The American Groove of the 1950s: remixing the Archive as a Wall of Sound

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Introduction[1]

This article focuses on the aesthetic transformation of American popular music in the 1950s. The stylistic shift that happened during this decade in the United States, from jazz to rock, has been abundantly documented and identified as the beginning of the rock era.[2] Instead of 'telling' the reader about the musical implications of this transition, the present contribution intends to 'show' them through sonification, as to supply an unmediated sensory impression of the kind of transition we are talking about. I maintain that such a shift can be made audible through the application of studio techniques to relevant audio sources available in digital archives in the public domain. The present contribution, then, relies on a comparative method that combines archival research into phonograms issued during the 1950s in America with a creative treatment of them along the lines of practice-based, artistic research. Using a version of the audio production formula known as the Wall of Sound, this study aims to put in evidence the audible changes in the deep rhythm structure of American popular music that happened at the time. This way of dealing with the archival sound material emphasises the role of the reader as a discerning listener, which is, I think, the optimal way to deal with any sort of music – especially with the popular repertoire of the twentieth century and henceforward, of which phonorecords are usually available.

Rhythmic Groove

The distinction between the sounds of jazz and rock can be made on several grounds. Musicologists trained in formal musical analysis would likely rely on

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[2] R. A. Peterson, 'Why 1955? Explaining the Advent of Rock Music' in: S. Frith ed., *Popular Music: The Rock Era* (London; New York, NY 2004) 273-296.

comparisons on the level of harmonic complexity, for example. There are relevant insights to be found down this road, for there are, without a doubt, composition practices specific to each style that show, for instance, in the selection of chords that integrate the songs. Very generally speaking, rock harmonies tend to be simpler and more straightforward than jazz ones. Major and minor chords, the basic compositional units in the Western tradition since at least the 1600s, suffice to build most rock progressions. Progressions based on these chords alone are predictable, and the tension between their constituent notes is relatively low, which is why they are associated with easy listening in their cultural context. Even simpler, more archaic harmonies can be found in post-1950s rock styles, e.g., in punk, the progressions of which commonly rely on bare fifths. Jazz harmony, on the other hand, is characterised by a prominent use of seventh chords, as well as ninth, eleventh and thirteenth chords, all of which contribute a much stronger element of tension and perceived complexity. Although in general this is correct, I suggest that harmony is not fundamental enough a principle to distinguish the two styles. This holds true both in general, in terms of the overarching history of both jazz and rock, as well as in particular, as regards the repertoire that documents the transition to the rock era in 1950s America. Both jazz and rock are quite diverse, so painting all their genres with the same brush would be unwarranted. It is a fact that certain forms of rock music display purposely complex harmonies, such as progressive rock, while some forms of jazz consciously simplify the chordal load in search of non-tonal alternatives, such as modal jazz.[3] Regarding the repertoire of American popular music from the 1950s, we should bear in mind that the jazz aesthetics referred to in this article manifests itself in songs that classify as traditional pop, the line of work of crooners such as Nat King Cole or Perry Como. The songs that catapulted these artists to stardom are also characterised by an element of easy listening consistent with their being musical commodities conceived to achieve mass appeal among mainstream listeners. They were not meant to be experimental in any obvious way nor to push the boundaries of musical aesthetics. This is a different attitude from the will to innovation that characterised the less commercial, more adventurous forms of jazz available at the time, or the experimental scenes that developed in the decades that followed. In this sense, the harmonic material of, shall we say, crooner jazz and related forms of

[3] J. Covach, 'Echolyn and American Progressive Rock', *Contemporary Music Review* 18(4) (2000) 13–61. https://doi.org/10.1080/07494460000640031.
A. Kahn, *Kind of Blue: The Making of the Miles Davis Masterpiece* (New York, NY 2000).

traditional pop, is not that far apart from the standard chord progressions found in rock n' roll hits.

