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Music Theory and the Epistemology of the Internet; or, Analyzing Music Under the New Thinkpiece Regime

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Abstract

Over the past twenty-five years, the growth of the Internet has completely transformed journalism and media. «The relationship between new media and journalism», write Eugenia Siapera and Andreas Veglis, «has become a close embrace to the point where it is difficult to imagine an exclusively offline journalism» [Siapera-Veglis 2012, 1]. This relationship has not only seen existing publications - from traditional newspapers like *The New York Times, The Guardian, Le Monde,* and *Der Spiegel* to magazines like *The New Yorker, The Atlantic Monthly, The Paris Review*, and *The London Review of Books* - move partially or completely online; it has also seen the rapid rise of online-only publications. Some of these digital platforms (such as *Slate, The Daily Beast, The Huffington Post*, and so forth) mirror the structure of print media. Others take new, born-digital forms, often oriented around specific approaches to culture or current events. *FiveThirtyEight*, for example - deriving its name from the number of electoral votes contested in each American presidential election - analyzes politics, economics, culture, and sports from a statistical perspective. *Vox* (with its tagline, "Understand the News") focuses on providing context for current events, producing simple explanations of complex global and cultural phenomena, which it calls "Explainers". Still more publications cater to specific audiences of hobbyists or enthusiasts, reporting on topics from entertainment and gossip, to aviation, to business, to video games, to music, interior design, and fashion. Many online media companies (including Vice and Vox) run multiple "verticals": sub-websites devoted to specific topics of interest (from food and fashion to video games and real estate), hoping to compete with the many specialist websites and publications that now populate the Internet.

In addition to current events and commentary, many of the above publications devote substantial space to reporting on and analyzing popular culture, from music, to television and film, to comic books. And over the past few years, an increasing number of essays have appeared that appeal to music theory in particular as a grounding device. With two-part titles like "Skin Tight Jeans and Syncopation: Explaining the Genius of Katy Perry's Teenage Dream - Using Music Theory" [Pallett 2014a] and "Ecstatic Melodic Copulation: Explaining the Genius of Daft Punk's 'Get Lucky' Using Music Theory" [Pallett 2014b], these essays sound almost as if they might be academic papers. But while these general-interest music theory essays have mastered the art of the enticing pre-colon hook, the present essay is more concerned with the second half of these titles: *using music theory*. By simultaneuously instrumentalizing music theory as a purely analytical tool, and treating it as if it were a unified body of knowledge, essays like these cast music theory as a secret decoder ring that is arcane and mysterious, and yet scientifically rigorous: the equivalent, so these titles argue, of the statistics that drive websites like *FiveThirtyEight*. This paper will explore the epistemological conditions under which both web-based subgenres like *Vox*'s "Explainers", and a distinct strain of popular print non-fiction by authors like Malcolm Gladwell, Jonah Lehrer, Steven Pinker, and others, have risen to prominence over the past decade. Those conditions, I will argue, have given rise to a wave of general-interest music theory, propagated mostly online. Such writings offer fascinating reflections upon music theory as it is practiced in the academy, particularly with regard to the growing pains and disciplinary debates of recent decades, and the growing movement within both musicology and theory to engage with non-specialist audiences via practices from the digital humanities and public humanities. While this essay focuses primarily on English-language websites and the articles they publish, I hope it proves a productive starting point for further research on music theory in general interest publications in other languages.

Keywords
music theory, popular music, thinkpieces, music analysis

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In addition to current events and commentary, many of the above publications devote substantial space to reporting on and analyzing popular culture, from music, to television and film, to comic books. And over the past few years, an increasing number of essays have appeared that appeal to music theory in particular as a grounding device. With two-part titles like "Skin Tight Jeans and Syncopation: Explaining the

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The Tree of Knowledge

In a certain genre of early-twenty-first century non-fiction writing, nearly every phenomenon is the province of secret knowledge. *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything* [2005] is perhaps the perfect encapsulation of the prevailing epistemology of both the *New York Times* non-fiction best-seller list, and of many contemporary general interest publications on the Internet. Written by University of Chicago economist Steven D. Levitt and journalist Stephen J. Dubner, *Freakonomics* features a series of case studies that apply economic research and theory to societal issues from real estate prices to childrens' names, from the ethics of cheating in Sumo wrestling to the illicit drug trade.

The book's title is emblematic of an entire subgenre of contemporary nonfiction: it posits that everything has a "hidden side", a secret explanation waiting to be exposed to the public by someone who is in the know. Implicitly, economics is the tool with which such secrets are revealed. «What this book is about», its authors write in their introduction, «is stripping a layer or two from the surface of modern life and seeing what is happening underneath» [Levitt and Dubner 2005, 10]. Although economics is posed here as a kind of master discipline (or at least *meta*-discipline, able to model vast

swaths of human experience and behavior), the book's subtitle also hints that the knowledge it contains is forbidden - that applying the analytical tools of economics outside of their native realm of balance sheets and commodity prices is somehow naughty. Steven Levitt is presented as a "rogue economist" whose willingness to step outside of his discipline's traditional domains - or perhaps simply his willingness to address the general public - makes him a black sheep.[1] The hidden knowledge he promises is presented as being somehow illicit: the book's cover image - featuring an apple that has been sliced open to reveal the citrusy matrix of an orange beneath - not only makes the book's argument about "hidden sides" in visual form; it invokes the forbidden fruit of Biblical lore. Levitt proffers illicit enlightenment, while with a wink and a nod implying that in so doing, he risks expulsion from his Edenic ivory tower.

Freakonomics' focus on overlooked connections and counterintuitive results exemplifies a trend that has been growing since the mid-2000s. *New York Times* writer Rachel Donadio cites Malcolm Gladwell, Steven B. Johnson, and James Surowiecki as additional participants in this «highly contagious hybrid genre of nonfiction, one that takes a nonthreatening and counterintuitive look at pop culture and the mysteries of the everyday» [Donadio 2006].[2] A survey of titles cited by Donadio is instructive: they are full of surprising juxtapositions and inversions: *Everything Bad is Good for You* [Johnson 2005]; *How Little Things Make a Big Difference* [Gladwell 2000]; *Why the Many are Smarter Than the Few* [Surowiecki 2004]. And commercial nonfiction's trend toward novel and counterintuitive analyses of sociological and cultural phenomena is not only found in print: it spills over to the Internet as well. The websites named above publish dozens of short essays per week, focusing on analysis, commentary, or contextualization. These essays have come to be known, colloquially, as "thinkpieces". The word "thinkpiece" is not a new coinage; the *Oxford English Dictionary* traces it to a December 1935 issue of *Harper's* magazine, and describes it simply as «an article containing discussion, analysis, or opinion, as opposed to facts or news». Thinkpieces have been found in print magazines throughout the twentieth and twenty-first centuries, and with the advent of the Internet, have moved online.

