

How Accurate is *whosampled.com*?: Exploring the reliability of a user-generated resource

JEREMY OROSZ[1]
University of Memphis

ABSTRACT: *Whosampled.com* is a website that hosts user-compiled lists of samples, covers, and remixes of pre-existing music. This article will evaluate the accuracy of the information on *whosampled.com* through cases studies on the music of Bruno Mars, Janelle Monáe, Dua Lipa, and the reported samples of Classical music, to determine which types of entries are most likely to be accurate and why. While the site is an informative resource for exploring clear examples of direct samples in genres like hip hop, it is less reliable in documenting other forms of borrowing, especially in genres in which digital sampling is not commonly practiced.

Submitted 2021 Month 9, accepted 2022 Jan 10.

Published 2023 August 10; <https://doi.org/10.18061/emr.v17i1.8641>

KEYWORDS: *sampling, borrowing, quotation, Bruno Mars, Janelle Monáe, Dua Lipa*

WHOSAMPLED.COM is a website that hosts user-compiled lists of samples, covers, and remixes of pre-existing music. I first happened upon this website a few years ago, while completing research for another project[2] and was intrigued to find a peculiar claim: That John Williams had “sampled” the music of Igor Stravinsky’s *The Rite of Spring* in the score for *Jaws* (1975). If interpreted literally, of course, this assertion is clearly false; Williams did not sample—that is, extract and manipulate sound from a recording of *The Rite*—in the soundtrack for Spielberg’s iconic film. Nevertheless, this assertion should not simply be dismissed. Though Williams does not quote Stravinsky’s music directly, through digital or analog means, a contributor to this website does identify a case of stylistic allusion; moments of the *Jaws* score are at least evocative of Stravinsky’s *Rite*, and it is likely that Williams found inspiration in the music of the modernist ballet, even if the two pieces do not feature precisely the same combination of notes and rhythms.

My fortuitous stumble upon *whosampled.com* left me with several questions: How reliable is the user-generated data on this website? Which types of entries are most likely to be accurate, and why? And lastly, are entries that are not, strictly speaking, “correct,” nevertheless informative? That is, do most examples that fail to identify clear cases of musical borrowing—like the *Jaws* → *Rite of Spring* example above—highlight meaningful similarity between different works? To answer these questions, I studied hundreds of examples housed on *whosampled.com*, and listened to each carefully to evaluate their accuracy. This article shares some of the most instructive findings gleaned from combing the information found on the site. After providing a brief overview of how the information on *whosampled.com* is organized, the article is organized into four primary sections. The first three sections examine every reported sample in the music of three contemporary artists known for producing nostalgic, stylistically familiar hits: Bruno Mars, Janelle Monáe, and Dua Lipa (respectively); each corpus makes for an informative case study. The fourth offers a brief discussion of what can be learned from a comprehensive study of the reported samples in Classical music that appears on *whosampled.com*—a website primarily designed to discuss forms of borrowing in popular music. The article concludes with summative thoughts about the accuracy of this website and its usability as a resource.[3]

HOW WHOSAMPLED.COM IS ORGANIZED

All entries on *whosampled.com* include recordings of two musical works—the piece from which the reported sample is taken, and the piece that incorporates the reported sample—enabling a user of the site to compare the two excerpts with ease. All samples are classified by *manner* in which material from another source is



used, and the *elements* borrowed (which instruments and or voice parts are adapted). To answer the former question, a distinction is made between two types of samples: “**Direct**,” true samples, in which sound from another recording is digitally copied into a new context; or “**Interpolated (Re-Recorded)**” samples, which most typically feature a new performance of borrowed material. To answer the latter, a wide range of categories are provided, six of which appear regularly. Table 1 shows that all samples are described with a single sentence that includes one segment of each column. Appendices A and B provide definitions of the common categories of samples, along with two didactically clear, accurately identified examples of each that appear on the website.

Table 1: Sentence diagram for describing types of samples on *whosampled.com*. All samples are described with one entry from each column.

Type of Sample	of	Material Sampled (Six Common Categories)[4]
“Direct sample... “Interpolation (replayed sample)...		...Hook/Riff” ...Vocals/Lyrics” ...Multiple elements” ...Drums” ...Bass” ...Sound effect/Other/Unspecified”

CASE 1: BRUNO MARS

American pop singer Bruno Mars (b. 1985) has enjoyed remarkable success as an artist with songs that revel unabashedly in familiar styles ranging from 1960s doo-wop to 1990s hip hop. When he first became a household name in the early 2010s, though such backward-gazing hits were not uncommon, few artists who *consistently* found their songs at the top of the charts were so explicit in their practice of pastiche; his sustained popularity has surely persuaded other artists to abandon the pretense of writing on a “clean slate” and make a career of producing unapologetically retro singles. Given Bruno Mars’s enthusiastic embrace of earlier styles, it is likely unsurprising that several users of *whosampled.com* have identified borrowed material in his work. There are, at the time of writing, 13 discrete entries reporting “samples” in songs in which Mars played a significant role as a writer and performer (either primary or guest). Of these 13 examples, seven are classified as “direct,” literal samples, while six are listed as “interpolations” (“traditional,” analog quotations). Each will be discussed in turn, followed by a brief exploration of some songs not featured on *whosampled.com* that seem likely candidates for inclusion.

Direct Samples in the Music of Bruno Mars

All seven reported examples of direct sampling in the music of Bruno Mars are shown in Table 2 below. “Nothin’ on You,” “Just the Way You Are,” and “It Will Rain” all plainly feature a drumbeat sampled from the sources listed. “Natalie” and “Young, Wild & Free” seem likewise to borrow the beats indicated, but somewhat less clearly. In the former, the beat is processed to have a distant-sounding echo; in the latter, a tambourine sound is added, and the possibility exists that the drum sounds were re-recorded rather than sampled directly. Nevertheless, the source of each is identified accurately. The alleged sampling of “multiple elements” from a mid-century Jazz tune in “Old & Crazy” is sonically obscured in a busy texture, yet this assertion is apparently correct, as the sample is acknowledged in the liner notes of the album on which this track appears (*Unorthodox Jukebox*). The only one of these seven claims open to some debate is the use of the “Orchestra Hit” in “Finesse.”[5] This oft-sampled sound clearly appears in the song, but it is uncertain if it was sourced directly from the original library listed. Given the near ubiquity of this effect in popular music of the 1980s and 1990s, it could have been sampled from any number of recordings, or even played on a commercially available synthesizer.

Table 2: Direct Samples in the music of Bruno Mars reported on *whosampled.com*

Bruno Mars Song	Material Sampled	Source
“Nothin’ on You” (2010) w/ B.o.B	Drums	Joe Tex, “Papa Was Too” (1966)
“Just the Way You Are,” (2010)	Drums	Ralph Vargas and Carlos Bess, “Ode to Mr. Bess” (1994)
“Young, Wild & Free” (2011) w/ Wiz Khalifa and Snoop Dog	Drums	Tom Scott and the L.A. Express, “Sneakin’ in the Back” (1974)
“It Will Rain” (2011)	Drums	Funkadelic, “Good Old Music” (1970)
“Natalie” (2012)	Drums	Nina Simone, “See Line Woman”
“Old & Crazy” (2012) w/ Esperanza Spalding	Multiple Elements	Dicky Wells and His Orchestra, “Japanese Sandman” (1955)
“Finesse” (2016) w/Cardi B	Multiple Elements* *really a <i>Sound Effect</i>	Fairlight CMI, “ORCH 5” (“Orchestra Hit” Sound)

Interpolations in the Music of Bruno Mars

Many of the user-identified “interpolations” in the music of Bruno Mars (Table 3) also present relatively clear cases of musical borrowing. Three of the most straightforward examples on the above list are quotations of rapped or spoken vocals. Although there is no clear melody in any of these excerpts, Mars preserves the rhythm and metrical placement of the words of each of the borrowed passages. In “The Lazy Song,” Mars glosses the title line of Cali Swag District’s “Teach Me How to Dougie;” see in Figure 1 that these six syllables are spoken or sung (respectively) on “3-e-&-a-4-e” of the bar in both songs. Similarly, in “Uptown Funk,” the line “Don’t believe me just watch” clearly references Trinidad Jame\$ song “All Gold Everything;” these words are intoned with the same “1 & a (2) e & 3” rhythm (See Figure 2) in each context, and this line is repeated at least five times in a row in both songs, forming the basis of an entire section or stanza.[6] The spoken-word bridge of “Uptown Funk” is likewise derived from an earlier source. See in Figure 3 that the opening of the Gap Band’s “I Don’t Believe You Want to Get Up and Dance (Oops)” must surely form the basis of this section. Not only are the rhythms of the spoken word vocals identical (give or take an interjection of “I said”) but the bass line that accompanies each is also similar; both feature a minor pentatonic scale with a shared subtonic anacrusis leading to a strong tonic downbeat.

