# Why 3 minutes?

## Sound-reproduction media, popular music form and temporality

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## Introduction

How long is a song? Nonsensical as this question may seem, it is nevertheless given quite definite – and strikingly similar – answers in particular media contexts. In the rules of the Eurovision Song Contest, the regulation was introduced in 1967 that the maximum duration of a contest entry is limited to precisely three minutes (Björnberg, 1987, p. 66). This limitation may well be referrable to the programming considerations and bureaucratic deliberations peculiar to the ESC; however, a far more wide-ranging specification of the duration of 'songs' is observed by Tore Simonsen in 2008: '[it] is interesting to note that today's MP3 players where playing time no longer provides any practical limitation still specify their capacity in terms of the number of 'songs' – each about 3 minutes long' (Simonsen, 2008, p. 97; my translation).

As indicated by this quote, starting in 2001, when Apple launched the first iPod model, the capacity of different iPod models was regularly specified in terms of the number of songs a particular model had the capacity to store. What was regularly not specified was the fact that such calculations were based on two implicit preconditions. On the one hand, it was assumed that the MP3 files storing individual pieces of music had been compressed to a particular standardized bitrate, which for audio files at the turn of the millennium was usually 128 kbit/s.[1] On the other hand, as Simonsen indicates, such specifications imply a specific notion as to the proper duration of a song. As one minute of music compressed at 128 kbit/s occupies roughly 1 MB of storage space, a comparison of specifications of number of songs and data-storage capacity indicates that the assumed duration of each song was 3–4 minutes.[2]

This assumption is not based on some universal law of human perception; rather, it is the result of conventions which have developed during the history of sound-reproduction media, more specifically, of the gramophone record. Since the introduction and commercial breakthrough of gramophone technology, the originally partly conventional or pragmatic, partly arbitrary limitations imposed by the medium have shaped listeners' comprehension of what the appropriate dimensions of a piece of music are. In the course of the first half of the twentieth century, the archetypal 'three-and-a-half-minute song' of the 10" 78-rpm shellac record became, as it were, a naturalized format, but, as these examples indicate, it has continued to be effective long after its foundation in technological constraints has been superseded by the long-playing vinyl record, the compact cassette, the compact disc, and the playlist.

The objective of this paper is to discuss dominant sound-reproduction media technologies and formats since the early twentieth century and how these have contributed to the shaping of dominant forms of construction of temporality in Western popular-music recordings. Thus, the paper aims at a synthesis of mediatization history – specifically, the history of the mediatization of music – and what Stephen Cottrell (2010, p. 15) has termed 'phonomusicology': the study of recorded music. My intention is not to hypostatize any uni-directional causal link from media

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[1] This can be compared to the bitrate of uncompressed two-channel CD audio, which is 1411 kbit/s.
[2] The duration inferred in various pieces of marketing prose is a bit more variable than stated by Simonsen.

technology to modes of musical syntactical construction; the processes whereby a particular media format becomes dominant in quantitative and cultural terms are conditioned by an interplay of several factors: technological, economic, pragmatic, aesthetic, etc. My discussion of the various sound-reproduction media developed in the course of the twentieth century takes its point of departure in the definition of 'medium' suggested by Jonathan Sterne:

> A medium is a recurring set of contingent social relations and social practices [...] As the larger fields of economic and cultural relations around a technology or technique extend, repeat, and mutate, they become recognizable to users as a medium. A medium is therefore the social basis that allows a set of technologies to stand out as a unified thing with clearly defined functions. (Sterne, 2003, p. 182)

This said, the history of sound-recording media appears to indicate that once a particular media format has acquired such dominance, its ubiquitous material representation in pieces of software and hardware entails a considerable inertia, providing the format with a degree of naturalness concealing the deliberations originally underlying its conception. This paper aims at tracing some of the aspects of these processes.

## Towards a standardized format

In the following account of gramophone-technology history, I will disregard the cylinder phonograph; although not insignificant in commercial terms in the 1890s and early 1900s, it was quite rapidly superseded by the flat-disc Berliner gramophone during the first years of the twentieth century. As is the case with the phonograph cylinder, the storage capacity, and thus maximum playing time, of a gramophone record is mainly dependent on three factors: (1) the rotation speed, measured in revolutions per minute (rpm); (2) the physical size of the disc; and (3) the spacing of the grooves on the record's surface.

