallel in Duval's *final shortening*, where a strain is shortened through the omission of its final note). Lederman notes that in some tunes, a lead-in consisting of either a chord, a motive, or an entire phrase is added before the beginning of the tune (a similar process to Jean Duval's *anacrusis*, where a motif is added before the "normal" beginning of a strain); this lead-in is not played in later repetitions. Finally, cadence notes are often reiterated or embellished for several beats (corresponding respectively to Duval's *paragoge*, where the final note of a strain is extended, and *tail*, where after ending on the tonic, an additional motif that ends on the tonic is appended to the strain).⁸⁶

In her study of crooked Newfoundland tunes, Christina Smith develops a theory of "ohs," "jogs" and "median jogs." A *jog* is an extra beat added to the end of a strain, while a *median jog* is an extra beat added between in the middle of a strain between its component phrases (corresponding to a *final* and *medial paragoge* respectively in Duval's system). In both cases, the jog or median jog is a repetition of the note that preceded it. An *oh* is a one-beat figure that opens a strain, and corresponds to a single-beat *anacrusis* in Duval's system. Though she does not assign terms to them, Smith notes there are other types of asymmetries in Newfoundland tunes, such as when a beat

⁸⁶ Lederman, "Old Indian and Metis Fiddling," 43-44.

is skipped in a cadential figure, thereby shortening the strain, or where a discontinuity occurs in the middle of a phrase.⁸⁷

Finally, Joti Rockwell identifies three types of metric disruption found in crooked tunes from the Old-Time and Bluegrass genres: *first-order duple*, where there is an underlying duple meter, but one measure contains one or three beats instead of two; *second-order duple*, where all measures of the underlying duple meter contain two beats, but there is an instance where a hypermeasure lasts the duration of one or three measures rather than two; and *first-order triple*, where all measures of an underlying triple meter contain three beats but there is an instance of hyperbeats spaced one or three measures apart instead of two.⁸⁸ He notes that in these styles, "a crooked tune in general does not have to involve disruptions in relatively fast pulses."⁸⁹

Schroer took inspiration from each of the traditional music styles surveyed above, incorporating metric and rhythmic features of different dance types from the British Isles into his compositions, and arranging them idiomatically into sets characteristic of those musical traditions. Schroer also played creatively with form, meter and rhythm in the tracks on his albums, subverting expectations in ways that can be understood using the theories described above, including notions of grouping dissonance, platonic rhythms, beat-changing and beat-preserving meter changes, tactus- and beat-preserving

⁸⁷ Smith, "Crooked as the Road to Branch," 143-146.

⁸⁸ It is worth noting that Rockwell defines his first-order hypermetric disruptions in a manner that could lead to confusion: whereas a first-order duple disruption changes the number of beats in a single measure, a first-order triple disruption changes the number of measures in a hypermeasure (and is, in that regard, more similar to a second-order duple disruption than a first-order duple disruption).

⁸⁹ Rockwell, "Time on the Crooked Road," 60-61.

polyrhythms, and the various categories of formal asymmetries identified in studies of Métis, Newfoundland and Québécois dance tunes. In the following chapter, we turn to examine several of Schroer's tracks in closer detail, with particular focus directed toward the metric and temporal effects employed therein.

Analysis

As mentioned in the Preface (p. 3), most of the the analyses presented below began as transcriptions posted to my blog. Whereas some of Schroer's tunes are fairly transparent to a musician familiar with the musical styles he was inspired by, these specific tracks were chosen for transcription because they contained unusual or confusing features: for example, an initial attempt to learn the waltz "Bright Eyes" fell down because I failed to absorb the "canonic" or "default" version of the tune through repeated listening, since the track features so much melodic variation from one repetition of the tune to the next; "Tightrope in Space" sounded practically atonal; "The Hub of the Wheel" was transcribed because the final strain of the tune seemed to simply morph into the beginning of the tune's first strain without actually ending, while I transcribed "The Humours of Aristotle" because I couldn't tell, even after several listenings, where *any* of the strains began or ended. After completing several of these transcriptions, it became clear that temporal asymmetries, be they complex rhythms, changes of meter, or irregularities of form, were a common feature characterizing most of the tracks I had examined. Upon arriving at this realization, one track noted by Andrew Hillhouse for its use of polymeter, "Into the Sun," was also recruited for further analysis.⁹⁰ As such, while not many of the tracks below were chosen explicitly for the temporal asymmetries they display, they represent a selection of Schroer's most creative and idiosyncratic compositions, drawn from an oeuvre marked by the variety, creativity and idiosyncrasy of the tunes contained within it. The analyses below are arranged to showcase examples

⁹⁰ Hillhouse, "Touring as Social Practice," 318-9.

of large-scale, formal asymmetries first, before progressing toward asymmetries on smaller and smaller time-scales.

Bright Eyes

"Bright Eyes" is the fourteenth and final track of Oliver Schroer's 1993 album *Jigzap*, Schroer's first album to feature only his own compositions.⁹¹ The track's instrumentation is rich and varied, with tenor banjo, mandolin, guitar, Schroer's fiddle, trumpet and hammered dulcimer playing the melody at various moments during the track, trumpet and voice stating countermelodies, and piano and guitar providing chordal accompaniment. As with many of Schroer's tracks, many musical factors are in play; the paragraphs below focus on symmetries and asymmetries in the arrangement's large-scale hypermeter, a passage with a five-against-three polyrhythm, and a general progression over the track from thinner textures to thicker ones.

The meter and hypermeter of "Bright Eyes" are based on multiples of two and three, with different factors operating on different metric levels. "Bright Eyes" is in a swung triple meter—every measure features three beats lasting the duration of a quarter note; some of these beats are triply divided in three, while some are divided into unequal, long-short pairs of eighth notes. These measures are grouped in powers of two, amounting to two 16-measure strains (Fig. 1). Each strain features a balanced, symmetric structure (outlined in Table 3) that can easily be related to the periodic forms of 18th- and 19th-Century dance pieces of continental Europe: the A strain begins with a 4-measure basic idea (labelled I) followed by a 4-measure contrasting idea (C) ending with a half cadence—an 8-measure antecedent phrase—followed by a repetition of these two musical ideas, the latter modified to end with a perfect authentic cadence—an 8-

⁹¹ Oliver Schroer, *Jigzap*, Big Dog Music BD9301, 1993, compact disc.



Fig. 1: Tune of "Bright Eyes," with component phrases labelled

Strain	Sub-phrase	Cadence
A	I	
	C	Half
	I	
	C	Perfect Authentic
B	J	
	C	Half
	J'	
	C'	Perfect Authentic

Table 3: Phrase structure of the A and B strains of "Bright Eyes"

measure consequent phrase. The B strain adopts a similar structure, substituting a new basic idea (J) for the A strain's opening melody while re-using the same contrasting idea heard in the tune's first strain. In the B strain's consequent phrase, both basic idea and contrasting idea are varied, the ideas' melodies ranging higher than in their previous statements. The tune is thus composed of two periods, with the second recycling material from the first.

Five distinct repetitions of the tune can be identified, but the tune is not repeated verbatim in each repetition: variations to the melody are introduced with each repetition, and even the form of the tune is varied over the course of the arrangement. Over the track's five repetitions, the track gradually builds from a relatively thin, heterophonic texture toward a thicker one featuring chords and multiple countermelodies. The form of the entire arrangement, along with notes on instrumentation, is summarized in Table 4.

Initially, the first of the tune's strains is repeated twice, and the second only once. Each pass through the tune, then, can be thought of as a single hypermeasure of three 16-measure hyperbeats, and the first three repetitions of the tune hew to this large triple

Section(s)	Melody	Countermelody	Chords
A A	Banjo, Mandolin, Guitar		
B	Banjo, Mandolin, Guitar		
A A	Fiddle ×2		Piano
B	Fiddle ×2		Piano
A A	Fiddle ×2	Voice	Piano
B	Fiddle ×2		Piano, Guitar
A' A'	Trumpet		Piano, Guitar
B B	Fiddle ×2, Dulcimer		Piano, Guitar
A	Fiddle, Guitar		Piano
A	Fiddle ×2, Dulcimer	Voice	Piano, Guitar
A	Fiddle ×2, Dulcimer	Voice, Trumpet	Piano, Guitar

Table 4: Form of the arrangement of "Bright Eyes"

grouping.⁹² The first repetition of the tune is played without countermelody or chords, and features several plucked string instruments playing the melody in heterophony in two separate octaves: banjo and guitar in the lower octave and mandolin in the upper. In the second repetition, the trio of plucked strings drops out and the fiddle takes up the melody, with a piano providing chordal accompaniment. In the third repetition's A strain, a sung countermelody is added (Fig. 2), and a strummed guitar provides additional chordal support in the B strain. In this way, the first three sections build from a thin, heterophonic texture in the first repetition toward a thicker, homophonic texture by the end of the third repetition.

The fourth repetition of "Bright Eyes" introduces a significant variation: the fiddle drops out, and in its place, a trumpet enters playing a new melody (Fig. 3). In contrast to the metric groupings of twos and threes heard so far in the track, this new trumpet melody fits five evenly-spaced notes into each measure, even as the piano continues to play the



Fig. 2: Countermelody in the A strain of "Bright Eyes"

⁹² In this thesis, I adopt Keith Waters's convention of referring to all levels of metric organization higher than the entrained pulse as "hypermeter."

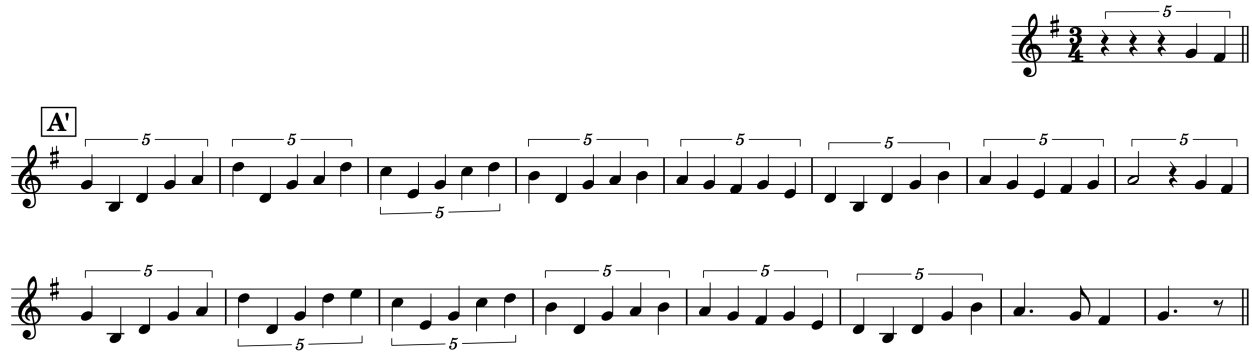


Fig. 3: Trumpet melody, A' strain of "Bright Eyes"

chords of the A strain in a triple meter. This creates a five-against-three grouping dissonance, which Keith Waters would refer to as a measure-preserving polyrhythm.⁹³

Following two repetitions of this A' strain, the trumpet drops out, and a hammered dulcimer joins the fiddle in playing the familiar melody of the B strain. In contrast to earlier repetitions of the tune, this strain is repeated not once but twice. In this way, the triple hypermeter established in the tune's first three repetitions is disrupted by the occurrence of a four-beat hypermeasure.

Following these two repetitions of the B strain, the melody of the A strain returns. This repetition of the A strain has a sparser texture: the dulcimer drops out; the guitar stops playing chords and joins the fiddle on melody; even the fiddle, which earlier in the track had been recorded multiple times in unison and overdubbed, is recorded just once. But following a single repetition of the A strain, the texture thickens suddenly: the dulcimer re-enters, the guitar begins playing chords again, and the vocal countermelody heard in the tune's third repetition is brought back (Fig. 4). This strain is a melodic variant of the

⁹³ Waters, "Blurring the Barline," 24-25.

The image displays four systems of musical notation for the piece "Bright Eyes". Each system consists of three staves: Trumpet (Tpt.), Voice (Vo.), and Fiddle (Fid.). The music is written in 3/4 time with a key signature of one sharp (F#). The first system is marked with a boxed 'A'. The second system shows the Trumpet and Fiddle parts. The third system is also marked with a boxed 'A'. The fourth system shows the Trumpet, Voice, and Fiddle parts. The Fiddle part features a prominent ascending line in the second system.

Fig. 4: Final two A strains of "Bright Eyes"

A strain, with the first two measures of the basic idea modified to incorporate an ascending line that rises more than an octave from the fiddle's open G string to a B4. As this varied strain is repeated once again, the texture thickens even further, with the

trumpet entering to play the initial countermelody while the voice sings a variant of this countermelody.

The tune ends on the second of these varied A strains, with Schroer opting not to include a repetition of the B strain in the tune's fifth repetition. This leads to a hypermeasure of three beats, though these beats are grouped differently than in the tune's first three repetitions: whereas the tune's earliest repetitions feature a 2+1 grouping, with two repetitions of the A strain followed by a single repetition of the contrasting B strain, the final repetition features a 1+2 grouping, with a single repetition of the A strain followed by two repetitions of the varied A strain, the latter two set apart from the first by changes in instrumentation and melodic contour.

By using a consistent triple meter and a balanced phrase structure, and by including no major melodic or formal variations during the tune's first three repetitions, Schroer creates expectations that he then breaks in the tune's last two repetitions. In the tune's fourth repetition, the regular triple meter is disrupted by the inclusion of a new melody featuring a five-against-three polyrhythm, and the additional repetition of the B strain upsets the triple hypermeter established earlier in the tune. And even with the return of a triple hypermeter in the tune's last repetition, Schroer uses melodic variation and textural contrast to group the final hypermeasure's hyperbeats differently than in the track's opening, thus further disrupting the listener's expectations.

In sum, "Bright Eyes" is metrically unusual in its use of polyrhythms, and its melodic alterations from one repetition to the next. "Into the Sun," the initial track on *Jigzup's* sister album *Whirled*, features changes of form and hypermeter in successive repetitions of the tune while employing a contrasting polyrhythmic approach, and it is to this track which we now turn.

Into the Sun

"Into the Sun" is the first track from Oliver Schroer's 1993 album *Whirled*, which was recorded at the same time as *Jigzap* and conceived of as a sister album to it.⁹⁴ The track features fiddle, trumpet and hammered dulcimer. The tune is in the key of G major, and is unusual in having multiple melodies in each of its strains that are played in counterpoint. The following paragraphs outline the tune's phrase structure, Schroer's use of Platonic rhythms in the track, and the tune's unique and asymmetrical form, while touching on issues of texture and instrumentation.

In his 2013 thesis, Andrew Hillhouse provides a transcription and brief analysis of the two melodies that make up the A strain of "Into the Sun." The predominant rhythm of the first of these melodies, Hillhouse notes, is a stream of running eighth notes, as in a traditional Irish reel (Fig. 5, upper system). This melody features paired, two-measure antecedent and consequent phrases; each strain is composed of two of these antecedent-consequent pairs, amounting to eight measures in total. The second of these melodies, in contrast, features a series of dotted quarter notes (Fig. 5, lower system). Hillhouse observes that the effect of "Into the Sun" is "dependent upon the juxtaposition of two time signatures," and considering Schroer mentioned "Into the Sun" multiple times in the interviews the two of them conducted, it is likely that Schroer conceived of the tune as having two distinct meters operating at once.⁹⁵

⁹⁴ Oliver Schroer, *Whirled*, Big Dog Music BD9302, 1993, compact disc.