Table 3: Interpolations in the music of Bruno Mars reported on *whosampled.com*

Bruno Mars Song	Material Reportedly Sampled	Source
“The Lazy Song” (2010)	Vocals/Lyrics	Cali Swag District, “Teach Me How to Dougie” (2010)
“Young, Wild & Free” (2011) with Wiz Khalifa and Snoop Dog	Multiple Elements *really Vocals/Lyrics	YG feat. Ty\$, “Toot It and Boot It,” (2010)
“Treasure” (2012)	Hook/Riff	Breakbot feat. Irfane, “Baby I’m Yours” (2010)
“Uptown Funk” (2014) w/Mark Ronson	Vocals/Lyrics	Trinidad Jame\$, “All Gold Everything” (2012)
	Vocals/Lyrics	The Gap Band, “I Don’t Believe You...” (1979)
“Straight Up and Down” (2016)	Multiple Elements	Shai, “Baby I’m Yours” (1992)

"Teach Me How To Dougie" (2010)

Smooth (What?) Can you **teach me how to Dou - gie?**

"The Lazy Song" (2010)

8 Click to M T V so they can **teach me how to Dou - gie,** 'cause

Fig. 1. Comparison of “Teach Me How to Dougie” and “The Lazy Song”

"All Gold Everything" (2012)

Don't be - lieve___ me just watch

"Uptown Funk" (2014)

8 Don't be - lieve___ me just watch

Fig. 2. Comparison of “All Gold Everything” and “Uptown Funk”

"I Don't Believe..." (1979)

Oops up - side your head, I said oops up - side your head. I said

"Uptown Funk" (2014)

Up - town funk you up, up - town funk you up (I said)

doh doh doh doh doh doh doh

Fig. 3. Comparison of “I Don’t Believe...” and “Uptown Funk”

The assertion that “Young, Wild & Free” reworks “multiple elements” from YG feat. Ty\$, “Toot It and Boot It,” is likewise *mostly* correct, but only the vocal melody of the song is adapted. See in Figure 4 that the melody is borrowed directly, though in a different key and with new text added. This was presumably identified as an interpolation of multiple instruments because this melody forms the basis not only for the vocals of “Young, Wild & Free,” but also for some of the newly composed piano parts that echo the vocal line; put another way, multiple elements of a new song are created from what was a single element in the source. Outside of the shared vocal melody, the instrumental context of each is otherwise strikingly different. As seen on the chart of direct samples above, the drum beat in “Young, Wild & Free” is borrowed from another source entirely, and the minor-mode bass line that accompanies the untexted vocal melody in “Toot

it and Boot It” is abandoned and replaced by bright piano chords that recontextualize the melody in the major mode.

The image shows two musical excerpts. The first is for "Toot It and Boot It" (2010), featuring a vocal line with the lyrics "Whoa whoa - whoa - whoa" and a bass line. The second is for "Young, Wild & Free" (2011), showing a bass line with lyrics "So what we get drunk? So what we smoke weed? We're just hav-ing fun We don't care who sees" and chord symbols G, D, G, Bm above the staff.

Fig. 4. Comparison of “Toot it and Boot it” and “Young, Wild & Free”

The two remaining “interpolations” listed in Table 3 above require further exploration. Curiously, both examples reportedly adapt material from different songs named “Baby I’m Yours.” Compare the opening bass lines and harmonies of Shai’s “Baby I’m Yours” (1992) with Bruno Mars’ “Straight Up & Down” (2016) in Figure 5, and—more crucially—listen to the two, as the shared “feel” from a similar tempo with swung 16th notes is not easily captured with graphic notation. The respective bass riffs emphasize similar rhythmic patterns, the chords appearing on the downbeats match, and the harmonic rhythm is the same. Further, the soft, mellow keyboard sound in “Straight Up & Down” should immediately remind the listener of an early 1990s R&B ballad. Beyond the respective opening progressions, the songs have identical formal plans. Though the order of sections is fairly paint by number in each (two verse-chorus cycles followed by a bridge and final repeating chorus), there are nevertheless some meaningful commonalities; namely, both songs return to their respective “stable” verse chord progressions in the chorus after a brief, more chromatic departure from it in the transition from the former to the latter.

The image shows two bass line excerpts. The first is for Shai's "Baby I'm Yours" (1992) in D major, with chords D, F#m7, G, G/A, D, F#m7, Gm11, G/A. The second is for Bruno Mars' "Straight Up & Down" (2016) in B minor, with chords Dbmaj7, Bbm7, Gbmaj7, Ebm7, Dbmaj7, Bbm7, Gbmaj7, Ebm7.

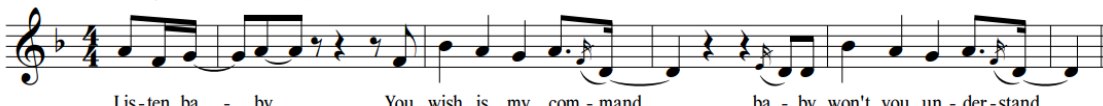
Fig. 5. Comparison of “Baby I’m Yours” and “Straight Up & Down

Despite these many similarities, it is difficult to determine if Bruno Mars and his creative team used this song as their model in composing “Straight Up & Down,” in part because “Baby I’m Yours” is not terribly distinctive. Countless other songs feature a passage like the one shown above in Figure 5—a fact Ed Sheeran was all too keen to point out in his defense when he was accused of copying this very progression from Marvin Gaye’s “Let’s Get it On” (1973) in his hit “Thinking Out Loud” (2014). (Both songs feature I iii-or-I⁶ IV V at precisely this rhythm; fortunately for Sheeran, a federal jury agreed with his assessment, deciding the case in his favor.[7]) Further, though it is tempting to find significance in the features they share that are *not* dime-a-dozen on the pop charts, there is little in the design of “Baby I’m Yours” to distinguish it from other R&B crooning songs of the period. In fact, Shai’s song seems to follow the formula of Boyz II

Men’s highly successful “End of the Road” (1992) released several months earlier, down to the smallest detail, including the now-cliché partially spoken bridge. These intimate, spoken-word passages are so strongly associated with 1990s R&B that such a section seemingly must be included in any latter-day pastiche (or parody) of this style.[8] So given the lack of distinctiveness of Shai’s “Baby I’m Yours,” there is not sufficient evidence to argue that “Straight Up & Down” borrows from this song in any meaningful way.

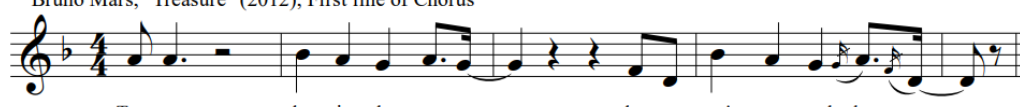
The reported sample of the Breakbot (featuring Irfane) song “Baby I’m Yours” in “Treasure,” however, is somewhat more convincing. Compare the respective opening and closing lines of the chorus of each song in Figures 6a and 6b. For ease of comparison, the two songs are notated in the same key; even though “Treasure” is a step lower than notated here, there are enough shared elements to posit—though not “prove”—that Bruno Mars and his team used this song as a model in composing “Treasure.” Not only is there a great deal of melodic similarity, but the chorus of each ends with the very same V¹³-type harmony: the notes of a subdominant chord with [^]5 in the bass and [^]3 in the melodic voice. Further, two the songs are in precisely the same style (Neo- or Nü-Disco), making it seem likely that one did indeed inspire the other.