In early recordings, the control of recording and playback speeds was far from exact, and the range of variability of disc rotation speeds appears to have been surprisingly great. According to one author, the hand-driven cylinder and disc players of the 1890s were to be operated at a speed of 60–90 rpm: 'hand cranked, the comfortable speed was found to be at about heartbeat rate' (Osborne, 2012, p. 18; cf. Sterne, 2003, pp. 267f.). Another author states that the standard velocity of manually rotated gramophone in 1894 was 'about' 70 rpm (Gelatt, 1965, p. 66). With the increasing mechanisation of playback technology after the turn of the century, 'the speed of discs was confined to a range between 78 rpm and 82 rpm' (Osborne, 2012, p. 18),[3] but in practice, the variation appears to have been somewhat greater: 'Many of the earliest discs from the beginning of the century were recorded at 68–70 rpm. [...] There are numerous examples of pre-electrical (pre-1925) discs that play at speeds in the mid 80s.' (Beardsley, 2009).

Nominally, the standard speed of '78 rpm' was not fixed until the broad introduction of electrical motors for recording and playback equipment in the mid-1920s, when the standard speed was specified as 78.26 rpm, corresponding to the North American mains voltage frequency of 60 Hz with a down-gearing by a factor of 1:46 (Osborne, 2012, p. 18).[4] Still, in practice a significant amount of variation seems to have remained (Beardsley, 2009).

While playback speed thus was difficult to control with any high degree of precision, the size of gramophone records was somewhat more quickly standardized. The first commercially

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[3] According to Simonsen (2008, p. 41), Edison's vertical-cut Diamond Discs, which were introduced in 1911, played at 80 rpm.
[4] Relating gramophone speed to the frequency of the AC electric mains resulted in European playback speed being slightly slower due to the 50 Hz frequency of its mains voltage: 77.92 rpm, corresponding to a down-gearing of 2:77.

produced gramophone records, made in Germany around 1890, were 5" discs, while the original Berliner gramophone used 7" discs (Gelatt, 1965, pp. 64f.; Osborne, 2012, p. 14; Read and Welch, 1976, p. 126). During the first expansion phase of the gramophone industry in the early years of the twentieth century a number of different formats were introduced, such as eight-, ten-, eleven-, twelve-, fourteen-, and even twenty-inch discs (Gelatt, 1965, pp. 169f.; Read and Welch, 1976, pp. 153f., 160). Most of these, however, were commercially short-lived, and two formats quite rapidly became dominant: the 12" disc, introduced in 1903 and primarily used for classical music, and the 10" disc, introduced in 1901, which became the standard format for the popular repertoire (Gelatt, 1965, pp. 112, 119; Osborne, 2012, p. 40). Existing literature on sound-reproduction media history is rather vague on the matter of why these particular formats came to acquire such dominance. However, these developments may be surmised to have been conditioned by several factors, such as economics (how much listeners were prepared to pay for a disc), pragmatics (how large a disc could be made and still be considered practicably handleable), as well as musical aesthetics (the recording-time capacity that was required to accommodate a large enough proportion of the musical repertoire regarded as potentially exploitable).

This last point raises the question of what might be considered typical or regular durations of such pre-existing musical pieces deemed appropriate for being issued in recorded form. These would have included arias from cantatas, operas or operestas, as well as 19th-century parlour songs, i.e., various types of hit songs from pre-recording-technology times. The repertoire would also have included dance music, ranging from Viennese waltzes to arrangements of rustic-style dance tunes, as well as instrumental entertainment music such as military marches or orchestral medleys. It appears reasonable to assume that a vast majority of pieces from this admittedly very heterogeneous repertoire, performed according to contemporaneous performance-practice conventions, would have featured durations in the range of something like 2 to 6 minutes, and the capacity of the standard 10" (or 12") 78-rpm shellac record would thus have accommodated many, but far from all, such pieces of music. Accordingly, this capacity specification constituted a pragmatic but still somewhat arbitrary compromise in relation to pre-existing music. The question of what would constitute a supposedly proper duration of a piece of music, for instance, in relation to general characteristics of the typical attention span of humans, is of course a very complex one, whose answer is conditioned by several factors, including cultural conventions as well as the intended uses of a particular piece. However, rather than attempting to pursue a further investigation into such matters, the point I wish to make here is that this capacity standard, once it had been established, acquired the function of defining a gradually more or less naturalized time frame within which popular-music formal schemata were subsequently to be conceived.

By the early 1900s, then, the standard formats had been established which would come to define significant limitations for the possibilities of recordings with regard to the maximum playing time for a recorded piece of music:

> From the late 1920s a [12"] disc side could last up to about four and a half minutes, a ten-inch disc up to two and three-quarter minutes. Very occasionally twelve-inch discs were issued with sides lasting more than five minutes. A side lasting practically five and a half minutes as side one of HMV DB 192 does [...] is entirely exceptional. (Day, 2000, pp. 6f.)