My position is that a rhythm-based analysis is better suited to the task at hand. In this regard, I subscribe to Richard Middleton's view about the key role of the groove in the definition of musical styles. The English musicologist, whose work on popular music has been instrumental for the advancement of pop and rock studies, defines rhythmic grooves as 'configurations of note placing, articulation and accent'. Such configurations obtain along the time axis in any popular song, and thus determine, for starters, the behaviour of 'the various components of the percussion kit'.[4] It is important to understand, however, that groove is not identical with drumming pattern. In the same article, Middelton explains that the groove pervades the whole musical texture of songs as to influence the interaction among practically all their constitutive elements. This is especially true of the bassline, which is a standard part of the rhythm section, but also of the instruments that supply the chord progressions, such as guitars and keyboards. The lead vocals, or whatever other form of melodic line (including solos), are also answerable to this fundamental rhythm makeup. As a matter of fact, the presence of drums is not a necessary condition for the groove to manifest itself. By way of an example, consider any tune in the singer-songwriter tradition with the minimal accompaniment of an acoustic guitar. The absence of a percussion kit does not mean that the song is without a groove. That is because the specific configuration of 'note placing, articulation and (very importantly) accent' in the guitar strumming is more than enough to differentiate the song as an exemplar of, say, rockabilly or punk – or in a jazz-oriented setting, of swing or gypsy jazz. Furthermore, think of any song a cappella performed by a single vocalist and nothing else (Janis Joplin's *Mercedes Benz* is a case in point): even tunes with such extreme textural simplicity carry in their core their own specific groove, i.e., the recurrent rhythmic signature beyond beat and meter that allows listeners to tell them apart in terms of musical style. Identifying popular genres, as Middleton suggests, is largely a matter of rhythm recognition, which relies on the listeners' familiarity with grooves available in their own spaces of socio-musical interaction.[5]

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[4] R. Middleton, 'Popular Music Analysis and Musicology: Bridging the Gap', *Popular Music* 12.2 (1993) 177-190: 180.

[5] Middleton, 'Popular Music Analysis and Musicology', 180-181.

The key to the rhythmic groove, as it is meant for the ends of this article, lies in the patterned distribution of musical sound (and silence) in time as regards their predetermined successive order (what follows what), length (long or short), and dynamics (stronger or weaker attack) relative to one another. These parameters can, of course, afford individuation on several levels. Many songs display peculiar grooves that make them memorable and easily recognisable to their audiences. Likewise, some artists may contribute signature grooves to the musical vocabulary of their time through their body of work, as to become part of their own musical identity and a reference for future generations of composers and performers (Bo Diddley comes to mind). Finally, the genres and styles under which songs and oeuvres are subsumed have their unique grooves as well, as suggested earlier. My contention is that jazz and rock, the musical aesthetics here under consideration, draw their identities from their distinctive grooves, understood as the deep rhythm structures that are common to the songs, repertoires and genres that instantiate them.

Billboard **Music Popularity Charts**

The selection of songs here under consideration is based on the chart of best-selling singles published by the *Billboard* magazine in 1950, 1955 and 1957. This listing was introduced in the summer of 1940 and went under different names until its conclusion in 1958.[6] In 1950 it was identified as 'Best-Selling Pop Singles', in 1955 and 1957 as 'Best Sellers in Stores'. Its content, however, remained basically the same. The chart ranked music records (only singles, not albums) based on their weekly sales as per a nationwide survey conducted periodically among the largest retailers in all relevant market areas in the US. It included the following data: title, artist, flip side title, label, catalogue number, performance rights organisation, ranking on current week, ranking on previous week, and number of weeks on chart. It had a continued run until October 1958, when it was absorbed by the 'Hot 100'. Many specialised charts were published by *Billboard* in parallel with the best sellers, of which

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[6] N. Anand, 'Charting the Music Business: *Billboard* Magazine and the Development of the Commercial Music Field' in: J. Lampel, J. Shamsie, and T. K. Lant eds., *The Business of Culture: Strategic Perspectives on Entertainment and Media* (Hove, East Sussex 2008) 139-154: 144-145. F. Hoffman, '*Billboard* (Magazine)' in: F. Hoffmann ed., *Encyclopedia of Recorded Sound* (New York, NY 2005) 212-213: 212.