Breakbot, "Baby I'm Yours" (2010), First line of Chorus



Lis-ten ba - by, — You wish is my com - mand — ba - by won't you un - der - stand

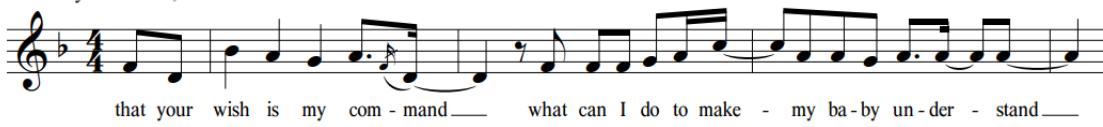
Bruno Mars, "Treasure" (2012), First line of Chorus



Trea - sure that is what you are — ho - ney you're my gol - den - star

Fig. 6a. Comparison of “Baby I’m Yours” and “Treasure”


"Baby I'm Yours," Chorus end



that your wish is my com - mand — what can I do to make - my ba - by un - der - stand —

Bb/C

"Treasure," Chorus end



if you let me trea - sure you oh — oh! —

Bb/C

Fig. 6b. Comparison of “Baby I’m Yours” and “Treasure”

Other Borrowing in the Music of Bruno Mars

Given the regularity with which Bruno Mars alludes to older styles, one might expect to see more reported examples of interpolation on *whosampled.com*. There are two potential entries that are—at least to me—surprisingly absent from the site: “Locked Out of Heaven” (2012) and “Finesse” (2016). When I first heard the opening passage of each of these songs, I was momentarily “fooled” into thinking they were recorded in an earlier decade.[9] Noticing the distinctive stylistic blend of reggae and rock in the introduction of “Locked Out of Heaven”, I assumed that I was listening to a song by The Police with which I was previously unaware.[10] Only upon hearing Bruno Mars’s voice (rather than Sting’s) did I realize that the song was a product of 1980s nostalgia rather than an artifact of that decade. In “Finesse”, the aforementioned “orchestra hit” sound is only the tip of the iceberg when it comes to capturing the sound of this period. It is a clear pastiche of the “New Jack Swing” style. I was initially convinced that it *was* an early 1990s hip hop/R&B song, in part because the song begins with a clear allusion to what is perhaps the best remembered song in this style: Bell Biv DeVoe’s “Poison” (1990). Both songs begin with several repetitions of a drum pattern on

a snare-type sound. See in Figure 7 that this is not a verbatim quotation (nor literal sample), but when one hears the opening drum riff of “Finesse,” it’s difficult not to think of “Poison.”

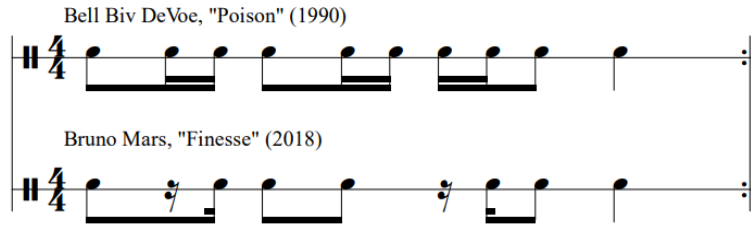


Fig. 7. Comparison of “Poison” and “Finesse”

CASE 2: JANELLE MONÁE

Janelle Monáe (b. 1985 as Janelle Monáe Robinson) is an American musical artist—and more recently, an actor—who creates music that can be characterized by nostalgia for the days of soul, funk, and especially “synth funk” (à la Prince, her/their sometime mentor). As one might expect, on *whosampled.com*, there is a long list of reported samples in tracks on which she/they is the primary artist: Seven direct samples and 10 interpolations.

Direct Samples in the Music of Janelle Monáe

As was the case with the music of Bruno Mars, the direct samples reported in Monáe’s music (Table 4) appear to be largely correct and clear. The only one that demands commentary is the reported sample of the opening drum riff of Michael Jackson’s “Rock With You” in Monáe’s “Locked Inside.” Both passages feature a measure of percussion with precisely the same rhythm (One tri-po-let Two e, Three e and a Four e), yet this passage is not a literal sample; see in Figure 8 that different parts of the drum set are used. Although this is not a “true” digital sample, the reader may decide whether the motive in Monáe’s song is a reference to Michael Jackson’s iconic song, or if the resemblance between the two passages is simply a coincidence.[11]

Table 4: Direct Samples in the music of Janelle Monáe reported on *whosampled.com*

Janelle Monáe Song	Material Reportedly Sampled	Reported Source
“Sincerely, Jane” (2008)	Vocals/Lyrics	The Mohawks, “The Champ” (1968)
“Locked Inside” (2010)	Drums	Michael Jackson, “Rock With You”
“Neon Gumbo” (2010)	Multiple Elements	“Many Moons,” Song from earlier JM album
“Faster” (2010)	“Direct Sample” (Unspecified)	Tokyo Jihen 能動的三分間 (2009)
“Hum Along and Dance (Gotta Get Down)” (2016)	Vocals/Lyrics	The Jackson 5, “Hum Along and Dance” (1973)
“Don’t Judge Me” (2018)	“Direct Sample” (Unspecified/Sound Effect)	Radiohead, “Climbing Up The Walls” (1997)
“Django Jane” (2018)	Vocals/Lyrics	Janelle Monáe, “Screwed” (2018) *same album as “Django Jane”

Michael Jackson, "Rock With You" opening bar, (1979)

(Kick) (Snare)

Janelle Monáe, "Locked Inside" (2010), First bar of percussion

(Kick) (Snare)

Fig. 8. Comparison of “Rock With You” and “Locked Inside”

Interpolations in the Music of Janelle Monáe

Of the ten interpolations reported in Monáe’s music (Table 5), however, only a small minority present clear cases of musical borrowings. The reported quotations of rapped lines in “Dance or Die” and “Dance Apocalyptic” are the least controversial of the bunch. See in Figure 9 that although Monáe raps slightly different words than those appearing in Biggie’s hit, the identical rhythm and comparable repetitions of two-word phrases in her/their “Dance or Die” make it clear that she/they is “riffing”—or perhaps signifyin(g)—on “Gimme the Loot.”[12] Likewise, Juicy J’s “Bandz a Make Her Dance” seems to be the source of the repeated opening line(s) of her/their “Dance Apocalyptic” (Figure 10). Though the rhythm is not precisely the same, someone on Monáe’s creative team must have been aware of this song; like Bruno Mars’ quotation of “Teach Me How to Dougie” in “The Lazy Song,” Monáe tips her/their hat to a song that was on the charts while “Dance Apocalyptic” was in production.

Table 5: Interpolations in the music of Janelle Monáe reported on *whosampled.com*

Janelle Monáe Song	Material	Source
“Many Moons” (2007)	Vocals/Lyrics	Pointer Sisters, “Pinball Number Count” (1977)
“Sincerely, Jane” (2008)	Hook/Riff	Stevie Wonder, “Superwoman” (1972)
	Vocals/Lyrics	Mavin Gaye, “Save the Children” (1971)
“Say You’ll Go” (2010)	Hook/Riff	Debussy, “Claire de Lune” (1903)
“Suite III Overture” (2010)	Hook/Riff	<i>Willy Wonka</i> End Title (1971)
“Wondaland” (2010)	Vocals/Lyrics	Thomas Ken, “Praise God from whom all blessings flow” (1674)
“Dance or Die” (2010) w/Saul Williams	Vocals/Lyrics	The Notorious B.I.G., “Gimme the Loot” (1994)
“Dance Apocalyptic” (2013)	Vocals/Lyrics	“Bandz a make her Dance” (2012)
“I Got the Juice” (2018) w/Pharrell Williams	Multiple Elements	Vanity 6, “Nasty Girl” (1982) *Written by Prince
“Pynk” (2018)	Vocals/Lyrics	Aerosmith, “Pink” (1997)

The Notorious B.I.G., "Gimme the Loot" (1994)

Big up big up it's a stick up stick up

Janelle Monáe, "Dance or Die" (2010)

It's a stick up stick up and a pick up pick up

Fig. 9. Comparison of “Gimme the Loot” and “Dance or Die”

Juicy J, "Bandz a Make Her Dance" (2012)

Bandz a make her dance Bandz a make her dance

Janelle Monáe, "Dance Apocalyptic" (2013)

Bandz they make her dance a - po - ca - lyp - tic now

Fig. 10. Comparison of “Bandz a Make Her Dance” and “Dance Apocalyptic”

At least four of the other reported interpolations are *likely* “correct” identifications of borrowing, or at least allusion. In Monáe’s “Sincerely, Jane”—which (see Table 4 above) includes one clear direct sample from a soul record already—the spoken words “live your life” may indeed reference Marvin Gaye’s “Save The Children,” and the synth line is likely an homage to Stevie Wonder’s “Superwoman” (see Figure 11). Yet the material reportedly borrowed in both cases, though plenty similar, is not distinctive enough to argue unequivocally that one is the source of the other. The same can be said of the passages of Monáe’s “Many Moons” that sound like the Pointer Sisters’ “Pinball Number Count” (Figure 12); the resemblance is striking—a fifteen-note minor-pentatonic segment with identical rhythm and similar contour—yet one might hesitate to posit (without qualification) that Monáe paraphrases a tune from such an early vintage of *Sesame Street*. Lastly, though it is uncertain if Monáe (consciously) had Aerosmith’s “Pink” in mind when she/they drafted “Pynk,” the two songs certainly have a lot in common. See in Figure 13 that the first verse of each comprises four two-bar phrases; each begins on the word “Pink” and features a descending mediant to tonic melodic figure.[13]

Stevie Wonder, "Superwoman" (1972), Synth Solo

Janelle Monáe, "Sincerely, Jane" (2008), Synth Solo

Fig. 11. Comparison of “Superwoman” and “Sincerely, Jane”

Pointer Sisters, "Pinball Number Count" (1977)

One two three four - five six se - ven eight nine - ten e - le - ven twelve

Janelle Monáe, "Many Moons" (2007)

Boo do do do - do do do do do do do do do do do do do do do

Fig. 12. Comparison of "Pinball Number Count" and "Many Moons"

Aerosmith, "Pink" (1997)

Pink it's my new ob-se-ssion Pink it's not e - ven a ques - tion put
Pink on the lips of your lo - ver cause
Pink is the love you dis - co - ver.

