

# A Romanticized Narrative and the Overlooked Birth of Electronic Beats

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## Introduction

Today's music technology has both a strong presence in and influence on popular music, with respect to studio productions and live performances, with rhythm often being created by means of drum machines<sup>1</sup> and other similar devices. Older music technology often plays a significant role in this context and is described using expressions such as “aura,” “legacy,” or even “cult,” along with the related adjectives “recognizable, legendary, signature and iconic.”<sup>2</sup> Outdated technology, which is commonly regarded as “vintage” and “nostalgic”<sup>3</sup> at present given that it uses old-fashioned techniques, apparently finds its place in contemporary music. This has led to an often passionate, but also romanticized narrative about modern technological inventions. By “romantic” I mean a potentially idealized view of reality and a belief in the past as possessing true value by dint of its being presented as exciting and mysterious in anecdotes. The question here concerns what the reasons why, and to what extent, did old-fashioned equipment – specifically analogue drum machines from the 1960s and 1970s – develop unique characteristics that made them attractive and highly coveted in contemporary music scenes and cultures.

Drum machines from the 1960s and 1970s are not considered to have had a significant impact on successful popular music of the time,<sup>4</sup> in contrast to current music technology, because they did not offer individual or pop-specific beat

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- 1 Drum machine: an electronic device to produce patterns of rhythm; cf. Immanuel Brockhaus: *Kultsounds: Die prägendsten Klänge der Popmusik 1960–2014*, Bielefeld: Transcript 2017, p. 439.
  - 2 Immanuel Brockhaus: “Higher Ground: Sublimierungsbegriffe in populärer Musik,” in: Beate Hochholdinger-Reiterer/Thomas Gartmann (eds.): *Beiträge der Graduate School of the Arts I*, Bern: HKB 2017, pp. 9–23, here p. 9.
  - 3 Cf. Peter Wicke/Wieland Ziegenrucker/Kai-Erik Ziegenrucker: *Handbuch der populären Musik: Geschichte – Stile – Praxis – Industrie*. Erweiterte Neuauflage. Mainz: Schott 2007, pp. 495 and 786.
  - 4 Influential drum machines are considered to have evolved from the 1980s on; cf. Brockhaus: *Kultsounds*, pp. 41f.

programming; instead, there were either designed to accompany solo entertainers (e.g., organ or guitar players) or for home use by amateur musicians. While it would be an interesting topic of research, the extent to which a transition from technology designed for solo entertainers to pop-specific devices has taken place cannot be dealt with here. Nevertheless, there is a need for a deeper study of other aspects of this issue, given that the significance of certain characteristics, features, and mannerisms is still underestimated today. I assume that these vintage devices can currently be seen as representing the non-descript, but stable, roots of the broader narrative of the development of drum machines up to the present day. They are the inconspicuous seeds that provided the impetus for the desire to both create and use technology-driven rhythm, which I will refer to by means of the term “machine-based rhythm” or “machine-based groove.”<sup>5</sup> Not only will evidence for the influence of the drum machines of the 1960s and 1970s be sought, but I will also explore their hidden charm and will analyze the development of the romanticized narrative about them from a contemporary perspective. In this regard, insights into early drum machines might contribute to our understanding of music technology’s major subsequent developments.

A further important aspect here is the analogue construction of the drum machines distributed until the 1980s, which led to the early – and apparently thus far neglected – birth of electronic beats. “Electronic beats” is a commonly used term in both music and the media, but the term has yet to be explained and defined from a musicological perspective. Moreover, this work aims to verify the way in which electronic beats by musicologists, music journalists, and enthusiasts would manifest presumptions about crucial findings with reference to the originality and novelty of electronic beats within the narrative of drum machines and technology-based rhythm.

I will begin by considering the terms “narration” and “narrative” in the context of musicology. I will then introduce the reference model Wurlitzer Sideman, and its characteristics, in the context of preset rhythms.<sup>6</sup> This will be followed by an overview of the appearance of 1960s/1970s drum machines, their technical function, and their intractable aura. Finally, case studies of devices and selected songs will show how technology-based rhythm made its way into popular music. The concluding reflection will interpret these findings within the broader narrative of drum machines and technology-based groove.

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5 Groove: expression for the subjective *feel* used to describe the rhythmic quality; cf. Martin Pfeleiderer: *Rhythmus: Psychologische, theoretische und stilanalytische Aspekte populärer Musik*, Bielefeld: Transcript 2006, p. 344.

6 Preset: a programmed rhythm and/or sound, cf. Wicke/Ziegenrucker/Ziegenrucker: *Handbuch der populären Musik*, p. 556, and Brockhaus: *Kultsounds*, p. 445.

