

Biamonte, Nicole (2016): Online Music Theory in Music Theory Online. ZGMTH 13/2, 297–309. https://doi.org/10.31751/903

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eingereicht / submitted: 12/04/2017 angenommen / accepted: 01/05/2017 veröffentlicht / first published: 30/06/2017 zuletzt geändert / last updated: 10/05/2018

Online Music Theory in Music Theory Online

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ABSTRACT: This essay surveys existing and potential approaches to publishing music theory and analysis in an online format. A brief consideration of the advantages and disadvantages of electronic journals is followed by an exploration of the different types of multimedia examples as used in the open-access journal *Music Theory Online*.

Dieser Beitrag gibt einen Überblick über bestehende und mögliche Herangehensweisen, musiktheoretische und analytische Beiträge in einem online-Format zu publizieren. Einer kurzen Betrachtung der Vor- und Nachteile elektronischer Zeitschriften folgt eine Darstellung der unterschiedlichen Typen von Multimedia-Beispielen, die in der Open-Access-Zeitschrift *Music Theory Online* genutzt werden.

Introduction

In this essay I survey the general advantages and disadvantages of electronic journals, and more specifically, the approaches that *Music Theory Online* (MTO) has taken to publishing research and criticism in music theory and analysis, along with some potential directions for the future. MTO is an open-access electronic journal sponsored by the American scholarly association the Society for Music Theory (SMT), published in English for an audience of researchers, teachers, students, and others interested in the discipline of music theory. As such, the journal represents the North American counterpart of ZGMTH. MTO publishes quarterly issues (in March, June, September, and December) comprising refereed articles, commentaries, conference reports, and book reviews, and also hosts job and dissertation listings for its parent society, the SMT. One of the journal's goals has always been to maximize the potential of the online format by encouraging authors to include multimedia examples, a variety of which are cited here.

A Brief History of MTO

MTO, one of the earliest journals in the digital humanities, was founded in 1993. It was originally an "as-ready" electronic publication appearing frequently but irregularly, and has seen several changes in format during the past two decades. It developed from an SMT email discussion list, and the early articles were plain-text files distributed via an email listserv. The first 11 experimental or "beta" issues are numbered as volume 0. The journal assumed a permanent status and moved to web-based publication with

volume 1 in 1995, featuring articles in HTML and audio examples as standard MIDI files. Streaming, rather than static, audio was used for sound examples beginning in 1998. MTO has explored different visual presentations over the years, including plain text, hyperlinks, frames (which place text, links to examples, and footnotes in separate areas of the screen that can be scrolled independently), and the current configuration of text with links to pop-up examples, notes, and citations. Although the journal is intended to be read online, thus allowing full access to the multimedia examples, since 2011 it has also included printable pdf versions of article texts and graphic examples, which are useful for reading offline or including in dossiers for tenure or promotion. Animation and video have been incorporated using a wide assortment of formats (most commonly Shockwave, QuickTime, RealMedia, animated GIFs, Flash, Ogg media, and mp4s).¹

Advantages of e-journals

The advantages of electronic journals, as compared to print journals, are obvious. The publication costs are far lower (although a reliable host server, stable address, and offsite backup are necessary), and there are no material limits on the length of articles or appendices, or the number of examples they contain. The turnaround time between submission and publication is typically much quicker, resulting in faster dissemination of new research, which benefits both authors and readers. Articles and reviews can be posted to the website when ready, before the rest of the issue is complete;2 while most digital journals preserve the volume/issue format of print journals, some now publish on a continuous basis. The distribution of electronic journals is immediate and has no geographic limitations, reaching a much wider audience than print journals. This is particularly true for open-access journals such as MTO and ZGMTH—for example, according to Google Analytics, in recent years MTO has received, on average, 500,000 unique page views per year from readers in 200 different countries.3 And as these statistics demonstrate, a wealth of detailed information about an electronic journal's readership (in addition to unique visits and geographic location, numbers of return visits, length of time viewing pages, referring websites, most popular and longest-studied articles) is not difficult to obtain. Searchable texts and links to references and other online resources significantly enhance the usefulness of digital articles. Errors can be easily and quickly corrected, and examples can be changed if necessary.4 Perhaps most importantly for music-related