In recent years, the word has taken on a distinctly negative connotation: in common parlance, "thinkpiece" is now most often an ironic or self-deprecating label for a piece of short-form writing about media or current events [Haglund 2014]. Another, less negatively valenced term for this online form might be the "blessay": a portmanteau of "blog" and "essay". As described by historian Dan Cohen, several qualities of the blessay describe the kinds of writing with which this article is concerned. It is «a manifestation of the convergence of journalism and scholarship in mid-length forms online». The blessay is frequently «informed by academic knowledge and analysis, but doesn't rub [the reader's] nose in it» [Cohen 2013]. To their proponents, then, online thinkpieces productively blend the formal writing - and by extension, formal setting - of academia with accessibility, flexibility, and speed. To their critics,

online thinkpieces do not add constructively do discourse, instead drawing attention and gaining readers by presenting sensational, surprising, or controversial ideas or opinions. From a more cynical perspective, then, such essays in online venues are sometimes called "hot takes" or "takes", again in a deprecating manner, which draws attention to their reliance on provocative opinions or counterintuitive analyses. John Hermann describes Internet "takes" as a "newsy glossolalia", a spilling forth of opinions held only for their own sake: «the Internet's evolutionary defense against attention surplus» [Hermann 2014]. And within the economy of the Internet, which rewards sheer numbers of readers and statistically legible engagement such as comments or social media posts, surplus attention represents a significant source of income for most digital journalism outlets. There is thus great demand for "clickbait": concise, timely, and easily sharable content, which many critics deride as having little redeeming quality other than virality. «Online media is so ruthlessly click-driven», writes Nathan J. Robinson,

> it's almost impossible to break free of the existing forms. After all, they do precisely what they're supposed to do. … So it's not that editors are bad gatekeepers with poor judgement. In fact, it's astonishing how perceptive they are. … Nobody can resist clicking on the bait, and there's lots of money being made. Writers learn quickly that the more contrarian they can be than the next guy, the more interest they'll pique [Robinson 2016].[3]

The Millennial Whoop: An Introduction to Thinkpiece Music Theory

In recent years, the explosion of social media-ready "thinkpieces" has expanded to include a significant number of essays that engage, in some form or another, with music theory. The brand of analysis in which I am interested for this essay is devoted almost exclusively to popular music. We will begin by studying one particularly representative case, which illustrates many of the features common to this online brand of "thinkpiece music theory": a simple musical idea posited as having broad explanatory power; numerous appeals to cognitive, social, or evolutionary psychology; and a rapid spread to other online outlets, through which the idea is reified into a concept, and quickly applied as a persuasive device to reinforce the aesthetic convictions of authors or readers.

On 20 August 2016, Patrick Metzger published an essay on a phenomenon he termed the "millennial whoop" on his blog, *The Patterning* [Metzger 2016]. Metzger identifies this musical device as the alternation between the third and fifth scale degrees of the tonic major triad (or scale), usually sung on an open syllable such as "ah" or "oh" (hence the label "whoop"). It is unclear whether he intends the label "millennial" to refer to his posited origin for the trope, around the year 2000, or its prevalence among music by artists of the "millennial" generation; perhaps it refers to both.

Figure 1. The 'Millenial Whoop' as heard in Katy Perry's *California Gurls*

The structure of Metzger's argument makes clear the connection between online music theory and analysis, and the larger Internet-era phenomenon of thinkpieces and explainers. It begins with an exemplar, a parody pop song cut from the mock-documentary *Popstar: Never Stop Never Stopping* (2016), which features the melodic gesture. Via a series of embedded YouTube videos, Metzger then identifies a variety of songs, dating from the early twentieth century to the present, which use the millennial whoop (most emblematically, the chorus of Katy Perry's *California Gurls*, from 2010). From there, he extrapolates broadly, embedding the gesture within a much larger claim about music and human nature. He writes:

> Humans crave patterns. The reason pop music is successful to begin with is because almost every song is immediately familiar before you get more than 10 seconds into a first listen. Between the formula of European classical scales and chord progressions that have gelled over hundreds of years, and the driving heartbeat rhythms that stimulate our internal organs at the right decibels, listeners are immediately hooked in by a familiar structure and themes that have likely been ringing in their ears since they were in the womb. And with the pervasive nature of pop music, where everything is a remix, a feedback loop has been created in which songs are successful because they are familiar, so in order to be successful, songs are created that play on our sense of familiarity. So it is that the Millennial Whoop evokes a kind of primordial sense that everything will be alright. You know these notes. You've heard this before. There's nothing out of the ordinary or scary here. You don't need to learn the words or know a particular language or think deeply about meaning. You're safe. In the age of climate change and economic injustice and racial violence, you can take a few moments to forget everything and shout with exuberance at the top of your lungs. Just dance and feel how awesome it is be alive right now. Wa-oh-wa-oh [Metzger 2016].

Metzger's essay exhibits many of the qualities found in contemporary popular nonfiction, and online thinkpieces. First, it generalizes and names a simple, widespread device. More importantly, it connects that simple device to an ambitious account of an entire area of human experience: in this case, listening to music. The Millennial Whoop, writes Metzger, exemplifies the necessity for pop songs to be quickly and effortlessly understood, in order to be successful. Pop's tropes, he continues, form a field of background knowledge to which its listeners are exposed practically from birth. These tropes appeal - so the argument goes - both to physiology («driving heartbeat

rhythms») and, more importantly, to psychology. That psychological appeal is both personal («you've heard this before»), and ambitiously linked to both evolutionary psychology («the Millennial Whoop evokes a kind of primordial sense that everything will be alright») and contemporary social conditions («In the age of climate change and economic injustice and racial violence, you can take a few moments to forget everything»). Overdetermined in the extreme, Metzger's arguments are designed to convince a broad readership of the relevance of a simple, easily missed phenomenon: as they do in *Freakonomics*, the little things make a big difference.

The events that followed the essay's publication are also emblematic. Metzger's piece, originally published on 20 August 2016, spread quickly across the Internet in various forms. A week later, on August 27, it was the basis for an article by Adam Epstein on *Quartz*, a site that bills itself as "a digitally native news outlet … for business people in the new global economy. We publish bracingly creative and intelligent journalism". [4] Epstein's article adds a paragraph or two of context to Metzger's original blog entry. A day later, *Quartz* uploaded a two-minute YouTube video entitled "The 'Millennial Whoop' is Taking Over Pop Music", consisting of relevant excerpts. After the video appeared, the story spread widely. Metzger's original article was republished by *Slate* on 29 August 2016. As shown in Table 1, derivative articles then appeared in *USA Today*, *The Sun*, *Paper Magazine*, and *News.com.au* on 29 August; in *The Guardian* on 30 August; in *New Musical Express (NME)* on 1 September; and in the following weeks appeared on the websites of venues such as Minnesota Public Radio, and the Canadian Broadcasting Company's arts and culture program *Q* (which featured an interview with Metzger himself). Nearly all of the articles attribute the term to Metzger, and most reproduce passages from his original essay. Many also mention the *Quartz* article, particularly its accompanying video compilation; *Paper* even seems to credit the video's popularity as a newsworthy phenomenon in itself.