## Narrations and narrative in music

While the storytelling element in pop songs is often found in the song's lyrics, narration can also take place by means of sound. Sound is, in my opinion, to be viewed as a medium used to transport abstract, or rather unspecific, information to the recipient (e.g., an esthetic), which they then need to interpret. Stories in music generally involve both explicit narrations and implicit ones, which are revealed at a later point in time, as the editor Peter W. Schatt explains in *Musik – Narration – Narrativ*.<sup>7</sup> A collection of narrations is called a “bundle,” with multiple bundles constituting the narrative, seen here as a “mode” for creating culture by narrating various contents, attitudes, approaches, and judgments. The term “narrative” captures diverse aspects of the topic in question – the narrative of drum machines in this case – and this reflects both emerging actions and established workflows or habits, thereby enabling us to connect to the narrative through all kinds of associations. The narrative conveys the main storyline, encompassing protagonists, interweaving branches, and false statements, along with true claims and facts, discussions, and discourse.<sup>8</sup> In my view, narratives may generally evolve from historical occurrences into eccentric points of view, thereby transferring, transforming, and projecting human intentions and feelings onto technology. They can even give rise to a romantic relationship as the narrative veers into romanticism when our subjective imagination supplants objective facts. No one should find it surprising that romantic sentiments appear in the context of music; what may be unexpected is when a music technology becomes the object of a romantic narrative, as is the case in this examination. Drum machines from the 1960s and 1970s to the present day have received little attention from musicologists because they were usually designed as practical, technological companions for semi-professional or professional live performers; they rarely found their way into the spotlight in popular music. As the German musicologist Malte Pelleter writes:

“The fact that the development of electronic rhythm machines still dwells in a discursive niche within the history of music technologies can probably also be traced back to the fact that it can only scarcely be adjusted to the format of major inventor- biographies [sic] or heroic pioneering stories gladly served by such narratives.”<sup>9</sup>

7 Peter W. Schatt (ed.): *Musik – Narration – Narrativ: Zur Kultur des Musik-Denkens*, Münster: Waxmann 2021 (Studien zur Musikkultur, Vol. 2).

8 Cf. *ibid.* p. 11.

9 Malte Pelleter: “Beating Time: Futuristische Geschichten und vergangene Zukünfte der Drum-Machine.,” text as in original, in: Conny Restle/Benedikt Brilmayer/Sarah-Indriyati Hardjowirogo

In fact, the drum machines of the 1960s and 1970s simply did not appear in many successful studio productions, although a few examples of reflective, visionary works will be presented later on in this contribution. As I see it, drum machines in general constitute the subject of the broader narrative, while drum machines from the 1960s and 1970s in particular might be seen in a new light, once the romantic(ized) narratives about them have been identified.

### **Grandpa's wooden rhythm box: the Wurlitzer Sideman as the prototype of preset devices**

The narrative begins earlier than one might expect: The first exotic, individual inventions of machine-based time – time here being deployed in place of the broader term rhythm – in the form of devices such as the Rhythmicon (1931), the Chamberlain (1949), and the Wurlitzer Sideman (1959) are inspiring for musicological researchers and enthusiasts alike, due to their daring constructions and purely (for the most part) electromechanical principles. However, they are only of marginal relevance here; that said, the Wurlitzer Sideman from 1959 does need to be mentioned in the present context since it was the first commercially available drum machine, with its name already giving an indication of its intended function as an accompanying sideman. The Wurlitzer Sideman can be seen as the most important and, in some ways, most representative prototype for the drum machines that followed in the 1960s and 1970s, which provided preset rhythm.<sup>10</sup> It stands out for the (at the time) state-of-the-art usage of preset patterns as a principle of semi-professional or professional music-making outside the standard setup of a complete music band thanks to the integrated, imprinted rhythm patterns, such as beguine, samba, tango, and cha cha (among others), the variable 2-beat and 4-beat Fox Trot Variations, and possibilities – albeit limited – to vary and add individual percussive elements (see Figure 3). The Sideman, thus, simultaneously anticipated and manifested the musical style of the solo entertainer, accompanied by typical grooves.

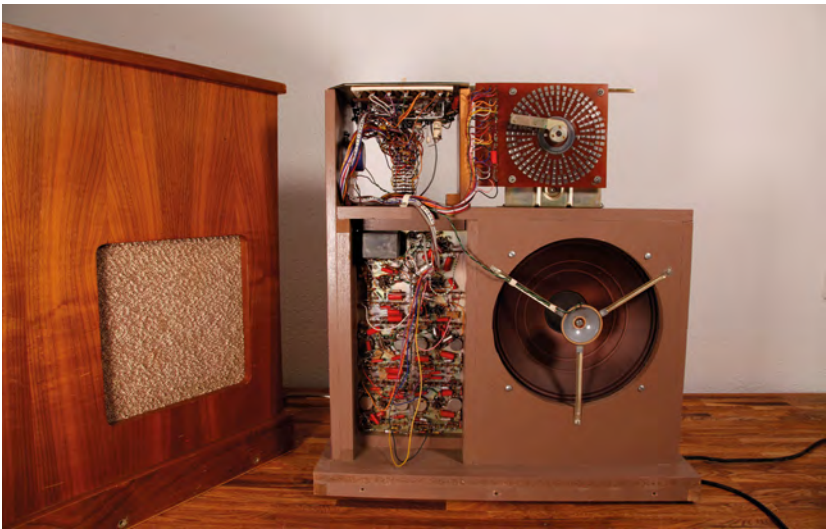
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(eds.): *Good Vibrations: Eine Geschichte der elektronischen Musikinstrumente*, Berlin/München: Deutscher Kunstverlag 2017, pp. 41–46, here p. 41.

10 Preset: a rhythmical figure, typically of one or two bars (pattern), which is repeated; cf. Wicke/Ziegenrucker/Ziegenrucker: *Handbuch der populären Musik*, p. 524.