'Most Played in Juke Boxes' and 'Most Played by Jockeys' had the greatest relevance. Other listings focused on specific niche markets defined by musical genre, such as R&B or country, or by alternative distribution media, such as sheet music and film. All of them were also based on surveys conducted by *Billboard* nationwide. Then, there was the 'Honor Roll of Hits', the consolidated US top tunes chart based on sheet music and record sales, radio airplay, and juke box performance according to the relevant surveys described above.

Tables 1, 2, and 3 show the list of songs processed in accordance with the Wall of Sound formula for the present study. Some data has been removed and some added with respect to the original chart to facilitate the discussion in further sections. For all tables: 'Date' indicates when the song reached the leading position; 'Weeks at #1' refers only to the relevant year, within the confines of 52 weeks and with disregard to the weeks at number one outside these limits spent by the leading tunes towards the end of the previous or the current year.

Table 1: *Billboard's* Best-Selling Pop Singles (1950)

Date	Title	Artist	Weeks at #1
01/14/50	*I Can Dream, Can't I*	The Andrews Sisters	4
02/11/50	*Rag Mop*	The Ames Brothers	1
02/18/50	*Chattanoogie Shoe Shine Boy*	Red Foley	4
03/18/50	*Music! Music! Music!*	Teresa Brewer	4
04/15/50	*If I Knew You Were Comin' I'd've Baked a Cake*	Eileen Barton	2
04/29/50	*The Third Man Theme*	Anton Karas	11
07/15/50	*Mona Lisa*	Nat King Cole	5
08/19/50	*Goodnight Irene*	Gordon Jenkins and The Weavers	13
11/18/50	*Harbor Lights*	Sammy Kaye	2
12/02/50	*The Thing*	Phil Harris	4
12/30/50	*The Tennessee Waltz*	Patti Page	2

Table 2: *Billboard's* Best Sellers in Stores (1955)

Date	Title	Artist	Weeks at #1
12/04/54	*Mr. Sandman*	The Chordettes	1
01/22/55	*Let Me Go, Lover!*	Joan Weber	2
02/05/55	*Hearts Of Stone*	The Fontane Sisters	1
02/12/55	*Sincerely*	The McGuire Sisters	6
03/26/55	*The Ballad of Davy Crockett*	Bill Hayes	5
04/30/55	*Cherry Pink And Apple Blossom White*	Pérez Prado	10
07/09/55	*Rock Around the Clock*	Bill Haley & His Comets	8
09/03/55	*The Yellow Rose of Texas*	Mitch Miller	5
10/08/55	*Love Is A Many Splendored Thing*	The Four Aces	1
10/15/55	*The Yellow Rose of Texas*	Mitch Miller	1
10/22/55	*Love Is A Many Splendored Thing*	The Four Aces	1
10/29/55	*Autumn Leaves*	Roger Williams	4
11/26/55	*Sixteen Tons*	Tennessee Ernie Ford	7

Table 3: *Billboard's* Best Sellers in Stores (1957)

Date	Title	Artist	Weeks at #1
12/08/56	*Singing The Blues*	Guy Mitchell	3
02/09/57	*Too Much*	Elvis Presley	3
03/02/57	*Young Love*	Tab Hunter	4
03/30/57	*Party Doll*	Buddy Knox	1
04/06/57	*Round And Round*	Perry Como	1
04/13/57	*All Shook Up*	Elvis Presley	8
06/03/57	*Love Letters in the Sand*	Pat Boone	5
07/08/57	*(Let Me Be Your) Teddy Bear*	Elvis Presley	7
08/26/57	*Tammy*	Debbie Reynolds	2

09/09/57	*Diana*	Paul Anka	1
09/16/57	*Tammy*	Debbie Reynolds	1
09/23/57	*That'll Be the Day*	The Crickets	1
09/30/57	*Honeycomb*	Jimmie Rodgers	2
10/14/57	*Wake Up Little Susie*	The Everly Brothers	1
10/21/57	*Jailhouse Rock*	Elvis Presley	6
12/02/57	*You Send Me*	Sam Cooke	2
12/16/57	*Jailhouse Rock*	Elvis Presley	1
12/23/57	*April Love*	Pat Boone	2
01/06/58	*At The Hop*	Danny & the Juniors	1