Author/Title	Publication	Date	Social Media Stats (as of 15 Feb 2018)
Patrick Metzger, "The Millennial Whoop: A Glorious Obsession with the Melodic Alternation Between the Fifth and the Third"	*The Patterning*(personal blog)	20 August 2016	N/A
Adam Epstein, "The 'Millennial Whoop': The Same Annoying Whooping Sound is Showing Up in Every Popular Song"	*Quartz*	27 August 2016	N/A
"The Millennial Whoop is Taking Over Pop Music"	*Quartz* YouTube Channel	28 August 2016	993,649 views; 7,000 likes, 560

			dislikes; 881 comments
Patrick Metzger, "The Millennial Whoop, the Simple Melodic Sequence That's Showing Up All Over Contemporary Pop"	*Slate* (reprint of Metzger's original essay)	29 August 2016	57 comments
Laura M. Browning, "Read This: Pop Music's Obsession With the Millennial Whoop"	*The Onion A.V. Club*	29 August 2016	130 comments
Danielle McGrane, "The Catchy Whoop in Nearly Every Pop Song".	*News.com.au* (via Australian Associated Press)	29 August 2016	N/A
Jasper Hamill: "Driving You Loopy: This annoying 'millennial whoop' explains why pop songs sound exactly the same"	*The Sun*	29 August 2016	0 comments
Josiah Hughes, "A Musical Phrase Called the 'Millennial Whoop' is Eating Pop Music Alive"	*Exclaim*	29 August 2016	N/A
Carey O'Donnell, "This Weird Music Theory Will Blow Your Damn Mind"[5]	*Paper*	29 August 2016	N/A
Gavin Haynes, "The Millennial Whoop: The Melodic Hook That's Taken Over Pop Music"	*The Guardian*	30 August 2016	703 shares, 129 comments
Caitlin Schneider, "The 'MillenialWhoop': The Musical Trope That's Suddenly Everywhere"	*Mental Floss*	30 August 2016	N/A
Larry Bartleet, "What is the Millennial Whoop? Once You Hear	*New Musical Express (NME)*	1 September 2016	N/A

This Virulent Pop Hook, You Won't Be Able to Unhear It"			
Katie O'Malley, "The MillenialWhoop: This is the Reason Why Pop Songs Are So Catchy"	*Elle UK*	1 September 2016	608 shares (Facebook, Twitter, e-mail)
"Millennial whoop"	*Wikipedia*	3 September 2016	N/A
"Have You Heard the Millennial Whoop?"	*Q* (CBC Radio Broadcast; interview with Patrick Metzger)	7 September 2016	N/A
Jay Gabler, "From Beethoven to the 'Millennial Whoop'"	*Minnesota Public Radio*	10 November 2016	1 comment

Table 1. Articles concerning the "Millennial Whoop" published in Summer/Autumn 2016[6]

The myriad ways in which Metzger's simple idea was repeated and contextualized have much to teach us about the ways in which content is disseminated online, and the demonstrate that music theoretical explanations can be made to go "viral" in much the same ways as can YouTube videos of cute animals or violent incidents, counter-intuitive explanations of political or social phenomena, celebrity gossip, and other flavors of Internet content.[7] The idea is simple and easily understood; a variety of YouTube examples make the topic clear, and emphasize its ubiquity. The montage compiled by *Quartz* is an especially significant aspect of the story's popularity. Running through several dozen examples in only two minutes, the video makes a compelling argument with very little commentary; only music. By cutting across genres and presumed audiences, the video increases the number of viewers who will identify with the video's argument, whether by ensnaring them with an example they know («hey, I love that song!») or repulsing them with the trope's ubiquity («ugh, I hate all of this music»). Either way, the intended result is to provoke the viewer to "like" or comment on the video, or share it with their own social circle (whether as an enthusiastic endorsement, or righteous disdain).

The practice of other news outlets significantly excerpting (with or without commentary) or even republishing essays such as Metzger's is sometimes known as "churnalism", conjuring the image of news stories and columns recirculating over and over again.[8] Referring originally to the proliferation of wire services and the increasing frequency of press releases being republished without commentary, contextualization, or criticism, churnalism also describes the practice of smaller or less-prestigious online outlets linking to or heavily excerpting stories from more prestigious sources in order to attract visitors or quickly and cheaply fill their own sites with

content. «The Internet has ... facilitated a type of 'news cannibalism'», write Jane Johnston and Susan Forde [2017, 943], through which journalism insidiously feeds off itself and swallows up rivals; consumes and regurgitates, or to put it more politely: recycles, recontextualizes and repurposes. In the many essays that cite it, Metzger's concept of the Millennial Whoop is framed as both ubiquitous (numerous venues highlight how it shows up in «every pop song») and influential (*The Guardian* writes that the Millennial Whoop is «taking over pop music», while the Canadian website *Exclaim!* claims "The 'Millennial Whoop' is Eating Pop Music Alive"). Next, the musical gesture's simplicity and importance are heavily emphasized: the two headlines provided by *Paper*, for example, speculate that "The Theory of the 'Millennial Whoop' Might Be the Key to a Hit Pop Song", and then claim (in language echoing the ubiquitous promise of «one weird trick» in online advertising) that "This Weird Music Theory Will Blow Your Damn Mind". And *New Musical Express* calls it a «virulent pop hook» that you «won't be able to unhear». While many sites exalt over having unlocked a simple explanation for a great deal of recent popular music, others turn the idea into critique, perhaps in order to tailor the article to their intended audience. Both *Quartz* and the British tabloid *The Sun* proclaim the Whoop to be «annoying», and *The Sun* posits it as a reason «why pop songs sound exactly the same». *The Guardian* takes this latter claim a step further, attempting to lend it a scientific air by linking to another article they had published several years before, summarizing an academic study that made a statistical argument about pop music's alleged homogeneity.[9] Jay Gabler, writing for Minnesota Public Radio, seems to tailor the piece for an omnivorous audience of public radio listeners, titling his contribution "From Beethoven to the Millennial Whoop". Sealing its notoriety for the Internet age, the "Millennial Whoop" received its own Wikipedia entry, which according to its "history" page was created on 3 September, 2016: approximately two weeks after Patrick Metzger's initial blog entry, and one week after the idea began to spread widely. And finally, Caitlin Schneider's 30 August post on *Mental Floss* seems to unintentionally highlight the echo chamber of social media and churnalism: calling the Millenial Whoop «the musical trope that's suddenly everywhere» seems to say less about the perceived prevalence of the device in actual composition, and more about its ubiquity in various online circles in late Summer 2016.

Re-Enacting the History of Music Theory, Online

While the phenomenon of the Millennial Whoop is broadly representative of the argumentative style and the cross-platform dissemination of online music theory articles, it does not necessarily represent their scope. Many examples of Internet-based music analysis do not describe broad phenomena, but instead apply the tenets of music theory (by which is generally meant tonal harmony, or occasionally rhythm and meter) to chart-topping hits, often arguing that the presence of textbook techniques is the reason for their success.