*Figure 1: The Wurlitzer Sideman came in a heavy wooden box. It included an integrated amplifier and internal tubes, resulting in a total weight of approximately 40 kg. Photo: Robert Michler, 2022*



*Figure 2: The electro-mechanical construction with hand-wired connections, a constantly rotating disc to set a steady tempo, and a connected comb to pick up signals at the contact points created the different grooves. This principle was unique and very different to subsequent drum machines. Thus, its key features were seminal with regard to the preset patterns included. Photo: Robert Michler, 2022*



Figure 3: Wurlitzer Sideman. Panel for controlling volume, start-stop, patterns and variations, and tempo, along with buttons to play individual sounds. Photo: Robert Michler, 2022

## Harbingers of a legendary future: the emergence of the 1960s/1970s drum machines

On the whole, the Wurlitzer Sideman offered similar features and functions to the subsequent drum machines of the 1960s. However, the form and details changed as a wide range of commercial rhythm machines came onto the market from the 1960s on that were promoted under diverse names and slogans in the context of rhythm machines.<sup>11</sup> Since then, a wide range of brands have produced rhythmical devices of similar construction – in many cases, the same machine was being sold under different brands.<sup>12</sup> The most common expression used to refer to such

11 See Joe Mansfield: *Beat Box: A Drum Machine Obsession*, Malden, MA: Get on Down 2013, pp. 1–94, for an overview of a broad range of devices. This 200-page coffee-table book contains illustrations of 75 drum machines of all kinds. Mansfield is a book author, producer, and musician, in addition to being well known for his extensive collection of drum machines. His collection in Boston is not open to the public, but it is mentioned in various articles and documentaries, cf. Dubspot: *Beat Box: Inside Joe Mansfield's Historic Drum Machine Collection* [Video], 29/02/2016, <https://youtu.be/45zF4xoomoc> (accessed 29/06/2021).

12 Cf. Alan Fabian/Johannes Ismaiel-Wendt (eds.): *Musikformulare und Presets: Musikkulturalisierung und Technik/Technologie*, Hildesheim: Universitätsverlag 2018, p. 156.

devices, apart from “rhythm box,” namely “drum machine” presumably became established in the 1970s, despite the fact that a number of technically identical models had already been invented and were introduced in the mid-1960s.<sup>13</sup> A detailed overview, including technical features and descriptions, can be found in the illustrated book compiled by the collector and expert Joe Mansfield; it contains original advertisements and detailed photos of historic devices in print media.<sup>14</sup> Alex Graham has also published an initial indexing catalogue; the work places an emphasis on informative texts, rather than on esthetically high-quality photographs.<sup>15</sup>

### Different brands, a unified design: push-button grooves

The output of Roland<sup>16</sup> and Korg,<sup>17</sup> which are both major manufacturers, was probably the most significant, given that they have a comparatively long history and – despite new entrants onto the market – are still renowned and are mentioned regularly in discussions about both musicology and music technology. The drum machines produced by Roland and Korg in the 1960s and 1970s mostly used analogue sounds and a transistor-based design or circuit rhythm generators.<sup>18</sup> Their appearance underwent a transformation, shifting from large boxes with integrated speakers in early models, similar to the Sideman, to smaller, more portable cases. Flatter models were also made to be placed on an organ and came equipped with integrated note stands.<sup>19</sup>

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13 Hannah Lockwood: “Drum Machine Chronicle” (ca 2016), on: <https://rolandcorp.com.au/blog/roland-drum-machine-chronicle-1964-2016> (accessed 29/06/2021) and Gordon Reid: “The History of Korg: Part 1” (2002), on: [www.soundonsound.com/music-business/history-korg-part-1](http://www.soundonsound.com/music-business/history-korg-part-1) (accessed 29/06/2021).

14 Mansfield: *Beat Box*, p. 50.

15 Cf. Alex Graham: *Rhythm Machines: The Rise and Fall of the Presets*, Auckland: AM 2016.

16 Originally: Ace/Ace-Tone Electronics; later also: Boss Electronics; cf. Roland Company: “Unternehmen” (s. a.), on: <https://rolandcorp.com.au/blog/roland-drum-machine-chronicle-1964-2016> (accessed 27/05/2022).

17 Originally: Keio, leading to Keio Organ, shortly Korg; cf. Reid: “The History of Korg: Part 1.”

18 Malte Pelleter: “*Futurhythmaschinen*”: *Drum-Machines und die Zukünfte auditiver Kulturen*, Hildesheim: Olms 2020, pp.199–249.

19 For example, the Ace Tone Rhythm Ace Model R-1; cf. Mansfield: *Beat Box*, p. 20.



*Figure 4: The Bentley Rhythm Ace FR-8L drum machine – with a nearly identical construction to the Roland TR-77<sup>20</sup> and similar to other models – was designed for use by organ, keyboard, or guitar performers: The flatter form made it possible to lay the device on top of the instrument, while the note stand was designed to fold out. Apart from the usual knobs used to select patterns and combinations, individual instruments had their own volume fader, thereby enabling the preset’s character to be changed. The start-stop button, located in the top left corner of the panel, was built as a touch-sensitive metal-retainer. Photo: Robert Michler, 2022*

Finally, many products from that period were packaged as stand-alone hardware in a manageable size (e.g., shoebox-sized) because their function was to provide accompanying rhythms for musicians performing at gigs and concerts or for practising at home. Performers would choose the pattern that corresponded to a particular song or piece of music; the patterns could also be activated by a footswitch, thereby enabling the musician to keep their hands free and they could play the keyboard, organ, or guitar. In this context, it should be noted that these devices can be seen as easy to handle, which can be explained by affordance theory. Affordance theory states that every technology or technical interfaces provides a more or less user-friendly design, which is ultimately one of the main reasons for the acceptance or rejection of a given technology by an individual.<sup>21</sup>

20 Cf. Stereoping Music Devices [Gregor Zoll]: “Bentley Rhythm Ace FR-8L – Midi Trigger Interface und Midi-Sync” (s. a.), on: <https://djjondent.blogspot.com/2015/01/roland-rhythm-tr-77-bentley-fr-8l.html> (accessed 27/05/2022).