As indicated by this quote, the limits to playing time set by rotation speed and disc size are not absolutely well-defined. Besides these, the third factor enumerated above, groove spacing – how densely grooves could be engraved on the disc – also affects the maximum playing time of a disc. Groove spacing is determined by practical concerns related to the cost of equipment and its dependability under normal operating conditions; the spacing of a standard 78 rpm shellac record would have been somewhere in the area of 100 grooves to the inch (Read and Welch,

1976, pp. 339f.). However, as also indicated by the quote, 'normal' playing time could be exceeded by carefully increasing the density of grooves beyond what was considered standard practice. It also seems that the capacity specified by Day for the 10-inch 'popular' format (2'45") is somewhat conservative; 10" discs with a playing time exceeding three minutes are not uncommon. In popular consciousness the three-minute limitation seems to have been accepted as a characteristic inherent in the medium; as one commentator states in 1941, 'popular songs and dances were long ago trimmed to meet the 3-minute requirement of a gramophone disc' (Ridout, 1941, p. 220, quoted in Osborne, 2012, p. 97).

## Time limitations: musical consequences

The restrictions imposed by the playing-time limitations of the medium had significant musical consequences for the music recorded on gramophone discs. However, these consequences were different for different kinds of repertoire. The music of the European classical tradition, composed of works where the duration of the entire work or of separate movements often exceeded the time limits of the gramophone record, posed particular problems:

> The main limitation of classical phonograms was playing time. Admittedly, in the twenties several alternative methods were developed to extend playing time, by making discs larger, by a reduction of rotational speed, and by a narrower track and closer engraving. [...] But common to them all was that they were impractical for commercial purposes [...] Symphonies played in fragments of four-minute duration had established itself as the home-market way of listening to that kind of music. (Simonsen, 2008, p. 90; my translation)

The distribution of longer musical pieces across several record sides gave rise to the record album, where the word 'album' was used in a quite literal sense, for a number of records collected together in one binder; one of the first was the album of Tchaikovsky's *Nutcracker Suite*, issued on four discs in 1909 (Gelatt, 1965, p. 178). As described by several authors, besides the custom related by Simonsen in the quote above, recordings of European classical music involved numerous instances of practices impinging on the integrity of the musical work, such as downright truncation of works and movements, or re-arrangements where sections of the music were omitted to make it fit into a record side (Day, 2000, p. 8; Gelatt, 1965, p. 198; Katz, 2004, pp. 32, 34f.; Simonsen, 2008, pp. 56f.; Symes, 2004, pp. 40f., 64). Time limitations also had effects on composition: Stravinsky's *Sérénade en LA pour Piano*, composed in 1924, consists of four movements, each fitted within the time limits of a three-minute record side (Katz, 2004, p. 3).

The consequences for the recording of popular music were somewhat different, as this repertoire was not surrounded by the same notions of the integrity of the musical work as the music of the classical tradition. In popular music, there was a much larger scope for the adaptation of musical form to the time limits of the medium, perhaps particularly in conjunction with the recording of musical genres previously disseminated by oral tradition, rather than by musical notation. Early recordings of the 12-bar blues consisted of the number of stanzas which could be fitted in on a record side, in distinction to what was in all probability a much larger span of duration variations in contemporary live performances: 'Confronted by the limits of recording, many blues singers responded by simply stringing together a few stanzas on the same subject, but the best attempted some kind of narrative continuity and unity' (Chanan, 1995, pp. 46f.).

With regard to jazz music, 'we have little direct knowledge of how long live jazz performances typically lasted' (Katz, 2004, p. 74). Yet, it is often assumed that the relationship between live and recorded music was similar to that of the blues:

> The limited playing time of the 78 forced musicians to trim their performances, but even more, it discouraged improvisation as well. It turns out that early jazz musicians did not improvise in the studio as much as is commonly thought. [...] Jazz musicians also followed written sources more closely than previously realized. (ibid., p. 75)

There are numerous examples from the 1920s and 1930s indicating that the limitations of recordings rapidly had a feedback effect on live performances: recordings could have the effect of 'fixing' improvised pieces, turning them into compositions (ibid., pp. 74, 79ff.).[5] As relatively few live recordings of early jazz exist, the possibilities of detailed comparisons are limited; one useful example, however, is the live recording of Louis Armstrong's 'Chinatown, My Chinatown' made by Swedish public-service radio in Stockholm in 1933 during Armstrong's European tour.[6] A comparison with the studio recording of the song made in 1931 indicates that the two versions are remarkably similar, the main difference being that the live version omits one 32-bar chorus of melody with voice-over and contains two additional choruses of trumpet solo; also, the solos are quite similar in the two versions.