Janelle Monáe, "Pynk" (2018)

Pink like the in - side of your, ba - by Pink like the pa - ra - dise found
Pink be - hind all of the doors, cra - zy
Pink like the tongue that goes down, may - be

Fig. 13. Comparison of "Pink" and "Pynk"

The remaining examples demand further scrutiny. First, although it is clear that "Wondaland" includes allusions to Christian worship music, it is misleading—and probably incorrect—to cite a single hymn as the source of the word "Hallelujah." Similarly perplexing are the other two reported samples from sources beyond the popular music canon. The "Suite III Overture" is at least superficially similar to the *Willy Wonka* end title music (Figure 14), but to suggest that the former borrows from the latter seems a bit of a stretch. Likewise, the reported interpolation of Debussy's "Claire de Lune" in Monáe's "Say You'll Go" is partially correct. If one were to listen only to the segments at the time stamps provided (Figure 15), though reasonable to infer that one inspired the other, it's a bridge too far to call one a quotation—much less a sample—of the other. Later in "Say You'll Go," however, there is an extended, "verbatim" quotation of "Claire de Lune." Though transposed a half-step higher, and other layers are added atop it, the borrowed material from Debussy is otherwise unchanged. One wonders why the user who created this entry did not supply these time stamps instead of, or in addition to, the one notated in Figure 15.

The image shows two musical staves. The top staff is for Winds, in 4/4 time, with a key signature of three flats (B-flat, E-flat, A-flat). It features a sequence of chords and melodic lines. The bottom staff is for Piano & Strings, in 4/4 time, with a key signature of two sharps (F#, C#). It features a melodic line with a triplet of eighth notes at the end.

Fig. 14. Comparison of *Willy Wonka* music and “Suite III Overture”

The image shows two musical staves. The top staff is for Debussy's "Clair de Lune" (1905), in 9/8 time, with a key signature of three flats (B-flat, E-flat, A-flat). It is marked "Slowly and Expressively" and "pp con sordina". It features a complex melodic line with many slurs and ornaments. The bottom staff is for Janelle Monáe's "Say You'll Go" (2011), in 4/4 time, with a key signature of three flats (B-flat, E-flat, A-flat). It is marked "Slowly and Freely" and features a melodic line with slurs and ornaments.

Fig. 15. Comparison of “Clair de Lune” and “Say You’ll Go”

Other Borrowing in the Music of Janelle Monáe

When discussing intertextuality in the music of Janelle Monáe, it’s hard to avoid the aforementioned (tiny, purple-clad) elephant in the room: Prince. The one example from Table 7 that was not discussed in the above paragraphs is Monáe’s “I Got the Juice,” which reportedly includes an interpolation of “Nasty Girl” by Vanity 6—a track that Prince composed and imbued with his characteristic, synth-heavy “Minneapolis sound.” “I Got the Juice” doesn’t exactly *quote* “Nasty Girl,” but it does feature both similar rhythmic patterns and alternation between tonic and subtonic chords in the same key.[14] Instead, it’s most accurate to say that “I Got The Juice” simply sounds like a song that Prince might have written. The same can be said—to a much greater extent—with “Make Me Feel” (2018) from the same album. There is a (spurious, unverified) rumor that Prince had a role in composing “Make Me Feel” before his death in 2016[15]; whether or not this is true, it is surprising that there aren’t more reported examples of interpolations of Prince songs on *whosampled.com*, especially given Monáe’s clear debts to his music.

CASE 3: DUA LIPA

English pop star Dua Lipa’s (b. 1995) highly decorated record, *Future Nostalgia* (2020) has as an unusually apt album title, perfectly describing her project of repackaging the sounds of 1970s-1990s pop for a new listening public. Many of her songs are outright pastiches of styles from these decades; one especially clear

example is her hit, “Physical” (2020), which comes complete with an unabashedly campy Jane Fonda 1980s workout video. Although familiar styles loom equally large in Dua Lipa’s music as they do for Bruno Mars or Janelle Monáe, users of *whosampled.com* have only identified four tracks on which she is the primary artist that reportedly include samples of other songs. (More will surely follow, given Lipa’s relatively recent rise to fame.[16]) Nevertheless, comparing these four examples provides an instructive window into the practices of her creative team.

Direct Samples and Interpolations in the Music of Dua Lipa

Table 6 provides a list of the four reported samples in Dua Lipa’s work. The first entry is a straightforward, direct sample; Dua Lipa’s “Love Again” clearly does borrow the lo-fi trumpet melody from the 1932 tune “Your Woman.” One wonders if the producers of “Love Again” were aware of Lew Stone’s nearly ninety-year-old record, or if they were familiar with it through the 1997 White Town track of the same title that likewise incorporates a sample of this passage; regardless, the source is correctly identified. The next entry on the table is likewise accurate. Lipa’s song “Genesis,” according to a *whosampled.com* user, includes a “replayed sample of vocals/lyrics” from the first chapter of the Old Testament. Although it may seem peculiar to use the term “sample” to describe a paraphrase of biblical text, the opening lyrics of this song are undeniably borrowed from the first verses of the Bible.[17]

Table 6: Direct Samples and Interpolations in the music of Dua Lipa reported on *whosampled.com*

Dua Lipa Song	Reported Sample	Reported Type
“Love Again” (2020)	“Your Woman” (1932), Lew Stone & the Monseigneur Band	<i>Direct Sample of Hook/Riff</i>
“Genesis” (2017)	The Book of Genesis, from the Bible	<i>Interpolation (Replayed Sample) of Vocals/Lyrics</i>
“Break my Heart” (2020)	“Need You Tonight” (1987), INXS	<i>Interpolation (Replayed Sample) of Hook/Riff</i>
“Homesick” (2017), featuring Chris Martin	“Everglow” (2016), Coldplay	<i>Interpolation (Replayed Sample) of Hook/Riff</i>

Neither the third nor the fourth entry, however, is a clear example of a quotation or paraphrase from a single source. Each reveals a somewhat more complex story. The suggestion that Lipa’s “Break My Heart” borrows from INXS’s “Need You Tonight” is not without merit. Compare the vocal melody of the chorus of “Break My Heart” to the opening guitar riff of its reported source in Figure 16. Both melodies, if only for a moment, are quite similar, featuring a two-bar segment with identical rhythm and a melody constructed with the first three degrees of a minor scale. Despite the clear melodic similarity, the songs have little else in common. It seems unlikely, therefore, that one borrows directly from the other. Instead, this is a case of two songs drawing from the same stylistic well rather than outright quotation or sampling. If a single source for both songs can be identified, it is most likely the opening bass riff from Chic’s “Good Time,” which has provided inspiration for countless artists looking to harness the dance-floor fun of a “funky” disco track. Compare in Figure 17 the basslines in songs by a rock band (Queen), a country artist (Luke Bryan), and a pop star (Dua Lipa) that all begin with remarkably similar repeated *ostinati*, each of which include multiple quarter note hits on low E.

INXS, "Need You Tonight" (1987)
Opening Guitar Riff

Dua Lipa, "Break My Heart" (2020)
Chorus Vocal Melody

Fig. 16. Comparison of “Need You Tonight” and “Break My Heart”

Chic, "Good Time" (1979)

Queen, "Another One Bites the Dust" (1980)

Luke Bryan, "My Kind of Night" (2013)

Dua Lipa, "Break My Heart" (2020)

Fig. 17. Comparison of Four Similar Basslines

The last of these reported samples highlights an even more striking resemblance between two passages than did the previous example, but once again, I will argue that it is misleading to identify this as a quotation. See in Figure 18 that the piano introduction to Lipa's "Homesick" has obvious similarities to the first bars of Coldplay's "Everglow." Though the key is different, both the chord progression and harmonic rhythm are identical. Furthermore, the respective first and third measures of each feature similar $\wedge 6\text{-}\wedge 5$ patterns in the melody, while the even bars include $\wedge 3\text{-}\wedge 2$ figures. It might therefore seem reasonable to call it an "interpolation of multiple elements" if not for the fact that Chris Martin of Coldplay is featured on this track. It seems likely that Martin composed and performed both piano riffs. Assuming this is so, it is uncertain if Martin knowingly recycled another of his songs, or if it is simply a matter of different works by the same composer sounding similar due to reliance on the same set of tools and strategies.