- 1 For more detail, see the "History and Future of MTO" group of essays in MTO 20.1 (2014), especially those by Rothfarb on the early history of the journal, Isaacson on its changing use of technology, and Koozin on changes in content and design.
- 2 MTO has not moved to as-ready publication because its quarterly schedule is sufficiently frequent. One issue with some as-ready electronic versions of print publications is that they initially appear without page numbers, which makes it difficult to cite specific passages (this is not a problem with MTO because it uses paragraph numbers).
- 3 For more data on the readership, authors, and topics in MTO, see Shaftel 2014.
- 4 MTO abides by the copyright principle of fair use: all materials published in the journal have an educational or critical purpose (and since the journal is free and open-access, no one profits financially from its publication). That said, for materials that are not currently in the public domain such

journals, multimedia examples incorporating graphics, sound, animation, or video can be readily incorporated.⁵ Electronic publication is increasingly becoming the scholarly norm, particularly in the sciences; most journals now have electronic editions in addition to their print versions, and some are dropping print publication entirely, although most provide pdf versions of the text for downloading and reading offline.

Disadvantages of e-journals

Electronic journals do pose certain disadvantages: (1) the need for electricity, internet access, hardware, and software in order to access the journal, which is in many cases a socioeconomic limitation; (2) the potential for eyestrain from reading on a computer screen for long periods of time (thus, there is a pragmatic limit for article length);⁶ and most significantly, (3) problems of technological obsolescence. Editors need to plan for periodically updating media examples when the software that plays them falls out of general use. It is best not to rely on a particular software program or content management system that requires constant updating (some content management systems are notorious for this problem). For example, most current browsers no longer natively support MIDI, DjVu, RealMedia, Quicktime, or Flash, and there is no single audio format supported by all the browsers in common use. MTO recently underwent a large-scale retrofitting project to update all of the media examples to formats compatible with an html5-based media player—we supply multiple formats and let the browser choose—and adopting CSS (Cascading Style Sheets) to allow for easily updating the journal's appearance on a global scale. A "classic" version of MTO, preserving the original formatting, remains in place as a resource for historians of online scholarship.

Visual examples

The inherent possibilities for extensive and varied multimedia examples in the electronic format are especially appropriate for music scholarship: authors can present their work in a combination of verbal, visual, and aural domains. MTO has published numerous

- as recordings, videos, and scores not available on IMSLP (the Petrucci Music Library, formerly the International Music Score Library Project, http://imslp.org/), we prefer to use an excerpt of the work or to transform the content of an entire work through annotations.
- It is somewhat surprising that more electronic journals of music scholarship have not taken advantage of the potential for including multimedia; most online music journals publish articles as pdf files of text and examples that are not substantively different from print publications. A few exceptions are Journal on the Art of Record Production, Dancecult (a journal of electronic dance music culture), musimédiane (in French), ECHO (the graduate-student journal of the University of California at Los Angeles), and Music and Practice (the journal of the Norwegian Academy of Music), as well as the Journal of Music and Meaning, which includes audio clips for one article in vol. 13 (2014/15), and Current Research in Jazz, which includes audio for one article in vol. 7 (2015). Recently, two more journals have begun to regularly incorporate audio files: Music Theory Spectrum, with vol. 36/2 (2014), and ZGMTH, with vol. 16/1 (2016).
- 6 The MTO submission guidelines recommend that submissions be no longer than 15,000 words, although in exceptional cases longer submissions will be considered if the length is clearly justified.

examples of music-theoretical scholarship using the traditional hierarchy of explanatory text with supporting images of music notation or analytical diagrams, but these elements can instead be in a non-hierarchical dialogue,⁷ or the hierarchy can be reversed, with the main focus on the visual component and the text as ancillary.⁸ Visual examples can represent the sound of a performance or recording using waveforms or spectrograms,⁹ or demonstrate intersections with other visual arts such as drawing and painting;¹⁰ these kinds of examples are most effective when presented in color, which can also be used to illuminate relationships in more traditional analytical diagrams.¹¹ The use of color presents no difficulties in an electronic format, although it may be inconvenient or cost-prohibitive to print out examples in color.