For popular song in general, the adaptation of musical form to the limitations of the gramophone medium may be described as a rather straightforward and unproblematic affair. It has been claimed that 'in popular music, too, the duration of the record is a highly artificial length of time, shorter than both the normal duration of a single dance and the improvised performance of the folk singer, let alone a protracted jam session' (Chanan, 1995, p. 48). However artificial the playing-time limitation of the three-minute record may be conceived, it has also been claimed that this restriction proved a highly productive factor in the development of recorded popular music:

> Popular music utilized the system properties of the dissemination channel of the gramophone disc in an innovative way, unfettered by the traditions of classical music. Within the playing-time limitation, simple form patterns evolved with alternating verse and chorus. (Simonsen, 2008, p. 58; my translation)

As indicated by the last quote, (Western) twentieth-century popular song in general may be described as largely adhering to a rather small number of formal schemata featuring two or three different musical sections alternating. Of course, these schemata were not created from scratch for the new medium; their predecessors may be traced throughout the history of nineteenth-century popular music.[7] However, concepts such as 'verse' and 'chorus', describing particular kinds of relationship between musical sections in earlier popular music, in twentieth-century popular music take on a partly new meaning describing the processual relationships between such sections. I will return to such processual relationships in more detail below.

## Breaking boundaries: the microgroove vinyl record

As has already been stated, by the late 1940s the 78-rpm 10" shellac disc was long since firmly established as the dominant dissemination format for recorded popular music (cf. Gelatt, 1965, p. 284; Simonsen, 2008, p. 80). The rapid breakthrough of new formats at this time was enabled by the switch of disc material from shellac to vinyl, a synthetic plastic. Thanks to the properties of this material, maximum playing time could be increased by adjusting two of the three

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[5] Cf. Tackley (2010, p. 172) on the recordings of the ODJB and Simonsen (2008, p. 72) on swing music.

[6] The live recording has been published on the CD appended to Björnberg (1998). The exact duration of the live performance is unclear, as the live recording is faded in halfway through the first [?] 32-bar chorus, rendering a total duration of 3´33″, as compared to the studio version's duration of 3´19″.

[7] For useful accounts of formal schemata in nineteenth-century popular music in a US, British and Swedish context see Hamm (1979), Scott (1989), and Tegen (1986), respectively.

above-mentioned factors: rotation speed and groove spacing. After the brief 'battle of the speeds', two new formats using the microgroove vinyl record were established as the new standards: the 12" 'long play' (LP) playing at 33 1/3 rpm (the speed also used in the 1950s for a 10" format) and the 7" 'single' playing at 45 rpm. Thanks to the increased groove density enabled by vinyl plastic, the LP allowed for a playing time of up to 23 minutes per side, while the maximum playing time of the single was approximately 5'20" (Day, 2000, p. 21; Gelatt, 1965, pp. 291f.; Osborne, 2012, p. 121; Read & Welch, 1976, pp. 339ff.). Several previous versions of long-playing records had been launched, such as Edison's forty-minute record in 1926, the Vitaphone system used in early sound film, Victor's long-play experiment in the early 1930s, radio transcription records of the 1930s, and 1930s talking books (Gelatt, 1965, pp. 249, 252ff.; Osborne, 2012, pp. 67, 90; Read & Welch, 1976, p. 425; Symes, 2004, p. 68). What all these had had in common, however, was that they were unsuccessful or unsuitable for the commercial market for recorded music, in contrast with the rapid success of the vinyl record: 'From the consumer's point of view it was the microgroove system and its increased playing time that was innovative.' (Osborne, 2012, p. 68).

The longer playing time of the LP was immediately utilized for coherent recordings of all such classical pieces that couldn't be fitted onto one side of a 78 rpm record. By carefully adjusting groove spacing, the playing time of an LP could be extended to over 34 minutes per side, which meant that few works (or individual movements from multiple-movement works) from the classical repertoire were unable to fit in the new format (Day, 2000, p. 21). With the vinyl LP, also even longer works, such as complete opera performances, could be presented on record in a much more coherent fashion than before.

In jazz music, change was slower, but in the course of the 1950s, the (10" or 12") LP format was gradually used for recordings of longer pieces than allowed by the 78 rpm 10" disc. This also had consequences for the construction of other models of formal disposition of jazz pieces than previously, when the popular-song format had largely set the models for formal disposition of recorded jazz. Duke Ellington was 'one of the first to exploit the LP form', followed by artists such as Miles Davis, John Coltrane and Charles Mingus, and 'the new format helped the music to adopt the long-playing characteristics of seriousness, adulthood and non-commerciality' – i.e., the effect of the new format was to bestow on jazz some of the characteristics of 'art music' (Osborne, 2012, pp. 102f.).[8]

