

Musical Timing

MARTIN COLLOMS AND STEVE HARRIS (COMMENTS IN QUOTES) PICK FAVOURITE TRACKS THAT ARE GOOD FOR ASSESSING MUSICAL RHYTHM AND TIMING

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The subjective appreciation of musical timing is not evenly spread; it shows substantial variations between individuals, and may also have strong cultural associations. Both the perception and appreciation of timing does not come naturally to all, and speaking for myself (as an inherently ill-coordinated dancer), this aspect of music perception has been a learned skill. However, it is also one that has added greatly to my appreciation of music, and my critical judgement of the performance of audio components and systems.

While good timing is not essential to the appreciation of fine performances, or indeed for many significant aspects of high fidelity sound reproduction, it can add an important dimension that some find essential. Looking back and taking my cue from established contemporary reviewers, I focused on classic attributes in my earlier years of reviewing, perhaps up to about 1980: stereo depth, width and focus; subjective dynamics and dynamic range; resolution of detail and natural timbre; and smoothness of response.

But a revolution was under way. That classically trained maverick musician and technologist Jon Honeyball visited my proudly presented, contemporary, neutral and very high resolution system and commented: “Hi Martin; nice sound but dead boring!”

After recovering from that unexpected and highly deflationary shock, I enquired: “How, and why?”

Jon then helped to deconstruct and reassemble my system, substituting numerous alternative components from my loan stock, and demonstrating by musical example important performance variations, including rather better subjective timing.

One difficulty for the technical reviewer is that, save for relatively crude analyses of variations in low frequency loudspeaker group delay (and which don't correlate for all models), no specific measurements can describe how well an audio component can time musically. Such judgements remain subjective, yet are undoubtedly a make or break issue for numerous music enthusiasts. Interestingly, good timing seems more difficult to achieve with the more academically and technically based components.

I subsequently wrote on the subject at some length for *Stereophile* editor John Atkinson and

(acknowledging his great editing) this is now also available at HIFICRITIC.com – see Articles: Sound Classics: SC7: *Pace, Rhythm & Dynamics*. This piece covered subjectivity issues and the many equipment design aspects which I had found could affect timing in sound reproduction, though I should make the point that good system set up (not included in the article) also plays a very important part.

Much of this discussion was based on extensive experience with review equipment, backed by practical experiments with test pieces. No single design aspect fixed musical timing, but sensible combinations of possible solutions applied during carefully referenced listening tests made some progress, and was certainly superior to most trial and error approaches.

A manufacturer that understands good musical timing may make such a process part of the design and evaluation process. However, if a given product has good timing by chance, subsequent ‘improvements’ can well damage this quality, leaving the manufacturer mystified that the ‘improved’ replacement doesn't get a good review; moreover other products from the same stable may not ‘time’ at all. Electronic parts with good inherent timing are sometimes discovered rather than made deliberately, such as Philips’ *TDA1541A* multi-bit DAC chips.

Timing may be perceived almost subliminally; many just know when it is right, sensing the rhythm and unconsciously swaying and/or tapping their feet with the beat. (Some even fake it in a desire to be hip!). Even parrots will rock to a simple beat, and some apes engage in simple on-beat tapping responses, but do not appear show any feeling for syncopation.

A number of ‘nice’ sounding loudspeakers, mainly (but by no means all) bass reflex designs, may have weak timing, caused by unwanted time shift where the low bass is delayed and the pitch is somewhat inaccurate. Bass playing is consequently rather uneven with timing that falls behind midrange transients, confusing perception, softening bass impact and reducing ‘swing’. One instinctively tries to follow the beat from higher frequency percussion lines, frequently with a sense of disconnection.

Errors in speaker location and difficult room acoustics can also play havoc with timing. All the performers in a well recorded and musically focused

band should sound tightly together, synchronised in time and on the beat. The bass line should be clear and quick, underpinning and driving along the vocals and main theme, while ‘faster’ percussion should be held tightly in the mix.