Choosing the number-one singles from 1950, 1955, and 1957 as the combined pivot of this research answers, at least in part, to the availability of the 'best sellers' chart only until autumn 1958. For present purposes, it is important to count on a representative sample of songs that offers an accurate impression of the American groove in the 1950s. To that end, it would have been ideal to include all the number ones of the decade in this study. However, doing justice to such abundance of data would require a sort of contribution that is beyond the limits of a single research article. The next best option would be to choose relevant time slices from the period under consideration and perform a comparative analysis of them. My original intention was to focus on the first, middle and last year of the decade. The comparison of these checkpoints would be sufficiently informative about the aesthetic shift at stake, because it would show the differences between key stages of the transition from the point of view of musical sound. The problem is that the listings of best sellers from 1959 do not exist. As mentioned, the chart run one year shy of the turn of the decade. In addition, the data set from 1958 is incomplete because the chart was taken out of circulation in autumn 1958. These circumstances make 1957 the latest workable year of the decade. Although the separation between the time slices is irregular, I think it is still valid. Observing how the groove of 1955 differs from that of 1957 is interesting in that it can tell us, for example, whether the advent of the rock era in 1955 represented a radical shift or a rather gradual one that continued to unfold in the following years.

Why choose the best-seller charts over the rest? There are some issues with the alternatives that make them, in my view, less than optimal for the

goals of the research. On the one hand, the 'Most Played in Juke Boxes' chart tends to inform about the musical preferences of young music consumers, often in specific ethnocultural contexts (e.g., Afro-American) [7], which somehow narrows the segment of the audience on which it reports. That is because juke boxes were, for the most part, the entertainment centrepiece of milkshake bars, dinners, and other spaces of socio-musical interaction favoured by the American youth. More importantly, the popularity of juke boxes was in sharp decline by the end of the 1950s, to the point that the chart was discontinued in June of 1957. On the other hand, the 'Most Played by Jockeys' chart was highly relevant for music industry constituents, to be sure, but it stands in the shadow of controversial payola practices (payment for radio airplay) that characterised the US music business in the early to mid-twentieth century, and arguably beyond. These issues were directly concerned with the development of the rock era, since independent labels relied on it to combat the cultural establishment and the prevalent racism in the industry.[8] Finally, the 'Honor Roll of Hits', being a tabulation of the data supporting the three main charts, is bound to carry into it the residues of these same issues. Having said that, notice that there is a tight correlation between the 'best sellers' and the 'most played', both in coin-operated machines and over the radio. Whatever biases at work, they were not strong enough to dissociate the charts from the pulse of the US mainstream market. The advantage of the best seller charts remains, though, for instead of representing the musical preferences of a market segment or the industry constituents, it is designed to inform about the observable consumer behaviour of the mainstream American audience.

Wall of Sound

The audio materials used in this research have been retrieved from the collection 78 RPMs and Cylinder Recordings, which is curated and managed by The Great 78 Project and stored for public access by the Internet Archive. The material integrity of the 78rpm shellac discs that comprise the collection can be easily compromised, which is a good reason to digitise their content. This task is performed by George Blood, L.P., a supplier of media preservation services. Their audio engineers use diverse equalisation settings

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[7] T. Cowen, *In Praise of Commercial Culture* (Cambridge, MA; London 1998) 164-165.
[8] Ibidem, 166.

as well as styli of varied shapes and gauges to transfer the records. The digital collection includes therefore several versions of each phonogram with distinct sound qualities. All of them are available for download from the Internet Archive in a range of digital formats with varying degrees of fidelity. The selection of audio files dealt with in this study is based on the engineers' suggestions featured for each item's webpage. All songs were retrieved in stereo mp3-format. Using the catalogue numbers shown in tables 4 to 6, the exact version of the tunes that peaked as number-one singles in 1950, 1955, and 1957 were located, downloaded and combined using Adobe Audition 2021 to create three separate audio mixes. Each mix comprises the entire set of top hits for one of the checkpoint years. Using the multitrack facility of the audio editing software, the songs were layered to render a single aural impression of the dominant groove for each period, or in other words, to use a mathematical analogy, the 'resultant groove vector' that emerges from layering the tunes. This procedure, the purpose of which is to perceptualize the dominant deep rhythm structure for each time slice, was modelled after the recording technique known as the Wall of Sound.