21 Interaction Design Foundation: “Affordances” (s. a.), on: [www.interaction-design.org/literature/topics/affordances](http://www.interaction-design.org/literature/topics/affordances) (accessed 15/06/2022).



*Figure 5: The original footswitch from the company Ace Tone/Roland was used to start and stop the rhythms of the drum machine, thereby keeping the musician's hands free to play the instrument. Nearly all devices from the 1960s and 1970s came with a pre-installed matching jack input. Photo: Robert Michler, 2022*

## Placing the groove in a box, introducing the rhythmical grid as a “ghost”

Generally speaking, the preset-based drum machines of the 1960s and 1970s not only produced a variety of rhythm patterns, without the physical need for a human drummer or percussionist, but also transposed the music's groove from bulky drum sets or percussion setups into portable devices that were more manageable in size. Moreover, the invention of rhythm machines revealed the need for a device that was capable of playing accurate rhythm in order. It became clear that a matrix or grid with scaled and equal divisions of time of at least one bar and its subdivisions needed to be implemented, given that a machine is necessarily dependent on a principle and impulse within the framework of a template to produce and reproduce rhythm. I will refer to this as the “rhythmical grid.”<sup>22</sup> This special feature must be borne in mind because it went on to play a major role in all kinds of rhythm-related music technology and then with individual programmable patterns. The technology-based rhythmical grid, which I see as technically more rigid than the natural grid used in human play, manifested itself as a “ghost” (i.e., as an abstract element that could not be seen, but only heard, by trained and attentive ears, which was justified by the technical requirements of rhythm devices). Nonetheless, practically speaking, the choice of rhythms in the 1960s to 1970s

22 The term “grid” is used here to specify the fixed points of possible individual rhythmic events.

was limited to preset patterns. Programming an individual beat was not possible, except for on very rare devices, such as the Eko ComputeRhythm for individual beat programming, that were available as early as in the 1970s, albeit to a very limited extent.<sup>23</sup>

## The “aura” of 1970s drum machines viewed retrospectively

Following the Wurlitzer Sideman’s introduction, the wooden-box design became an optical hallmark of the “aura,” that I would also describe as the “charisma,” of drum machines: Drum machines from the 1960s and 1970s are ancient, classical-looking devices with a distinctive style situated between classiness, minimalism, and minimal versatility in performance. The contrast between the custom-built wood casing and a technology-based interior was already “recognizable.”<sup>24</sup> For the most part, the devices look like an angular or square piece of furniture, consisting of a simple but solid case, an exposed on/off button (sometimes connected to a simple flashlight), and a metal or plastic front panel with a limited number of knobs that are used to activate the automated preset patterns. They embody minimalist design and accessibility, even before any sound is played: a groove can be released by simply pushing a button.

I see the distinctive “click” of the buttons as they are pressed as opening the door to an auditory space for listening and dreaming, even outside of the confines of a concrete music performance. The rhythms included, which run automatically, are seen as charming pieces of art by collectors and enthusiasts alike. They are reminiscent of bygone days that are perceived as “romantic” understood here in the broad sense of that which is exciting or mysterious and which has a strong emotional impact. At the same time, a romantic perception is of no direct practical use, but instead conveys numerous abstract images that are detached from real life. Looking back, this may be the result of traditional design and construction, combined with the standard, old-school rhythmical patterns. From a broader perspective, several musical devices evoke a “romantic” transfiguration of the music scene,<sup>25</sup> ultimately leading to their being seen as significant.<sup>26</sup> This has conferred an iconic status on them, but it is one that, at the same time, has of-

23 The Eko ComputeRhythm was one of a few exceptions to the prevalence of preset devices: Bernhard Lösener: “Eko ComputeRhythm” (2017), on: [www.keyboards.de/stories/eko-computerhythm/](http://www.keyboards.de/stories/eko-computerhythm/) (accessed 29/06/2021).

24 Cf. Brockhaus: “Higher Ground,” p. 9.

25 Cf. Simon Reynolds: *Retromania: Pop Culture’s Addiction to Its Own Past*, London: Faber and Faber 2011, pp. ix–xxv, introduction and prologue.

26 Cf. Brockhaus: “Higher Ground,” pp. 14–20.

ten lacked a solid foundation.<sup>27</sup> I see the term “romanticism” as more appropriate than the euphemism “romantic” due to this controversy about inflated value and unfounded claims.