Owen Pallett's essay on Katy Perry's chart-topper *Teenage Dream* is emblematic of a broad body of online analysis. Published in March 2014 on the website *Slate*, the essay responds to a playful challenge from Pallett's friends: «to write a 'not boring' piece that explains a successful pop song using music theory» [Pallett 2014a]. Pallett chose to write about *Teenage Dream*, asserting a simple thesis about its success. «This song», he writes,

is all about suspension - not in the voice-leading 4-3 sense, but in the emotional sense, which listeners often associate with "exhilaration", being on the road, being on a roller coaster, travel. The sense of suspension is created simply, by denying the listener any I chords. ... *Teenage Dream* begins with a guitar sounding the I chord, but an instant later, when the bass comes in, the I is transformed into an IV [sic] (an IV7 chord, to be exact). The I chord will never appear again [Pallett 2014a].

Pallett's analysis apparently proved popular: in the coming weeks, he wrote two more articles for *Slate*: one [Pallett 2014b] a treatment of Daft Punk's *Get Lucky* (2013), the other [Pallett 2014c] a more wide-ranging study of Lady Gaga's musical style, focusing on *Bad Romance* (2009). These analyses draw on many of the most common tropes of music theory. Commenting on the way in which the harmony of Katy Perry's *Teenage Dream* avoids the tonic even as her vocals emphasize it, Pallett writes«[Perry's] voice is the sun, and the song is in orbit around it». Here, he draws the same celestial analogy that has been used to describe tonal hierarchy and movement throughout the modern history of music theory, from the Neoplatonic speculations of Robert Fludd (1617-18); through the writings of eighteenth-century French theorists like Jean-Philippe Rameau (1737) and Jérôme-Joseph de Momigny (1803–06); and on into twentieth-century composer-theorists like Arnold Schoenberg (1911/1978) and Paul Hindemith (1937/1945). «Tonality is a natural force», writes Hindemith [1945, 152], «like gravity», encapsulating a sentiment central to hundreds of years of theorizing. More recent theorizations of musical kinetics have left behind the mystical *aemulatio* between musical and planetary motion that characterized pre- and early-modern theorizing and persisted with some earnestness even into the twentieth century;[11] and have instead recast the useful aspects of that metaphor in terms of perception and cognition. Researchers like Lawrence Zbikowski [2005] and Arnie Cox [2016] have built upon the cognitive metaphor theory first proposed by George Lakoff and Mark Johnson [1980], while David Huron [2006, 59–89] has explained the enculturation of tonal tendencies as a product of statistical learning.

Pallett's follow-up piece, an analysis of Daft Punk's *Get Lucky*, asserts that the listener's pleasure in the song derives from harmonic ambiguity and surprise, provoked by the tonal uncertainty of the song's central, looped progression: a similar argument about the roots of musical interest and enjoyment as has been made, in more or less similar terms, by music theorists from Gottfried Weber to David Lewin, and reinforced by systematic musicologist David Huron's ITPRA model.[12] Pallett argues that the progression (B minor – D major – F# minor – E major, shown in Figure 2) wavers between the F# Aeolian and B dorian modes, yet comes down on the side of the former: F# Aeolian. Pallett is correct in his assertion that the two modes contain the same pitch classes, and that the progression sounds off-kilter to classically trained ears. Hearing the F# minor triad - the third chord - as the tonic is a difficult leap, however. As shown in Figure 3, the four harmonies involved are central to the dorian modal system identified by Philip Tagg [2014, 291]. Viewed from this perspective, there is no real ambiguity, only the unusual sound of major IV and minor v chords in a minor-like context. As Figure 3 demonstrates, hearing the progression in B dorian has the benefit of placing the tonic chord first (giving it the formal and hypermetric priority that Nobile [2016, 160] emphasizes in determining harmonic function in pop harmony), echoing the prototypical minor-key movement from i to III, and explaining the progression-ending turnaround from IV to i as a pop-friendly plagal resolution.[13] Pallett cautiously

cushions his words with the language of subjectivity - the song is tonally ambiguous «to [his] ears». Yet, to insist upon an ambiguous tonality for the four-chord loop seems to misidentify the sounds that characterize *Get Lucky*'s central progression: the parsimonious voice-leading that unites the first three chords, and the combination of a major IV chord and minor v chord. The "raised" scale degree 6 (*g#*) and natural scale degree 7 (*a*) sound striking together, but are strongly identified with the dorian mode, which in turn is made absolutely clear by the temporal arrangement of the four chords. Pallett's bi-modal explanation - though attractively counterintuitive for its online medium - overcomplicates the situation. The song is tonally ambiguous only if one attempts to explain it from the standpoint of Classical harmony; as Tagg's model shows, it actually traces a harmonic path that is well-worn in folk, pop, and rock music.[14]

Figure 2. Harmonic reduction and competing roman numeral interpretations of the primary loop from Daft Punk's *Get Lucky*

Figure 3. Harmonies in the Dorian mode (after Tagg 2014, 219)[15]

This analysis of *Get Lucky* - particularly if it can indeed be attributed to obfuscation - leads into another trope of music theory that is reflected in many online analyses: the notion of secrecy, of hidden knowledge or information known - or more often, concealed by - composers, which is available only to those who understand music theory (which, again, is presented as if it were a singular and monolithic body of research). Music theorists like Heinrich Schenker often cast their work as revealing arcane or specialized knowledge about music. Schenker subtitled his famous analysis of Beethoven's Third Symphony, «its true content described for the first time» [Schenker 1994, 10] and he often wrote that «the masses" were ignorant of the true nature of music, lacking "the soul of genius»; such readers, he claimed, were thus reliant on his writings to reveal how master composers worked [Schenker1979, 3]. The

metaphor of *depth,* which is so prevalent in music theory, is relevant as well: just as the cover art of *Freakonomics*implies that economics holds the key to a wealth of knowledge hidden beneath surface appearances, so too do the worldviews left behind by some of music theory's earliest and most influential practitioners imply that most musical knowledge is only to initiates.[16] Popular online music theory writings, then, take the subtext that has always been present in music theory, and render it explicit.

Finally, closely related to the notion of secrecy and specialized knowledge is music theory's image of itself as a scientific discipline. Throughout the modern history of western music theory, the discipline has often tried to position itself as a branch of science. In the eighteenth century, Jean-Philippe Rameau aspirationally submitted several of his treatises to the Parisian AcadémieRoyale des Sciences for official recognition.[17] Hermann von Helmholtz brought psychoacoustics to bear on music theory in the 1850s, and theorists like Hugo Riemann formulated many of their most influential ideas (such as harmonic dualism) as a reaction against the arguments of Helmholtz's acoustically grounded music theory.[18] Later, in the twentieth century, Milton Babbitt wrote influentially about the rigorous logic and formalization necessary for music theory to claim its place among the sciences.[19]

Several video essays produced by *Vox* reflect such an instrumentalizing view of music theory directly, reducing it to a set of building blocks that can be used to reveal insights. These videos discuss "The Secret Rhythm in Radiohead's 'Videotape,'" for example, or "The Secret Chord That Makes Christmas Music Sound So Christmassy". And even when music theory is not presented as revealing *secrets*, it is still cast as an arcane specialty, far beyond the reach of the average reader. Theory is positioned as a black box, or worse: a simple set of labels for musical phenomena, to be applied in the manner of a secret decoder ring. As in the trio of *Slate* articles cited above, one simply «uses music theory», and receives insight. This insight, in the case of the Vox videos - which each *do* make interpretive claims about individual songs - is elevated to the level of a secret compositional trick, in order to create the drama necessary to entice readers or viewers to share the article or video. The rhetoric of "secret" chords and rhythms occludes the fact that music theories are means of interpreting the data that might be revealed by the application of labels; as demonstrated in Heidegger's famous analysis of tools (Heidegger 1996, 65–69), such a view erroneously expects music theory simply to disappear into the background. But music theory does not automate aesthetic interpretation, just as the application of a prediction market or a statistical regression does not automate political punditry. But when both are positioned as rhetorical black boxes and appended to clickable, eye-catching headlines, music theory - and any number of other specialized research disciplines - are reduced to soundbites and shallow, quickly sharable insights.