Table 4: *Billboard's* Best-Selling Pop Singles – catalogue numbers (1950)

Date	Title	Cat. #
01/14/50	*I Can Dream, Can't I*	Decca (24705)
02/11/50	*Rag Mop*	Coral (60140)
02/18/50	*Chattanoogie Shoe Shine Boy*	Decca (46205)
03/18/50	*Music! Music! Music!*	London (604)
04/15/50	*If I Knew You Were Comin' I'd've Baked a Cake*	Mercury (5392)
04/29/50	*The Third Man Theme*	Decca (24839)
07/15/50	*Mona Lisa*	Capitol (1010)
08/19/50	*Goodnight Irene*	Decca (27077)
11/18/50	*Harbor Lights*	Columbia (38963)
12/02/50	*The Thing*	Victor (20-3968)
12/30/50	*The Tennessee Waltz*	Mercury (5534)

Table 2: *Billboard's* Best Sellers in Stores – catalogue numbers (1955)

Date	Title	Cat. #
12/04/54	*Mr. Sandman*	Cadence (1247)
01/22/55	*Let Me Go, Lover!*	Columbia (40366)
02/05/55	*Hearts Of Stone*	Dot (15265)
02/12/55	*Sincerely*	Coral (61323)
03/26/55	*The Ballad of Davy Crockett*	Cadence (1256)
04/30/55	*Cherry Pink And Apple Blossom White*	Victor (20-5965)
07/09/55	*Rock Around the Clock*	Decca (29124)
09/03/55	*The Yellow Rose of Texas*	Columbia (40540)
10/08/55	*Love Is A Many Splendored Thing*	Decca (29625)
10/15/55	*The Yellow Rose of Texas*	Columbia (40540)
10/22/55	*Love Is A Many Splendored Thing*	Decca (29625)
10/29/55	*Autumn Leaves*	Kapp (K-116)
11/26/55	*Sixteen Tons*	Capitol (3262)

Table 3: *Billboard's* Best Sellers in Stores – catalogue numbers (1957)

Date	Title	Cat. #
12/08/56	*Singing The Blues*	Columbia (40769)
02/09/57	*Too Much*	Victor (20-6800)
03/02/57	*Young Love*	Dot (15533)
03/30/57	*Party Doll*	Roulette (4002)
04/06/57	*Round And Round*	Victor (20-6815)
04/13/57	*All Shook Up*	Victor (20-6870)
06/03/57	*Love Letters in the Sand*	Dot (15570)
07/08/57	*(Let Me Be Your) Teddy Bear*	Victor (20-7000)
08/26/57	*Tammy*	Coral (61851)
09/09/57	*Diana*	ABC-Paramount (9831)

09/16/57	*Tammy*	Coral (61851)
09/23/57	*That'll Be the Day*	Brunswick (55009)
09/30/57	*Honeycomb*	Roulette (4015)
10/14/57	*Wake Up Little Susie*	Cadence (1337)
10/21/57	*Jailhouse Rock*	Victor (7035)
12/02/57	*You Send Me*	Keen (34013)
12/16/57	*Jailhouse Rock*	Victor (7035)
12/23/57	*April Love*	Dot (15660)
01/06/58	*At The Hop*	ABC-Paramount (9871)