⁹⁵ Hillhouse, "Touring as Social Practice," 318.

The image displays two systems of musical notation for the A strain of "Into the Sun". Each system consists of two staves. The top system shows a melody in the upper staff with a bracket labeled "Antecedent" covering the first five measures and a bracket labeled "Consequent" covering the next five measures. The lower staff of the top system shows a second melody with a bracket labeled "Antecedent" covering the first five measures. The bottom system shows the first melody in the upper staff with "Antecedent" and "Consequent" brackets, and the second melody in the lower staff with a bracket labeled "Consequent" covering the first five measures.

Fig. 5: Two concurrent melodies in the A strain of "Into the Sun"

Further to Hillhouse's description, the second melody in the A strain can also be divided into two phrases, antecedent and consequent. The first phrase begins on the downbeat of the first measure of the strain, is eleven dotted quarter notes in length, and ends on D₄—scale degree 5 in the key of G. The second phrase echoes the first, with several notable differences: it begins one eighth note after the downbeat of the strain's fifth measure, and in place of the dotted-quarter notes E₄ and D₄ that end the antecedent phrase, this consequent phrase substitutes a half-note G₄, the tonic. The B strain of "Into the Sun" is eight measures in length, and consists of multiple overdubbed melodies, two of which are shown in Fig. 6. Each of these melodies consists primarily of a repeated D₅, a D₅ that is decorated with neighbour notes, leaps to and from A₄, and occasional scalar runs leading to and departing from it (see Fig. 6). The strain is neatly divided into two phrases. While the endings of both phrases in the two most prominent lines are identical, the first of the phrases ends with an agogically accented D₅ in the

The image shows a musical score for the B strain of "Into the Sun," consisting of two fiddle parts and fiddle accompaniment. The score is divided into two sections: "antecedent" (measures 1-4) and "consequent" (measures 5-8). The "antecedent" section features a "scalar run" in the first fiddle part and a "leap from A" in the second. The "consequent" section features a "neighbour note" in the first fiddle part. The fiddle accompaniment consists of a single sustained note in the bass register.

Fig. 6: Multitracked melodies in the B strain of "Into the Sun," with initial instances of specific embellishments labelled.

other multitracked parts, while the second phrase ends with a similarly accented "Gsus" chord—the notes G₄, C₅ and D₅—which, while not a traditional triad, creates the effect of an antecedent-consequent pair (Fig. 6, final measure). The rather ambiguous sonorities heard at the ends of B strain's phrases notwithstanding, the harmony of both sections of the tune is strikingly static: though the lowest note in the texture changes from section to section, each individual eight-measure strain is supported by a single bass note (Table 5). Both melodies in the A section imply a key of G major, and several repetitions of the A strain are supported by a sustained G in the lowest sounding register. The first time an instrument enters in a register lower than the first note of the first melody, however, this lowest-sounding note is a C₃—scale degree 4 in G major. The melody of the B section emphasizes the note D₅, and the first note heard in a low register in a B section is also a D. But similar to the A section, some repetitions of the B strain are accompanied by a sustained C as the lowest sounding note in the texture. Both

Section	Strain	Measures	Bass	Instrumentation and Arrangement
Intro	A	8		First melody only, played on fiddle
A	A	8		Enter dulcimer and fiddle playing second melody
	A	8		
B	B	8		
	B	8		
A	A	8		Fiddle on first melody; dulcimer, violin pizzicato on second melody
	A	8	IV	Enter five-string fiddle playing low chords
B	B	8	V	Enter trumpet
	B	8	IV	
	B	4	V	Break for final 2 measures
A	A	8	I	Plucked and bowed fiddles, dulcimer
	A	8	I	
	A	8	IV	
B	B	8	V	Enter trumpet
	B	8	IV	
	B	8	V	Break for final 2 measures
A	A	8	I	Second melody only, plucked and bowed fiddles
	A	8	I	First melody cuts in and out
	A	8	IV	First and second melody together, plucked and bowed fiddles and dulcimer
	A	8	IV	

Table 5: Form, harmony and instrumentation in "Into the Sun"

the A strain and B strain of the tune, then, are supported by two different droned notes at different times throughout the track: G and C in the A section, and D and C in the B section.

The A section's second melody is a clear example of what Richard Cohn calls a "platonic rhythm," in this case a 3-generated rhythm spanning a 64-unit cycle. Against a backdrop

of duply-grouped running eighth notes, a layer of triply-grouped rhythmic events, in this case a series of dotted quarter notes, is superimposed. Since all metric groupings in the first melody can be expressed as powers of two, and since any grouping in the second melody must include at least one factor of three, no onset in the second melody will ever align with the second instance of a hypermetric unit in the first melody. In order for the metric cycles of the two melodies to align, then, one of them must be adjusted. Cohn points out that in such rhythmic-metric systems, there will be moments where an onset in one cycle comes close to aligning with a metrically strong beat in the other, and through the principle of *sufficient approximation*, such moments are opportunities to adjust the first cycle and bring it into alignment with the second.⁹⁶ Among several possible moments that Schroer could have chosen when a multiple of three nearly equals a power of two— $3 \times 3 = 9$ which approximates $2^3 = 8$, $3 \times 5 = 15$ which approximates $2^4 = 16$ or $3 \times 11 = 33$ which approximates $2^5 = 32$ —he chose to bring the two cycles into alignment after 64 or 2^6 eighth notes, amounting to eight measures or an entire strain. To do this, Schroer plays 21 onsets separated by the duration of a dotted quarter note, amounting to $3 \times 21 = 63$ eighth notes, and lengthens the final one by the duration of one eighth note. This creates a series of 20 dotted quarter notes followed by a single half note amounting to the duration of $(20 \times 3) + (1 \times 4) = 64$ eighth notes, thus bringing it into alignment with the downbeat of the strain that follows. This succession of groupings is one Scott Murphy would refer to as “platonic-trochaic,” since its initial run of 3-groupings has a greater duration than its “comma,” the implicit pair of 2-groupings that sum to the final 4-grouping identified above.⁹⁷

⁹⁶ Cohn, “Platonic Model of Funky Rhythms,” 2.7.

⁹⁷ Murphy, “Cohn’s Platonic Model,” 1.7.

The A section's second melody notwithstanding, the A and B strains of "Into the Sun" both last 8 measures and feature nested duple divisions; the form of the entire arrangement, in contrast, is not nearly so neatly symmetrical (see Table 5). The track begins with an eight-measure introduction consisting of an unaccompanied statement of the A section's first melody on the fiddle. Following this, the fiddle continues to play the first melody as a fiddle and hammered dulcimer play the A section's second melody over it, constituting two additional repetitions of the tune's A strain. The B strain is then played twice, with multiple, multitracked fiddle lines in the instrument's middle register and touches of dulcimer. As a second repetition of the tune is begun, the return of the A strain sets up an expectation that the arrangement will follow an AABB form to be repeated several times, and the two repetitions of the A section that follow conform to this expectation. The first of these repetitions includes the addition of a violin pizzicato line to the second melody, while the second adds an additional 5-string fiddle part, droning an open fifth on the instrument's two lowest open strings, C₃ and G₃. Two repetitions of the B strain follow: in the first of these, an electric bass enters on a low D to undergird the 5-string fiddle's open fifth on D₃, while a trumpet enters, doubling the section's melody; in the second repetition, both the 5-string fiddle and electric bass move down a whole step to C. The expectation of a neat AABB form is disrupted, however, by the partial repetition of the B strain that ensues: the fiddle and trumpet play the first two measures of the strain, and then all instruments sustain a note for two measures, creating a "break" that sets up the return of the A strain.

At the outset of the tune's third repetition, A section's melodies' return is supported by the electric bass and 5-string violin playing a more pronounced rhythmic figure on G; two repetitions of the strain are followed by a third repetition with the accompanying parts sitting on C. These three repetitions of the A section are followed by three repetitions of the B section, and with these triple repetitions, any semblance of a regular, repeated AABB form is entirely dispelled. The first of these strains is played over a D in the accompanying instruments, the second strain over C, and the third over D. The third of these strains features a rhythmic break in all instruments similar to the one heard in the previous set of B strains, but the break this time occupies the last two measures of an 8-measures strain rather than a 4-measure half-strain. This series of B strains is followed by several repetitions of the A strain—a fourth repetition of the tune. In the first, relatively sparse staccato rhythmic shots in the bass, 5-string fiddle and dulcimer support the strain's second melody played on bowed and plucked fiddle, with the A strain's first melody absent from the texture. Fragments of the first melody are heard in the second repetition of the strain. This repetition is followed by two additional repetitions of the A section with a full texture; these strains are supported by a C in the bass and 5-string fiddle, and the track ends on an open fifth between the C heard in the lower instruments and the final G of the melody.

Can these formal asymmetries be accounted for by drawing on any of the theories of asymmetry presented by scholars of traditional music? Jean Duval includes the category of *trebling* among the morphological asymmetries—that is, those affecting the arrangement of strains in a tune—he identifies in Québécois fiddle tunes. Trebling, in

which a strain is played three times instead of two, would explain the three successive B strains followed by three successive A strains in the middle of the arrangement, but does not account for the quadruple or fractional repetitions of strains.⁹⁸ Furthermore, it is unclear whether Duval's morphological asymmetries are meant to describe cases where strains are restated a varying number of times between successive repetitions of an entire tune, as when a strain is reiterated two times in one pass through the tune and three times in another, or whether this category describes asymmetry that is maintained between sections, as when a strain is repeated three times on every pass through a tune. Anne Lederman notes that in the Métis fiddle tradition, some tunes that are composed of a single strain take the form of a strain plus a 1- or 2-phrase extension that is played only on some repeats, and though "Into the Sun" features two strains rather than one, Schroer's inclusion of a four-measure half-strain accords much more closely with this practice.⁹⁹ In contrast to Duval, Lederman clearly states that this type of asymmetry varies from one repeat to the next, which more accurately describes the formal process that occurs during "Into the Sun."

It is worth noting that the time spent on each strain tends to increase over the course of Schroer's arrangement. An eight-measure introduction is followed by 16-measure stretches of successive A strains, B strains, and A strains, before the partial repetition of a B strain creates a 20-measure stretch of B. This passage is followed by three-repetition stretches of successive A strains and then B strains, each lasting 24 measures, before the tune concludes with four consecutive A strains lasting a total of 32 measures. Listener

⁹⁸ Duval, "Revival of 'Crooked' Fiddle Tunes," 51.

⁹⁹ Lederman, "Old Indian and Metis Fiddling," 43.

interest in “Into the Sun,” then, is maintained not through the presentation of new melodies—the arrangement features successively longer stretches of the same melodic material—but rather through changes in instrumentation, texture, harmonic colour, and rhythm in the accompaniment.

In the two pieces examined so far, we have observed both large-scale asymmetries and smaller-scale instances of polyrhythm. “Into the Sun” uses a different type of polyrhythm than “Bright Eyes” does, leaning on an extended tresillo pattern while “Bright Eyes” features equally-spaced rhythmic events that coincide on successive downbeats. We now turn to look at “Horseshoes and Rainbows,” another track from *Jigzap*, which employs both polymetric approaches.

Horseshoes and Rainbows

“Horseshoes and Rainbows,” the fourth track from Schroer’s *Jigzap*,¹⁰⁰ exhibits binary structure at many levels. The tune is a reel, and exhibits the characteristic rhythm of reels in the traditional music of the British Isles: eight 8th notes per measure, felt in two groups of four (Fig. 7). The tune has two eight-measure strains, each of which is repeated twice before moving to the next, creating an AABB form. Each strain can be neatly broken into two four-measure phrases, with these divisions articulated by the return of previously heard material, as in the A section, or by the presentation of new

The image displays the musical score for the tune "Horseshoes and Rainbows" in 2/4 time. It is written in treble clef with a key signature of one sharp (F#). The score is divided into two main sections, A and B, each consisting of two eight-measure strains. Strain A begins with a repeat sign and a box labeled 'A'. The first four measures of strain A are repeated in the second four-measure phrase. The second strain of A is marked with a '1' above the first measure and a '2' above the second measure, indicating first and second endings. Strain B also begins with a repeat sign and a box labeled 'B'. The first four measures of strain B are repeated in the second four-measure phrase. The second strain of B is marked with a '1' above the first measure and a '2' above the second measure, indicating first and second endings. The score uses eighth notes and rests to create a rhythmic pattern of two groups of four eighth notes per measure.

Fig. 7: Melody of "Horseshoes and Rainbows"

¹⁰⁰ Schroer, *Jigzap*.

melodic material accompanied by an acceleration of harmonic rhythm, as in the B section. The AABB form of the tune is repeated four times over the course of the arrangement, and this fourfold repetition is followed by four final repetitions of the tune's A section. The tune's binary divisions, then, break down only on the very lowest and very highest metric layers: at all layers between the extremes of the very small—individual pairs of eighth notes, which are played with a swing—and the very large—the form of the entire arrangement spills beyond a neat, fourfold repetition of the tune—"Horseshoes and Rainbows" exhibits nested, isometric, binary temporal divisions at all levels.

One of the most striking features of the melody of "Horseshoes and Rainbows" is the persistent use of a rhythmic motif of four eighth notes. This motif is a reference to Rodgers and Hammerstein's 1959 show tune "My Favourite Things," a fact illustrated most clearly by comparing the opening of the song with the first several measures of the B Strain of "Horseshoes and Rainbows" (Fig. 8). Whereas "My Favourite Things"

The image shows two musical staves. The top staff is for "My Favourite Things" in 3/4 time, with lyrics: "Rain - drops on ros - es and whis - kers on kit - tens". It features three measures of a "1 + 2 motif" (quarter, eighth, eighth) and a "variation" (quarter, quarter, eighth, eighth). The bottom staff is for the B strain of "Horseshoes and Rainbows" in 4/4 time, starting with a boxed "B" and a "variation" (quarter, quarter, eighth, eighth). It features two measures of a "1 + 3 motif" (quarter, eighth, eighth, eighth) and a "variation" (quarter, quarter, eighth, eighth).

Fig. 8: Comparison of the opening measures of My Favourite Things (top) and the B strain of "Horseshoes and Rainbows" (bottom), with instances of 1+2 and 1+3 motives labelled

features groups of three quarter notes—a single quarter note followed by two quarter notes on a single pitch—"Horseshoes and Rainbows" halves these note values and expands this pattern by one note, creating a 1+3 grouping. This motive is heard in its canonical form throughout the A and B strains, as well as in two variant forms: one where the initial eighth note is lengthened into a quarter note, and one in which the final note is played a step lower than the two notes that preceded it (Fig. 9).