Coldplay, "Everglow" (2016)

Dua Lipa, "Homesick" (2017)

Fig. 18. Comparison of "Everglow" and "Homesick"

Other Borrowing in the Music of Dua Lipa

Although not all entries on the music of Dua Lipa are straightforward examples of borrowing, they do provide a helpful overview of the ways in which her songwriting team uses pre-existing music as a starting point for creating a new song. The three reported interpolations discussed above revealed the following practices: 1) paraphrasing a well-known text 2) adopting common disco elements, and 3) re-using a familiar chord progression, transposed up by a step. It so happens that "Don't Start Now," one of Lipa's biggest hits to date (reaching #2 on the UK Singles and US Billboard Hot 100 alike) shows evidence of all three strategies when compared to its apparent model: Gloria Gaynor's "I Will Survive." Both songs are minor mode, mid-tempo disco tunes featuring "jumpy," off-beat (dotted-eighth) clean guitar hits during the verses and violin-led

interludes; the lyrics of each present defiant rejection of the advances of a former lover[18] in an intimate, second person address.[19] Beyond these general stylistic similarities, certain passages in “Don’t Start Now” are clearly adapted from “I Will Survive.”[20] See in Figure 19 that the opening lyrics of Lipa’s second verse are paraphrased from Gaynor’s. The post-chorus (or “dance chorus”) of “Don’t Start Now” likewise alludes to “I Will Survive;” see in Figure 20 that both songs feature analogous passages of snappy utterances in a narrow melodic range with lyrics on a similar theme.

"I Will Survive"

Weren't you the one who tried to hurt me with good - bye?

"Don't Start Now"

Aren't you the guy - who tried - to hurt me with the word - good - bye?

Fig. 19. Comparison of similar vocal lines in “I Will Survive” and “Don’t Start Now” (1 of 2)

"I Will Survive"

Go on now go, Walk out the door, Just turn a round - now

"Don't Start Now"

Don't show up, don't come out. Don't start car-ing a - bout me now
Walk a - way you know how. Don't start car-ing a - bout me now

Fig. 20. Comparison of similar vocal lines in “I Will Survive” and “Don’t Start Now” (2 of 2)

Comparing the chord progression in each song is also revealing. “I Will Survive” features a descending fifths sequence throughout, forming a complete diatonic circle of fifths; most sections of “Don’t Start Now,” rather, are built upon an ascending fifths sequence. “Don’t Start Now” therefore has the same chord progression as “I Will Survive,” but *backwards* (see Figure 21).[21] This observation is intriguing when one considers the first words of the opening verse: “Did a full 180.”[22] Whether or not the writers of this song noticed this theme of reversal, this is an appealing thread to follow on the aesthetic (interpretive) level. Most striking in this regard is the seemingly minor difference in lyrics in the lines shown in Figure 19 above, in which Lipa replaces Gaynor’s “one” with the word “guy.” Perhaps the reason for this change is simply to continue the rhyme scheme established in the opening verse; compare the di-syllabic rhyme (emphasized by the falling melodic contour) in both verses of “Don’t Start Now” in Figure 22.[23] Nevertheless, this subtle textual shift changes the tone of the song profoundly. Gaynor’s rhetorical question assigns no gender to the former lover. In fact, the entire song avoids the use of gendered pronouns (addressing an ambiguous “you” for most of the song) vowing to seek out “someone” who will reciprocate her love. Though Lipa retains this genderless address in the chorus (“If you don’t wanna see me dancing with *somebody*”), the mention of a male lover elsewhere in the song erases the queer coding—that is, “does a full 180” in messaging—and, unlike “I Will Survive,” it offers no disruption to pop’s privileged space of white heteronormativity.[24]

“I Will Survive” (first five chords) C major	→ vi ii V I IV ←	“Don’t Start Now” (All sections except the chorus) D major
--	------------------	--

Fig. 21. Comparison of chord progression in “I Will Survive” and “Don’t Start Now”

"Don't Start Now," Verse 1

"Don't Start Now," Verse 2

Fig. 22. Verse Rhyme Scheme of “Don’t Start Now”

CASE 4: CLASSICAL MUSIC

Although *whosampled.com* was designed for documenting samples, covers, and remixes in popular music, information about borrowing in wide range of genres can be found on the site, including Western Art music. Some of the information about classical music on *whosampled.com* may seem peculiar to specialists, as fewer users of the site are accustomed to the conventions of the genre. Arrangements of classical works for new instruments or ensembles are often classified as “cover” versions.[25] If a song contains a quotation of an orchestral piece, it is usually categorized as a sample of either a “hook/riff” or “multiple elements.” (Users of the site seem to be split on which category is most intuitive, as can be seen in the Appendix tables below.) Once one grows accustomed to the quirks of this organizational system, however, most users should find *whosampled.com* to be an invaluable resource for finding examples in which classical sources are adapted for use in popular song. See Appendix C for three clear examples of (respectively) so-called “covers,” remixes, and samples of Western Art music in other genres.

In addition to the thousands of examples of borrowing *from* Classical music in pop songs, borrowing practices *in* Western Art music are documented on the site as well. I studied every reported example (about 200 in total) of “sampling” in music with the genre label of “Classical.” As manipulation of recordings has only been practiced for a few decades, most “Classical” examples are, unsurprisingly, classified as interpolations rather than direct samples.[26] See Appendix D for examples of contained, referential quotations in which a composer borrows a fragment of another piece, Appendix E for adaptations of religious or vernacular tunes as a significant theme in a concert work, and Appendix F for a miscellany of other forms of intertextuality, including uses of national anthems and other commonly borrowed tunes, self-quotation, and variations upon existing themes. Unless otherwise specified, the examples provided on these tables are didactically clear examples of the types of borrowing listed.

Unfortunately, there are occasional obstacles to accessing the information about Western Art music on *whosampled.com*. For one, searching for all “samples” by the same composer is not always a straightforward process. Sometimes there are multiple “artist” entries for a single composer (“Schoenberg”

and “Arnold Schoenberg” are, frustratingly, listed separately); in other cases, a performer, conductor, or ensemble is the listed artist rather than the composer. Another issue is the lack of appropriate categories for describing borrowing practices in classical idioms; this requires one to listen to the recordings comparatively to understand the nature of the similarity between them. A case in point, the following recordings are all classified as “covers” of the Prelude from Bach’s first Cello suite (BWV 1007): Jan Vogler’s earnest performance of this piece for cello, two different arrangements for solo guitar, and an electronic/dance version with a club-ready beat. While using the term “cover” to describe a wholly “normative” recording of a Classical piece—a work from a musical tradition in which there is no definitive recording to define the work concept—is conceptually fraught, the analogy of likening novel versions of familiar pieces to popular music covers is fair and intuitive. Such complications make for some noise to sort through, yet this is no reason to dismiss the troves of information about borrowing in Western Art music available at one’s fingertips on *whosampled.com*.

CONCLUSIONS

From studying hundreds of reported samples on *whosampled.com* in detail, several conclusions can be drawn about the usability of this website. First, not only for the music of Bruno Mars, Janelle Monáe, Dua Lipa, but throughout the examples on *whosampled.com*, the reported “direct samples” are generally more accurate than are the interpolations. Whether or not every example listed is a true digital sample (many are actually re-recorded but classified as “direct”), the sources are usually identified correctly. The reported interpolations, though generally still illustrative of musical similarity between two works, are more likely to be unclear or misleading when identifying apparent borrowing. Consequently, Appendix A, which provides clear examples of each type of direct sample, was far easier to create than was the chart of accurate interpolations in Appendix B. Direct samples of drums, for example, are commonplace, and easy to evaluate. Truly convincing interpolations of drumbeats are rare; a beat must be truly distinctive for it to be heard as a case of one drummer “quoting” the work of another.