Audio examples

It is important to analyze music as it is heard, and not just as it is represented by a notated score. The majority of MTO articles reflect this by incorporating audio examples. Most typically, audio examples are excerpts of commercially released professional recordings that provide sonic analogues for visual representations of the music.¹² Authors can also use audio excerpts to compare performances of a work by different artists or different performances by the same artist,¹³ provide excerpts from demo or bootleg recordings that are not readily available commercially,¹⁴ record their own performances,¹⁵ digitally create recordings,¹⁶ or digitally alter existing recordings.¹⁷

- 7 A pair of text and visual essays in dialogue is presented in Hanninen 2014.
- 8 Analytical illustrations take precedence over explanatory text in Straus 2012.
- 9 Waveforms are used as supporting examples in Osborn 2011, Polak/London 2014, and Broesche 2016; multiple spectrograms accompany the analyses in Byron 2006, Osborn 2011, Rings 2013, Hannaford 2017, and Lafrance/Burns 2017.
- 10 Music manuscripts by Mendelssohn and Hindemith that integrate drawings and illustrations are examined in Walden 2010, and analogies between textures in Ravel's music and lines and shapes in Japanese art are drawn in Stankis 2015.
- See, for example, the mappings of timbres onto colors in Nancarrow's music in Willey 2014, or the reproductions of Brinkmann's colored score annotations showing pitch-class set relations reproduced in Boss 2015. Karpinski 2012 uses mismatches between color names and the colors themselves as an analogy for the counterintuitive contour of the notation in Webern's Variations op. 27, 2nd movement.
- 12 We recommend the free software program Audacity (www.audacityteam.org/), as an easy-to-use audio editing and recording tool.
- 13 For example, different interpretations of duplets and triplets with shared stems are compared in Hook 2011; performances of Bach's Prelude No. 1 in C minor from Book I of the *Wohltemperierte Clavier* by Gould, Feinberg, and Landowska are compared in Barolsky/Martens 2012; changes in Bob Dylan's performance of "It's Alright, Ma (I'm Only Bleeding)" over the course of nearly 50 years are traced in Rings 2013, performances of Debussy's song "Colloque sentimental" are compared in Kaminsky 2016, and the relationships between rap duo Run the Jewels' eponymous 2014 album and its remixes using sampled cat sounds on *Meow the Jewels* (2015) are discussed in Adams 2016.
- 14 See and hear, for instance, the Bob Dylan live concert performances analyzed in Rings 2013 and the excerpts from Stevie Nicks demo recordings in Hough 2015.

Animated examples 151617

Computer animations offer the possibility of combining moving images with recorded sound. Animations in MTO articles are most often used to show geometric or other spatial relationships, or to illustrate other kinds of metaphorical paths or processes within a work. Form diagrams of audio recordings such as those created with *Variations Audio Timeliner* graphically represent the overall structure of a work, with boxes or bubbles showing formal sections on multiple levels, and text annotations correlated to a recorded track. A still more powerful tool is *Sonic Visualiser*, which displays customizable spectrograms and other waveforms of an audio track. This program allows for finding and marking regular beats and bar lines on the wave form, comparing the timings of different performances, and making graphs of tempo, duration, and dynamics, as well as adding text annotations. A

Video examples

In analysis of music that accompanies visual media, such as film soundtracks, music videos, or videogame music, video examples are often helpful and sometimes indispensable.²¹ Video examples are also ideal for presenting performances when a visual