The melody of "Horseshoes and Rainbows," heard throughout the track on two fiddles playing in unison, is enlivened by textural and rhythmic variety in several accompaniment parts over the course of the track; the form of the arrangement is outlined in Table 6. For the first repetition of the tune, Schroer presents the tune's melody in simple unison, recording two separate takes of the main fiddle part, each of which is heard in one of the track's two stereo channels. A bodhran played with a brush is added during the B strain and plays until the end of the track, reinforcing the

The figure displays musical notation for the A and B strains of "Horseshoes and Rainbows" in 3/8 time. The A strain is marked with a box 'A' and contains six measures. The first measure is annotated with 'motive' and a bracket over the first three notes. The second measure is annotated with 'motive' and a bracket over the first three notes. The third measure is annotated with 'motive' and a bracket over the first three notes, and 'var' and a bracket over the last two notes. The fourth measure is annotated with 'motive' and a bracket over the first three notes. The fifth measure is annotated with 'motive' and a bracket over the first three notes. The sixth measure is annotated with 'motive' and a bracket over the first three notes. The B strain is marked with a box 'B' and contains six measures. The first measure is annotated with 'var' and a bracket over the first three notes. The second measure is annotated with 'motive' and a bracket over the first three notes. The third measure is annotated with 'motive' and a bracket over the first three notes. The fourth measure is annotated with 'var' and a bracket over the first three notes. The fifth measure is annotated with 'var' and a bracket over the first three notes. The sixth measure is annotated with 'var' and a bracket over the first three notes. The notation includes a key signature of one sharp (F#) and a 3/8 time signature. The A strain is followed by two first endings, labeled '1' and '2', which are also annotated with 'motive' and 'var' brackets. The B strain is followed by two first endings, labeled '1' and '2', which are also annotated with 'var' brackets.

Fig. 9: Instances of the 1+3 motive and its variants in the melody of "Horseshoes and Rainbows"

Strains	Accompaniment (played on 5-string fiddle unless otherwise noted)	Counter melody
A×2	(unaccompanied melody)	
B×2	Enter bodhran	
A×2	Initial version	
B×2	Shuffle rhythm	
A×2	First variant (left channel), initial version (right channel)	
B×2	Shuffle rhythm	
A×2	Second variant	
B×2	Shuffle rhythm	Fiddle
A×4	Initial version	Fiddle, trumpet in unison

Table 6: Arrangement of "Horseshoes and Rainbows"

predominant running eighth-note rhythm of the melody, but the overall texture remains starkly monophonic. The second repetition of the tune features the addition of a syncopated accompaniment line, played on the lower strings of Schroer's five-string fiddle, consisting of a series of ascending arpeggios. Like the melody, this accompaniment line is recorded twice, with each take heard in a different stereo channel. In the B section of this second repetition, the accompaniment parts heard in the two channels diverge, each playing variations of a syncopated shuffle rhythm. In the tune's third repetition, the accompaniment parts heard in the two channels diverge drastically: while the fiddle in the right channel repeats the accompaniment line heard in the previous A sections, the fiddle in the left channel plays a similar series of ascending arpeggios in a different rhythm. The B sections of the third repetition are texturally similar to those of the second repetition. In the fourth repetition of the tune, the two five-string fiddle accompaniment parts converge, playing in unison a series of ascending arpeggios with a rhythm that, at first listen, seems to drift free of the running

eighth notes in the melody. The arrival of the fourth pair of B sections features the introduction of a countermelody played on the violin. The track concludes with four repetitions of the tune's A strain. The fiddle continues to play a countermelody which is doubled by a trumpet; the accompaniment line in the lower register reverts to the syncopated accompaniment line heard in the second repetition of the tune.

The syncopation of the initial five-string fiddle accompaniment line, considered together with the two variant accompaniment lines heard on subsequent repetitions, can be thought of as three different approaches to the problem of reconciling a triple rhythmic grouping in the accompaniment with the duple groupings heard in the main melody of "Horseshoes and Rainbows." The accompaniment line heard in the A sections during the first repetition of the tune, which we may refer to as the initial version, consists of a series of ascending, spread-position arpeggios, and is based on a repeating rhythmic motive occupying the duration of one measure (Fig. 10). The first measure of the initial version consists of three quarter notes, while in subsequent statements of the motive, the initial quarter note is anticipated by the duration of an eighth note creating a syncopated "push." The onsets of the resulting rhythmic pattern are thus separated by three, two, and three eighth-note units from the onset that follows them: a dotted

Fig. 10: Melody and initial accompaniment line in the A strain of "Horseshoes and Rainbows"

quarter note that anticipates the downbeat by an eighth note, a quarter note, and a shortened note followed by a rest that together occupy the time of a dotted quarter note. This 3-2-3 grouping suggests a comparison with the tresillo rhythm, one of the platonic rhythms Richard Cohn identifies in his 2016 article on “funky rhythms.” In this model, a tresillo, or 3-3-2 grouping, is generated when the final note in a series of dotted quarter notes is shortened, allowing three rhythmic events to occupy a span of time lasting eight 8th notes in a maximally even manner. A tresillo can, then, be thought of as a 9/8 meter of three dotted quarter notes per measure, adjusted such that each downbeat coincides with a downbeat in the concurrent duple meter. If one attends to the highest, shortened note of the rhythmic motive as the beginning of the grouping, the initial version of the accompaniment line of “Horseshoes and Rainbows” can be heard as a displaced tresillo rhythm, beginning a half note after each downbeat. Whether the accompaniment line is heard as a series of 3+2+3 groupings or as a displaced 3+3+2 tresillo, it is clear that the rhythmic vitality of this accompaniment line, at least in part, can be traced back to the tension between a series of dotted quarter notes and the binary metric structure of the melody of “Horseshoes and Rainbows.”

In the third repetition of the tune, a variant of the initial version of the accompaniment line is heard in the track’s left channel, which we may refer to as the first variant (Fig. 11). The first two measures of the first variant are identical to the initial version, up to the anticipated downbeat of the third measure. The expected D3 is postponed by the duration of a dotted quarter note, entering at the same time as the second note of the rhythmic motif heard in the right channel. The fiddle then proceeds to play a series of

Figure 11 shows the accompaniment lines for the A section of "Horseshoes and Rainbows." It consists of three staves: Melody, First variant (left channel), and Initial version (right channel). The first variant has a note onset delayed by three eighth notes. Fingerings are indicated by numbers 1-10 below the notes.

Fig. 11: Accompaniment lines in the third repetition of the A section of "Horseshoes and Rainbows." Intervals formed between the two versions of the accompaniment line are indicated between the two lower staves.

nine dotted quarter notes, the fifth of which is subdivided into three eighth notes. These nine equally-spaced events outline three ascending arpeggios similar to those heard in the initial version, and can thus be heard as three measures of a 9/8 meter (Fig. 12).

This first variant, then, represents a second approach to reconciling a stream of dotted quarter notes with a background, binary metric structure.

Figure 12 shows the first variant accompaniment line of "Horseshoes and Rainbows," notated in 2/2 (upper staff) and in changing time signatures (lower staff).

Fig. 12: The first variant accompaniment line of "Horseshoes and Rainbows," notated in 2/2 (upper staff) and in changing time signatures (lower staff)

In neither the initial version of the accompaniment line nor the first variant does the beginning of a rhythmic grouping align with any of the downbeats of the tune's main melody, and it is worth considering why Schroer may have chosen to begin the series of dotted quarter notes partway through the strain's third measure rather than on its downbeat. To begin, a canonic effect between the accompaniment parts heard in the two channels is created by the ascending D major arpeggios separated by the duration of a dotted quarter note (see Fig. 11). The two channels drift further out of phase over time, creating the effect of a prolation canon: whereas the initial version in the right channel strikes the low note of an arpeggio every 8 eighth notes, as in a duple meter, the first variant begins a new arpeggio every 9 eighth notes, as in a triple meter. This drifting-apart, however, requires a relatively long period of time to effect a displacement of an eighth note, and the canonic effect would largely be lost had this stream of dotted quarter notes been translated earlier by a quarter note to begin on the downbeat of the strain's third measure. Furthermore, this temporal displacement makes it easier for the two channels to be heard as independent sound streams. Though the lines heard in the two channels frequently switch registers, it is only when the first variant moves to rejoin the initial version that an interval smaller than a third is heard between the two parts (see again Fig. 11). In fact, the two channels are surprisingly consonant with each other, featuring many fifths and tenths among occasional sixths and octaves, with several perfect fourths heard later in the passage. Had the stretch of dotted quarter notes begun on a downbeat, the pitches of the two parts would frequently have coincided, lessening the effect of two independent lines acting in counterpoint.

Since the series of 3-groupings in both the initial version and the first variant do not begin on the downbeat, it is difficult to assign the more specific labels of platonic-trochaic or platonic-iambic to these rhythms. Since the run of 3-groupings in the first variant begins after a rest, the rhythm in the first variant fits the definition of a platonic-trochaic rhythm in spite of the fact it does not begin on a downbeat, with a run of 3-groupings followed by a “comma” of 2-groupings, some of them implicit. The rhythm in the initial version, however, is a rotation of the tresillo rhythm, itself a platonic-trochaic rhythm. Since its ascending arpeggios feature groupings of 3, 2 and 3 unit pulses, and does not feature a single series of 3-groupings followed by a single series of 2-groupings, this rhythm does not qualify as “platonic” at all in Murphy’s formulation of the term.¹⁰¹

In the fourth repetition of the tune, yet another variant accompaniment line is heard, which we may refer to as the second variant (Fig. 13). As in the initial version, the second variant consists of a series of ascending arpeggios, and begins on the downbeat of the first measure of the strain. In contrast to the initial version, however, its notes form an isochronous stream, with each note lasting slightly shorter than a pair of eighth notes in the tune’s melody. Upon closer listening, it becomes clear that for every two measures in the main melody, three complete ascending arpeggios are heard, with the initial low note of every third arpeggio coinciding with every second downbeat in the melody. With its three groups of three, this second variant can be heard either as a series of $3/4$ measures, grouped in threes (indicated with dotted barlines in Fig. 13), or as a series of $9/4$ measures. This second variant, thus, constitutes yet another approach

¹⁰¹ Murphy, “Cohn’s Platonic Model,” 1.7.

The image displays a musical score for the piece "Horseshoes and Rainbows." It consists of two systems of three staves each. The top staff in each system is the "Melody" in 3/8 time. The middle staff is the "Second Variant" in 3/8 time, featuring triplets of eighth notes. The bottom staff is the "Second Variant (re-notated)" in 2/2 time, also featuring triplets of eighth notes. The key signature is one sharp (F#).

Fig. 13: Second variant accompaniment line in "Horseshoes and Rainbows," notated in 2/2 using triplets (middle staff) and in 9/4 (lower staff)

to reconciling a triple meter in the accompaniment line with the duple meter of the tune's melody.

How can the differences between the accompaniment lines in subsequent repetitions of the tune be situated theoretically? The first variant features what Keith Waters would call a tactus-preserving polymeter: a short rhythmic duration or tactus, in this case the eighth note, is held constant as a sort of common denominator between the two concurrent meters.¹⁰² These tactus, however, differ in their groupings, causing the larger structures they form to diverge in time. The second variant, in contrast, features what we may call hypermeasure-preserving polymeter, after Waters's measure-preserving polymeter. In Waters's formulation, the period of each meter lasts the same amount of time, with the subdivisions of this temporal interval differing between the two meters. In "Horseshoes and Rainbows," it is not the duration of a single measure of 2/2 that is

¹⁰² Waters, "Blurring the Barline," 24-25.

held constant, but rather of a two-measure hypermeasure, which the onsets of the accompaniment part evenly divide into 9. Brad Osborn might call this phenomenon an instance of polytempo, characterized by pulse streams that differ in both their speed and their cardinality.¹⁰³ In “Horseshoes and Rainbows,” as in much of the music Osborn examines, the larger period of the two pulse streams is the same.

Another way of looking at the three approaches is to note how the temporal comma is treated in the variant bass lines. As Richard Cohn states, there will always exist commas between coprime groupings of unit pulses when they are overlaid, in the same way that any tuning based on exact ratios will contain commas between pairs of notes whose frequencies nearly, but not exactly, coincide.¹⁰⁴ In the case of “Horseshoes and Rainbows,” a comma of a single eighth note occurs between the triply-divided triple meter with a period of nine eighth notes and the quadruply-divided duple meter with a period of eight 8th notes, and Schroer adopts three different approaches in handling this metric comma. In the initial version, one of the rhythmic groupings that may otherwise have formed an isochronous triple meter is squared off: the comma is subtracted from the second of the three rhythmic groupings, creating a 3-2-3 pattern where a 3-3-3 pattern may otherwise have been found. In the first variant, the comma is simply ignored: with each ascending arpeggio, the duration of a comma is allowed to accumulate, causing the metric placement of the first note of each successive ascending arpeggio to drift further and further behind the duple-meter barline. In the second variant, however, the single-eighth-note comma is divided and distributed evenly

¹⁰³ Osborn, *Everything in its Right Place*, 77.

¹⁰⁴ Cohn, “Platonic Model of Funky Rhythms,” 2.7.

among the metric intervals of the accompaniment part, creating what may be thought of as an “equally-tempered” rhythm: the duration of each rhythmic event is slightly shorter than the duration of two eighth notes in the main tune, allowing nine onsets to evenly fill two measures.

What implications do these varying rhythmic groupings have for the pitch content of the three different versions of the accompaniment line? In the initial version, three-note arpeggios occur at a rate of one per measure, though the first note of each arpeggio is anticipated by the duration of one eighth note. In the first variant, the period of each arpeggio is nine eighth notes, leading to a rate of slightly less than one arpeggio per measure, while the second variant features three arpeggios within the time of two measures, leading to a rate of one and a half arpeggios per measure. The series of notes heard in the initial version, then, must be adjusted in each of the variants in order to ensure that they arrive at the same closing figure at the same time to conclude each strain. Compared to the initial version, the first variant drags behind, necessitating the omission of several notes, while the second variant rushes ahead, necessitating several interpolations. In Fig. 14, correspondences between the three versions of the accompaniment line are laid out: in the middle staff, the initial version is notated, with its notes numbered. The first and second variants are notated in the upper and lower staves respectively, and notes that correspond to notes of the initial version have been numbered to reflect this correspondence. The first variant, as mentioned above, is identical to the initial version for its first six notes, accounting for the first two ascending arpeggios. While notes 7 through 11, constituting most of the third and fourth

The figure shows three musical staves for the accompaniment of "Horseshoes and Rainbows". The top staff is the "First Variant (Left)", the middle staff is the "Initial Version", and the bottom staff is the "Second Variant". The Initial Version has 25 numbered notes. The First Variant (Left) has notes numbered 1-15, with a 9-unit grouping from note 6 to 14. The Second Variant has notes numbered 1-25, with 9-unit groupings from note 6 to 14, 15 to 23, and 24 to 25.