The 7" single format was almost exclusively used for popular music, and it was rapidly established as the standard format for popular pieces. Interestingly, in the 1950s the format was rarely used for songs with a duration significantly exceeding the three-minute limitation of the 78-rpm era. According to one author, the persistence of this limitation was in part referrable to the programming practices of US commercial radio:

> Sound recording introduced the idea of the time limit to music, but it was radio that took the three-minute limit of early 10" shellac discs and institutionalized it. In America radio programming was governed by the 'Drake Clock', a device that allocated a set amount of time for each disc played. In turn, this enabled the rigid scheduling of commercials, news reports and traffic bulletins. As a consequence, record producers were dissuaded from utilizing the 5:20 playing time of the 45 rpm disc. The three-minute barrier remained. (Osborne, 2012, p. 125)

The continuing adherence to established time limitations also applied to the EP (extended play) 7" format, which was launched in 1953; this format extended the maximum playing time of a 7" record to approximately 7'30" (ibid., p. 106). In popular music, this extended playing time

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[8] Katz (2004, p. 76) points out that Ellington already in the 1930s had recorded extended jazz pieces in 'two-side form'.

was usually used for placing two pieces of music of singles length on each side of the record.[9] The EP used a narrower groove spacing than the single, which resulted in a longer playing time but lower playback volume: 'the EP failed to match the two-track single's public performance ability due to the fact that its narrower grooves rendered it a quieter format' (Osborne, 2012, p. 106). In both formats, the conventions established by the 78 rpm 10″ shellac disc were thus preserved.

In the 1950s, the LP format was conceived of as distinctly unpopular; due to the higher price of an LP, the format was – or was regarded by the music industry as – unsuited for the popular music market: 'Although popular music was sometimes released on LPs beginning in the 1950s, few musicians took advantage of the possibility to record longer works. The reason was strictly commercial.' (Katz, 2004, pp. 35f.). Characteristic of early LP productions of popular music was that the larger format was used for compilations of a number of pieces in the previously established duration format – the 'greatest hits' concept. Frank Sinatra's 1950s LPs appear to have been among the first to use the larger format in a more elaborate way: although composed of a number of standard-duration songs, these were 'concept albums' in the sense that they featured a well-deliberated sequencing of songs, modelled after the excitement trajectories of a live-performance show (Osborne, 2012, pp. 98f.). However, Sinatra's and, later in the decade, Elvis Presley's LPs were exceptions to the rule of the greatest-hits format as the popular-music standard for LP releases (ibid., pp. 105f.).

## The album concept

It has been claimed that within the popular-music domain, the Rolling Stones were 'among the first to use the [LP] medium to record tracks that went beyond the normal length of singles' (ibid., p. 109). This is one step in the process towards utilizing the larger medium for something qualitatively different from a collection of singles-length songs. However, the decisive move towards the creation of the rock concept album is usually credited to the Beatles, whose *Sgt. Pepper* album (1967) has regularly been referred to as the first and format-defining instance. *Sgt. Pepper* is similar to the Sinatra 1950s albums in that it is framed as an emulation of a live show. On the record's surface, a distinct physical indication of the coherence of the album as one single entity is given in the form of the absence of 'lead in' gaps between tracks, rendering the finding of the beginning of an individual song quite difficult. Still, somewhat ironically, the album is organized in the conventional manner as a succession of songs of fairly regular singles duration, clearly separated in the auditory domain by stretches of silence.[10] In this respect, it differs significantly from the (conceptually and visually) very elaborate *Sgt. Pepper* parody album *We're Only in It for the Money*, issued a couple of months later by the Mothers of Invention. On the latter record, while the separate songs are arranged in a collage fashion in immediate succession without any silence gaps, the division of the album is indicated by (not very accurately placed) 'lead in' gaps on the record.[11]

Throughout the 1970s, the rock concept album remained the primary format for the extended popular-musical work, particularly in, but by no means restricted to, the genre of 'art rock' or 'progressive rock'. The distinction in phenomenological terms between the single and the concept album is aptly summed-up by a contemporary commentator:

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[9] In Europe, where the adoption of the LP format was somewhat slower than in the US, the 7″ EP format was also used during an initial phase for extended jazz pieces (thanks to Mischa van Kan for pointing out this to me).

[10] On 'framing silences' in classical recordings, cf. Simonsen (2008, pp. 160f.); Symes (2004, p. 131).

[11] On the meta-comments on recording 'transparency' in *We're Only in It for the Money* cf. Björnberg (2005).