The Wall of Sound is an audio recording formula aimed at creating a thick, orchestral texture for pop recordings. It was developed at Gold Star studios in Los Angeles by American producer Phil Spector in the 1960s. He relied on it to produce hits in diverse genres, from the vocal pop of The Ronettes to the surf rock of the Beach Boys, and much more. The achievement of the characteristically powerful sound of the Wall answers to a combination of studio practices. Some of them can be singled out as integral to the formula, such as the noticeable use of reverb or the mixing of master tapes down to monaural sound (single-channel sound recording). None of them, however, is as fundamental as Spector's take on overdubbing, defined as 'an additive process whereby successive performances are combined or overlaid with one another within the unitary time frame represented by a disc or a piece of magnetic tape, creating the illusion of an ensemble performance'.[9] True, Spector normally tasked a crew of musicians with the live recording of the main backing track, all in one full take. This actual 'ensemble performance' notwithstanding, he used overdubbing to create the impression of a much larger orchestration than what was initially deployed in the live room. Different parts would be re-recorded, sometimes with the same instruments and sometimes with similar ones, sometimes dry and sometimes with reverb, and then added to the mix. Every addition was carefully made to blend the different tracks to the point of indistinguishability. As far as the individual parts are concerned, the purpose of overdubbing was to create a 'resultant voice' for each instrumental group which would nonetheless retain the illusion of a larger-than-life 'ensemble performance'. At the level of the final

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[9] A. Zak, *The Poetics of Rock: Cutting Tracks, Making Records* (Los Angeles and Berkeley, CA; London 2001) 10.

product, the idea was to cut hit singles with as robust a sound as technically achievable. In this connection, the description of the method by The Ronettes' singer Ronnie Spector is instructive. According to the vocalist, the producer

> was always experimenting with ways to make his sound as big as possible. Instead of having one guitarist playing rhythm, he would have six. Where someone else might use one piano, Phil would have three. He'd have twin drum sets, a dozen string players, and a whole roomful of background singers. Then he'd record everything back on top of itself to double the sound. Then he'd double it again. And again. And again and again, until the sound was so thick it could have been an entire orchestra. That's what Phil was talking about when he told a reporter that his records were like "little symphonies for the kids.[10]

This is the sense in which I mean 'thick, orchestral texture'. The so-called symphonic quality of Spector's productions has little to do with the musical material proper, in terms of melody, harmony or rhythm. Instead, it is concerned with the texture that results from the simultaneous rendition of the same parts by multiple sources, which is a defining feature of orchestral sound. Think of any section in a symphonic orchestra, for example, the strings. Their powerful presence in the aural experience of the performance is indebted to their numbers, for it is numbers that separate orchestras from other formats. An obvious reason for the strings to require about fifty performers in total is that fewer players would not manage to cut through the sound of the other sections. Expectedly in full attendance, they must perform as a coordinated unit, using the same bowing, with the members of each instrumental group playing either in unison or in harmony as per the composer's stipulations. At any rate, the adequate performance of the whole section delivers the unified polyphonic voice for which the string parts are composed: a 'resultant vector', a voice that is more than the sum of its parts. This sense of unity coexists with the expected loudness and fullness of an ensemble comprised of multiple performers, where minimal variations in rendition from player to player become perceivable as an enriching, modulating effect that typifies the section's voice. Incidentally, this is the

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[10] R. Spector, 'Phil Spector and the Wall of Sound' in: T. Cateforis ed., *The Rock History Reader* (New York, NY; London 2013) 43-49: 45.

sound character emulated by synthesisers and other electronic instruments under the 'strings' rubric (in the plural).

Groove Walls

Such unity in multiplicity can be also achieved through studio work. This is the fundamental premise of Spector's audio productions. It is also the assumption behind the version of the formula implemented in this study. Following the original method, my variation on the Wall of Sound relies on overdubbing as the core production technique. In this case, its purpose is not to create robust instrumental voices or an overall orchestral sound, but to build mixdowns that efficiently show the dominant groove for any given set of songs. I call these audio contraptions 'groove walls', or just 'walls' for short. They are designed to reach unity at the deep rhythm level despite their salient multiplicity on the higher textural layers. Once edited to match tempo, all songs are overdubbed to play in rhythmic synchronicity. Such a coincidence shows in the mix as the 'lowest common denominator' of rhythm for all songs in each sample and thus sonifies the resultant groove that binds them together. Unlike the original formula, no reverb was used for the sake of aural clarity. To the same end, now following Spector, the multitrack sessions was mixed down to monaural sound. These are the steps followed for each song set:

1. Conversion of all stereo files to mono, sample rate of 48 kHz and the same bit depth as the source. This is preparatory work since it is convenient to deal with the same kind of files throughout.