Fig. 14: Comparison between the three accompaniment lines heard in "Horseshoes and Rainbows," with notes of the initial version numbered 1-25 (middle staff) and homologous notes in the variant lines labelled with the corresponding number.

arpeggios, are displaced to occur later than in the initial version, an E4 has been substituted for the F#4 that may otherwise have been expected to sound on the second eighth note of the fifth measure. This substitution was likely enacted for contrapuntal reasons, as it eliminates clashes of a ninth and a seventh with the melody in that measure, though it also allows a run of eighth notes to smoothly connect it with note 11. The fifth arpeggio of the initial version is also represented in the first variation with a substitution of A3 for B3, for similar contrapuntal reasons. In order to rejoin the initial version for its closing figure, however, notes 16 through 18 are skipped over. Due to the temporal displacement between notes 6 and 7, as well as the longer 9-unit period of the first variant's triple grouping as compared to the 8-unit period of the initial version, one arpeggiated chord of the initial accompaniment line is omitted entirely.

The situation in the second variant is opposite to that of the first variant: nearly every note of the initial version is represented in the second variant, but due to the shorter amount of time allotted to each arpeggio as compared to the initial version, additional notes are added to the variant to fill out the steady stream of equally-spaced rhythmic events. The first five notes of the initial version correspond to the first five notes of the

second variant, with a G4 heard in place of note 6 or E4. In the initial version, these two three-note arpeggios occupy the time of two measures, but in the variant, nine notes are heard within each two measures, necessitating the interpolation of an additional arpeggio in the last two-thirds of the stream's second measure. A similar process occurs in each of the next two pairs of measures: the notes of the two arpeggios from the initial version account for the first six notes of the second variant, with an additional three note figure—a stepwise ascent in the fourth measure and an arpeggio in the sixth—added to bring the total number of notes in the two measure unit up to nine. Despite the differences between the two variant lines—their contrasting rhythmic density and the omission of several notes in the first variant compared to the multiple interpolations in the second—it is worth noting two ways in which they differ from the initial version while remaining similar to each other: first, the isochrony of the notes of the ascending arpeggios within each variant, and second, the addition of a short ascending line near the halfway point of the strain, breaking up the monotony of a long series of ascending arpeggios.

We have just considered three examples—"Bright Eyes," "Into the Sun," and "Horseshoes and Rainbows"—where multiple meters operate at once. Let us turn our attention now toward "Chel's Bells," in which different meters follow each other in a series of metric modulations rather than operating concurrently.

Chel's Bells

"Chel's Bells" is the sixth track of Oliver Schroer's album *Hymns and Hers*, which he recorded near the end of his life in 2007 after being diagnosed with leukemia.¹⁰⁵ The tune of "Chel's Bells" is repeated three times over the course of the track with little to no melodic variation (Fig. 15). Schroer maintains interest over the track's three and a half minutes through the cumulative addition of new instruments, countermelodies, and multitracked chordal swells behind the fiddle melody; the track features several layers of fiddle, as well as trumpet, acoustic guitar, and electric bass. The tune itself has several unique features: it has two strains, each in its own meter and tempo (Table 7). It also features two interludes that serve as bridges between the two strains. Finally, the B strain features a passage where, within the loose framework of a compound triple meter, successive beats differ from one another in duration.

The A strain of "Chel's Bells" has a meter of 6/8 and a key of D major. Each A strain is composed of a single six-measure phrase (Fig. 16); this strain is repeated four times over the course of the A section. The third repetition of the phrase features a slight variation in its first measure, suggesting an internal AABA grouping, while the second and fourth repetitions of the phrase feature a slight variation in its final measure. These terminal variations suggest an internal ABAB grouping, and also suggests that the A section can be thought of as two repetitions of a twelve-measure strain. The melody of the A strain features several leaps and arpeggiations and outlines a rising five-note line from tonic to

¹⁰⁵ Oliver Schroer, *Hymns and Hers*, Big Dog Music BDO701, 2007, compact disc.

The musical score for "Chel's Bells" is written in 6/8 time with a key signature of one sharp (F#). It consists of the following sections:

- Section A:** Four identical staves of music, each starting with a boxed 'A' label. The melody is a continuous eighth-note line.
- Transition 1:** A single staff labeled 'Trans.' that concludes the first section with a double bar line and repeat sign.
- Section B:** Two staves of music. The first staff is labeled 'B' and includes the instruction 'slightly slower'. The melody continues with eighth notes.
- Section B':** Two staves of music. The first staff is labeled 'B'' and includes a '2' (fingerings) under the first two notes of the first measure. The second staff also has a '2' under the first two notes of the first measure.
- Transition 2:** A single staff labeled 'Trans.' with the instruction 'slightly faster'. It concludes the piece with a double bar line and repeat sign.

Fig. 15: Full tune of "Chel's Bells"

dominant. This rising line is explicitly realized both in the electric bass in every repetition of the tune and in the trumpet in the tune's final statement.

Section(s)	Meter	Number of Bars
A×2	6/8	12 (6×2)
A×2	6/8	12 (6×2)
Interlude	6/8	4
B×2	9/8	8 (4×2)
B'×2	9/8	8 (4×2)
Interlude	9/8	4

Table 7: Form of the tune of "Chel's Bells"

Fig. 16: A section of "Chel's Bells"

The A strain of "Chel's Bells" is followed by a four-measure transitional passage (Fig. 17). Like the tune's initial section, the interlude is in D major with a 6/8 meter; it

Fig. 17: First interlude of "Chel's Bells"

progresses from tonic through subdominant to dominant, ending on a full-measure E4-A4 double stop. The inclusion of a short interlude is highly unusual for a fiddle tune; it is, to my knowledge, unprecedented in the traditional Irish and Scottish repertoires.

The B strain of "Chel's Bells" has a meter of 9/8, and is played at a slightly slower tempo than the A strain. While changes of meter are occasionally observed in Québécois fiddle tunes— Jean Duval labels such asymmetries as *metrical alternation*¹⁰⁶—this technique is practically unheard-of in the traditional dance music styles of the British Isles. Each strain is composed of a single four-measure phrase, and the strain is repeated four times over the course of the B section (Fig. 18). The section's harmony oscillates between Bm and G sonorities, with A major triads acting as transitional chords between the strain's two main harmonic poles. The melody of each measure begins with an ascending arpeggio, and the strain's Bm-A-G-A harmonic progression is clearly outlined by the initial, lowest notes of the fiddle melody. The B section opens with two near-exact

Fig. 18: B section of "Chel's Bells"

¹⁰⁶ Duval, "Revival of 'Crooked' Fiddle Tunes," 51.

repetitions of the B strain, differing only in their final note. Following these two repetitions, a variant of the B strain is then presented, labelled B' in the accompanying figures. This variant, while based on the same ascending arpeggiated triads as the initial B strain, features four-note rather than three-note arpeggios that extend onto the fiddle's high E string. The measures of the B' strain feature an increased rhythmic density, with irregular rhythmic divisions. I have notated these rhythms using a combination of duplets and triplets, though this transcription provides only an approximation of the nuanced, flexible rhythms heard in the track. The irregular rhythms of the B' section are likely inspired by Norwegian *pols* and *springar* tunes, or the related Swedish *polska* genre, all of which are in triple meters and feature non-isochronous beats. Following its initial statement, the four-measure B' strain is repeated a second time, with variations added in the first, third and fourth measures. The B section is thus made up of two repetitions of the B strain followed by two repetitions of the B' strain, adding up to 16 measures in total.

Following the tonal limbo of the B section, the initial D4 of the second interlude reasserts a tonic of D major. The section begins with a slight fermata, and while the passage can be transcribed in the 9/8 meter of the B strain, this brief pause has the effect of obscuring the passage's meter, creating a series of undifferentiated, triply-subdivided beats not clearly grouped within an overarching meter (Fig. 19). Like the tune's first interlude, this second interlude provides a transition between the B and A strains, tracing a harmonic progression from tonic to dominant and ending on an A-E

Second Interlude

DM: I ii I V I IV iv V

Fig. 19: Second interlude of "Chel's Bells"

double stop; at the end of the tune's third repetition, Schroer also chooses to end the entire track on this A4-E5 open fifth.

While the two main sections of "Chel's Bells" are neatly duply divisible, the track displays formal, metric and rhythmic features rarely found in the fiddle music traditions on which Schroer draws. Schroer breaks up what would otherwise have been a large-scale, symmetric, duple hypermeter encompassing the tune's main strains by including short interludes between the sections. The tune is unusual for having different meters in each of its two main sections. And while a detailed analysis of the microrhythms of the B' strain is beyond the scope of this thesis, it is clear that in this instance, Schroer is choosing to incorporate temporal asymmetries on a level smaller than that of the subdivision.

"Chel's Bells" features meter changes between sections, as well as brief interludes that create hypermetric irregularity within individual repetitions of the tune. We turn now to another piece, "Before Dreaming," with meter shifts that are more subtle than those of "Chel's Bells," and a more complex form.

Before Dreaming

“Before Dreaming” is the thirteenth track of Oliver Schroer's 2005 album *A Million Stars*.¹⁰⁷ In contrast to many of Schroer's tunes, "Before Dreaming" has two strains each lasting eight bars and features no dramatic harmonic or melodic excursions, but the track stands out among other recordings of fiddle tunes for its inclusion of a lengthy introduction, an interlude with multiple distinct sections, and a tag (Fig. 20). The track also features several passages with ambiguous meter, as well as numerous metric modulations between its various sections (Table 8). Some of these meter changes are

The musical score for "Before Dreaming" is presented in several sections:

- Interlude - First Section:** A single staff for 5-str. in 3/4 time. The melody consists of eighth and quarter notes. A note above the staff reads "strings pulse on each quarter-note beat". The section ends with a double bar line and a repeat sign. A note above the staff reads "Repeat 6 times".
- Interlude - Second Section:** A single staff for 5-str. in 3/4 time. The melody consists of eighth and quarter notes.
- Interlude - Third Section:** A two-staff system. The top staff is for 5-str. and the bottom staff is for Pizz. (pizzicato). The time signature is 2/4. The 5-str. part has rests for the first six bars, followed by a quarter note and a half note. The Pizz. part has a rhythmic pattern of eighth and quarter notes.
- Section A:** A single staff for 5-str. in 2/4 time. The melody consists of eighth and quarter notes.
- Section B:** A single staff for 5-str. in 2/4 time. The melody consists of eighth and quarter notes.
- Outro:** A two-staff system. The top staff is for 5-str. and the bottom staff is for 5-str. The time signature is 2/4. The top staff has rests for the first three bars, followed by a quarter note and a half note. The bottom staff has a rhythmic pattern of eighth and quarter notes.

Fig. 20: Interludes, main tune and outro of "Before Dreaming"

¹⁰⁷ Oliver Schroer, *A Million Stars*, Big Dog Music BDO401, 2004, compact disc.

Sections	Meter	Measures
Intro	Unmetered	(60 seconds)
Intro	3/4	16
AA	3/4 (or 6/8)	16 (2×8)
BB	3/4 (or 6/8)	16 (2×8)
AA	3/4 (or 6/8)	16 (2×8)
BB	3/4 (or 6/8)	16 (2×8)
Interlude	4/4 (or 2/2)	24 (3×8)
Interlude	3/2	8 (2×4)
Interlude	3/4 (or 3/2)	8
AA	3/4 (or 6/8)	16 (2×8)
BB	3/4 (or 6/8)	16 (2×8)
Tag	3/4	13 (12+1)

Table 8: Arrangement of "Before Dreaming"

beat-changing, with the listener forced to re-interpret the main pulse of the music, while others are beat-preserving; considering that many passages are metrically ambiguous, however, it is unclear at times which type of meter change is occurring during a given metric modulation. The fiddle, played both plucked and with a bow, features prominently in the track, which also includes electric bass and various percussion instruments including bells and singing bowls.

The introduction of "Before Dreaming" can be divided into two sections, one unmetered and one metered (Fig. 21). The track begins with a lengthy unmetered passage, with singing bowls and small metal percussion instruments such as bells and chimes. At exactly the track's one-minute mark, the five-string fiddle enters with a series of accented shots, two notes of equal length followed by two shorter notes. It is not immediately clear that this passage is in a particular meter: The initial set of shots is

Introduction - First Section

5-String fiddle
Fiddle pizz.

singing bowls etc.

3/4

3/4

Introduction - Second Section

5-str.
Pizz.

5-str.
Pizz.

pizz continues simile

A
5-str.

B
5-str.

Fig. 21: Introduction and main tune of "Before Dreaming"

followed by several seconds where no musical event occurs that is clearly related to the metric grid suggested by the shots' rhythm: the scattering of bells and chimes of the unmetred section continue, and a collection of multitracked fiddles swell in and out in a diatonic cluster. Following a second statement of these shots, a pizzicato melody emerges. This melody bridges the gap between the second, third and fourth sets of shots, allowing a triple meter to begin to assert itself.

The melody of the A strain of "Before Dreaming" (Fig. 22) is not inconsistent with the triple meter established in the introduction, but this interpretation is undermined by several of the strain's musical features. First, any sense of meter a listener may have



Fig. 22: A strain of "Before Dreaming"

begun entraining to in the introduction is called into question by the syncopation that begins the A strain. The first note of the section is anticipated by a full quarter note, transforming what would otherwise have been an eighth note into a dotted quarter note. Only after several measures does it become clear that this initial note fell a quarter note before the downbeat. Second, the tune's melody is built upon a persistent rhythmic motif, which consists of three eighth notes, a quarter note and an eighth note. For the rhythm to be interpreted in a triple meter, a listener must interpret the rhythm's quarter note as the anticipation of a note which would otherwise have fallen on the measure's third beat. The rhythm, however, could easily be interpreted with an alternate metric grouping of two beats per measure, the first consisting of three eighth notes and the second consisting of a quarter-note–eighth-note pair (Fig. 23).¹⁰⁸ In this way, a



Fig. 23: The opening measures of the A strain of "Before Dreaming," notated in 6/8 and in 3/4

¹⁰⁸ The strain's final measure is the only one that does not feature the rhythmic motive, and is difficult to hear in a duple meter. If the strain is interpreted in a 6/8 meter, this measure functions as a hemiola.

rhythmic event that disrupts a listener's sense of meter begins a strain that can be heard in either 3/4 or 6/8.

The B strain begins with several additional repetitions of the persistent rhythmic motive, which is subsequently varied over the course of the strain's first four measures (Fig. 24). This variation involves an instance of grouping dissonance. The first instance of the motive features a leap from E4 up to A4, the repetition of A4, a step down to G4, and a leap down to D4, and the second instance is an exact repetition of these pitches. In the strain's third measure, this motive is varied, with the melody beginning this time on C4 and proceeding upwards by step to E4 before leaping up to A4. The fourth measure features a further variation, with the melody beginning on A3, stepping up through the notes of a minor pentatonic scale to E4, and finally leaping up to A4. With each addition of notes to the beginning of the measure, the A4-G4 step that marks the motive's high point is delayed: whereas the second A-G step occurs six eighth notes after the first, the third instance is displaced by an eighth note, occurring seven quarter notes after the

Fig. 24: The B strain of "Before Dreaming"

second instance, and the fourth instance similarly occurs seven quarter notes after the third. This feeling of metric drift is disrupted by an accented quarter-note–eighth-note pair of B4-E5 double stops beginning on the downbeat of the strain’s fifth measure followed by two downward pentatonic scalar runs, a figure whose opening is repeated, transposed down a perfect fifth, two measures later. This double-stop motive de-emphasizes the metric position falling at the measure’s halfway point, strongly suggesting a meter of 3/4 instead of 6/8. In spite of several repetitions of the A section’s rhythmic motif, and the subsequent six-against-seven grouping dissonance, this double stop motive, combined with a quarter-note bowed-string pulsing layered beneath the main melody, creates a feeling of three quarter notes to the bar rather than two dotted quarter notes.