Band members may stretch rhythms, subtly shifting their playing on and off the beat to create interest and tension. However, if the replay system doesn't show inherently good timing, these valuable aspects of musicianship merely add confusion and make things sound rather disconnected. We are simply left to follow the tune, and perhaps admire the beauty of the created sounds. However this quality is described: on-the-beat, inner tension, swing, or synchronicity, one may never know what a familiar track can sound like until it's heard with accurate timing – that is, if the track and the system are so capable. After that it's impossible to go back (at least, I can't!).

Using an audio replay system that times well can alter the identity of a music collection. Well timed albums become obvious and are then frequently preferred for their involvement factor, even if other aspects of the the sound quality are not of the highest quality. Entertainment should always be more important than fidelity, though it will be still more rewarding if the fidelity is good too. Ironically some recordings – even multi-tracks that were produced for mono mastering – time better in the mono mix than the subsequent pseudo-pan-pot stereo version.

A good example is the very crude stereo mix of *While My Guitar Gently Weeps*, from The Beatles' *White Album*. Many such 1960s (and earlier) mono recordings also appear to time better with only one replay channel active. At first some aural acclimatisation is needed, and then the performance takes over. For me this is particularly evident with early 1950s Modern Jazz Quartet recordings, not to mention Buddy Holly's *Everyday* (listed below).

Articulate, well timed bass lines are fundamental to our pleasure, or we may be left with only the aesthetic enjoyment of plenty of detail and an attractive stereo soundstage. According to recent research reported by Laurel Trainor and colleagues at the McMaster Institute for Music & the Mind, this is no accident, and is fundamentally linked to the physiology of hearing. Our perception of timing is apparently closely tied to a strong bass line, which shows precedence over higher frequencies. Even introducing a small precedence of 0.05 seconds into a sequence was more detectable at low than at higher frequencies (despite the slower waveform build-up). In related finger tapping tests, subjects could detect low frequency precedence (syncopation if you like) better than at higher frequencies. With

much traditional music, such as gamelan and folk drumming, the beat and syncopation is dominated by low frequency percussion lines. (see: www.pnas.org/cgi/doi/10.1073/pnas.1402039111)

While revisiting my thinking on this topic, I worked with Steve Harris (of Audioplus), combining our knowledge and trying to pin down some examples of music that possesses innate good timing. To succeed we absolutely required this quality in the replay chain, and since Harris has a relationship with Naim Audio (for which he does PR work), we mainly used Naim components, which are in any case well known for their fine timing capabilities (see Box 2)

The Music

Music is full of examples of fine timing, and the following, recently used to analyse audio gear and refine our perception, include tracks with very solid timing qualities. Do note, however, that this list is very, very far from definitive or comprehensive.

BRIGHT SMILE

Josh Ritter

(*Hello Starling*, 2003)

While beautifully sung there is also an immediate rocking tempo which draws you in. When the bass line enters it should be right on the beat.

“Josh Ritter sings with an innate swing which is very infectious and turns a quite simple song into something rather special...”

LA FOLIE EN QUATRE

Daniel Bélanger

(*Les Insomniaques s'Amusent*, 1992)

This begins with a solid beat, but the key lies in those sudden startling pauses where the imagined beat continues through the silences. One marks time mentally, then it hauls you back for the tune's re-entry. “On a system that doesn't ‘time’ it's almost impossible to guess when the music will start again.”

STORM COMING

The Wailin' Jennys

(*Bright Morning Stars*, 2011)

Here is perceptibly elastic and stretched timing, resulting in a dynamic tension: you feel the pull! When the subtle bass line enters, its rolling deep power then holds the rhythm tightly.

“First heard on Radio Paradise, I was drawn into the atmosphere and that essential tension. One wants the track to speed up, but knows it's actually at the right speed. While not providing the

The System

The core system comprised an *NDS/PS555DR* streamer/DAC driving a Townshend *Allegri* passive autoformer controller leading to a Naim *NAP300DR*. *NAC5* speaker cable fed carefully installed and run in *Magico S-5* loudspeakers. The electronics were sited on a *Fraim* stand, linked by a *Super Lumina* (DIN to RCA) interconnect. A well set up Linn *LP12/Keell Radikal*, Naim *ARO*, Lyra *Delos*, Naim *Superline/SuperCap DR* was used as a reference, alongside favourite LPs. All support frames were carefully set and adjusted, cables were properly dressed, and speaker/listener placement was fine tuned for the best results.