Second, the more distinctive the passage is, the greater the likelihood that an interpolation will be identified correctly and uncontroversially. Reported “samples” of common, “factory issue” progressions are less likely to have a single, identifiable source (as seen with the possible borrowing from Shai’s “Baby I’m Yours” in Bruno Mars’s “Straight Up and Down”). Pentatonic passages are similarly challenging. In a scale with fewer notes available, there are fewer distinctive scale-wise melodic patterns, and claims that one similar-but-not-identical pentatonic melody is based upon another are difficult to evaluate (as seen with Monáe’s reported quotation of the *Sesame Street* counting song). Several *whosampled.com* users, for example, have identified echoes of other pieces in the relentlessly pentatonic melodies or stock drumbeats of The Black Keys; most of these entries do sound like their reported sources—often strikingly so—but few feature material distinctive enough that they can confidently be classified as quotations without qualification (Table 7).[27]

Table 7: Interpolations of instrumental parts in the music of the Black Keys reported on *whosampled.com*

Black Keys Song	Material Borrowed	Reported Source
“Heavy Soul” (2002)	Multiple Elements	T-Model Ford, “Here Comes Papa” (1998)
“Busted” (2002)	Hook/Riff* *Classified as direct on the site; if it is indeed a quotation, it is re-recorded.	R.L. Burnside, “Skinny Woman” (1997)
“Stack Shot Billy” (2004)	Vocals/Lyrics	Vera Hall, “Trouble So Hard” (1960)
“She’s Long Gone” (2010)	Hook/Riff	Muddy Waters, “She’s Alright” (1968)
“Everlasting Light” (2010)	Multiple Elements	T. Rex, “Mambo Sun” (1971)
“Gold on the Ceiling” (2011)	Hook/Riff	Gary Glitter, “Rock and Roll Part 2” (1972) - aka the “Hey Song.”
“Waiting on Words” (2014)	Hook/Riff	Kool & the Gang, “You Don’t Have to Change” (1974)

Third, the style or genre of music discussed correlates closely to reliability of information provided on the site. As the practice of sampling is most closely associated with hip hop and R&B, *whosampled.com* is set up to discuss music in these genres specifically; there are categories for samples of Drums, Vocals, and Bass—but not any other instruments—because these three layers are the most likely to be sampled in (especially) hip hop. The category “hook/riff” is left as a single catch-all category for music produced by a guitar, keyboard, saxophone, or just about any other imaginable instrument, which makes for an unfortunate lack of precision documenting borrowing in (respectively) rock, pop, and jazz. The farther afield one ventures stylistically from hip hop/R&B, the less likely the entries are to be accurate. Despite the many clear examples of borrowing in and out of Western Art music on *whosampled.com*, shown in Appendices D, E, and F, most of these examples are drawn from music since the mid-nineteenth century. Few users of the site have a deep enough knowledge of music the Baroque Era and before to distinguish quotations from works in a similar style. Does Handel, for example, truly borrow from Muffat and Stradella, as one *whosampled.com* user claims (Table 8), or are some of these cases simply the use of the same schemata in two otherwise unrelated works?[28]

Table 8: Reported interpolations in the Music of Handel

Reported Source	Material Interpolated	Work by Handel
Alessandro Stradella, "Qual Prodigio è Ch'io Miri," (1681 Trio Sonata)	Mult. Elements	"He Spake the Word," <i>Israel in Egypt</i> (1739)
	Mult. Elements	"He Gave them Hailstones," <i>Israel in Egypt</i> (1739)
Gottlieb Muffat, "Fantasie"	Hook/Riff	<i>Sampson</i> , Overture
	Hook/Riff	"From Harmony, From Heavenly Harmony," <i>Ode to St. Cecilia's Day</i>

For all its idiosyncrasies, *whosampled.com* is nevertheless an invaluable resource for DJs, producers, and scholars alike. As demonstrated in the above four case studies, many reported “samples” are clear instances of one piece borrowing directly from another; others are instead identifications of passing resemblance, stylistic allusion, or adaptation (broadly defined). Yet even the entries that do not convincingly identify a single prior source of a passage are still informative; whether or not they present clear evidence of borrowing, such examples raise broad, ever-present questions about similarity, intertextuality, and the creative process in music writ large.

ACKNOWLEDGEMENTS

Thanks are due to Trevor DeClercq and Deborah Wagnon for reviewing and responding to my work, and to the staff of Empirical Musicology Review for facilitating the review and editorial process, including Annaliese Micallef Grimaud (copyeditor), Jonathan Tang (layout editor), and Dan Shanahan (general editor).

NOTES

[1] Correspondence can be addressed to: Jeremy Orosz, Ph.D, Associate Professor of Music Theory, University of Memphis, jorosz@memphis.edu. University of Memphis, Rudi E Scheidt School of Music, 3800 Central Ave, 38152, Memphis TN, USA

[2] See Orosz (2015).

[3] This calls to mind the questions raised in Burkholder (2018) about whether there is sufficient evidence to suggest that one composer has borrowed from another.

[4] Less common categories include samples of “Soundtrack” and “Dialogue.” These categories are rare in part because of their redundancy; the former is a subcategory of “Hook/Riff” or “Multiple Elements” while the latter can usually be classified as “Vocals/Lyrics.”

[5] The “orchestra hit” sound originates from a sample of a full orchestral texture in Stravinsky’s *Firebird*. See Fink (2005), as well this helpful *Vox* video, which provides a remarkably comprehensive history of this sound: https://www.youtube.com/watch?v=8A1Aj1_EF9Y.

[6] Other references to “All Gold Everything” can be found in both the lyrics and rhythm of the vocals of “Uptown Funk.” As a user on *whosampled.com* makes clear, the verse that includes the lyrics “this one’s for them hood girls, them good girls, straight masterpieces” is a paraphrased from the Trinidad James (with a few of the nouns replaced).

[7] See Sisario (2023) for a summary of this trial and its verdict.

[8] An instructive example is a 2017 *Saturday Night Live* original number “Come Back Barack” (featuring Chance the Rapper); the writers of this send up of 90s R&B crooner simply could not help but give Keenan Thompson the opportunity to attempt such a husky-voiced spoken address.

[9] Though I do not presume my listening experience to be universal, neither do I imagine that it is so wildly idiosyncratic that I am alone in this perception.

[10] See Spicer (2010) for discussion of style in the music of The Police.

[11] I played this single bar of “Locked Inside” for the students in my class in March of 2021. Two out of the eight students present said that this reminded them of Michael Jackson’s “Rock With You.”

[12] The concepts of “signifyin(g)” in Afro-American literature is proposed in Gates (1988). Though Gates only provides a single example of musical signifying—Jelly Roll Morton’s version of Joplin’s “Maple Leaf Rag”—many scholars of Afro-American music have further developed musical applications of this concept. See especially Brackett (1995).

[13] The music video for Aerosmith’s “Pink” was in regular rotation on MTV in 1997, around the time of Monáe’s twelfth birthday. If her/their pop-cultural consumption was like that of a typical teenager, it is likely that she/they would have become familiar with “Pink” while it was a hit.

[14] To be precise, “Nasty Girl” is a ¼ tone lower than “I Got the Juice.” The two songs may—or may not—have been conceived in the same key but the former falls outside of standard tuning.

[15] In an article for *NME*, Daly shows a now deleted Facebook post from an associate of Prince (a DJ), who claimed that Prince wrote the song and gave it to Monáe. Though plausible—if far-fetched—there is, to my knowledge, no evidence to confirm or refute this claim.

[16] Especially remarkable is that fact that no reported samples from Dua Lipa’s “Levitating” appear on *whosampled.com*, given the fact Lipa and her team faced two copyright infringement lawsuits over this song in March of 2022. See Orosz (2022) for the details of these cases.

[17] Lipa’s “Genesis” begins with the following words: “In the beginning God created Heaven and Earth. For what it’s worth, I think that he might’ve created you first. Just my opinion.”

[18] Despite their shared theme of heartbreak, the message of the two songs is remarkably different, while “I Will Survive” is about gaining strength in healing from the trauma of an abusive relationship, “Don’t Start Now” is about going to the club to blow off steam to escape a suddenly “clingy” former *beau*.

[19] See Burns (2010) for discussion of second-person address and its significance in the work of female songwriters.

[20] If the referent were not already clear from this excerpt, the subsequent line of “Don’t Start Now” includes the word “survive” (shown in Figure 22), all but abandoning plausible deniability that Lipa’s team found inspiration in Gaynor’s track.

[21] Note that although “I Will Survive” is a rare example of a pop song that is truly in a minor key, the chords are presented here in the relative major for the sake of clear comparison to “Don’t Start Now.”

[22] In some versions of the song, the opening lyrics of the first verse are the first words heard, as in the NPR tiny desk concert of December 2020. The studio version, however, features a “down” (quiet) half-chorus as an introduction before the first verse, in which a digitally processed shadow of Lipa’s willowy head voice is heard at low volume. Regardless of the version, “Did a full 180” are first words both sung in full voice and placed prominently in the mix.

[23] This emphasis on rhyming syllables through descending step motion is reminiscent of Paul McCartney’s “Yesterday... far away... here to stay” pattern in the Beatles’ oft-covered classic.

[24] Also see Hubbs (2007) for discussion of the queer following of both disco more generally, and the significance of “I Will Survive” to the LGBTQ+ community specifically.

[25] See Gracyk (2012/2013) for a thoughtful exploration of how the term cover is used—often problematically and misleadingly—even within popular music practice.

[26] At the time of writing, two direct samples are listed in the music of Terry Reilly, and about two dozen in the music of John Zorn.