- 15 Recent examples of original recordings are the performances in the "Performance and Analysis: Chopin and Schumann" essays in MTO 20.4 (2014) by the authors Hatten, Kopp, and Krebs; the author's performance of his own composition in Byros 2015; the recordings of tribute compositions in the "Festschrift for Steve Larson," MTO 18.3 (2012); and the premiere recording of Vivian Fine's Little Suite in Lumsden 2017.
- 16 For example, Butterfield 2006 provides MIDI examples of early, on-time, and late backbeats; MIDI examples of the 'scala enigmatica' and its potential harmonizations were created for the posthumous publication of Burke 2015.
- 17 Leydon 2012, for instance, presents digitally altered recordings of vowel formants and sine-wave speech, the recordings in Wild 2014 were retuned in post-production to conform to Vicentino's microtonal system, and an original recording of a Machaut motet is presented with both "wet" (maximal) and "dry" (minimal) reverb in Zayaruznaya 2017.
- 18 MTO 15.1 (2009), "Animating the 'Inside," is a special issue dedicated to animated analyses; see also the animated representations of circular rhythmic space in Benadon 2007, two-dimensional ii–V space in McClimon 2017, three-dimensional pitch-class space in Reed/Bain 2007, four-dimensional pitch-class space in Amiot/Baroin 2015, and pitch space on the pedal harp in Gotham/Gunn 2016.
- 19 A Variations Audio Timeliner diagram of Lady Gaga's "Bad Romance" is included in Spicer 2011, and Smith et al. 2014 present Variations Audio Timeliner diagrams showing two different listener interpretations of three joint human–computer improvisations. Variations Audio Timeliner is a free program downloadable from http://variations.sourceforge.net/vat/.
- 20 Examples from *Sonic Visualiser* can be found in Dodson 2012, Ohriner 2012, Rings 2013, and Lafrance and Burns 2017. Sonic Visualiser is a free program downloadable from http://www.sonicvisualiser.org/; Cook/Leech-Wilkinson 2009 is a very helpful guide to using the program.
- 21 See, for example, Auerbach 2010 on the aural skills applications of the videogame *Dance Dance Revolution*, Atkinson 2011 on canons in Steve Reich's multimedia works *Tehillim* and *Three Tales*, and Lehman 2013 on cadences in film music. Cohn 2016 and Murphy 2016 incorporate a variety of film clips in their discussions of irregular rhythmic patterns in recent music.

component such as movement or lighting or performers' behavior constitutes an aspect of the analysis,²² and are particularly valuable in discussions of instrument topographies.²³ Videos are well suited for pedagogical purposes, whether presenting information or modeling teacher-student interactions.²⁴ This point is demonstrated by the prevalence of teaching videos (as well as videos on every other imaginable subject) on YouTube; although we prefer not to link directly to YouTube videos in MTO articles because they are often taken down from the site, they can be downloaded from the site (and in some cases, edited) using one of several free programs designed for this purpose. SMT has recognized the increasing ubiquity of video as a communication tool, and in 2015 the society inaugurated its videocast journal, SMT-V.²⁵

Web-based articles

The web-based platform of electronic journals allows for linking to other online articles and resources. It also permits links between pages within a single article, in a multi-page format that MTO has thus far explored in only two publications.²⁶ We plan to present more articles in web-based formats in the future—although one disadvantage of this format is that it is more cumbersome to create printable versions of web-based articles than of articles with linear texts.

Discussion forum or blog

Another goal of MTO for the near future is to promote greater interactivity, and to provide venues for reactions and feedback from readers. The journal was founded in conjunction with an email list, MTO-talk, that provided a vehicle for commenting on articles. Discussion on the MTO-talk list waxed and waned over the years, and it was eventually discontinued in 2006; readers were encouraged to submit more formal commentaries and responses to the journal instead. SMT currently hosts an active online discussion forum, SMT-Discuss,²⁷ that could be used for this purpose, but developing a venue specific to MTO is also under consideration. This could be either a forum like SMT-Discuss,