It is not clear how the 1970s drum machines were received in the music scene of the time, as I have been unable to find any sources or interviews with contemporary witnesses. The question of whether these devices’ functional or charismatic character was the focus of debate remains open and calls for further research. The situation is different with respect to modern-day perspectives because considerable documentation is available here: Music enthusiasts discuss the “aura” and charm of the 1970s drum machines in various online and print magazines, forums, and websites.<sup>28</sup> These (at times nostalgic and idealized) views of the past are a well-known phenomenon in research. For instance, in his book *Retromania*, Simon Reynolds analyzes pop culture’s tendency to dwell on the past, celebrating and glorifying past events and styles or the spirit of bygone times.<sup>29</sup>

The limited programming patterns of the early drum machines can be viewed as outdated from a modern perspective,<sup>30</sup> whereas the analogue-based sounds introduced true innovations as electronic beats became established (see “Hidden in presets” below), some of which are still used today.<sup>31</sup> Although initially built to imitate drums and percussion instruments, analogue drum machines did not, in my view, accurately reproduce the acoustic original; what they reproduced was quite far from it in most cases. Instead, they produced unusual, pleasant, and often warm-sounding tones, rings, rattles, and tonal textures.<sup>32</sup> As drum-machine collector Joe Mansfield points out: “Whether we are aware of it or not, the sound of the drum machines has been woven into the fabric of popular music since the 1970s.”<sup>33</sup>

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27 Brockhaus: *Kultsounds*, pp. 57–60.

28 See, e.g., Scott Wilson: “The 14 Drum Machines that Shaped Modern Music” (2016), on: [www.factmag.com/2016/09/22/the-14-drum-machines-that-shaped-modern-music/](http://www.factmag.com/2016/09/22/the-14-drum-machines-that-shaped-modern-music/) (accessed 31/05/2022).

29 Cf. Reynolds: *Retromania*.

30 The Korg KR-55 drum machine seems to be one of the last preset-based devices still in production. Cf. Korg: “Ultimative Drumsounds, jederzeit und überall!” (s. a.), on: [www.korg.com/de/products/drums/kr55pro/](http://www.korg.com/de/products/drums/kr55pro/) (accessed 29/06/2021).

31 Cf. Si Truss: “Best Drum Machines 2022: For Every Application and Budget” (2022), on: <https://www.musicradar.com/news/best-drum-machines> (accessed 31/05/2022).

32 Doctor Mix: *Roland CR-78 Vintage Drum Machine In Action* [Video], 19/12/2017, [https://youtu.be/x71\\_GgXtaM?t=60](https://youtu.be/x71_GgXtaM?t=60) (accessed 31/05/2022).

33 Mansfield: *Beat Box* [rear cover sleeve].

## Presets: far from individual pop grooves

As we have seen, the construction and design of 1970s drum machines offered little to no possibility for individual programming. Instead, musicians had to work with existing patterns, with the particular machine being used dictating the range of options available. As a case study, we can use the Roland TR-66, which includes the most common patterns. The manual offers a transcription of the accessible presets:



Figure 6: The Roland TR-66 Rhythm Arranger might be regarded as the last, pure preset drum machine produced by the renowned manufacturer Roland. It came in a handy shoebox size. The presets included possible combinations and the arrangement feature can clearly be seen in the figure. All subsequent models provided expanded options for programming and arrangement, until the drum machines of the 1980s brought about true liberation in groove creation via a programmable matrix. Photo: Robert Michler, 2022

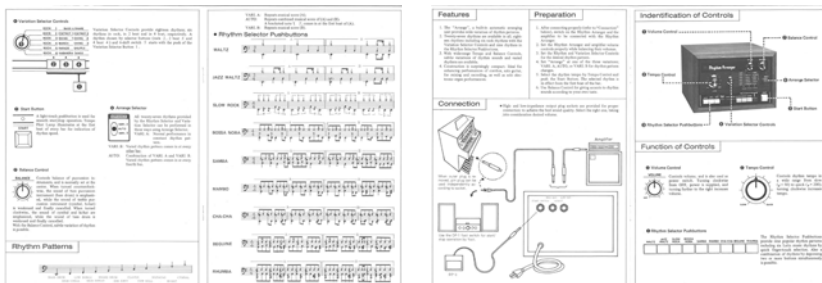


Figure 7: Preset rhythms – manual for the Roland TR-66. Source: Roland Rhythm Arranger Model TR-66, Players Manual, Figure left: page 4–5, Figure right: page 2–3

A simple metronome was provided for practising in most cases. Moreover, patterns could be combined by pressing two buttons at the same time in most models, while the sound could be varied by a simple equalizer control, often labelled “balance.” This control dial would eliminate certain frequencies, thereby suppressing the volume of specific instruments with either high frequencies, such as cymbals, snares, or hi-hats, or low frequencies, such as the bass drum, tom-toms, or congas. The integrated patterns were mainly based on Latin music and were supplemented with typical dance rhythms, such as polka, foxtrot, and so on. Although the man-made grooves of popular music were based on similar rhythmical templates – the same templates that music technology would use – they were always more individualized and had continued to develop since the beginnings of rock ‘n’ roll. In my view, these grooves later became even more refined in soul music and especially in the syncopated funk music of the 1970s. At the same time, the up-and-coming disco beats were a far cry from traditional dance grooves. The preset patterns seem to me to be stiff and outdated when viewed against the backdrop of these historical developments. The technological development lagged behind the music that was actually being performed, even judged by the standards of the time. The machines were programmed with conspicuously more Latin music patterns than typical pop grooves. Of the latter, only different variations of rock were included, while funk, soul, and disco music were absent.<sup>34</sup>