2. The matching of loudness across all files as per the ITU-R BS.1770-3 standard.[11] Loudness is the most important parameter in groove wall building, because, at the level of the individual track, it represents the weight of the groove it contains. The number of songs of similar genres listed on the charts indicates the recurrence of specific grooves, which tells us about the dominance of certain musical styles. Said recurrence translates into a stronger or weaker presence of the grooves in the mix, since each song takes a separate audio track that feeds into the overdub. The premise here is that sonification will be accurate only if each track increases the loudness of the mix in equal measure, which requires to normalise all tracks to the same perceived loudness level.

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[11] Target loudness of –24 LUFS, tolerance of 2LU, max true peak level of –2dBTP.

3. Dragging all songs to the multitrack environment and organised them in chronological order with reference to the week they topped the chart. All volume levels were kept at 0dB (no attenuation) for the reasons discussed in step 2 above. Apart from facilitating a systematic workflow, the chronological arrangement gives an overview of the development of the groove over the year.

4. Conversion of all audio clips into loops of the same length, of 2 or 4 bars at 100 or 200 BPM respectively. This was done to obtain a workable snapshot of the grooves, to prevent synchronicity issues that arise from the use of lengthier samples, and to avoid song parts where the expressive shaping of the musical material on the level of tempo (e.g., rubato) would hinder the sonification of the groove.

5. Duplication of the necessary tracks to represent the 52 weeks of the year. Doing this allows to factor in the number of weeks at the top for every song (see step 2). For instance, the prolonged presence of *Goodnight Irene* in the 1950 charts gives it the same relative weight as thirteen one-week hits put together, since it stayed on top for 13 weeks.

6. Reduction of the volume of the master track to –19,5 dB. This is a technical necessity to counterbalance the significant loudness levels that result from overdubbing the 52 tracks.

7. Export of the multitrack session to a monaural mixdown.

For the sake of presentation, the walls are faded in, held over two complete loops and then faded out. The songs are composed in different keys and stretching the loops to the desired length alters their pitch. Therefore, as expected, the melodic and harmonic contents turned out dissonant – though not necessarily disagreeable – in all mixdowns. However, this does not get in the way of discerning the deep rhythm structure represented in each case. Let us listen to the groove walls for 1950, 1955 and 1957:

Please scan this QR code to access the groove walls

The groove wall of 1950 shows a characteristic pulse-beat structure. That is, the accentuation pattern is such that, in simple time signatures, the stress is placed on the odd beats. To the ear, this wall sounds like an eight-beat loop of the kind 'one and two and three and four and'. From the formal point of view, this suggests two bars in 4/4 at 100 BPM accentuated on the first and third beat (1-2-3-4). Compare this sonority with the wall of 1957, which answers, quite clearly, to a different accentuation pattern. Its measure structure and time signature are similar but twice as fast, rounding up four bars in 4/4 at 200 BPM. More importantly, the stress here goes to the even beats (1-2-3-4). This key shift lands us with a sixteen-beat loop accentuated thus: 'one and two and three and four and five and six and seven and eight and'. This is a textbook back-beat groove, which is the typifying feature of the rock style. Its counterpart in this context, the pulse-beat groove, is characteristic of jazz. It makes sense that the latter dominates at the beginning of the 1950s whereas the former rules towards the end of the decade. This is indeed consistent with the historical narrative of the rock era as a transition from jazz to rock. It should be noted that the back-beat groove in the same 1957 configuration already makes an appearance in the best-seller charts of 1950, through *Chattanoogie Shoe Shine Boy*, and *If I Knew You Were Comin' I'd've Baked a Cake*. Their contribution to the groove of their year is not enough to