The interlude of "Before Dreaming" has three sections, each of which can be felt in multiple different meters. The first two feature new material, while the third section returns to the pizzicato melody heard in the introduction. The melody of the first section is composed of a series of quarter notes and eighth notes (Fig. 25). Considered alone, this melody could be heard with a meter of two beats per measure each with the duration of a half note, similar to the feel of a slow reel or a hornpipe played with even eighth notes. But the accompaniment features clustered chords pulsing on each quarter note, suggesting a meter of 4/4 rather than 2/2. Assuming that the listener entrained to



Fig. 25: First section of the interlude of "Before Dreaming"

a meter of 3/4 in the preceding B strain, the metric modulation into the first section of the interlude can be heard either as beat-preserving, with the quarter note of the earlier 3/4-meter section held constant into the interlude's 4/4, or as beat-changing, with the main beat of the meter changing from a quarter note in the B strain to a half note in the interlude. The pulsing, clustered chords of this section exist in multiple layers, with one layer hewing tightly to the metric grid as the others drift in and out of time.

The pulsed string clusters drop out at the beginning of the second section of the interlude, and the violin takes up a melody that features several notes with longer values (Fig. 26). The decreased rhythmic density of the melody and lack of pulsed quarter notes, as well as a bass line that emphasizes notes separated by multiples of a half note, give the section a feel of three slow beats per measure, each beat lasting the duration of a half note. Depending on how a listener heard the first section of the interlude, the metric modulation from the first section into the second could be heard either as beat-changing, if the first section was heard in 4/4, or beat-preserving, if the listener heard the previous section in 2/2.

With the arrival of the third section of the interlude, the bowed violin melody drops out, and the pizzicato line heard in the introduction returns. In contrast to the introduction, however, this section of the interlude includes none of the accented shots heard near the



Fig. 26: Second section of the interlude of "Before Dreaming"

beginning of the track. In the absence of these shots, which began on the downbeat and occupied the time of three quarter notes and were one of the salient musical events that suggested a meter of 3/4 in the introduction, the residual feeling of three long beats per measure is not undermined (see Fig. 27). The pizzicato melody, characterized by short runs of eighth notes separated by rests, does little to suggest a return to 3/4: The first two of its eighth-note runs begin on beats 2 and 3 of a 3/2 measure, while it is not until the section's fifth measure that the plucked line features a note on the downbeat of a 3/4 measure. Depending on whether the listener remembers how they entrained to the pizzicato melody in the introduction, and how persistently they hold on to the feeling of half-note beats from the interlude's second section, this modulation again could be understood as either beat-changing or beat-preserving. It is only with the return of the main tune's melody that a meter with half-note beats becomes untenable.

After the interlude, the main tune is repeated once more. The arrangement closes with a brief outro consisting of three repetitions of the final two measures of the B strain, with the final note extended for several measures each time (Fig. 28). These repetitions of the end of the final section call to mind the practice, familiar from popular songs from the



Fig. 27: The third section of the interlude of "Before Dreaming," notated in 3/4 and 3/2



Fig. 28: The tag of "Before Dreaming"

middle of the 20th century, of “tagging” the end of a song by repeating the last two measures of its final phrase several times, and suggest that Schroer took inspiration from pop music in crafting the arrangement of this track. This influence is also evident in the form of the entire track, with the interlude occupying the position of the bridge in a pop song.

To summarize the metric processes that occur in "Before Dreaming": the meter of the main tune does not crystallize until partway through the A strain, and is obscured by an initial syncopation, a rhythmic motif that suggests an alternate meter, and a grouping dissonance in the tune’s second strain. Following this, there is a transition between a meter with quarter-note beats in the B strain and one with half-note beats in the second section of the interlude. A beat-changing meter change must have occurred somewhere during this progression, but it is ambiguous whether it occurred going into or coming out of the first section of the interlude. A similar transformation occurs between the second half of the interlude and the return of the A section, where a listener must switch from hearing beats lasting a half note to hearing beats lasting a quarter note, though it remains similarly unclear whether this happened going into or coming out of the third part of the interlude. If meters with different beat lengths can be thought of as

analogous to different modes of consciousness, the ambiguity of the piece's meter and its metric modulations effectively depict the subtle transition from wakefulness to sleep.

We have just looked at two tunes that feature hypermetric asymmetries spanning full repetitions of the tune, or the entire form. We look now at "The Hub of the Wheel," which features hypermetric asymmetry within individual strains.

The Hub of the Wheel

“The Hub of the Wheel” is the ninth track from *Jigzap*.¹⁰⁹ The instrumentation of the track is characteristic of many recordings of traditional Irish tunes, with Schroer playing the melody on fiddle throughout, accompanied with acoustic guitar and (rather uncharacteristically) electric bass. The track is notable, however, for its irregular form, dramatic modulations, and persistent use of a descending three-note motive. In the following paragraphs, the form of “The Hub of the Wheel” is outlined, before the harmony that articulates the piece’s form is examined in more detail.

“The Hub of the Wheel” has five distinct strains (Fig. 29). While two of these strains, A and D, last for eight measures, the A', B and C strains are each extended by several measures (Table 9). The entire tune is repeated two full times, with the tune ending at the conclusion of the A' strain partway through a third repetition. Decisions about how to divide the tunes into strains have been informed by several musical parameters: five-note ascending bass lines close the A, B and C strains, creating a sense of resolution at the arrival of the ensuing strain; agogic accents and a reduction in rhythmic density mark the end of the A' strain; the most salient feature marking the end of the D strain is a return to the melody heard at the tune's opening.

The A strain of “The Hub of the Wheel” is characterized by the persistent repetition of a three note motive (Fig. 30). The motive consists of a three-note descending stepwise run; allowing for a variant of this motive consisting of a descending step followed by a

¹⁰⁹ Schroer, *Jigzap*.

The image displays a musical score for "The Hub of the Wheel" in 6/8 time, written in the key of D major (two sharps). The score is organized into five distinct sections, each marked with a letter in a box:

- Section A:** The first system, starting with a repeat sign and a fermata over the first measure.
- Section A':** The second system, which continues the melodic line.
- Section B:** The third system, featuring a change in articulation with dotted notes.
- Section C:** The fourth system, showing a key signature change to D minor (two sharps) for the first measure.
- Section D:** The fifth system, which returns to the D major key signature.

The notation includes various rhythmic values such as eighth and sixteenth notes, rests, and repeat signs, all presented on a single treble clef staff.

Fig. 29: The main melody of "The Hub of the Wheel"

descending skip, every note in the strain participates in an instance of this motive. While the meter and rhythm of the melody and the articulation and ornamentation of Schroer's performance are consistent with that of an Irish double jig, and even though

Section	Length
A	8 measures
A	8 measures
A'	11 measures
B	11 measures
C	12 measures
D	8 measures

Table 9: Form of the tune of "The Hub of the Wheel"

The image shows a musical score for the A strain of "The Hub of the Wheel". It consists of two staves: Violin (top) and Bass Guitar (bottom). The key signature is two sharps (D major) and the time signature is 6/8. The Violin part begins with a two-measure phrase, followed by a 2-measure phrase that is repeated. The Bass Guitar part provides a rising bass line that supports the changing harmonies. The chords are D/F#, G, A, and Bsus. The Violin part has several 3-note descending motives labeled 'm' and 'v'. The Bass Guitar part has a rising bass line that supports the rising melody.

Fig. 30: The A strain of "The Hub of the Wheel." Instances of the 3-note stepwise descending motive are labelled "m," and variant instances with the same contour but different intervals are labelled "v."

many Irish jigs feature the repetition and variation of short phrases and motives, the insistence of this three-note descending motive is highly unusual for an Irish tune. The A strains are symmetric in their form and sentential in their construction. Each lasting eight measures, they begin with a two-measure phrase that is then repeated over a static harmony. A rising bass line supports changing harmonies in the following four

measures, while the melody explores a higher register, using motives clearly related to the tune's opening melodic material.

The A' strain begins similarly to the A strain (Fig. 31), an initial hint that "The Hub of the Wheel" is not a formally standard jig, since both Irish and Scottish jigs usually feature 8-measure strains that are repeated twice, but not more than twice.¹¹⁰ A slight variation is introduced in the strain's third measure, and while this introduces several beats that do not involve statements of the motive or its variant, the descending motive

The figure displays a musical score for the A' strain of "The Hub of the Wheel" in 6/8 time, featuring Violin and Bass Guitar parts. The score is divided into three systems, each with a Violin staff on top and a Bass Guitar staff on the bottom. The key signature is one sharp (F#) and the time signature is 6/8. The first system is marked with a boxed 'A'' above the first measure. Brackets above the Violin staff identify motives: 'm' for the main motive and 'v' for a variant. Annotations below the Violin staff indicate a '2-measure phrase from A strain' (measures 1-2) and a '2-measure phrase, varied' (measures 3-4). Chords are indicated below the Bass Guitar staff: Em for measures 1-2 and Cmaj7 for measures 3-4. The second system continues the melody with 'm' motives. Chords below the Bass Guitar staff are Em, D/F#, G, A, and Bsus. An annotation 'variation introduced' points to the A chord in measure 5. A note 'rising bass line supports rising melody' is placed below the Bass Guitar staff. The third system concludes the strain with 'm' motives. A chord of Em is indicated below the Bass Guitar staff in measure 5. An annotation 'descending bass line supports descending melody' is placed below the Bass Guitar staff.

Fig. 31: The A' strain of "The Hub of the Wheel," with instances of the descending motive labelled "m" and instances of the variant motive labelled "v."

¹¹⁰ McCullough, "Style in Traditional Irish Music," 88.

is nearly omnipresent in the A' strain. Following this variation, the strain returns to the initial melody heard in the A strain, and it is not until the tune's eighth measure that a within-strain asymmetry is heard, with the tune's melody spilling into two additional measures of downward stepwise transpositions of the tune's characteristic descending motive, ultimately concluding with an arrival on an E4, held for a full beat. Within Duval's taxonomy of asymmetries can be found two categories that come close to describing this strain's asymmetries: The section features *morphological lengthening by trebling*, though the strain is varied on its third repetition instead of being repeated verbatim, as well as *cadential syntactical lengthening by scaling extension*, though the scale in the extending passage is decorated with instances of the tune's characteristic motive.¹¹¹ Parallels may also be drawn with a process Chris Goertzen observes in Norwegian fiddle tunes, where in the second strain of a tune, which often involves repeated figures and melodic sequences, these sequences and repeated figures sometimes “spill into an 'extra' measure or two.”¹¹² This sense of additional repetitions of the tune's characteristic motive spilling over into additional measures is palpable at the end of this strain of "The Hub of the Wheel.”

The tune's B strain also lasts for eleven measures (Fig. 32), though the additional measures are introduced in a different part of the strain than in the A section. The rising bass line, occupying the final four measures of the strain, suggests that these extra measures are added earlier in the strain. The F-sharps that recur on the downbeats of the strain's third, fourth, fifth and sixth measures suggest Duval's category of

¹¹¹ Duval, “Revival of ‘Crooked’ Fiddle Tunes,” 52.

¹¹² Goertzen, *Fiddling for Norway*, 143.

The image shows a musical score for the B strain of "The Hub of the Wheel" in 6/8 time, D major. It consists of two systems, each with a Violin staff and a Bass Guitar staff. The first system (measures 1-6) has a key signature of one sharp (F#) and a time signature of 6/8. The Violin staff starts with a box labeled 'B' above the first measure. A bracket labeled 'v' spans the first measure. The Bass Guitar staff has chords: D/F# (measure 1), G (measure 2), A (measure 3), Bsus (measure 4), G (measure 5), and A (measure 6). Annotations include 'F-sharp on downbeat' above the first note of measure 4, 'near-repetition of previous measure' above measures 4 and 5, and 'F-sharp' above the final note of measure 6. The second system (measures 7-11) has the same key signature and time signature. The Violin staff has a bracket labeled 'm' above measures 7 and 8, and another 'm' above measures 9 and 10. The Bass Guitar staff has chords: A/F# (measure 7), Em (measure 8), D/F# (measure 9), G (measure 10), A (measure 11), and Bsus (measure 12). Annotations include 'F-sharp' above the first note of measure 7 and 'rising bass line occupies final 4 measures of strain' below the last four measures of the system.

Fig. 32: The B strain of "The Hub of the Wheel," with instances of the descending motive labelled "m" and instances of the variant motive labelled "v."

intermediary lengthening through *iteration*, where a two- or three-beat motive is immediately repeated.¹¹³ The fourth measure of the strain is a near-exact repetition of the previous measure, differing only by its final note, though the next two measures depart significantly from this model. It is difficult to propose a normalized eight-measure version of this strain, and without being able to identify specific measures that are clearly interpolated, none of Duval's other categories comes closer to explaining the asymmetry in this strain. A more direct parallel might be drawn with a process Goertzen observes in Norwegian fiddle music, where tunes, particularly from the Hardinger fiddle tradition, will frequently be composed of repetitions and variations of a basic motive.¹¹⁴ In tunes such as these, asymmetry of phrase length arises through a process of repetition and variation, rather than as a departure from a normative strain with eight measures. While the B section of "The Hub of the Wheel" is not strictly composed of

¹¹³ Duval, "Revival of 'Crooked' Fiddle Tunes," 52.

¹¹⁴ Goertzen, *Fiddling for Norway*, 143.

repetitions and variations of only one motive, this more organic process of repetition and variation seems better to describe the expansion of this strain than any of Duval's categories.

The C strain opens with several agogically accented G-sharps in the melody which stand out following the repeated G-naturals of the A and A' strains (Fig. 33). The final eight measures of the tune's C strain, supported by a stepwise ascent in the bass, add up to a neat, symmetrical formal unit—these measures could make up a self-contained section on their own, and indeed, the D section begins with a four-measure echo of this passage—suggesting that the strain's first four measures may be thought of as an initial

The musical score for the C strain of "The Hub of the Wheel" is presented in two systems. The first system shows the Violin and Bass Guitar parts. The Violin part has a treble clef and a key signature of three sharps (F#, C#, G#). The Bass Guitar part has a bass clef and the same key signature. The time signature is 6/8. The first system includes annotations: a box labeled 'C' above the first measure, a bracket labeled 'three-beat motif' over measures 1-3, and another bracket labeled 'repetition of motif' over measures 4-6. Brackets labeled 'm' are placed under the descending three-note motifs in measures 1, 2, 3, 4, 5, and 6. Chords C#m, A, and C#m are written below the Bass Guitar staff. The second system continues the melody and bass line. Brackets labeled 'm' are placed under the descending three-note motifs in measures 7, 8, 9, 10, 11, and 12. Chords A and Bm are written below the Bass Guitar staff. A dashed line below the second system is labeled 'rising bass line occupies eight measures'. The third system shows the final four measures of the strain. Brackets labeled 'm' are placed under the descending three-note motifs in measures 13, 14, 15, and 16. Chords A, D, and E are written below the Bass Guitar staff. A dashed line is at the bottom of the third system.