## Hidden in presets: the overlooked birth of electronic beats

The analogue Roland TR-808 from 1983 is constantly mentioned in musicology and journalism among the drum machines that became widespread in pop music around the 1980s. The observations and analysis focus mainly on the sounds being produced by this machine, such as “the signature bass ‘kick’ drum. In fact, from the hand-claps to the snares to the cowbell, this machine has a full arsenal of amazing sounds that have all become essential parts of modern pop music up though the present day.”<sup>35</sup> As mentioned previously, the preset patterns programmed into the drum machines of the 1960s and 1970s never successfully penetrated into pop music, but the sounds of individual percussive instruments generated by analogue circuits were already there and can be classified as forerunners. They produced a characteristic sound esthetic, known today as “electronic beats,” which, while at times unnatural, was nonetheless recognizable. For example, the assertive rim click, the dry-sounding conga and tom-toms, and the rattling snares and long-decayed cymbals were present as unnatural-sounding beats on most of

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34 Cf. Mansfield: *Beat Box*, p. 1–199.

35 *Ibid.*, p. 136.

the devices. By contrast, the bass drum and snare are, to my ears, quite natural sounding. Thus, while the preset patterns seemed to be of limited use in practical studio work, the analogue-based instruments were more valuable as unique, identifiable sounds.

Incidentally, according to my research, the German telecoms firm Telekom adopted the expression “electronic beats” as a keyword, topical term, and headline, supplemented by the slogan: “The sound and style of beat-driven culture” in 2004.<sup>36</sup> The goal was to commercially promote live electronic-music performances, as well as associated online and print magazines, and to generally associate the company’s brand with the genre of electronic music and the lifestyle that goes with it.<sup>37</sup> In the meantime, the branding campaign seems to have become established in commercial markets: the Telekom-produced print publication *Electronic Beats Catalogue* features a review of branded events,<sup>38</sup> while *Electronic Beats* solicits rigorous articles – including one about the history of drum machines – from renowned authors and editors, albeit with a non-scholarly approach; a huge YouTube channel for electronic music is available as well.<sup>39</sup> It is common to talk about electronic beats with reference to different kinds of electronic music in the everyday life of musicians, producers, and music enthusiasts and especially about grooves that do not rely on traditional acoustic drum and percussion sounds.

The expression “electronic beats” is, therefore, largely self-explanatory, referring to a distinct type of sound (one generated electronically instead of acoustically) for rhythmical events (beats), normally with a distinct groove that results therefrom. I would consider electronic beats to have originated from machines (and technology like digital drum machines or DAWs), including acoustic sounds, such as when acoustic drums are manipulated by effects, for example. As logical as this may sound, the term has not yet been either clearly defined or delimited and, therefore, is in need of a precise musicological definition. Furthermore, it would be necessary to investigate if and to what extent cultural or commercial appropriation has been committed by Telekom. Its approach might be regarded either as a clever commercial strategy or as a serious reflection about the origin of the term, but there remains a serious need to clarify its meaning from a non-commercial, musicological point of view.

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36 Cf. Telekom Electronic Beats (@Ebnet): “[Twitter main line]” (s.a.), on: <https://twitter.com/ebnet?lang=en> (accessed 19/11/2022).

37 Deutsche Telekom (ed.): *Electronic Beats*, Berlin: Blumenbar 2021, p. 14. See also [Telekom]: “All Posts for Slices DVD” (s. a.), on: [www.electronicbeats.net/tag/slices-dvd/](http://www.electronicbeats.net/tag/slices-dvd/) (accessed 15/01/2022).

38 Cf. Deutsche Telekom (ed.): *Electronic Beats Catalogue*, Berlin: Telekom 2015.

39 Cf. Telekom Electronic Beats TV on: <https://www.youtube.com/channel/UClwSxDpqPocTBv1A-8cax3Q> (28/06/2023).

## Preset-based patterns in studio production of popular music in the 1970s

Several remarkable works were produced by artists making use of new ideas, practises, and approaches to working with drum machines, even though the drum machines of the 1970s, with their presets as described above, had only a limited impact on no. 1 pop hits. In doing so, they introduced groove-based machines into studio production, despite the fact that “the earliest drum machines were never intended to be studio recording devices.”<sup>40</sup> In this section, I will undertake a short description and analysis of the different methods used in influential songs, including in technology-based groove.

1. *Saved by the Bell* (Robin Gibb, 1969) is often mentioned as the first pop song to use a drum machine,<sup>41</sup> specifically an Ace Tone FR-1 Slow Rock preset.<sup>42</sup> I would describe this composition as being hymn-like. The 12/8 measure clearly shows that the precise machine-based groove forces the performers to conform to the device's own timing. The tracks recorded by the instrumentalists are sometimes imprecise, especially at the beginning, when it comes to rhythm in the stability of the overall macro time, as well as of the micro time, and in the accuracy of the subdivisions played. The drum machine's groove provides a typical preset beat, with sounds that correspond to a familiar esthetic from the period and do not obviously sound like unknown electronic beats.
2. *Family Affair* (Sly and the Family Stone, 1971) is probably the most famous example: it was the first no. 1 hit to use a preset drum machine, namely the Maestro Rhythm King MRK II, combining different tracks from the machine with the drummer's recording. There is anecdotal evidence that the musician and producer Sly Stone was already experimenting with Ace Tone and Maestro drum machines for the album *There Is a Riot Going' On*, when his drummer was unavailable for studio work. He, therefore, used a recording of the Maestro drum machine, nicknamed “The Funkbox,” to create backing tracks, which were edited, mixed, and then used as percussive tracks.<sup>43</sup> *Family Affair*