tip the scales, though, since their combined presence at the top of the charts totals only 6 weeks. *Music! Music! Music!* is a case worth commenting on because it displays a certain strength in the even beats, yet it remains a case of a pulse-beat, or so I argue, due to its emphatic downbeat baselines. Also worth mentioning is the song of the year, *Goodnight Irene*. Although its time signature is 3/4 its melodic phrases typically take 4 bars, and since it is pulse-accentuated on the first beat (1-2-3), it feeds nicely into the duple meter of the 1950 groove as a form of compound time. The song does not suffice to bend the resultant groove into a triple meter, though, which is logical, considering that all other songs are in duple meter except for *The Tennessee Waltz*, with only 2 weeks at #1.

As regards 1957, only *Young Love, Tammy, Love Letters in the Sand, You Send Me and April Love* show a pulse-beat structure. They also display a swing feel, which is the closest that best-sellers in 1957 get to a triple meter. The combined presence of these 5 hits at the leading position of the charts totals 16 weeks, which is not enough to drag the groove of 1957 too far from the rock aesthetics. These tunes have a much weaker emphasis on the odd beats than their 1950 counterparts, to the point that some could be interpreted as back-beat exemplars. That said, it is convenient to note their presence in this groove wall, for it tells us of the degree of stylistic diversity in 1957's mainstream American popular music. These songs are easy to miss in the aural impression the wall provides because of their low peak value. Their inner range of variation from soft to loud is rather flat, which pushes them to the rear of the mix when overdubbed with, say, any of Elvis Presley's number-ones that year. In a different vein, note that all loops were created trying to not disfigure the songs as originally conceived. That was the 'rule of thumb' to decide whether to stretch them to fit 100 or 200 BPM. This decision in favour of documentary accuracy is not without complications. When overdubbed, loops at 100 BPM emphasise the first beat of the second and fourth bars of loops at 200 BPM. This introduces an element of inaccuracy that cannot be controlled in the mix but can be palliated at the moment of listening through awareness a priori. That the 1957 groove remains a clear case of back-beat structure regardless of this factor speaks volumes of the dominance of the rock aesthetics at the time.

Lastly, the wall of 1955 illustrates a transitional moment in the shift toward the rock sonority. The resultant groove it represents can be interpreted as a back-beat structure without much difficulty. If that is right, then the wall displays four bars in 4/4 at 200 BPM. Yet, an argument for the

pulse-beat character of this groove is defendable. At any rate, even granting this is a back-beat structure, the stress on the even beats is not as salient here as in 1957. In this connection, I would like to conclude the present contribution by focusing on the two leading singles of the year, *Cherry Pink and Apple Blossom White* and *Rock Around the Clock*. It is interesting that Haley's emblematic hit did not manage to dethrone Pérez Prado's rendition of the *Gummy Mambo* right in the mid-summer of 1955, of all years. *Rock Around the Clock* is the archetype of the rock n' roll song, with a very clear back beat, especially after the guitar solo. *Cherry Pink*, on the other hand, is based on a pulse beat and lower in tempo than its rocker counterpart. Just like the case of the 1957 swinging hits, this is illustrative of the variety of styles in vogue at this point, which has audible consequences for the groove of 1955. The musical selection in stores clearly did not limit itself to either rock or jazz in a narrow sense. Mambo is a musical form developed out of Cuban folk, even if cross-fertilised with jazz elements. This fact notwithstanding, the case underlines the wide scope of the jazz style, which accommodates a variety of genres and admits seamless fusions. In this vein, it is important to remember that the pulse beat is not exclusive to jazz, any more than the backbeat is to rock. These rhythm structures have been around for a long time and manifest themselves in innumerable musical traditions. The potential groove match between the latter and what has been described here as popular styles is what enables the characteristic hybridity of global popular music since the very 1950s. From bossa nova to afrobeat to K-pop, and so much more: this is a musical landscape where the combination of ethnocultural and subcultural musical materials is key, where the grooves that emerged in 1950s America play a rhythmically grounding role.