Fig. 33: The C strain of "The Hub of the Wheel," with instances of the descending three-note motive labelled "m" and instances of the variant motive labelled "v."

lengthening. The only *initial syntactical lengthening* Duval offers is *anacrusis*, whereby a motif is added before the "normal beginning" of a strain.¹¹⁵ Noting that the first three beats of the strain are repeated beginning in the second half of the first measure, and that the tune's fourth measure begins with the held, repeated G-sharps of this motif, this passage may be thought of as expanded through a combination of *anacrusis* and *iteration*, with the motif prepended to the strain repeated and then varied before the strain's "normal beginning." Another possible explanation is *aparté*, an intermediary syntactical lengthening whereby a long motif is inserted only once into a strain, though this categorization is an imperfect match as the added motif is repeated.¹¹⁶ It is worth noting that the repetition of the added motif after three beats has the effect of obscuring the underlying 6/8 meter, as these two repetitions could be heard as a momentary metric modulation to 9/8 (Fig. 34).

The tune's D strain (Fig. 35), lasting eight measures, is in some ways a variation of the C strain, with its first four measures a near-exact repetition of the previous strain's fifth through eighth measures. This repetition of material from the middle of the C strain lends credence to the interpretation of the C strain being expanded through *anacrusis*.



Fig. 34: The first six measures of the C strain of "The Hub of the Wheel," notated in 6/8 (upper staff) and with a metric modulation from 9/8 to 6/8 (lower staff)

¹¹⁵ Duval, "Revival of 'Crooked' Fiddle Tunes," 52.

¹¹⁶ Ibid.

Fig. 35: The D strain of "The Hub of the Wheel," with instances of the descending motive labelled "m" and instances of the variant motive labelled "v."

In the final three measures of the D strain, numerous instances of the descending three-note motive from the tune's opening section begin to recur, smoothing the transition back into the A strain at the beginning of the next repetition of the tune.

One could go so far as to think of the form of the tune as consisting of two A strains, an A' strain, a B strain, a four-measure anacrusis to the C strain, a C strain, and a C' strain (Table 10, Fig. 36). While this alternate analysis looks good on paper, it is difficult to experience the fifth bar of the C strain as the beginning of a strain, as suggested by this

Section	Length
A	8 measures
A	8 measures
A'	11 measures
B	11 measures
before C	4 measures
C	8 measures
C'	8 measures

Table 10: Alternate form of the tune of "The Hub of the Wheel"

Fig. 36: The tune of "The Hub of the Wheel," with an alternate formal reading. The lengths of several staves have been adjusted to highlight melodic repetitions in the first and second and fourth and fifth staves.

alternate form. If we are to discuss asymmetries in the form of "Horseshoes and Rainbows," we must examine what musical factors create the sense of sections beginning and ending, and to do this, we must look more closely at the piece's harmony.

Harmony in The Hub of the Wheel

The accompaniment parts of most traditional fiddle tunes are usually thought of as playing a supporting role to the melody, which is thought of as the defining characteristic of a tune, the feature that sets it apart from other tunes in the same mode or rhythm.¹¹⁷ Examination of the track's bass line, however, reveals that the tune's harmonies are not merely incidental, but arranged in a considered and nuanced structure. Most of the tune's harmonies participate in stepwise bass lines, which articulate the beginnings and endings of strains, and in doing so, serve to reinforce that section's modal center. At times, however, these stepwise bass lines are arranged in such

¹¹⁷ Hillhouse, "Touring as Social Practice," 315.

a way as to obscure tonal centers and blur formal boundaries. While nearly all of the track's harmonies participate in one of these stepwise lines, the track's chords also feature two striking instances of submediant harmonic relationships involving oscillation between the tonic chord of a minor-mode passage and the major chord a third below the local tonal center. A simplified version of the bass line is presented in Fig. 37, and the tonal centers, prominent stepwise bass lines and moments of submediant motion are summarized in Table 11.

A rising bass line outlines E minor triad, sets up downward resolution by fifth

A' oscillation between E and C bass line rests on E at end of strain

B stepwise descent from G to E
 — rising bass line outlines E minor triad — rising bass line sets up downward resolution by fifth

C oscillation between C-sharp and A
 — rising bass line outlines A major triad, sets up downward resolution by fifth —

D descending bass line sets up downward resolution by fifth

Fig. 37: Simplified bass line of "The Hub of the Wheel." The lengths of several staves have been adjusted to highlight repetitions between sections.

Section	Length	Harmony
A	4 measures	E minor
	4 measures	stepwise ascent E -> B
A	4 measures	E minor
	4 measures	stepwise ascent E -> B
A'	4 measures	Em -> C -> Em oscillation
	4 measures	stepwise ascent E -> B
	3 measures	stepwise descent B -> E
B	3 measures	stepwise ascent F sharp -> B
	4 measures	stepwise descent G -> E
	4 measures	stepwise ascent E -> B
C	4 measures	C#m -> A -> C#m oscillation
	8 measures	stepwise ascent A -> E
D	6 measures	I-ii-V in A major
	2 measures	stepwise descent A -> E

Table 11: Stepwise bass lines and moments of submediant harmonic oscillation in "The Hub of the Wheel"

The numerous stepwise bass lines of "The Hub of the Wheel" serve several functions. Most of the sections of the tune feature ascending bass lines which rise to the fifth degree of the local mode and serve to create a sense of rising tension that is resolved at the arrival of the next section—that is, they support a cadential function. These and other bass lines highlight notes of the tonic triad of the mode active at the time, and thus serve to reinforce the local mode.

The stepwise bass line in the tune's A strain both supports a cadential function and outlines the mode of E dorian. The first four measures of the strain's melody are played over a sustained E2 in the bass. Measure 6 of the section features a G, the third degree of E dorian, which is approached by a passing F-sharp in the previous measure. The seventh and eighth measures of the section follow a similar profile, with a B in the

eighth measure, the fifth degree of E dorian, approached via a passing A at the end of m. 7. Rising through an E-minor pentachord and dwelling on the notes of a minor triad rooted on E, this rising line reinforces that this section is in some variant of E minor; the C-sharp and D-natural heard in the fiddle part make it clear that this variant is E dorian. With the arrival of the tune's ninth measure, the bass falls by compound fifth to E1. While it would be an overreach to identify this rising bass line as a tonic-subdominant-dominant-tonic cadential progression, the parallels with the classical i6-iv-V-i formula are clear. Rising by step and resolving by downward leap, this bass line creates a sense of tension and resolution, and makes clear that the first strain of the tune has ended and another has begun.

Following a repetition of the A strain that is identical to the first statement but for a change in register and several embellishing notes in the bass, what sounds at first like a third repetition of the A strain begins. In place of the four-measure of tonic pedal, a C2-G2 fifth is introduced in the strain's third measure: a submediant chord that effects a striking change in harmonic colour (see Fig. 37). At the strain's fifth measure, the bass returns to an E and the rising stepwise line begins again. Whereas the fiddle melody reached a high point of E5 on the second beat of the seventh measure in the first two strains, supported by an A in the bass, a melodic variant is introduced in the A' strain, delaying the arrival at E5 by one beat. This leads to a passage of several extra measures as the fiddle descends over seven beats from E5 to E4, creating a strain of 11 measures and necessitating a modification of the bass line. Instead of resolving downward by fifth after reaching B, the bass descends by step through the E minor pentachord, shadowing

the descending melodic contour heard in the fiddle. This scalar descent, paired with the previous ascent, further underscores the passage's modality. And while closure in the tune's first two strains was achieved in part through a downward leap by fifth in the bass, the conclusion of the A' section has if anything a greater sense of finality, though it achieves it by different means. Both bass and fiddle land on E on the downbeat of the strain's final measure, whereas in the previous strains, the fiddle's initial note in the final measure of the strain is G. In addition, the arrival on E is accompanied by a reduction in rhythmic activity in the fiddle part: whereas a stream of uninterrupted eighth notes are heard throughout the tune's first three strains, the downbeat of the last measure of the A' strain features a melodic dotted quarter note. And whereas the first two strains featured a resolution to the downbeat of the following section, creating a sense of continued motion, the final strain features a resolution on the downbeat of the final measure of the section, creating a sense of repose. All of these factors contribute to the A' strain's greater sense of finality than that of the A strain, and indeed, Schroer chooses to end the entire track at the conclusion of an A' section.

The tonality of the B strain of "The Hub of the Wheel" is ambiguous—it begins on a first-inversion D major triad, and includes both a G-natural and a G-sharp in the melody—but a case can be made for the strain having a tonal center of E. To begin, the previous strains clearly outlined a modality of E dorian, and but for one note, the pitches heard in the B section are consistent with that collection of pitch classes (Fig. 38). Furthermore, the strain ends with a stepwise ascent from E₂ to B₂ in the bass, the same stepwise ascent heard in the first two sections (see Fig. 37). And listening to the strain's first three

A — all notes diatonic to E dorian: C-sharps, F-sharps and G-naturals —
 ↳ tonal centre of E —

— C-sharps, F-sharps and G-naturals —

A' — C-sharps, F-sharps and G-naturals —

— C-sharps, F-sharps and G-naturals —

B — transition from E dorian to E mixolydian: both G-naturals and G-sharps —
 ↳ tonal centre ambiguous; possibly D —

— G-naturals and G-sharps —

G-sharp

G-natural

C — all notes diatonic to E mixolydian: C-sharps, F-sharps and G-sharps —
 emphasized G-sharps
 ↳ tonal centre of C-sharp —

— C-sharps, F-sharps and G-sharps —
 ↳ tonal centre of A —

D — C-sharps, F-sharps and G-sharps —

Fig. 38: Shifting tonal centers and pitch inventories in "The Hub of the Wheel"

measures, we hear a stepwise bass ascent from F-sharp to B: four of the five notes of the E minor pentachord heard throughout the A and A' sections. In fact, this ascent can be heard as a full, five-note scalar passage if one takes the last note of the A' section as its first note: the bass line of the opening measures of the B section can be interpreted as an ascent-in-progress outlining the notes of an E minor triad, with the F-sharp in the bass heard as a hypermetrically accented passing tone between E and G. This, in turn, suggests an interpretation of the root-position G major triad and A major triad over a bass of F-sharp heard in the middle of the B-section: The G harmony is a chord built on the third scale degree of E dorian, while the F-sharp in the bass heard in measures 33 and 34 is a passing note connecting G and E. Though the music's modality is more ambiguous than in the previous strains of the tune, the rising scale at the end of the B section suggests that the passage is still in E dorian, and the other notes of the bass line can also be reasonably interpreted in the context of that mode.

The rising E-minor pentachord heard in the bass at the end of the B section has the same function as those heard at the end of the tune's first two strains: to create a sense of building tension to be resolved with the arrival of the next section. This ascent, however, leads to the most dramatic moment in the tune: instead of resolving downward by fifth as in the tune's A sections, the bass line proceeds to C-sharp (moving downwards by seventh rather than upwards by step). At this moment, the melody steps upwards to G-sharp where a G-natural might otherwise have been expected; the harmony has arrived on an emphatic C-sharp minor chord. From here, the bass oscillates between C#2 and A1, another example of a submediant relationship, before

embarking on another stepwise ascent, rising through the notes of an A major pentachord. This stepwise ascent, along with the subsequent bass resolution from E to A, create a strong aural perception of being in A major.

The D section of the tune features two measures where A is heard in the bass, two with B in the bass and two with E in the bass, outlining a progression from tonic through supertonic to dominant. These six measures are followed by a stepwise descent from A₂, through G#₂ and F#₂, to E₂. This could easily be heard as a motion from tonic to dominant in A major, so the harmonic event that occurs at the beginning of the next strain is unexpected: instead of resolving to A, the bass falls to E₁, and the fiddle transitions smoothly into the tune's opening melody with a metrically accented G-natural. Whereas the expectation for resolution by downward fifth is fulfilled in the A sections and the C section, and thwarted with a motion by rising step at the end of the B section, there is hardly any resolution at all at the end of the D section: the harmony changes from E major to E minor, and the listener is forced to reinterpret what had previously been a dominant-sounding bass note as a tonic-sounding bass note.

In the A and A' strains of the tune, rising bass lines both outline the strains' E dorian modality and create an expectation for subsequent resolution. In the B strain, the first rising bass line blurs the modality of the section by beginning on the second scale degree in E, while a subsequent ascent reasserts the E dorian modality and again creates a sense of rising tension. The C and D strains feature ascending stepwise bass lines that outline the key of A major and create expectations for resolution to A; the expectation at

the end of the C strain is fulfilled at the beginning of the D strain, but subverted at the end of the D strain with the return of the A strain. The relationships between the tune's harmonic progressions and its modally-flexible melody are complex, and the stepwise bass lines from which the piece's harmony springs are at once nuanced and unpredictable, yet clearly structured.

Modality in The Hub of the Wheel

"The Hub of the Wheel" features more dramatic harmonic excursions than most traditional fiddle tunes: with a mode of E dorian clearly established in the tune's A and A' sections, the tune's melody and accompaniment travel through a somewhat ambiguous B section, arriving on an emphatic C-sharp minor chord at the beginning of the C section, before spending time in A ionian at the end of the C section and throughout the D section. While minor chromatic mediant relationships, such as that between E minor and C-sharp minor, are rarely found in performances of a single tune in most fiddle music traditions, consideration of the modal characteristics of traditional Irish music suggest that this departure is not as extreme as it may first appear.

In his 1990 book *The Melodic Tradition of Ireland*, James Cowdery outlines four scales or modes heard in Irish music: the octave from D4 to D5, the octave from E4 to E5, that from G4 to G5, and that from A4 to A5. For each of these scales, a key signature with an F-sharp is assumed, while C-natural and C-sharp are treated flexibly.¹¹⁸ For example, for any given passage with a modal center of E, the melody may use the notes of either E

¹¹⁸ Cowdery, *Melodic Tradition of Ireland*, 15-16.

aeolian or E dorian; for a passage with a modal center of D, it may use the notes of either D mixolydian or D ionian. Hints of this flexibility between C-natural and C-sharp can be heard in the A' strain of "The Hub of the Wheel": while the fiddle melody of the strain uses all seven pitch classes of E dorian, the electric bass sits on a C-natural for two measures.

Setting aside the bass and guitar parts of the track for a moment, we may observe that the melody of "The Hub of the Wheel" uses eight pitch-classes: E, F-sharp, G, G-sharp, A, B, C-sharp and D. This collection is the union of E dorian and E mixolydian. Within the traditional Irish modal system as described by Cowdery, we see a parallel with the scale spanning the octave A₄ to A₅, in which notes can be drawn from either the A dorian or A mixolydian collections. "The Hub of the Wheel," then, may be usefully thought of as a transposed version of the Irish system, where F- and C-sharp are assumed, while G-natural and G-sharp are treated flexibly.