> Three minutes is short enough, and striking enough, to fuse perfectly with the mood of the listener. It becomes part of the listener's own experience. [...] Your [rock-album] masterworks are a different bag of conkers [...] they become artefacts, create their own world. The time that surrounds them is an extrapolation of the work itself. They create their own environment. (Hayman, 1974, p. 21, quoted in Osborne, 2012, p. 112)

The unified character of the 'album as work of art' also extended to the visual design of the LP sleeve, exploiting the full potential of the physical dimensions of the 12" record: 'The LP cover became an essential and entwined part of the listening experience [...] designers deliberately worked upon this space so that it would sustain attention for the duration of the record'. (Osborne, 2012, p. 176).

The other widespread consumer audio format of the 1970s, the compact cassette, may basically be described as a transfer to the tape medium of the LP format (whether 'concept' or 'greatest hits'). However, its potential for home recording renders the picture a bit more complex; the practice of putting together 'compilation' or 'mix' tapes involves the possibility of individual personalization of the album format (cf. Jansen, 2009), a practice passed on in the era of digital audio, but also with predecessors reaching back to early versions of the auto-changer, developed in the 1920s and 'providing the public with a chance to make their own musical sequences' (Osborne, 2012, p. 89). The 1970s also witnessed the creation of one of the last distinct analogue audio formats, the 12" single, which constituted a departure from the 7" singles format in its combination of both longer duration and louder volume, particularly in lower frequencies. Both these factors were connected to the use of the format for dance music, and thus the changing social and economic conditions of public dancing had eventually motivated the extended utilization of the potential of the technological innovations of the 1950s (Osborne, 2012, pp. 155f.; Moorefield, 2010, p. 298).

## Digital distinctions

When the compact disc (CD) was launched commercially in 1982, its playing-time specifications were allegedly determined in order to enable a recording of Beethoven's 9th Symphony to fit in its entirety on one single disc (Osborne, 2012, p. 82). Basically, the CD was conceived of as yet another album format, although better (in terms of quality of sound reproduction), physically smaller, and allowing for longer playing time in comparison with the vinyl long-playing record. Due to its single-side layout, however, it differed in a significant respect from the restrictions applying to the two-sided vinyl LP:

> What has [...] been lost with the transition from the vinyl long-player to the CD is the idea of brevity. Artists in the vinyl era rarely had to sequence more than seven songs on each side of their records. [...] In comparison it is hard to maintain attention throughout a single-sided CD. [...] In such environs the art of sequencing has atrophied. (ibid., p. 113)

Another consequence of the CD was that the detailed and precise indication of playing time – elapsed, remaining and total – provided by digital playback equipment served to focus attention on the primary commodity the consumer acquired by purchasing a CD: (musical) information, exactly measureable by the number of bytes contained in the disc. 'Value for money' could thus be measured in terms of the playing time, and thus amount of information, purchased, in the same manner as with the electric telegraph, 'the first technology to establish information as a commodity by measuring it' (Chanan, 1995, p. 32). It appears significant that shortly before the launch of the CD, the International Association of Sound Archives introduced the prescription that LPs (and subsequently CDs) should include information about, among other things, the duration of the items on the disc (Symes, 2004, p. 133). Precise information on the duration of

songs was also used by the Gracenote database, accessed by the iTunes application on the insertion of a CD into the computer's disc drive, for the identification of individual CDs on the basis of its particular combination of durations.

In spite of several attempts at the commercial launching of high-resolution digital-audio disc formats, at the time of writing (2020), it seems fairly certain that the CD will constitute the last instance of a widespread common standard for the phonogram as a physical artefact. More recent digital forms of music distribution such as P2P downloading and streaming of audio files in compressed formats have increasingly rendered the physical sound-carrier superfluous. As these developments have rendered previous playing-time limitations totally irrelevant, it may seem somewhat paradoxical that they have also involved a 'return of the single' commented on by several authors: the gradually increasing importance of the individual song as the regular unit of popular music:

> [It] could be argued that the 7" single provides the perfect representation of recorded music. Music has been predominantly consumed and thought about in terms of individual songs. The 7" single gives these songs their most direct and literal representation [...]. The 45 rpm record owed its origins, its initial survival, and many of its aural qualities to the jukebox. The digital download, with its concentration on individual tracks and the iPod's shuffle mode, has returned many people to that earlier mode of listening. (Osborne, 2012, pp. 117f., 141)

> [F]ile-sharing reinforces what might be called 'singles listening'. (Katz, 2004, p. 168)

In the remaining part of this article, I will discuss briefly in experiential terms the general characteristics of this archetypal popular-musical form of appearance.