There are exceptions this this tendency, however, and cases in which music theory has been folded into nuanced cultural analysis. Alex Abad-Santos' [2017] treatment of Luis Fonsi's *Despacito* on *Vox* cites its central chord progression (a typical vi – IV – I – V) as just one of many factors that explain «how [it] became the biggest song of 2017». Abad-Santos consults numerous musicologists and critics, and accounts for factors from instrumentation and production style, to the remix's place within the larger landscapes of electronic dance music as a genre, and online streaming as an economic force, to language and cultural interchange, in his long-form treatment of the song's popularity. While not without hyperbole («Put simply», Abad-Santos writes early

in the piece, «*Despacito* is magic»), the essay offers an example of how to position music theory alongside other musical factors, reflecting the musical, aesthetic, and economic overdetermination that characterizes contemporary pop stardom rather than treating harmony alone as a uniquely comprehensive "Rosetta stone" for interpretation.

The Hermeneutic Imperative

Of all the disciplinary conversations recapitulated by popular online writing in music theory, the need for hermeneutic interpretation is perhaps the most notable. In the 1980s, musicologist Joseph Kerman criticized the tendency of musical analysts to purge their language of aesthetic judgments - and to ignore questions of meaning and value - as they strove for scientific purity and precision.[20] In the 1990s, Susan McClary, Lawrence Kramer, Gary Tomlinson, and other scholars began to crystalize an intellectual movement - often dubbed the New Musicology - that was interested in criticism and interpretation, cultural contextualization, interdisciplinary theorizing, and postmodern epistemologies. «The aim of postmodernist criticism», writes Lawrence Kramer, «is to understand the work of art, or any other cultural product or practice, as an instance of social, political, discursive, and cultural action that traverses a larger field - a heterogeneous and much-contested field - of such actions» [Kramer 1992, 3]. Though some scholars of theory and analysis at the time balked at the notion that musical analyses ought to be connected to or representative of some form of extra-musical meaning,[21] several new music-theoretical subfields have arisen (such as topic theory, narrative theory, and semiotics) that take musical meaning and interpretation as their primary concern. Although the emergence of these subfields seems to imply that music theory has in many ways internalized the lessons of the 1990s, it remains possible to write an analytical or theoretical study that is concerned primarily with hermetic readings of single works, or expositions of theoretical concepts, without recourse to intertextual, contextual, or narrative meanings.[22]

This is rarely the case in the "thinkpiece" theory found on popular websites, however: most examples of popular music theory journalism are firmly committed to recovering interpretive meaning from the structural elements they analyze. New Musicology's hermeneutics have been primarily historical in context - concerned with reconstructing the context in which a work originated, and sharpening our experience of that work against the whetstone of cultural or temporal difference - these essays are concerned with the music of the present, and with its ability to inspire specific reactions in its listeners, or to shed light on larger cultural forces.[23] In nearly all cases, popular online analyses are couched in affective terms, and these emotional effects are tied to implicit (or explicit) musical narratives and semiotic gestures. Pallett's analysis of *Teenage Dream* speaks in emotional terms right at the outset, invoking the notion of suspension not as a voice-leading phenomenon, but «in the emotional sense, which listeners often associate with 'exhilaration,' being on the road, being on a roller coaster, travel». The image of Katy Perry's voice as «the sun», around which the rest of the song is «in orbit» echoes the images used by eighteenth century writers like Rameau and Momigny, who sometimes presented tonal systems as groups of planets, held in gravitational alignment by the orienting pull of the tonic. Furthermore, centering Perry's voice - and by extension, the singer herself - as an always-withdrawing object of desire renders *Teenage Dream*'s tonal structure as a mapping of sexual desire - another common image from music studies. As Susan McClary [1991, 53] writes:

Literature and visual art are almost always concerned (at least in part) with the organization of sexuality, the construction of gender, the arousal and channeling of desire. So is music, except that music may perform these functions even more effectively than other media. Since few listeners know how to explain how it creates its effects, music gives the illusion of operating independently of cultural mediation. It is often received (and not only by the musically untutored) as a mysterious medium within which we seem to encounter our "own" most private feelings. Thus music is able to contribute heavily (if surreptitiously) to the shaping of individual identities: along with other influential media such as film, music teaches us how to experience our own emotions, our own desires, and even (especially in dance) our own bodies. For better or for worse, it socializes us [McClary 1991, 53].

Pallett's analysis thus recapitulates several disciplinary conversations that have happened in music theory over the past few decades: the excavation and revival of numerous historical theories of music (such as the works of Rameau and Riemann); the fraught relationship of music theory with science; and the discipline's encounters with feminist criticism and hermeneutics as new ways (among many) of making larger meaning out of musical devices. At the same time, its premises are often ignorant of the ways in which scholars today think, speak, and write about music. Most shocking is his framing of his own conclusions, which would not be out of place in one of Heinrich Schenker's virulent polemics: «As I argued earlier this week», he writes in the second of his March 2014 essays on *Slate*, «the reason *Teenage Dream* went to No. 1 and remains in radio rotation is that it is a textbook example of the excellence and supremacy of the rules of Western music theory». For the many practitioners of theory who have worked hard to move the discipline beyond such self-aggrandizing ethnocentrism, this casual framing is a sharp reminder that music theory's public image is still in dire need of an update.

Such an image persists despite the explosion of theoretically oriented popular music studies in the past 30 years. Music theorists such as John Covach, Walter Everett, Phillip Tagg, Nicole Biamonte, Mark Spicer, Kyle Adams, and many others, have published detailed studies of popular music from The Beatles [Everett 1999 and 2001] to Danger Mouse [Adams 2015] and beyond. These scholars often attempt to deal with pop music's tonal and rhythmic structures on their own terms - if not always independently of their Classical analogues, at least without judgement about their worthiness or deficiency by comparison. Pallett's claims are thus a surprising contrast with pop music theory as it is often practiced today. Pallett, Patrick Metzger, and the other authors mentioned above seem to have little doubt that popular music is *good*, and worthy of study; yet their focus on «the excellence and supremacy of the rules of Western music theory» causes them merely to re-inscribe the same boundaries of quality and worthiness that most pop scholars seek to dismantle. The almost exclusive focus on harmony in popular online analysis belies the current state of the field, which is characterized by innovative approaches to a variety of parameters: Kyle Adams [2009, 2015] and Mitchell Ohriner [2016] on meter; Kate Heidemann [2016] and Megan Lavengood [2017] on timbre; Michael Heller [2016] and Olivia Lucas [2014] on loudness; and James Bungert [2016] on the connections between music analysis and social issues.