The melody of the tune's A and A' sections use only G-naturals, while only G-sharps are heard in the tune's C and D sections (see Fig. 38). The B section can be thought of as transitional between E dorian and E mixolydian, including one G-sharp and one G-natural. Neither is in a metrically accented position, and though the G-sharp precedes the G-natural, it subtly forecasts the metrically and agogically accented G-sharps of the strains that follow. The guitar and bass begin the strain with an inverted D major chord, and an argument could be made that the section modulates to the key of D major, the

relative ionian mode of E dorian. As we saw in the previous section, however, the bass line suggests that the section could also be thought of as retaining a modal center of E.

The first four measures of the C strain emphasize the note G-sharp: the strain begins with a dotted quarter note G#5, and this note is returned to and reiterated several times. These four measures are followed by eight measures of melody built around the notes of an A-major triad. Ignoring the accompaniment parts, this melody could easily be explained in E mixolydian. The bass line and guitar part, however, strongly suggest a change of tonal center: the bass begins on a C#2 and moves quickly to an A2. This passage, then, can be understood as progressing from one relative mode of E mixolydian to another. The first measures suggest a key of C-sharp minor. Since the note D natural is not heard until later in the strain, this passage can be notated in three sharps without the use of accidentals and, though the characteristic lowered second scale degree is not heard, the passage can be understood as being in a gapped version of C-sharp phrygian, the sixth mode of E mixolydian. Throughout the later part of the C strain, the sense of C-sharp minor/phrygian slowly evaporates, so that by the arrival of the tune's final strain, a tonal center of A has emerged. The latter part of the C section and the full D section can be heard in A major, the fourth mode and relative ionian of E mixolydian. In this way, the melody of "The Hub of the Wheel" can be thought of as being in a hybrid E-dorian–E-mixolydian mode, with the tune's accompaniment emphasizing various relative modes of this overarching modal complex.

We have looked at two pieces with meter changes between sections, and one piece with hypermetric asymmetries within sections. We now look at another of Schroer's compositions, "Tightrope in Space," which features asymmetric strains as well as meter changes within individual strains.

Tightrope in Space

“Tightrope in Space” is the thirty-second track from Oliver Schroer's *Smithers*.¹¹⁹ The album, recorded near the end of Schroer's life in the first decade of the 2000s, features 59 of Schroer's compositions, each one written for a young fiddle player in the community of Smithers, British Columbia. In contrast to many of Schroer's other albums, which feature many layers of accompaniment parts and countermelodies played by a variety of instruments, Schroer, playing fiddle, is joined on this album by a single musician, pianist Emilyn Stam. Because of this, *Smithers* features fewer of the contrasts in instrumentation and texture that characterize the tracks of albums such as *Jigzap* and *Whirled*.

In lieu of dramatic contrasts in texture and timbre, the three strains of “Tightrope in Space” feature contrasts in meter and rhythm, as well as in harmony and tonality (Fig. 39). None of the strains is composed of a number of measures that is a power of two, and each displays different kinds of asymmetry (Table 12). Furthermore, each of the strains displays a progression in the durations of the temporal spans that compose it, either from shorter spans to longer, or vice versa. The musical characteristics of each of the strains of “Tightrope in Space” are discussed below, and this discussion is followed by a discussion of the form of the piece as a whole.

¹¹⁹ Oliver Schroer, *Smithers*, Big Dog Music BDo702, 2007, 2 compact discs.



Fig. 39: The tune of "Tightrope in Space"

Strain	Length	Time Signature(s)	Key Center(s)
A	10 measures	4/4	atonal -> II-V in C major
A	10 measures	4/4	atonal -> II-V in C major
B	8 measures	3/4, 4/4	A minor
B	8 measures	3/4, 4/4	A minor
C	6 measures	3/4, 4/4	G major -> E-flat lydian
C	6 measures	3/4, 4/4	G major -> E-flat lydian

Table 12: Form of the tune of "Tightrope in Space"

The A strain of "Tightrope in Space" is in duple meter, with two pulses per measure; each pulse lasts the duration of four eighth notes, but the first several measures of the tune feature the repetition of a rhythmic motif consisting of an eighth note, an eighth rest, and a pair of eighth notes (Fig. 40). "Tightrope in Space" begins in a strikingly atonal manner for a fiddle tune. The melody of the opening two measures is compound, implying three distinct voices: a lower voice that outlines an ascending chromatic line from D4 to F4, a middle voice that repeats an A4, and an upper voice that traces a

The image shows two staves of musical notation. The first staff is a treble clef with a 3/4 time signature. It contains a melody with several motifs and a compound melody. Annotations include:

- Compound melody (bracketed over the first two measures)
- C#m and C#dim triads (bracketed over the first two measures)
- Rhythmic motif (bracketed over the first measure)
- Motif (bracketed over the first, second, and third measures)
- Motif (bracketed over the fourth and fifth measures)
- Motif (bracketed over the sixth and seventh measures)

 The second staff continues the melody. Below it, a third staff shows the accompaniment with chord progressions: Dm9, G13, Dm9, and G13. Annotations include:

- embellishment of D (bracketed over the first two measures)
- arpeggiation of Am7 (bracketed over the last two measures)

Fig. 40: The A strain of "Tightrope in Space," with the lengths of several staves adjusted to highlight internal repetitions within the strain

chromatic enclosure, encircling C#5 (Fig. 41). The following two measures feature a melody based on arpeggiated C-sharp minor and C-sharp diminished chords, while the fifth and sixth measures of the strain are a near-exact repetition of the first two. It is in the strain's seventh measure that the tune's melody and accompaniment first give some hint of the diatonicism characteristic of most fiddle tunes: the fiddle plays a melody

The image shows a single staff of musical notation in treble clef. It features a compound melody with upward-stemmed notes and downward-stemmed notes. Annotations include:

- enclosure of C# (bracketed over the first two measures)
- ascending chromatic line (bracketed under the first two measures)

Fig. 41: Compound melody in the first two measures of the A section of "Tightrope in Space." Upward-stemmed notes represent the highest of the implied melodies, encircling the note C#5, while downward-stemmed notes represent the lower of the implied melodies, a rising chromatic line, and unstemmed noteheads represent an internal pedal A4.

based on embellishment of the note D₅ and then on an arpeggiated A minor seventh chord on its upper two strings, occasionally reaching for an open D₄ one string over, as the piano plays a series of Dm₇-to-G₇ progressions, suggesting a possible turn toward the key of C major.¹²⁰ This more diatonic passage lasts for four measures before the strain's opening material recurs, creating a ten-measure strain. The internal form of this passage could either be thought of as a period, with a 4-measure antecedent A phrase followed by a 6-measure consequent B phrase, or as an ABAC form, with the A and B subsections each lasting 2 measures and the C subsection lasting for 4 measures (Table 13). No matter the internal division one hears, the strain is composed of one or more relatively short internal sections followed by a longer internal section—2+2+2+4 measures or 4+6 measures—tracing a progression from short temporal groupings to longer ones.

The predominant meter of the B section of “Tightrope in Space” is triple with quarter-note beats, though several of the strain's measures are extended by a single beat,

¹²⁰ An argument could be made for analyzing the A strain in the key of A major. Measures 5 and 6 repeat the musical material of measures 1 and 2 nearly verbatim, with the single substitution of an E₄ for the downbeat D₄ that is the first note of the lower implied voice. The first three notes of m. 5, then, spell out an A major triad in a second-inversion (ignoring any notes sounding in the piano part). This triad is followed by a three-note second-inversion A diminished triad—a common-tone diminished chord that resolves to a second A major triad spelled out in the first three notes of the strain's sixth measure. The final four notes of the two-measure passage are a B half-diminished tetrad in second inversion, borrowed from the parallel minor.

Having explained measures 5 and 6 of the strain as a series of arpeggiated harmonies that can be understood in the key of A major, we can retroactively consider measures 1 and 2 as a variant of this two-measure model, differing only in their first note. If the B half-diminished chord at the end of measure 2 is understood to serve a neighbour-chord function, the C-sharp minor triad that arrives on the downbeat of measure 3 can be understood as a substitution for the expected A major triad; the G-natural and C-natural notes that are heard in measures 3 and 4 can be understood as chromatic neighbour notes to pitches of the C-sharp minor triad. Even the piano chords heard in the strain's final four measures serve a function in A major: though Dm₇ and G₇ form a ii-V progression in C major, they can also be heard as setting up a backdoor resolution to a chord rooted on A.

Subsection	Measures	Musical features
A	2	Compound melody
B	2	Embellishment of C-sharp minor and C-sharp diminished triads
A	2	Compound melody
C	4	Embellishment of D5 and of Am7 tetrad

Table 13: The A strain of "Tightrope in Space" in ABAC form

creating measures of 4/4 (Fig. 42). The strain features three phrases consisting of the statement and embellishment of a simple musical idea. The first phrase lasts six quarter-note beats, grouped in two measures of 3/4. The first measure features a disjunct series of eighth notes based on an A minor seventh chord with an added D, while the second measure features the enclosure of the note B4, with an upper grace note C5 and a lower eighth note A. The second phrase embellishes and expands upon this initial idea: the six-note A minor seventh figure is extended by two eighth notes, creating a measure of 4/4, while the C5 of the encircling motive is lengthened from a grace note to a full eighth note. The third statement embellishes and expands upon the two statements that came before, with the A minor seventh motive enlivened by a leap

Fig. 42: The B strain of "Tightrope in Space," with the positions of several measures adjusted to highlight internal repetitions within the strain

up to an F#5. The encircling motive, too, is embellished and expanded upon, with the B-C-B part of the gesture repeated, creating a double upper-neighbour motion and adding a measure of 4/4, and the B-A-B portion transformed into a 5-note stepwise B-A-G-A-B figure. Each new statement of the B section's main idea is an expansion of the previous, with the first lasting 6 quarter-note beats, the second lasting 7 beats, and the third lasting 13. Like the A strain, then, the B strain features a progression from short temporal groupings to longer ones.

The B strain offers examples of both beat-changing and beat-preserving meter changes. Within the B strain, the transitions from 3/4 to 4/4 and back constitute beat-preserving meter changes: while the metric groupings change, the duration of each beat does not. The transition from the A strain to the B strain, however, represents a beat-changing meter change, since a listener entrained to the half-note beats of the 2/2 A strain must attend to a shorter, quarter-note beat upon the arrival of the predominantly 3/4 B strain.

In contrast to the asymmetric groupings found in the A and B strains, the C strain features two phrases of equal length (Fig. 43). The two phrases are identical in contour and feature an oscillation between two chords over a sustained bass note in the piano, although the specific chords give each phrase a distinct harmonic colour: the first phrase

Fig. 43: The C strain of "Tightrope in Space"

features an alternation between G and C chords over a pedal G, while the second phrase features an alternation between E-flat and F chords over a pedal E-flat. At the beginning of the first phrase, the fiddle plays a compound melody consisting of a lower line, alternating between the notes D4 and E4, and an upper line that reiterates a G4 (Fig. 44). The first phrase ends with an ascending G major arpeggio decorated with a high E5. In the second phrase, the fiddle plays a similar compound melody, with an E ♭ 4 and F4 substituting for the first phrase's D and E, and an ascending E-flat major seventh arpeggio replacing the first phrase's G arpeggio.

While the C strain features balanced phrases, the phrases' internal temporal divisions are not similarly symmetrical (see Fig. 43). The strain's first four notes, D-G-E-G, are all quarter notes, occupying together the time of eight 8th notes. Both the D and the E are heavily accented, giving the feeling of a measure of two beats, each lasting for the duration of a half note. Following this, the D-G-E-G figure is repeated a second time, with both G's shortened into eighth notes, creating a sense of acceleration and the feeling of a two-beat measure, each beat now lasting the duration of a dotted quarter note. The upward eighth-note arpeggio that follows continues the sense of acceleration:

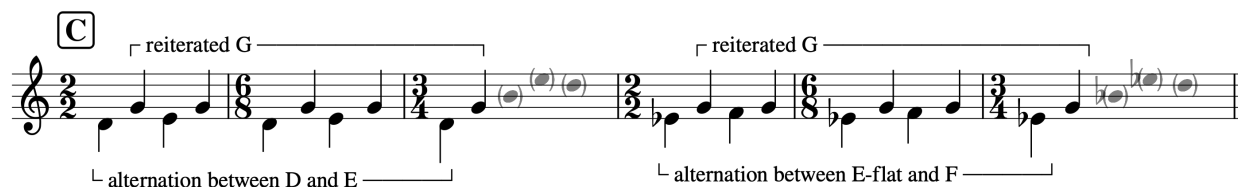


Fig. 44: Compound melody in the C strain of "Tightrope in Space." Downward stemmed notes represent the lower implied melody, alternating between pairs of notes, while upward stemmed notes indicate an inverted pedal G.

while it occupies the same six-eighth-note duration as the D-G-E-G that came before it, its eighth notes are grouped in pairs rather than threes, creating the feel of a three-beat measure, each beat lasting the duration of a quarter note. The second phrase follows the first phrase's metric model, with the same succession of two half-note beats followed by two dotted quarter-note beats followed by three quarter-note beats.

The C strain, then, features a progression from long durations to short. This is in contrast to the A and B strains' progressions from short to long temporal spans, with the progression in the C strain expressed in the duration of the strain's beats lengths. All of the metric shifts within the C strain's phrases are beat-changing meter changes: the duration of the beat changes with each shift, with the metric modulation hinging on a subdivision of the beat.

The metric and hypermetric groupings of "Tightrope in Space" also express progressions from long to short or from short to long on several different levels (see Table 12). In the A and B strains, there are progressions from short to long in the duration of successive phrases. In the C strain, there is a progression from long to short in the durations of the beats of successive meters. Stepping back to consider the entire tune, we also see a progression from long to short in the durations of the tune's strains: a single repetition of the tune's A strain lasts the equivalent of 80 eighth notes, a single repetition of the B strain lasts for 52 eighth notes, while a single C strain lasts 40 eighth notes. On the levels of successive measures, successive phrases, or successive strains, then, temporal

asymmetries can be found, in each case tracing a path from shorter strains to longer or *vice versa*.

Many traditional Irish tunes feature evocative titles, but only rarely do a tune's musical features reflect its title in any meaningful way. "Tightrope in Space," in contrast, strikes me as clearly programmatic, the piece moving through a range of musically depicted sensations and emotions. To my ears, the chromatic lines of the A section create a sense of disorientation and slight peril, depicting either a person stepping off a platform onto a tightrope strung high above the ground, or a person struggling to get their bearings while first experiencing zero gravity.¹²¹ In contrast to the tortuous lines of the A section, the expansive, flowing melody of the B section suggests a sense of wonder, evoking perhaps the sense of the "orbital perspective" astronauts experience during a spacewalk. The C section, in contrast, sounds playful, evoking video clips of Apollo astronauts bounce-skipping across the moon. The temporal asymmetries of "Tightrope in Space," too, contribute to this program. The acceleration in beat durations in the C strain, in particular, reinforces the section's more confident, assertive character, while the phrasal expansion in the tune's first two strains lends a feeling of adrift-ness, as the music floats free of the four-square structure characteristic of so many fiddle tunes.