- 22 Video examples are essential in Gawboy/Townsend 2012, which reassesses the relationship between music and colored lights in Scriabin's *Prometheus*; in Schutz/Manning 2012, which considers the expressive role of percussionists' gestures; in Maler 2013, which analyzes American Sign Language interpretations of popular songs; and in Lafrance/Burns 2017 and Sterbenz 2017, which interpret music videos by Pink and Rihanna and by Tyler the Creator, respectively. In Polak/London 2014, the video performances are very helpful in distinguishing the different parts in the drum ensembles, and in Zayaruznaya 2017, a video performance is used to make a point about the intelligibility of texts in medieval motets.
- 23 Video examples demonstrate guitar fretboard topography in Koozin 2011 and Easley 2015, and sirens in Rehding 2016.
- 24 See, for example, the video tutorials in Callahan 2015 and Appendix 1 of Duker et al. 2015, and the maestro-pupil dialogues in Guido/Schubert 2014, the first MTO article primarily in video format.
- 25 SMT-V is available at https://societymusictheory.org/smt-v.
- 26 The two multi-page web-based articles that have been published by MTO to date are Roeder 2000 and Gjerdingen/Bourne 2015.

which allows anyone who registers to post, or a blog like the American Musicological Society's "Musicology Now"²⁸ or the Oxford University Press music blog,²⁹ with longer posts by invited authors and comments by readers. (It is worth noting, however, that each of these platforms has had problems with commenters posting overly often and/or in a hostile tone.)

Webinars

Periodically, MTO fosters real-time discussion of articles through webinars (live online meetings).³⁰ Webinars offer an excellent opportunity for interaction with other scholars, which is especially valuable for those who find it difficult to attend conferences for reasons of geographic distance, funding, or disability. Most recently, we held a webinar focused on the recommendations of the College Music Society's task force for transforming the undergraduate music major curriculum.³¹

Open peer review

Shaffer 2014 proposes that MTO experiment with open peer review. We have not yet done so, but it presents an interesting possibility for future exploration. In the model Shaffer describes, MTO could republish—possibly in expanded form—the highest-quality content that receives the most positive comments from among blog posts about music theory, SMT-Discuss, or a potential dedicated curated site. *Empirical Musicology Review* follows a different model, in which commentaries on articles are published in tandem with the article, rather than as private correspondences between reviewers or readers and the author.³² Open Scholar advocates a model of author-guided, rather than editor-guided, open peer review, in which authors post their works in progress in an online forum and invite commentary.³³ The goal of all of these processes is to encourage scholarly dialogue and collaboration, to improve the quality of published research by incorporating feedback from a greater number of colleagues, and to foster interactions that are (ideally) respectful, collegial, and informed.

- 27 SMT-Discuss is available at https://discuss.societymusictheory.org/discussions.
- 28 "Musicology Now," the AMS blog, is available at http://musicologynow.ams-net.org/.
- 29 The Oxford University Press music blog is available at http://blog.oup.com/category/arts_and_humanities/music/.
- 30 Information about MTO webinars and a list of past webinars is available at https://societymusicthe-ory.org/events/MTO_webinars.
- 31 This report has been the subject of some controversy among North American music theorists. The brief commentary in Snodgrass 2016, which served as the basis of the webinar, contains links to the original report and several other commentaries on it.
- 32 The open peer-review policy of *Empirical Musicology Review* is described at http://emusicology.org/about/editorialPolicies#peerReviewProcess.
- 33 Open Scholar's recommendations for author-guided open peer review are available at http://www.openscholar.org.uk/open-peer-review/.

Future topics

The primary missions of MTO are to provide high-quality open-access scholarship in music theory and analysis, to make use of new digital media in presenting this work, and to foster research on new or under-analyzed repertoires and growing areas of the discipline that may not yet be well-represented in published scholarship. MTO is pleased to have recently published special half-issues or issues on animated analyses (15.1), disability in music (15.3-4), rhythm in African music (16.4), form in rock music (17.3), improvisation (19.2), the music of Conlon Nancarrow (20.1), Russian music theory (20.3), agency in performance (22.2), jazz improvisation and transcription (22.3), and feminist music theory (23.2). We are planning a half-issue on analysis and performance, and would like to publish another issue featuring animation, as well as more analytical work on non-Western musics and music theories, popular music, and early music. MTO has become well established in the field and is now almost a quarter-century old; we hope that it continues to shape the discipline of music theory, and to serve as a place for experimentation and innovation.

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