Music Theory as Journalistic Source: Third Person Narrative in Online Analysis

Tonality's hermeneutics of desire is not the only relevant aspect of the passage quoted from McClary above; the entire basis of online music theory journalism may be read in McClary's paragraph. Essays like Pallett's make it their mission to elucidate the musical factors that often remain so hidden in music's effects on us. As McClary asserts, musical structures are mirrored at the level of individual subjectivity, interpersonal relationships, and societal forces writ large. Indeed, this notion probably constitutes the red thread that connects the socio-political orientations of *Vox*, *Vice*, *FiveThirtyEight*, and others, with the recent surge of interest in music-theoretical explainers. Connections between musical and societal structures, for example, form the basis of an essay by Rachel Kraus in the *Los Angeles Review of Books* takes very seriously the ability of music to reflect social structures. Kraus begins her essay by attempting to capture her ambivalent relationship to American politics and society in 2017 via her reaction to the national anthem: «*The Star Spangled Banner* still makes me feel *something*» [Kraus 2017]. What that *something* might be is initially unclear, but Kraus begins to intuit a common genetic code among shared by various pieces of patriotic music, such as the emotional and inspiring theme songs to the television shows *The West Wing* (1999–2006) and *Band of Brothers* (2001).

The way in which Kraus chose to confirm her perceptions is highly characteristic for online music analysis: she consulted «musician Reuben Moss, who has a music composition degree from Stanford University». With the exception of her essay's short introduction, the musical analysis she presents is second hand: she treats Moss as a journalistic source, the subject of an interview. While the central idea of the analysis isn't wrong, her second-order recitation produces - whether through imperfect memory or selective quotation - details that do not logically follow from one another. «The perfect 5th and perfect 4th intervals you hear are the purest intervals in music», begins one quotation, which then concludes: «In other words, the major arpeggio is the most simple [sic] musical structure» [Kraus 2017]. This assessment is not entirely mistaken, but neither is it very accurate: while those intervals are present (even if only as inversions of one another), they do not define the *major* arpeggio, but rather its constituent perfect fifth. Something has been lost in translation.

After recounting her conversation with Moss, Kraus attempts a hermeneutic reading based on their discussion:

> Arpeggios and intervals and mathematical dissonance sound complicated, but the musical theory Reuben described boils down to two essential concepts: simplicity and consonance. The melodies that characterize our two theme songs in question, as well as many classic patriotic songs, are just about as simple as they come - you can find major arpeggios in the very beginnings of Western music. And because they follow a simple structure, they affect on the listener a pleasing sense of peace. There is no musical discord in these songs, each of the notes are in tune with one another. The major arpeggio is the musical embodiment of a peaceful and prosperous country [Kraus 2017].

Again, the basic idea of Kraus' interpretation is plausible. Yet to draw such a sweeping conclusion misses much of the complexity of the music at hand. Both W.G. Snuffy Walden's *West Wing* theme and Michael Kamen's *Band of Brothers* may

present a simple façade, but each is actually saturated with gentle dissonances, in the form of suspensions - which arguably bear as much responsibility for the music's affective signification as do any arpeggios, if not more.[23] And as Kraus' essay continues, she builds an entire argument on the "major arpeggio" as a broad signifier, weaving it - via Moss' comments - into a spurious history of American music, ignoring its status as a simple building block of harmony. Her point is not unappealing - she argues against predictable and reassuring narratives - yet it is made via an oversimplification of the materials of tonal music.

What is more, the essay's exclusive focus on melody and harmony mirrors the institutional failures of music theory itself. This analysis of the *West Wing* and *Band of Brothers* themes relies upon melodic and harmonic elements, yet has nothing to say about, say, the common instrumentation of the piece, nor about the changes in ensemble texture, nor about the rhythms in which the pieces unfold. In this way, "thinkpiece theory" copies music theory's *own* worst tendencies, reaching for a shallow hermeneutic grounded in the nearly fifteen-hundred-year-old writings of Boethius, and even pre-dating him.[24] Again in the thrall of science envy, music theory's origins in mathematics prove to be one of its most appealing qualities to those writing pieces like Kraus's; the sweep of strings and French horns never enters the discussion.

The Sharing Ecosystem

The online commentariat for which these essays are often written is one final aspect of online musical analysis that is worth considering. "Thinkpiece theory", like many forms of digital journalism, exists in an ever-expanding ecosystem of social media sharing, content curation, and linking or re-publication. Catchy "before-the-colon" titles (recall Pallett's "Ecstatic Melodic Copulation") serve much the same purpose in online writing as they do in academic writing: to draw the reader in. The types of titles that stand out in the table of contents of an otherwise dry journal, or amid a long list of concurrent conference sessions, are also generally successful at drawing readers into websites, and enticing those readers to share content with their own colleagues, friends, or families via social media. Many online publications also host comment sections at the bottom of articles, or sometimes on a separate page. Readers, again, are encouraged to have their say in a manner that adds value to the site - by making its discourse more active and vibrant - and also increases the statistical metrics that measure the monetary value of a given site's average user, for advertising purposes. The comments on the articles discussed here are extensive and varied. "Ecstatic Melodic Copulation", on the music of Daft Punk, has attracted 223 comments to date. Some commenters note that, while the essay is intended to be easily digestible, they still do not understand the technical terminology used. Sometimes this sentiment is expressed constructively, with earnest questions and suggestions; sometimes it is not. («I have no idea what this means», goes one single-line comment).[25] Other commenters, however, participate enthusiastically in the analysis, bringing their own existing musical knowledge or intuitions to bear. They argue over ambiguities of key and chord, quibble with technical details, or express admiration and agreement with Pallett's arguments. One reader even expresses admiration for the discussion holding forth in the comments section: «Judging purely by the incredible comments section discussion, I would judge this theory-based music criticism experiment a rousing success».[26] (This echoes the "clickbait" attitude cited above, which counts statistically legible audience engagement as success.) Still more commenters argue that the music is simply not to their taste, and that the author, his readers, and even the

publication outlet would be better off focusing on more worthy topics. «Breaking down the ingredients of spray cheese does not make it taste any better», wrote one commenter.[27] Here, again, we see that reified conceptions of "worthy" musical repertoire, and the implicit judgments made for or against certain genres by traditional conceptions of music theory, are reflected among the general public, who have somehow developed a two-dimensional conception of the disciplines of music theory and musicology as they actually exist.