"Tightrope in Space" features strains of a regular length, as well as meter changes within strains. We now look at one final piece, "The Humours of Aristotle," which features the processes of meter change and asymmetry within sections taken to the extreme.

¹²¹ Admittedly, it is hard to imagine how a combination of the two, tightrope *and* outer space, would work.

The Humours of Aristotle

"The Humours of Aristotle" is the fourth track from Oliver Schroer's early album *Whirled*.¹²² The track's most salient feature is its additive meter, with long and short beats grouped in various ways creating a constantly shifting, irregular quasi-meter (Fig. 45). "The Humours of Aristotle," as well as the tune that follows it on *Whirled*, "The Humours of Plato," are clearly inspired by Balkan music, both featuring non-isochronous meters and sporting names evocative of South-Eastern Europe.

The meter of "The Humours of Aristotle" is non-isochronous, featuring beats of different lengths. Richard Cohn, whose model of meter asserts that any true meter consists of equally-spaced pulse events that can be entrained to, includes non-isochronous meter as an extension of this model: while non-isochronous meters can be entrained to, their beats are not of equal duration.¹²³ "The Humours of Aristotle" features beats of two

The figure displays a musical score for the piece "The Humours of Aristotle". It consists of four staves of music. The first two staves, labeled 'A' and 'A'', show a melodic line in treble clef with a key signature of two sharps (F# and C#). The time signatures for these staves are 7/8, 6/8, 7/8, 8/8, 7/8, 6/8, 7/8, and 8/8. The last two staves, labeled 'B' and 'B'', show a bass line in bass clef with the same key signature. The time signatures for these staves are 8/8, 8/8, 10/8, 8/8, 8/8, 7/8, 8/8, and 8/8. The music is characterized by its additive and non-isochronous meter, with beats of varying lengths.

Fig. 45: The tune of "The Humours of Aristotle"

¹²² Schroer, *Whirled*.

¹²³ Cohn, "Meter," 27. Cohn's conception of non-isochronous meters is based on the theory developed by Justin London in Justin London, "Non-Isochronous Meters," in *Hearing in Time: Psychological Aspects of Musical Meter*, 2nd ed, Oxford Scholarship Online (New York: Oxford University Press, 2012), DOI: 10.1093/acprof:oso/9780199744374.001.0001.

different lengths: short beats, lasting the duration of two eighth notes, and long beats, lasting the duration of three eighth notes.

The most prominent instruments in "The Humours of Aristotle" are fiddle and drum. A hurdy-gurdy and a jaw harp provide a drone, while a flute or similar wind instrument plays a quiet, sparse countermelody during the tune's B section. In some moments, violin pizzicato and metal percussion—possibly wind chimes—can also be heard, adding subtly to the track's texture. The entire track is played over a drone of D.

"The Humours of Aristotle" has two strains, A and B. Each strain is repeated twice, though each section is varied in its second repetition, creating an overall form of AA'BB'. The track opens with a very brief introduction consisting of a single sustained note, the entire tune is repeated three times, and the track closes with a short tag consisting of the first measure of the A section followed by several seconds of percussion.

The A and A' strains of "The Humours of Aristotle" are in D lydian—an exceedingly unusual mode for tunes in the British Isles and Canadian fiddle traditions, and rare for tunes from Scandinavian countries. Each note of the melody is diatonic to a key signature of three sharps, with the exception of a single note of an intermediate pitch between B₄ and B_♭₄ at the end of each strain, notated as B-half-flat in the accompanying transcription. The strain features a compound melody with two streams of notes, each in their own register (Fig. 46). The upper stream includes notes in the range F_♯₄ up to D₅, played mostly on the fiddle's A string, while the lower stream is



Fig. 46: Compound melody in the A section of "The Humours of Aristotle." Upward stems indicate notes in the upper implied melody, while downward stems indicate notes in the lower implied melody and stemless noteheads represent notes played on the open D string with a light bow stroke.

made up of quarter-note–eighth-note pairs in the D4 to F#4 range. Whereas notes in the lower stream are played with a solid bow stroke and emerge as a simple yet clear melodic line, several other D4s are heard throughout the strain. These other D4s, played with a light bow stroke, primarily serve a rhythmic function, filling in gaps between successive eighth notes in the upper stream while also contributing to the drone provided by the hurdy-gurdy.

Beginnings of new measures in the A section, despite the section's highly irregular meter, are unambiguous. The section's melody alternates between short runs of notes contributing to the upper melodic stream and pairs of notes contributing to the lower stream. The transition from low stream to high necessitates an upward leap that contributes to the sense that a new measure is beginning. Each measure in the A strain, then, begins with an upward leap and ends with a lower-stream quarter-note–eighth-note pair, usually E4-D4 but occasionally F#4-E4. Looking at the patterns formed by

these measures, the strain generally alternates between measures of 7/8 (in a short-short-long grouping) and measures of 6/8 (grouped long-long) or 5/8 (short-long or long-short) (Table 14).

In spite of its metric irregularities, the phrase structure of the A and A' strains has clear parallels with those of fiddle tunes with more four-square construction; this phrase structure is summarized in Table 15 and illustrated in Fig. 47, where the measures of the A strain have been aligned to highlight internal repetitions. Each strain is divided into two phrases. The first measure of the first phrase of the A strain, a short-short-long grouping lasting for the duration of seven eighth notes, is played twice in succession, while in each subsequent phrase, it is stated only once. This motivic structure suggests a comparison with Jean Duval's *anacrusis* - a motive added "before the beginning" of a strain.¹²⁴ In every phrase, this short-short-long, 7/8 measure is followed by a long-long,

Strain	Number of Eighth Notes per Measure									
A	7	7	6	7	5	7	6	7	5 + 3	
A'		7	6	7	5	7	6	7	5	7

Table 14: Number of eighth notes per measure in the A and A' strains of "The Humours of Aristotle"

Strain	Measure (Grouping of Eighth Notes)						
A	a (223)	a (223)	b (33)	c (223)	d (23)		
		a (223)	b (33)	c (223)	e (23)	(3)	
A'		a (223)	b (33)	c (223)	d (23)		
		a (223)	b (33)	c (223)	e (23)	f (223)	

Table 15: Recurring rhythmic and contoural motives in the phrases of the A section of "The Humours of Aristotle"

¹²⁴ Duval, "Revival of 'Crooked' Fiddle Tunes," 52.



Fig. 47: The A section of "The Humours of Aristotle," with measures arranged to highlight internal repetitions

6/8 grouping, and then a short-short-long, 7/8 grouping with a different melodic contour than that of the phrase's initial measure (see Table 15). It is only after these three successive measures of identical melody that the four phrases of the A section diverge. In the first phrase of both the A and A' strains, a 5/8 short-long grouping leads into the first note of the following phrase. In the second phrases of each A and A' strain, a 5-note ascending run followed by a downward leap is played; at the end of the A strain, this leap is followed by a lower-stream quarter-note–eighth-note pair and segues into the first note of the A' strain, while near the end of the A' strain, this downward leap is followed by another ascending line, which rises further than the first, connecting smoothly to the initial A₅ of the B strain. In this way, while the endings of the A section's component phrases have different lengths and the initial phrase begins with an "extra" 7/8 measure, the A and A' strains feature similar patterns of internal repetition and balanced structure as those regularly found in fiddle tunes from Canada, the British Isles, and elsewhere.

The meter of the B section is much less clear than that of the A section, exhibiting fewer regularities. In my transcription (Fig. 48), I have chosen to begin new measures based on the presence of long notes, local peaks in the melodic contour, and notes that are given volume accents; two exceptions, in the B1 strain's fifth and sixth measures, are a slightly-varied repetition of melodic material the final two measures of the A2 section; my barlines reflect this relationship.

While the A and A' strains were unusual for their use of the lydian mode, the B and B' strains, still played over a drone of D, verge on the atonal. As in the tune's initial section, each strain of the B section can be divided into two phrases; this phrase structure is summarized in Table 16 and illustrated in Fig. 48, with measures aligned so as to highlight internal repetitions. Each component phrase of the B and B' strains begins with a decorated chromatic descent from A5. The chromatic descent of the first phrase of the B strain spans from A5 to F#5 and concludes with a neighbour note F#-G-F# figure; the phrase ends with a long-short F#-E pairing reminiscent of the rhythms of the lower melodic stream in the A section. The second phrase extends this chromatic descent to F5, and whereas the initial A5 of the first phrase is a quarter note, the duration of the A5 of the second phrase is doubled to that of a half note spanning two

Strain	Sub-Phrase (Rhythmic Grouping of Eighth Notes)			
B	g (2223)	h (233)		
	g' (22223)	h' (233)	e' (23)	f (223)
B'	g (2223)	h (233)		
	g'' (2222)	(322)	(222)	

Table 16: Recurring rhythmic and contoural motives in the phrases of the A section of The Humours of Aristotle



Fig. 48: The B section of "The Humours of Aristotle," with measures arranged to highlight internal repetitions

short beats. In the place of the embellished F#-G-F#, the second phrase features a descending figure in the same rhythm as the first phrase. This descending figure is followed by a pair of disjunct, chromatically inflected ascending lines leading to the downbeat of the third phrase; the first of these lines echoes the penultimate measure of the A' strain (indicated with *e'* in Table 16), with accidentals arrayed differently, while the second line is a direct repetition of the A section's final measure (*f* in Tables 15 and 16).

The first phrase of the B' strain is an exact repetition of the B strain's opening. The chromatic descent that begins the strain's second phrase breaks off at G before proceeding into a passage of arpeggiated, highly chromatically-inflected melody. The chromaticism of the few final measures of the B' strain is striking, and highly unusual for a fiddle tune from any repertoire: over the ever-present D drone, the phrase continues with an ascending B-flat augmented triad, beginning on a B ♭ 4; two measures later, the final measure of the section descends through a hybrid F-sharp major-minor

triad, beginning on an A#5 and landing on A4. The final measure ends with a quarter-note E5 that anticipates and is tied into the first note of the following A strain.

In many ways, "The Humours of Aristotle" is one of the most irregular tunes in Schroer's oeuvre: its melody is first in an unfamiliar mode before nearly drifting free of its modal center; its strains feature varying numbers of measures, measures that feature varied numbers of beats that themselves vary in duration from one to the next. But in spite of all its metric unpredictability and chromatic inflection, the tune is not so unfamiliar as it may first appear. The tune has two strains, each of which is repeated twice with variations. As in many traditional fiddle tunes, each strain is composed of two main phrases, and the tune features many instances of internal repetition, both within strains and between them. The A section of the tune is all but diatonic, and the melody of the B section is built around descending chromatic lines that, while unusual for a fiddle tune, resemble the line clichés common to the popular jazz styles which influenced Schroer. In this way "The Humours of Aristotle" manages at once to be both wholly unfamiliar and deeply rooted in the musical traditions from which it sprang.

Conclusion

In his teaching, Schroer emphasized the importance of being familiar with many different styles of fiddle music. The fiddler's output shows that he was deeply influenced by the fiddle traditions of numerous cultures as well as other traditional, historic and contemporary musical genres styles. While always remaining aware of these varied musical roots, Schroer displayed remarkable creativity in combining, expanding and elaborating upon the musical features and processes characteristic of these traditions.

Many of Schroer's compositions are examples of tune types from various fiddle traditions, such as "Horseshoes and Rainbows" and "The Hub of the Wheel," which refer to Irish reels and jigs respectively, or "Bright Eyes," an example of the kind of waltz that is a mainstay of the Canadian Old-Time tradition. Schroer creatively reimagines the flexible modality of traditional Irish tunes in "The Hub of the Wheel." The structures of many of his tunes, such as "Horseshoes and Rainbows" and "Before Dreaming," fit within the four-square AABB forms of many Irish, Scottish, and Canadian Old-Time fiddle tunes, while tunes such as "Chel's Bells" and "The Victory of Love" are variations on this basic model. And when Schroer deviates significantly from these forms, as he does in "The Hub of the Wheel" and "Tightrope in Space," he uses many of the same metric processes characteristic of crooked tunes from styles such as Québécois fiddle music. That Schroer took inspiration from fiddle styles further afield is shown in his use of flexible triple meter of Scandinavian tunes in "Chel's Bells," and of the additive meters of Balkan dance tunes in "The Humours of Aristotle."

We have also seen that Schroer was inspired by many non-fiddle musical styles. Beyond the inspiration Schroer drew from Johann Sebastian Bach's sonatas and partitas for solo violin evident in much of his improvisatory, soloistic music, many of Schroer's tunes, such as "Chel's Bells" and "Tightrope in Space," feature melodies that are embellishments of ascending or descending scalar lines, similar to those commonly found in the classical tradition. Beneath the modal melody of "The Hub of the Wheel," the track's bass line is clearly tonal, with the tune's form articulated by the stepwise lines and cadential progressions characteristic of music from the classical tradition. Many of Schroer's tunes also display a debt to popular music styles of the 20th century.

"Horseshoes and Rainbows," with its quotation from Rogers and Hammerstein's "My Favourite Things," reveals how Schroer was influenced by popular show tunes. "Before Dreaming" has formal features similar to those of many popular songs, with an interlude in the position of a bridge and a "tag" at the end of the track. And the B section of "The Humours of Aristotle" features a decorated line cliché, similar to the kind commonly found in jazz tunes and other popular styles.

Schroer is particularly creative in his use of temporal asymmetries, with examples ranging from the highest level of hypermeter to the smallest minutiae of microrhythm. In "Bright Eyes," the arrangement features temporal asymmetry between successive repetitions of the tune: when each repetition of the tune is thought of as a hypermeasure, the arrangement's hypermeter switches from triple to quadruple and back again. "Into the Sun," similarly, features sections that are lengthened or shortened on successive repetitions of the tune. In "Chel's Bells," the form of the tune remains

constant over the course of the arrangement, but the within-tune hypermeter is asymmetric: the tune is composed of sections of different lengths, including both repeated symmetric strains and short interludes. In "The Hub of the Wheel," hypermetric asymmetry occurs within individual sections, with strains lasting 8, 11 and 12 measures.

Turning from hypermetric asymmetries to metric asymmetries, both "Before Dreaming" and "Chel's Bells" feature meter changes between successive sections. "Before Dreaming" also features several sections that can be heard in different meters, while both "Into the Sun" and "Horseshoes and Rainbows" feature multiple meters occurring at once within individual sections. "Tightrope in Space" features frequent meter changes within strains, even while each of its individual measures feature isochronous beats. And turning from metric toward rhythmic asymmetries, while "The Humours of Aristotle" similarly features frequent meter changes within strains, many of its individual measures are asymmetric, composed of beats of different lengths. And on the level of microrhythm, "Chel's Bells" features beats that are subdivided asymmetrically. While within any individual arrangement, temporal asymmetries act on only at most a small handful of levels, when one considers his entire output, it is clear that Schroer employs and plays with temporal asymmetries at every level. I hope that through the analyses in this thesis, and my attention to complexities of rhythm and meter, I have opened the way for further exploration of Schroer's rich musical universe.

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