## The temporality of the popular song

It has been claimed that 'the popular song is a self-contained entity, with a beginning and end that sets it off from reality' (Moore, 1993, p. 85). To extend this proposition, it could be argued that this is particularly characteristic of the popular song *recording*. The fixation of musical temporality in recorded music renders it principally different from live performance situations, in which, due to their inherent space for contingency, there are ample possibilities for the destabilization of this self-containedness of music (cf. Katz, 2004, p. 36). Several authors have commented on this aspect of the popular song recording, interestingly enough often positing a connection between this and another characteristic of mediatized music listening: the increasing privatization of the musical experience. Philip Auslander, in a discussion of his personal experience of recorded music as taking place in the present, in contrast with his experiencing audiovisual recordings as taking place in a historical past, makes the following suggestion:

> If technically mediated listening, audile technique, has been culturally emplaced as a dimension of private property, then perhaps technically mediated seeing has been culturally emplaced as a dimension of public space. [...] If it is the case that listening to reproduced sound is always experienced culturally as private, even when done in public, perhaps it is also the case that watching recorded visual material is always experienced culturally as public, even when done in private. Listening to music, I experience the individuated private performance Frith describes. (Auslander, 2005, p. 6)[12]

Simonsen speaks of 'dry studio recording' resulting in 'an intimacy when played back which underlined the individuality of the musical experience', and Sterne mentions 'the internally consistent time on a record, a present cut into fragments' (Simonsen, 2008, p. 87; my translation;

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[12] The reference to Simon Frith concerns the latter's discussion of experiencing music recordings as performances (Frith, 1996, pp. 203–225).

Sterne, 2003, p. 310).13 Several interconnected issues appear to be at play here: (1) the experience of recorded music within the listener's real-time flow (as this is the only manner in which music may be experienced); (2) the auditory realism of the popular song recording – the fact that it is generally perceived as a credible representation of an actual musical performance, regardless of the extent of technical manipulation utilized in the actual production process of the music; and (3) the general syntactical characteristics of the popular song.

In another context (Björnberg, 2017) I have discussed the significance of such syntactical characteristics in relation to different types of 'musical dramaturgy' – a concept suggested by Pontara and Volgsten (2017) – within the practices of music-radio programming. Taking as a point of departure the distinction suggested by Richard Middleton (1990, pp. 216f.) between a 'narrative', an 'epic' and a 'lyrical' mode of musical syntax construction, I've there argued that a predominance of the lyrical mode constitutes a distinctive feature of the popular song throughout its developments since the introduction of sound-reproduction media:

> Insofar as it is at all meaningful to speak of 'general syntactical characteristics of the popular song', I would argue that these consist precisely in a general predominance of Middleton's 'lyrical' mode of syntax construction: the symmetrical binary combination of units at medium levels of musical syntax (phrases) into larger units, which are grouped into a limited number of well-demarcated musical sections, such as 'verse' and 'chorus' (Björnberg, 2017, pp. 204f.).

Although this discussion is undertaken in rather abstract terms of musical syntax, I would further argue that, since musical processes such as the alternation of verse and chorus are regularly multi-dimensional, with several musical parameters as well as verbal lyrics interacting towards the construction of clearly distinguishable structures and processes, these formal characteristics are generally perceivable regardless of the level of formal musical training of the listener. The three-minute song constructed in the lyrical mode, featuring the alternation of a limited number of well-demarcated musical sections, has over time consensually acquired the characteristics of a successful balancing of repetition and variation, thereby demonstrating how 'music provides a unique means for making the experience of repetition pleasurable' (ibid., p. 205). Thus, the interaction of the self-containedness of this particular mode of musical syntax construction with the limitations imposed by a technological medium has resulted in a well-defined cultural object: the three-minute popular song.

Returning to the notion of auditory realism introduced above, a few remarks appear pertinent. Recording technology has enabled various forms of what Friedrich Kittler has termed 'time axis manipulation': increased or decreased playback speed, reverse playback, tape splicing, multitrack recording etc (Kittler, 1999, pp. 34ff.; cf. Day, 2000, pp. 26ff.; Simonsen, 2008, pp. 94ff.). Such manipulation is standard practice in music production (popular or otherwise) nowadays; very few of the recordings listened to are the result of an actual recording of an actual performance taking place at one and the same time in one and the same place. Nevertheless, the supposedly realistic notion of such a unified performance being represented by the recording is a strong one, and obvious violations of this code of realism are relatively rare in popular music.[14] However, one particular type of time axis manipulation quite common in popular music is the fade-out. According to Richard Osborne, the increased frequency of fade-out endings in popular-music singles appears to be a consequence of the increasing emancipation of recording from live performance:

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[13] Although the context of Simonsen's characterization is that of classical recordings, the argument would seem equally applicable to other musical genres. On the privatization of mediatized listening, cf. also Symes (2004, p. 253) and Eisenberg (1987).

[14] Although definitely not non-existent; cf. Björnberg (2005).