[27] This table includes all reported interpolations in the solo work of the Black Keys, and one interpolation that is falsely classified as a “direct” sample. Excluded are 1) clear direct samples in the Black Keys’ music (of which there is only one on the site) and 2) several clear “interpolations of vocals/lyrics” in their collaborations with rappers, in which their guest artists clearly paraphrase rapped vocals from pre-existing songs.

[28] Consider also that the same user suggests that the introduction of “Because” by the Beatles is an interpolation of Beethoven’s “Moonlight” Sonata. Both feature the slow arpeggiation of a minor triad; beyond that, it is dubious to call one a “sample” of the other.

REFERENCES

- Brackett, D. (1995). *Interpreting Popular Music*. Berkeley and Los Angeles: University of California Press.
- Burkholder, J.P. (2018). Musical Borrowing or Curious Coincidence?: Testing the Evidence. *Journal of Musicology* 35(2), 223-266. <https://doi.org/10.1525/jm.2018.35.2.223>
- Burns, L. (2010). Vocal Authority and Listener Engagement: Musical and Narrative Expressive Strategies in Alternative Female Rock Artists (1993–95). In M. Spicer & J. Covach (Eds.), *Sounding Out Pop: Analytical Essays in Popular Music* (pp. 124-153). Ann Arbor: University of Michigan Press.
- Daly, R. (2018). There’s a very good reason why Monae’s huge new single sounds like Prince. *NME*, Feb 26, 2018.

Fink, R. (2005). The Story of ORCH5, or, the Classical Ghost in the Hip-Hop Machine, *Popular Music* 24(3), 339-356. <https://doi.org/10.1017/S0261143005000553>

Gates, H. L. (1988). *The Signifying Monkey*. Oxford and New York: Oxford University Press.

Gracyk, T. (2012/2013). Covers and Communicative Intentions, *Journal of Music and Meaning* 11.

Hubbs, N. (2007). "I Will Survive": Musical Mappings of Queer Social Space in a Disco Anthem. *Popular Music* 26(2), 231-244. <https://doi.org/10.1017/S0261143007001250>

Orosz, J. (2015). John Williams: Paraphraser or Plagiarist? *Journal of Musicological Research* 34(4), 299-319. <https://doi.org/10.1080/01411896.2015.1082064>

Orosz, J. (2022). Dua Lipa's "Levitating" Plagiarism Lawsuit Could Change Music Forever, *Slate* (March 17, 2022).

Sisario, B. (2023). Ed Sheeran Wins Copyright Case Over Marvin Gaye's "Let's Get It On", *New York Times* (May 4, 2023)

Spicer, M. (2010). "Regatta de Blanc": Analyzing Style in the Music of the Police. In M. Spicer & J. Covach (Eds.), *Sounding Out Pop: Analytical Essays in Popular Music* (pp. 124-153). Ann Arbor: University of Michigan Press.

APPENDIX

Appendix A. Two Accurate Examples of Common Types of “Direct Sample” Reported on *whosampled.com*

<p>Direct Sample of Drums</p> <p>Percussive sounds are copied into a new recording, including sound produced by acoustic percussion instruments (most often a drum set), electronic/synthesized percussion, hand claps, finger snaps, etc.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Graham Central Station, “The Jam” (1975) → Incubus, “Summer Romance” (1997) • Joe Tex, “Papa Was Too” (1966) → B.o.B (etc.), “Nothin’ on You” (2010)
<p>Direct Sample of Bass</p> <p>The sound of a bass guitar, acoustic (stand-up) bass, or synthesizer (in low register) is copied into a new recording. Funk and soul records from the “long” 1970s are the most common records from which basslines are sampled.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Ohio Players, “Pride and Vanity” (1966) → Mary J. Blige, “What’s the 411?” (1992) • The Treacherous Three, “The Body Rock” (1980) → Mariah Carey, “Honey” (1997)
<p>Direct Sample of Vocals/Lyrics</p> <p>The sound of a voice or voices (speaking, singing, or rapping) is copied into a new recording.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Loggins and Messina, “House at Pooh Corner” (1972) → Daft Punk, “Face to Face” (2001) • LL Cool J, “.357 Break it on Down” (1987) → 311, “Purpose” (1995)
<p>Direct Sample of Hook/Riff</p> <p>A single instrument part (piano, guitar, etc.) or layer (string section, horn section) is copied into a new recording. Bass and Drums are typically excluded from “hook/riff,” as each has its own category.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • The Beatles, “Eleanor Rigby” (1966) → G-EAZY, “Dollaz and Dreamz” (2008) <ul style="list-style-type: none"> ○ The iconic string section riff is sampled and looped. • Ahmad Jamal Trio, “I Love Music” (1970) → Nas, “The World is Yours” (1994) <ul style="list-style-type: none"> ○ A piano riff is sampled, transformed, and looped.
<p>Direct Sample of Multiple Elements</p> <p>More than one of the above layers is copied into a new recording. May include both vocal and instrumental parts, or at least two instrumental layers.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Enya, “Boadicea” (1987) → The Fugees, “Ready or Not” (1996) <ul style="list-style-type: none"> ○ Both instrumental and vocal layers are sampled directly. • The Police, “Every Breath You Take” (1983) → Puff Daddy (etc.), “I’ll Be Missing You” (1997) <ul style="list-style-type: none"> ○ Multiple instruments (guitar and bass) are sampled directly.
<p>Direct Sample of Sound Effects/Other</p> <p>Any material that cannot easily be classified in any of the above categories is copied into a new recording, most often a “sound effect” or sonic byproduct, such as speaker feedback.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Hanna Barbera Records, “Boing” (1965) → The Prodigy, “Out of Space” (1992) <ul style="list-style-type: none"> ○ Novelty “boing” sound is used in song • “35 Mm SLR With Auto Winder: Single Shot” (1992) → NSYNC, “Celebrity” (2001) <ul style="list-style-type: none"> ○ Film camera sound is incorporated into the song.

Appendix B. Two Accurate Examples of Common Types of “Interpolation” Reported on *whosampled.com*

<p>Interpolation of Drums</p> <p>A memorable rhythmic pattern of percussive sounds is quoted and re-recorded by a new performer or performers(s). This is a relatively rare category, as the quoted “beat” must be distinctive enough to be recognized without any other instruments or layers.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Queen, “We Will Rock You” (1977) → Young J and Mannie Fresh, “And Then What” (2005) <ul style="list-style-type: none"> ○ The iconic “double-stomp clap” of Queen’s song is quoted. • Isley Brothers, “Footsteps in the Dark” (1977) → Thundercat, “Them Changes” (2015) <ul style="list-style-type: none"> ○ This oft-sampled drum beat is re-recorded in a new context.
<p>Interpolation of Bass</p> <p>A performer re-records a bass line for use in a new song. The borrowed bass line typically features prominently in the original context from which it is borrowed.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • The Beatles, “Come Together” (1969) → Hilltop Hoods, “Mic Felton” (2003) • Earth, Wind & Fire, “Let’s Groove” (1981) → Anointed Pace Sisters, “Get in His Presence” (2009)
<p>Interpolation of Vocals/Lyrics</p> <p>A vocal melody <i>and/or</i> lyrics are borrowed in and performed vocally. Both lyrics and melody may be borrowed together, or one may be borrowed without the other.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • Frank Sinatra, “Theme from New York, NY” (1980) → Jay Z (etc.), “Empire State of Mind” (2009) <ul style="list-style-type: none"> ○ Sinatra’s text is paraphrased in rapped vocals (lyrics borrowed—not melody) • Sly... Stone, “Sing a Simple Song” (1966) → Backstreet Boys, “Boys Will Be Boys” (1996) <ul style="list-style-type: none"> ○ An untexted vocal melody is quoted (music borrowed—not lyrics)
<p>Interpolation of Hook/Riff</p> <p>A short segment performed on one or more instruments or voices (typically excluding bass and drums) is quoted and performed by an instrumentalist in the context of a new song.</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • The Cure, “Let’s Go To Bed” (1983) → Rihanna, “S&M” (2010) <ul style="list-style-type: none"> ○ A synthesizer melody is borrowed and re-recorded. • The Impressions, “Theme from the Lilies...” (1964) → The Winstons, “Amen, Brother” (1969) <ul style="list-style-type: none"> ○ A vocal melody is re-purposed as a saxophone riff.
<p>Interpolation of Multiple Elements</p> <p>A quotation of multiple parts borrowed and re-recorded into a new song. May include both vocal and instrumental parts, or at least two instrumental layers (typically drums and pitched instruments).</p> <p><u>Examples:</u></p> <ul style="list-style-type: none"> • The Beach Boys, “Good Vibrations” (1966) → Nazareth, “Victoria” (1980) <ul style="list-style-type: none"> ○ Direct quotation of both vocal and instrumental layers. • Perrey & Kingsey, “Swan’s Splashdown” (1966) → Smash Mouth, “Walking on the Sun” (1997) <ul style="list-style-type: none"> ○ Paraphrased borrowing of several instrumental layers.
<p>Interpolation of Sound Effects/Other</p> <p>A sound effect is re-recorded and understood as borrowed material.</p> <p><u>Examples:</u></p> <p>No convincing examples on whosampled.com. This category is likely hypothetical.</p>