40 Oliver Wang: “Gimme The Beat (Box): The Journey Of The Drum Machine” (2014), on: [www.npr.org/sections/therecord/2014/01/17/263071563/gimme-the-beat-box-the-journey-of-the-drum-machine](http://www.npr.org/sections/therecord/2014/01/17/263071563/gimme-the-beat-box-the-journey-of-the-drum-machine) (accessed 11/11/2022).

41 See, e.g., Harold Heath: “Gear Tribute: The Maestro Rhythm King MRK-2, Sly Stone's Favorite Drum Machine” (2017), on: <https://reverb.com/news/gear-tribute-the-maestro-rhythm-king-mrk2-sly-stones-favorite-drum-machine> (accessed 23/09/2021).

42 DM: “I Believe in Music: An Introduction to Ikutaro Kakehashi, Creator of Roland” (2021), on: <https://insheepsclotinghifi.com/ikutaro-kakehashi-roland/> (accessed 23/09/2021).

43 Pelleter: “*Futurhythmaschinen*,” pp. 249–266.

can, therefore, be interpreted as marking the early beginnings of beat production.<sup>44</sup> Nowadays, this term generally describes the production of groove (see “Introduction”), emphasizing not only that the groove is recorded, but that there is an intentional (usually more refined) procedure that involves editing all of the individual instruments to achieve a refined groove and distinctive sound esthetic. While *Family Affair* is seen in musicology as an influential example of cultural practice,<sup>45</sup> I would recommend close listening<sup>46</sup> as a more practical method for exploring the various elements in its sound and soundscapes, as well as for placing them in context.

3. The whole album *Inspiration Information* (Shuggie Otis, 1974) is well known in the music scene for its usage of and experimentations with drum machines in a context of traditional singer-songwriter and band performance.<sup>47</sup> Shuggie Otis stated that the replacement of a drummer by a machine was helpful for the songwriting process, explaining in an interview from 2013 with the online magazine *New Sounds* that:

At first when I got [it], I'd go home and I could play with it, like, any time I wanted to. I had my own little private drummer there who wouldn't talk back to me and he'd keep perfect time, you know? So that's how I wrote a lot of those songs – just messing around, jamming with that little Rhythm King [drum machine].<sup>48</sup>

4. While in the case of Shuggie Otis there is some ambiguity about the usage of drum machines, due to the mixture of drum machines and natural drum sounds that are often similar, the disco hit *Rock Your Baby* (George Mc Crae, 1974) is perfect for the experience of close listening: The song starts with a bossa nova preset groove from a Roland TR-77 drum machine,<sup>49</sup> with its characteris-

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44 Cf. Soundfly Team: “The Most Influential Drum Machine Beat of All Time?” on: <https://flypaper.soundfly.com/produce/most-influential-drum-machine-beat/> (accessed 23/09/2021).

45 Cf. Pelleter: “*Futurhythmaschinen*,” p. 263.

46 The Open University: “What is close listening,” on: <https://www.open.edu/openlearn/mod-ou-content/view.php?id=102600&section=1.1> (accessed 23/09/2021).

47 Cf. Randall Roberts: “Column: New release gathers Sly Stone’s drum machine tracks of ‘69–’70” (2014), on: <https://www.latimes.com/entertainment/music/posts/la-et-ms-sly-stone-drum-machine-tracks-20141105-column.html> (accessed 15/01/2022).

48 John Schaefer: “Shuggie Otis Spreads His ‘Wings,’ 40 Years Later” (2013), on: [www.newsounds.org/story/287163-shuggie-otis-wings/](http://www.newsounds.org/story/287163-shuggie-otis-wings/) (accessed 07/07/2022).

49 Cf. Mark Anthony Neal: “1974: Rock Your Baby by George McCrae” (2017), on: [www.pbs.org/wgbh/americanexperience/features/songs-of-the-summer-1974/](http://www.pbs.org/wgbh/americanexperience/features/songs-of-the-summer-1974/) (accessed 15/01/2022).

tic electronic beats.<sup>50</sup> The sounds of the assertive rim click, the dry bass drum, and the (quiet) sizzling maracas comprise the intro, before the acoustic drums add in a 16<sup>th</sup>-note disco beat. The difference between the drum machine and a human playing is noticeable, but on the rhythmic level, the machine-based beat and the human playing simultaneously interlock both consistently and synchronously.

5. *Oxygène* is an instrumental recording by Jean-Michel Jarre (1976) that uses drum machines in combination with tape loops to break out of the prison of one-dimensional preset grooves.<sup>51</sup> It is unclear whether he only used the Korg Minipops preset drum machine, or whether this piece of music also employs the rare, but ground-breaking, Eko ComputeRhythm,<sup>52</sup> a forerunner of devices that freely program individual grooves within a rhythmical matrix.