Music Theory's Funhouse Mirror

The case studies undertaken in this essay reveal that the methodological issues that have often fueled disciplinary controversy within music theory are also, in many ways, vitally important outside the academy. The most fraught interdisciplinary relationships of music theory and musicology - with feminist criticism, with the philosophy of science - and the attendant controversies over the ontological status of music and the propositional status of music theory, are played out frequently, and in public, by non-academic writers on websites like *Slate* and *Vox.*

As Bonnie Gordon [2017] has written, scholars and teachers need to be diligent in equipping their students to recognize the ways in which various ideologies cloak themselves in music and spectacle, or even lie in plain sight, unexamined or taken for granted.[28] The same might be said of the tropes and tendencies of music theory, reflected as they are in the habits of thought, and writings, of journalists, amateur musicians, and non-academics. Declarations like Owen Pallett's (about the «excellence and supremacy of the rules of Western music theory») ought to give us pause, and rouse us to action. Music theory's history, its epistemologies, and its outlook on musical ontology are intertwined with larger cultural currents. Repeated without consideration by untrained writers in popular essays, these cultural ideas come to overwhelm music theory as it is practiced in the academy, producing problematic or overreaching arguments like those cited in this essay. This is not to say that all scholars have accepted popular music on equal terms with the Classical canon; in some corners, the innate supremacy of one genre over another is taken to be a defensible, attractive argument; take, for example, a 2016 paper in the journal *Philosophy* (the official journal of the Royal Institute of Philosophy, in London) entitled *How Classical Music is Better Than Popular Music* [Young 2016]. But to assume that the academy ignores and disdains pop would be to ignore the inroads made over the past few decades, by many exciting voices in the field.

This is *also* not to say that those lacking academic training, or those who view the discipline differently, do not have a right to use, or write about, music theory; empowering others to express their musical ideas, after all, is one of the highest goals of most professors, and one of the most important reasons to teach music theory. It should serve, however, as a call to arms to theorists and musicologists, who may want to have greater control over how their discipline - their research - is reflected in public. As have many humanities disciplines, musicology and music theory have begun tentatively to reach out to broader publics, striving to bring the lessons of the music classroom to those outside the walls of the academy. It is clear from the examples cited in this essay that there is great demand for sophisticated explanatory writing on music; it is also clear that music theory scholars, trained in the nuances of analytical language and well-versed in the cultural and historical weight borne by various metaphors for

describing musical experience, have much to offer to the current state of discourse. Gordon's injunctions might well be adapted to the persistence of certain intellectual ideologies evident in the amateur and enthusiast writings that currently represent music theory on Internet platforms.

The problem of the instrumentalization of theoretical knowledge, for example, runs rampant in these examples. In many of these essays - as indicated by the ubiquitous phrase "using music theory", - this disciplinary knowledge is treated as an unimpeachable authority, an external reference that justifies, reinforces, or explains the intuitions of readers, or even writers. The scientific image of music theory that arose with Milton Babbitt's circle after World War II persists, unchallenged, in the minds of many. Indeed, one of the most vivid lessons of the case studies described here is the degree to which the ways music has been described over the past 300 years (from metaphors of gravity and natural order, to hermeneutic readings of tonal attraction-as-desire or modal-inflection-as-signification, to essentialist readings of gender binaries) have taken hold in popular discourse about music - often without the corrective re-examinations and contextualizations that have occurred in musicology and theory only for the past 30 years or so. Owen Pallett's casual declaration of purpose in his Lady Gaga essay, for instance, reinscribes outdated divisions between the body and the mind, between affect and intellect. "Our mission", he writes, is «to dissect chart-topping pop singles and weigh their trembling flesh on the scales of Western music theory» (Pallett 2014c).[29] His choice of metaphor is no accident: popular music, ascribed to bodies that move - and which in this case tremble with intensity or desire, or perhaps simply the suspicious excess of mass popularity - is to be objectified, rationalized, and judged by the cold empiricism of music theory.[30]

It is not difficult to draw a line between appeals to natural order - and to music theory as a reflection of such order, as in many of the articles cited above - and reductive essentialisms or cultural chauvinism. It is striking, for example, to see how quickly Arnold Schoenberg moves from the assertion that the analogous tensions between dominant and tonic, and tonic and subdominant are «like the force of a man hanging by his hands from a beam and exerting his own force against the force of gravity» to his assertion, only a page and a half later, of the supremacy of the Western scale. The discovery of the major scale, he writes «was a stroke of luck»; the fact that other cultures, such as «the Arabs, the Chinese and Japanese, or the gypsies» have employed different ones is one reason why «their music has not evolved to such heights as ours» [Schoenberg 1978, 23 and 25].[31]

Yet, if the reception of music theory and analysis in online venues is any indication, it seems that a large number of readers and listeners to music - perhaps a majority - are likely to hold some sort of "folk theory" about music, and about a variety of musical topics: perception, expression, the place of music in culture, the relationship between music and text, the assumed separation of musical syntax from musical meaning, the innate and inarguable supremacy of certain musical traditions or repertoires over others, and many other topics.[32] Such ideologies are the very web of culture that musicologists address when they write about cultural context, and music theory is not immune form their effects. Music theorists and musicologists attempting to engage the public might be tempted to hide their disciplinary apparatus and training: to simplify their arguments, or gravitate towards "the music itself", rather than complicated framing, out of a sense that critical discourse and academic theorizing are

less palatable to outside readers. I would argue, however, that they should resist this impulse. While those rising to the challenge of engaging readers and interlocutors outside of traditional disciplinary boundaries should be careful to write clearly and attractively, they should perhaps feel less pressure than they may currently, to hide their disciplinary expertise, or to paper over the methodological disputes and uncertainties that characterize professional academia, in favor of presenting a simplified, unified view of the issues. But perhaps public music theorists and musicologists should place greater emphasis on their own methods, and the debates which unfold in seminar rooms and at professional conferences. Rehearsing the disciplinary paradigm shifts that led, over hundreds of years, from Fludd's mysticism to the present, might help to counteract that the popular notion that music theory and its objects are fixed and objective.

Meta-disciplinary reflection is in fact essential to moving any field forward, whether it happens in academic journals or the general press. One of the most fascinating rhetorical turns in Kofi Agawu's 1997 essay *Analyzing Music Under the New Musicological Regime* finds him arguing that the New Musicologists to whom he is responding - Susan McClary, Lawrence Kramer, and others - frequently employ the very analytical methods that they critique. He writes:

> Rather than develop new methods for analysis, methods that are free of conventional biases, new musicologists often fall back on conventional methods. The props of insight-formation are considered self-evident. Rarely are the perceptual and conceptual foundations of musical analysis openly confronted. [Agawu 1997, 302].

New Musicologists and music analysts, then, are not natural enemies; to Agawu, they are often engaged in the same endeavors. Yet the former group, by ignoring the current disciplinary concerns of music theory, end up both reifying outdated paradigms, and fruitlessly critiquing them, as strawmen.