Appendix C. Examples of Borrowing from Classical Music in Popular Song Reported on *whosampled.com*

Concert Works Sampled and Looped in Hip Hop/Rap Songs	
<ul style="list-style-type: none"> • Beethoven, “Für Elise” → Mob Deep, “If These Walls Could Talk” (2002) • Satie, First Gymnopedie → Mick Jenkins, “The Trees” (2013) • Vivaldi, “Winter” from → Doc Brown, “Nothing to Lose” (2006) <i>The Four Seasons</i> 	
“Updated” Concert Works with an Added Drumbeat (Note: These versions are most analogous to dance remixes of popular songs, but they are classified as “covers” on <i>whosampled.com</i>)	
<ul style="list-style-type: none"> • Barber, “Adagio for Strings” → Seventh Son & Ethan North, “Adagio for Strings” (2009) • Haydn, Op 76 no 3, II → James Last, “Kaiserquartett” (1984) • Mendelssohn, Op 64, III → Royal Philharmonic Orchestra, “Hooked on Mendelssohn” (Violin Concerto) (1981) 	
Stylistically Contrastive “Covers” of Concert Works	
<ul style="list-style-type: none"> • Bach, “Little Fugue in G minor” → Enoch Light, “A Little Fugue for Me and You” (BWV 578) (Latin/Psychedelic version, 1969) • Mozart, “Eine Kleine Nachtmusik” → Claude Bolling, “Petite Musique de Nuit” (Dixieland Jazz version, 1965) • Tchaikovsky, <i>Nutcracker</i> → Wolf Hoffmann, “Arabian Dance” (“Coffee,” Act 2 no 12) (Hard rock version, 1997) 	

Appendix D. Examples of Contained Quotations of Classical or Popular Tunes in Concert Music Reported on *whosampled.com*

Source(s)	Material Borrowed	Classical Piece containing quotation
Shostakovich Symphony 7, I	Hook/Riff	Bartok, Concerto for Orchestra, IV (mm. 76-84)
Wagner, Prelude to <i>Tristan und Isolde</i> (opening)	Hook/Riff	Berg, <i>Lyric Suite</i> (Largo Desolato); Debussy, “Gollywog’s Cakewalk” (from <i>Children’s Corner</i>)
Arthur Collins, “Hello My Baby”	Multiple Elements (Incorrectly listed as “Direct sample”)	Ives, “Central Park After Dark”
Several sources attributed, including: <ul style="list-style-type: none"> • “Au Claire de la Lune” • “Ah! Vous Dirae-Je Maman” • “Una Voce Poco Fa” from <i>The Barber of Seville</i> 	Hook/Riff	Saint-Saens, “Fossiles” from Carnival of the Animals

“Ach du Lieber Augustin” (Traditional)	Hook/Riff	Schoenberg, Second String Quartet
Rossini, <i>William Tell Overture</i>	Hook/Riff	Shostakovich, Symphony no 15

**Appendix E. Examples of Adaptations of Tunes from Vernacular or Religious Sources
Used as a Significant Theme in a Concert Work Reported on *whosampled.com***

Folk or Religious Source	Material “Interpolated”	Concert Work That Adapts a Vernacular Tune
“La Marche des Rois”	Mult. Elements	<ul style="list-style-type: none"> • Bizet, <i>L’Arlesienne Suite</i> • Lully, <i>Marche Pour Les Régiments De Turenne</i>
“Bonaparte’s Retreat”	Mult. Elements	<ul style="list-style-type: none"> • Copland, “Hoedown” from <i>Rodeo</i>
“Kamarinskaya” (Russian trad.)	Mult. Elements	<ul style="list-style-type: none"> • Glinka, “Kamarinskaya”
“Ein Feste Burg” (Martin Luther)	Hook/Riff	<ul style="list-style-type: none"> • Mendelssohn, Reformation Symphony
“Frere Jacques”	Hook/Riff	<ul style="list-style-type: none"> • Mahler, Symphony no 1, III
“Veni Veni Emmanuel”	Mult. Elements	<ul style="list-style-type: none"> • Respighi, “L’Adorazione Dei Magi” from <i>Trittico Botticelliano</i>
“At the Gate, at my gate” (Russian trad.)	Mult. Elements	<ul style="list-style-type: none"> • Rimsky-Korsakov, <i>Overture on Three Russian Themes</i> • Tchaikovsky, <i>1812 Overture</i>
“O Lord Save thy People”	Hook/Riff Mult. Elements	<ul style="list-style-type: none"> • Tchaikovsky, <i>1812 Overture</i>
“Cadet Rouselle”	Mult. Elements	<ul style="list-style-type: none"> • Tchaikovsky, <i>Nutcracker</i>, “Mother Gigone”
“Sunce jarko ne silas Jednako”	Hook/Riff	<ul style="list-style-type: none"> • Tchaikovsky, <i>Slavonic March</i>
“Seventeen Come Sunday”	Mult. Elements	<ul style="list-style-type: none"> • Vaughn-Williams, “March: Seventeen Come Sunday”

Appendix F. Miscellaneous Borrowing Practices in Concert Music reported on *whosampled.com*.

Each of the following examples is listed as an “interpolation of hook/riff” or “multiple elements”.

Type of Borrowing	Examples Documented on <i>whosampled.com</i>	
Quotations of the <i>Dies Irae</i>	<ul style="list-style-type: none"> • Berlioz, “Witches Sabbath” • Liszt, “Totentanz” • Rachmaninoff, “Isle of the Dead” (op 29), and “Rhapsody on a Theme of Paganini” • Respighi, “Butantan” from <i>Impressione Brasiliane</i> 	
Quotations and Settings of National Anthems	“La Marseillaise” (French)	<ul style="list-style-type: none"> • Schumann, op 26 no 1 and op 49 no 1 • J. Strauss Sr., “Paris Waltz”
	“God Save the Tzar” (Imperial Russian)	<ul style="list-style-type: none"> • Tchaikovsky, <i>Slavonic March</i>
	Both French and Russian	<ul style="list-style-type: none"> • Tchaikovsky, <i>1812 Overture</i>
Self-Borrowing	<ul style="list-style-type: none"> • Messiaen re-uses material from “Oraison” from <i>Fête Des Belles Eaux</i> in <i>Quartet for the end of Time, V</i>. • Rossini repurposed the primary theme from his <i>Aureliano in Palmira</i> Overture-Sinfonia three times, including in the <i>Barber of Seville</i> Overture. • Saint-Saens borrows from his “Danse Macabre” in “Fossiles” from <i>Carnival of the Animals</i> 	
Selected* Uses of <i>La Folia</i> *The first six chronologically out of more than 20 examples are listed here.	<ul style="list-style-type: none"> • Lully, “Les Folies D’Espagne” (1672) • Michel Farinel, “Faronells Division on a Ground” (1684) • Jean-Henri D’Anglebert, “Variations Sur Les Folies D’Espange” (1689) • Purcell, Chaconne from <i>The Fairy Queen</i> (1692) • Bernando Pasquini, Partite Sopra La Aria Della Folia Da Espagna (1700) • Corelli, Violin Sonata in D minor, Op. 5, No. 12, “La Follia” (1700) 	
Uses of “La Mantovana” Theme (Cenci, 1600)	<p>Clear Cases</p> <ul style="list-style-type: none"> • Saint-Saens Op 7, Rhapsody • Smetana, “The Moldau” from <i>Ma Vlast</i> <ul style="list-style-type: none"> ◦ Smetana’s piece, according to <i>whosampled.com</i> users, is itself “sampled” in Eisler and Brecht’s “Lied Der Moldau” and in the Israeli National Anthem, “Hatikva” <p>Unclear, Reported “Interpolations”</p> <ul style="list-style-type: none"> • Mendelssohn, String Quartet, Op 12, II • Tchaikovsky, Violin Concerto, Op 35, II 	
Variations and/or New “Twists” on a theme by another composer	<ul style="list-style-type: none"> • Hindemith’s “Jazzy” Variations Bach’s C minor fugue (BWV 847) • Liszt’s Variations on Bach’s “Art of the Fugue” and Berlioz’s “Rákóczi March” • Rachmaninoff’s versions of themes Chopin (op. 28) and Paganini (Caprice no. 24). • Saint-Saens’ “Tortues” from <i>Carnival of the Animals</i> is a slowed down version of “Can can” from Offenbach’s <i>Orpheus in the Underworld</i> 	