## The broader narrative of drum machines

A broader outlook on the whole narrative might be useful after having introduced the drum machines of the 1960s and 1970s, with their limited preset patterns and potential to give rise to individual romantic narratives or romanticism. In using the term “narrative,” we must bear in mind that stories and storytelling are part of cultural and musical heritage and are based on narrations that, in turn, compose bundles (see “Narrations and narrative in music” above) that are often, but not necessarily, bound to hierarchies. The collective term “narrative” represents all kinds of different associations, mannerisms, feelings, and points of view and are grounded in individual perceptions. The narrative of drum machines after the 1970s is, from this perspective, an extensive, on-going story that is unfolding and offers various elements to be researched, especially in terms of the development of the rhythmical grid as a technical requirement, the invention of a programma-

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50 In my re-enactment test with a Roland TR-77, the fader cymbals – hi-hat – maracas needed to be turned down nearly completely to replicate the intro groove heard on YouTube; cf. TOP401974: George McCrae: *Rock Your Baby* [Video], 29/01/2014, <https://youtu.be/Wdo-ZIHqbls> (accessed 15/01/2022).

51 Cf. Dave Simpson: “Jean-Michel Jarre: How We Made *Oxygène*” (2018), on: [www.theguardian.com/music/2018/oct/16/jean-michel-jarre-michel-granger-oxygene](http://www.theguardian.com/music/2018/oct/16/jean-michel-jarre-michel-granger-oxygene) (accessed 22/06/2022) and Mansfield: *Beat Box*, p. 68.

52 Cf. Synthhead: “The EKO ComputeRhythm: Jean Michel Jarre’s Drum Machine” (2009), on: [www.synthtopia.com/content/2009/08/25/the-eko-computerhythm-jean-michel-jarres-drum-machine/](http://www.synthtopia.com/content/2009/08/25/the-eko-computerhythm-jean-michel-jarres-drum-machine/) (accessed 15/01/2022).

ble matrix<sup>53</sup> to enhance the liberation of groove in the programmable drum machines of the 1980s, and the subsequent procedure of correction and manipulation through quantization<sup>54</sup> in digital software. Another major topic is the question of micro-timing<sup>55</sup> and, in this context, the efforts to edit and manipulate technology-based time by adding a humanized feel.<sup>56</sup> The narrative of drum machines also raises diverse questions about cultural practices, esthetics, and the general and underlying discourse of mankind and machines. This is connected with a major controversy about if and why machines produce rhythm better than human beings, thereby raising further questions about the role machines play in cultural networks. The narrative of drum machines is, therefore, rather large-scale, and in my view actually encompasses discussions and speculations about accuracy in groove, as well as about groove as a medium for transporting not only feelings, but also identity and unity – including some potential to touch on mystic viewpoints.

The divergent story of the commercial brand Telekom is a contemporary example of this kind of narrative. Moreover, whether purists like it or not, their clever story about appropriation is an indication of its significance for contemporary popular culture. The usage of electronic beats in their original form is established in the present the form of an esthetic of unnatural sounds that can be traced back to the analogue devices of the 1960s. The affectionate view of music technology as a narrative element concerns an early stage in the development of the relationship between humans and machines and this plays a major role in contemporary media-theory discourses.<sup>57</sup> These discourses view machines as one element within a network of actors embedded in a cultural setting.

While the romantic perception of the drum machines of the 1960s and 1970s might be an individual experience, it can also be understood in terms of the look, feel, and construction of these devices. The desire to escape the rigid, preset patterns and to seek out new esthetics of sound and groove is demonstrated by the aforementioned studio works, which include not only practical but also visionary examples. The rhythmical grid – which provided a rough basis for all subsequent

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53 The term “matrix” here describes rhythmical divisions within bars, mainly quarter notes, and their subdivisions such as 8th notes, 16th notes, triplets, and so on. The terms “grid” and “matrix” are common in the music scene, but have not yet been scientifically defined.

54 Quantization: the act of organizing audio data or MIDI notes on a defined rhythmical grid, mainly used to correct inaccurate recorded events. Cf. Brockhaus: *Kultsounds*, p. 445.

55 Cf. Pfeleiderer: *Rhythmus*, p. 347.

56 Cf. Hosken: *An Introduction to Music Technology*, p. 160.

57 Such as “Actor Media Theory” (cf. Tristan Thielmann/Erhard Schüttpelz: *Akteur-Medien-Theorie*, Bielefeld: Transcript 2013) and “Actor Network Theory” (cf. Tom Mathar: *Akteur-Netzwerk Theorie*, in: Stefan Beck, Jörg Niewöhner, Esterid Sorensen (eds.): *Science and Technology Studies: Eine sozialanthropologische Einführung*, Bielefeld: Transcript 2012, pp. 173–190).

forms of music technology concerned with rhythm – was introduced in a manner that was almost entirely unremarked upon through the drum machines.

In retrospect, the most important point seems to be that the drum machines of the 1960s and 1970s already raised the topics discussed in this paper within the framework of the broader narrative of both drum machines and technology-based grooves. These drum machines laid the foundations, through their features and appearance, for electronic beats, the fixed rhythmical grid, and for the romanticization of music technology more generally. While the drum machines of the 1960s and 1970s are largely overlooked members of the tribe of machine-based rhythm devices, they made distinctive and valuable contributions that are waiting to be discovered in the pieces of music discussed above.