The same might be said of the body of "thinkpiece analysis" described here; and, more importantly, the same opportunity is available. The writers cited here rely almost exclusively on conventional methods, and their insights as a result bear the weight of conventional biases, such as regressive forms of Cartesian dualism, reductive and binary hermeneutics, and smug declarations of the superiority of western music and music theory. The proliferation of online musical writings seems to indicate that there is great demand for well-informed musical analysis, particularly with regards to popular music - a demand which is currently being filled by journalists, amateurs, and musicians without extensive academic training. While we should welcome a broad audience to write about and engage with music, musicologists and theorists are also in a unique position to provide greater historical context, and argumentative rigor, and theoretical sophistication. In recent years, the field of music theory has embraced a broad variety of diverse research topics and repertoires, yet the image of the discipline being presented in popular outlets - presented, it should be noted, by non-theorists - is one of staleness and rigidity, as either a set of regulatory guidelines or a mysterious decoder ring yielding deep meaning with minimal effort.

There is thus a great need, and great opportunity, for scholars to present their own vision of music theory to the public. If some popular online outlets are willing to devote significant resources to publishing essays on music theory, and in other cases

are willing to engage in extensive meta-methodological reflections (as with the many self-conscious essays published by *FiveThirtyEight*, reflecting on their own methods of statistical analysis), perhaps it is time to propose that the two editorial impulses be unified. Given the rise of the public humanities and the documented demand for thoughtful coverage of music and the arts, perhaps it is time for a form of public music theory that does not only analyze music using conventional methods, but that lays bare those methods and exposes them for what they are - theories, which are provisional and in need of constant evaluation and revision. We should, in other words, not merely teach our students and our readers to use our tools; we should proudly show them how the tools were crafted, how they may be maintained and honed, and - most importantly - how new tools may be forged, to handle new musical challenges.

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[1] John DiNardo [2006, 616–617] takes this critique even further, describing the book as a "hagiography" of Levitt.

[2] Other books cited by Donadio include Gladwell [2000], Gladwell [2005], Johnson [2005], and Surowiecki [2004]. Further examples of the genre published after Donadio's essay include Lehrer [2007], Taleb [2007], and Levitt and Dubner [2009].

[3] It is instructive to compare this critique with Kevin Korsyn's [2003] characterization of the "ideology of the abstract" in contemporary academia. Korsyn writes that academic work is reduced «to an ever-smaller nucleus, exemplified by the abstract as a textual genre. Musical research today involves the circulation of abstracts, by which knowledge is summarized, paraphrased, boiled down so that it can assume a portable form in the competition for cultural capital, becoming a kind of currency» [Korsyn 2003, 23–24].

[4] "Welcome to Quartz", https://qz.com/about/.

[5] While this headline appears atop the article itself, the html title tag (which appears at the top of the web browser, and in web searches) reads "The Theory of the 'Millennial Whoop' Might Be the Key to a Hit Pop Song".

[6] Social media statistics have been included only when available on the article itself; many websites do not post these statistics.

[7] All citations in this paragraph refer to articles listed in Table 1, above.

[8] On "churnalism", see Saridou *et al.*) [2017]. Most treatments trace the origin of the term, and its popular application, to Davies 2009.

[9] For the original Guardian piece, see Michaels [2012]; for the research study, see Serrà *et al.* [2012].

[10] See, *inter alia*, Christensen [1993a, 188–190] and Hyer [1996a, 93–97].

[11] See Foucault [2005, 22]: «The relationship of emulation enables things to imitate one another from one end of the universe to the other without connection or proximity … in this way it overcomes the place allotted to each thing. … [E]mulation is a sort of natural twinship existing in things». For more on the influence of Foucault's Renaissance, Classical, and Modern epistemes as they relate to the history of music theory, see Moreno [2004].

[12] See Weber [1817-1821, 203], as well as significant commentary in Hyer [1996b, 94–97]; Lewin [2006, 53–67]; Huron [2006, 7–18]. ITPRA stands for the five chronologically ordered phases of Huron's theory of expectation: Imagination, Tension, Prediction, Reaction, and Appraisal.

[13] On IV – I resolutions in pop music, see Tagg [2014, 366–370, 416–420, and 425–430]. From the perspective of harmonic function, Nobile [2016, 158–160] argues that classically "pre-dominant" chords such as IV and even ii,

can often take on a dominant function in pop music (as in The Beatles' *Nowhere Man* and Pink Floyd's *Wish You Were Here*), while V chords often serve as pre-dominants.

[14] Aspects of the "rock dorian" type of Tagg's [2014, 381 and 447–448] "non-classical tertial harmony" can be found in selections as diverse as the folk tune *Scarborough Fair*, the Kingston Trio's *Greenback Dollar*, and Santana's *Oye como va*.

[15] The diminished vi chord is show in brackets because Tagg [2014] focuses primarily on major and minor triads.

[16] On the use of depth by prominent theorists such as A.B. Marx, Heinrich Schenker, and Arnold Schoenberg, see Watkins [2011].

[17] See Christensen [1993, 11]. Rameau [1750] received an official endorsement, in the form of a statement from Académie member Jean le Rond d'Alembert, praising it for presenting music as "a more geometric science … to which the principles of mathematics can be applied", in contrast to previous accounts "guided by arbitrary laws or blind experience".

[18] See Rehding [2003, 15–35].

[19] See Babbitt [2003, 191–201]. The legacy of these appeals to science have often been the subject of critique: see Kerman [1980, 313–318]; Brown and Dempster [1989] and Maus [2004, 13–43].

[20] See Kerman [1980, 313–314].

[21] For an especially memorable formulation of this sentiment, see Agawu [1997, 299].

[22] See, *inter alia*, Kramer [1992]; Tomlinson [1993a, 20–43]; Tomlinson [1993b, 21–24]; Christensen [1993b]; and Currie [2009, 145–157].

[23] On the perception of suspensions and their relationship to the ITPRA model and musical enjoyment, see Huron [2006, 309–312].

[24] See Boethius [1989]. On the prevalence of these ideas throughout the history of music theory, see Cohen [1993] and Heller-Roazen [2011].

[25] Pallett, "Ecstatic Melodic Copulation", Slate. Comment by user "The Burning", July 9, 2014.

[26] Pallett, "Skintight Jeans and Syncopation", Slate. Comment by user "Dan Conley", April 2, 2014.

[27] Pallett, "Skintight Jeans". Comment by user Zardoz, April 1, 2014.

[28] The nerve that is touched by musicology's explicit entries into politics is also evident in the reactionary comments that many entries in Musicology Now (the official, public-facing blog of the American Musicological Society) receive, urging scholars to "stick to the music": it seems that at least some in the general public cling to the notion that aesthetic autonomy is necessary in order to guarantee the supremacy of Classical music, as part of a unified project of conservative aesthetics and conservative politics.

[29] On this topic and its encoded gender dynamics, see Cusick [1994, 16–22].

[30] As McClary [1991, 79] writes: «in Western culture, music itself is always in danger of being regarded as the feminine Other that circumvents reason and arouses desire. Hence the ongoing academic struggle to control music objectively».

[31] Schoenberg continues by speculating that «imperfect instruments» or «some other circumstance which cannot be investigated here» might also be responsible for the failures of other musical cultures.

[32] On folk theories and folk psychology, see Cross [1998, 4–5].

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