Classical Listening

Recently auditioning with Rafael Todes and revisiting the Chord *Hugo* DAC (a component which I find sounds very beautiful but not always best timed on rock material), we managed to appreciate an aspect of rhythm which Todes finds important and which the *Hugo* does really well.

More easily appreciated on classical than rock material, we were listening to the interplay of orchestral string sections, the texture and bowing modulations, and the expression shown in the playing. These aspects are imbued with subtle timing cues, for example, how just leaning into a violin bow provides timing contrasts, actively changing timbres and expression, and of course the instantaneous loudness.

The musicians interact closely with instinctive concentration to add vibrancy, tonal colour and a complex timing interplay. When done right, such music making fairly crackles with tension and excitement, and with the *Hugo* the sound was nicely complemented by rather beautiful instrumental timbres, realistically woody with rosin-like accents.

This is a more subtle aspect of subjective timing: the musicians appear to be playing really well together, but it's somehow perceived differently to bolder, 'marked time' based rock beats. Some DACs, as Todes observed, might time well in rock terms but may miss out on this exquisite and rewarding degree of ensemble performing subtlety, sounding more mechanical and clock-like instead.

greatest sound quality, the drama and the quality of the performance makes this an essential track in context."

WHEN THE RAIN FALLS

Eleanor McEvoy

(*Yola*, 2001)

This beautifully sung, well balanced and essentially uncompressed track has a subtle baseline which in poorer systems slides behind the timing for the midrange vocal and guitar accompaniment. Unexaggerated by pop standards this track reveals more and more content as the system quality is improved.

"Look out for Eleanor kicking into gear for the second verse. The fact that she also sings with a lilt can escape some audio systems. On others it's quite obvious and very rewarding, as it injects the life the song needs to bring it from potentially dull to engaging."

CONVERTED

Alabama 3

(*Exile on Coldharbour Lane*, 1997)

"This track just hints at the power of the band's live performance, which is one of the best I've experienced (too true – Ed). Really powerful rhythms drive this music along, but it's not as simple as that. Everything in the mix (and it's quite complex) should fit in such a way that makes it sound live – all in the right place and with exactly the right timing."

EVERYDAY

Buddy Holly

(*Buddy Holly*, 1958)

This has a beautifully simple recording technique, is mono of course, and has immaculate timing.

SAD OLD RED

Simply Red

(*Picture Book*, 1985)

An underrated track with a classic beat, this track has a clean, well timed and propulsive bass line.

LOOK WHAT YOU HAVE DONE

Joe Cocker

(*Sheffield Steel*, 1982)

"Here the rhythm section has Sly & Robbie playing at their measured best, and if it genuinely doesn't drive you to move your body the system is broken. The lead guitar is perfectly timed with the bass and it

remains a superb example of R&B."

29 WAYS (TO MAKE IT TO MY BABY'S DOOR)

Marc Cohn

(*Marc Cohn*, 1991)

Marc performs with terrific syncopated singing, and with a great rhythm backing.

"Stealing an expression from another respected reviewer, a good system allows you to hear the energy of the original performance. Hear this on a poor system or one that is rhythmically challenged will make this song rather dull."

VOODOO

The Neville Brothers

(*Yellow Moon*, 1989)

"For years this became one of my key test tracks, after I was introduced to it by Mike Creek when we were comparing various amps. It's really easy to make it sound leaden and miss the inherent and vital swing factor. Here a potentially flatulent low end is not easy to get right, but it's worth the effort."

BLUES

Keith Jarrett

(*Paris Concert*, 1988)

"I included this because I don't believe a track has to include bass instruments to show whether a system 'times', or has good rhythmic ability. Listen to Keith Jarrett performing and if you are just thinking about the style of his playing your system is missing the point. Do you think that at this live performance the audience was sitting stock still analysing his technique? I don't think the majority were, just listen to the applause, they were rocking along just as you should be at home..."

Steve Harris' Conclusions

"I have to simplify what I listen for in a system: its swing, the ability to deliver life and energy. On most recordings the musicians should sound as if they are playing as a band and not like the jazz group I saw last night. That sounded like four good musicians each separately playing their own versions of the song."