> In the fight for broadcasting prominence, records became shorter and they were structured to de-liver maximum impact up-front. Correspondingly, at their close, records were left trailing. Di-vorced from the performance requirement of composed endings, the fade-out became more com-mon. (Osborne, 2012, p. 131; discussing recording practices in the 1960s)

In experiential terms, the fade-out ending of a song creates something of an ambivalence. The immediate realistic interpretation of a fade-out would be that of the music continuing playing while receding out of earshot, due to increasing distance between performers and listener. How-ever, this raises the unanswered question of when the music actually comes to an end; the possi-ble, albeit unlikely, implication is that the music goes on forever. In itself this rather simple in-stance of technological manipulation provides an efficient manner of making the lyrical mode of the popular song tend towards the epic by emphasizing 'circular' repetition and indefinitely postponing resolution and closure.

## Conclusion: stockpile and playlist

In his thought-provoking analysis of the political economy of music, Jacques Attali points out one of the contradictions of the era of technological reproduction of music (in his terms: the era of 'repetition'):

> The major contradiction of repetition is in evidence here: *people must devote their time to producing the means to buy recordings of other people's time*, losing in the process not only the use of their own time, but also the time required to use other people's time. Stockpiling then becomes a substitute, not a preliminary condition, for use. *People buy more records than they can listen to. They stockpile what they want to find time to hear.* Use-time and exchange-time destroy one another. This explains the valorization of very short works, the only ones it is possible to use, and of complete sets, the only ones worth the effort of stockpiling. (Attali, 1985, p. 101; italics in original; cf. Sterne, 2003, pp. 242f.)

In one certain respect, the digitization of musical media has put a new edge to Attali's argu-ment: in cases where stockpiling takes place not by purchasing a phonogram-artefact, but by do-mestic copying, it is no longer necessary to do this process in real time, as with analogue for-mats (cf. mix tapes); copying a piece of music in a digital format may be done in a much shorter time than it takes to listen to the music in question. At the same time, recent developments away from the phonogram-artefact towards downloaded or streamed digital formats would seem to vastly reduce the motivation for stockpiling music at all. Alan Moore's argument with regard to the turn from CDs to MP3s would seem even more relevant to the user-defined playlist on an Internet service for streamed digital music:

> Not only does this change [from 'song' to 'track' in popular terminology] represent a move from abstract to concrete, [...] but, I suspect, from object towards practice, too. A song [...] is [...] a fixed entity [...]. With a track, however, current social use directs our attention away from its fixity, and towards the parallel existence both of multiple mixes, and of a far more ephemeral mode of own-ership in the practice of downloading tracks onto an MP3 player or iPod, for instance, and then jettisoning them after a few weeks. (Moore, 2010, p. 265)

In view of such developments, the continuing persistence of the three-minute popular song for-mat, by now virtually totally dissociated from material constraints, may seem perplexing indeed. Perhaps this persistence could partially be explained by Attali's somewhat dystopian remark, quoted above, about 'very short works, the only ones it is possible to use'. A contrasting obser-vation, phrased in more positive terms, would be the quotation above from Hayman, character-ising three minutes as 'short enough, and striking enough, to fuse perfectly with the mood of the listener'. Although the evaluation of the present musical-cultural situation may thus be

variable, a basic precondition for this situation is formed, as a result of the historical development of sound-reproduction media, by that distinct, enduring and influential cultural object: the three-minute popular song.

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## Abstract

Since the introduction of sound-reproduction media, the originally partly arbitrary, partly pragmatic limitations imposed by the medium have shaped listeners' comprehension of what the appropriate dimensions of a piece of music are. The archetypal three-and-a-half-minute song of the ten-inch, 78-rpm shellac record became a naturalized format in the course of the first half of the twentieth century, but it has continued to be effective long after its foundation in technological constraints has been superseded by the long-playing vinyl record, the compact disc, and the playlist. The object of this paper is to discuss dominant sound-reproduction media technologies and formats since the early twentieth century and how these have contributed to the shaping of dominant forms of construction of temporality in Western popular-music recordings.

One of the most specific characteristics of music is its ability to structure time, to fill time passing with an affectively meaningful, ordered yet dynamic content, and in a sense 20th-century popular-music history may be viewed as a continuing investigation of different ways of effecting this meaningful time-filling function. The fixation of musical temporality in recorded music renders it principally different from live performance situations, in which, due to their inherent space for contingency, there are ample possibilities for the destabilization of the cohesive self-containedness of music. In the paper, some general characteristics of typical modes of temporal structuring in popular-music recordings are identified.

**Keywords:** compact disc, gramophone record, mediatization, MP3, popular music form, song duration, sound-reproduction media formats, streaming, temporality

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