

It's only rock 'n' roll – and sometimes it's better in mono

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An early Rolling Stones compilation in that newfangled stereo format. Totally vinyl, CC BY

While music lovers continue to argue about the relative merits of digital audio and the analogue vinyl disc, another debate is going on about the renaissance of an audio format that most people thought had long since disappeared: mono. Apparently banished during the second half of the 20th century by the advent of two-channel stereo, single-channel monophonic audio is making a reappearance.

The [Beatles in Mono](#) vinyl box set was released a couple of years ago, and will now be joined by The [Rolling Stones in Mono](#).

So why this return to what many might think an outmoded and inferior way of reproducing sound? Can there really be anything that these monophonic mixes have to offer in 2016? There are two main issues. Firstly, different mixes produced at different times and possibly by different people will sound different, regardless of whether they are in stereo and/or mono.

A guitar solo, such as McCartney's on "[Taxman](#)" from 1966's Revolver, could never be played exactly the same way twice, even if the notes and their approximate durations are the same. In a similar way, the parameters of mixing, even when using the relatively primitive apparatus of 50 years ago, were sufficiently variable that each attempt at creating a mix, even with exactly the same people and technology wouldn't produce an identical output.

Ryan and Kehew's detailed study of The Beatles studio work, [Recording The Beatles](#), often makes the point that mono mixes were considered the most important at that time. Draft versions were regularly produced

during recording sessions with the band involved, but stereo versions were often left to the very end of the production process with only George Martin and engineer Geoff Emerick present.

Different people working at different times will not produce identical mixes, and the outcomes can be radically different. Mixes have their own aesthetics, they can express musical ideas. As Emerick said: "a mix was a performance by the people on the mixing console".

How we hear sound

The second issue relates to differences in how we perceive mono and [stereo sound](#). Our brains use information from our ears to build a picture of what objects are in our vicinity, their width and position and the acoustic environment in which they reside. This is known as [auditory scene analysis](#).

An early stage of this is spectral analysis which separates out sound components at different frequencies. These components are then regrouped according to whether they belong to the same sound source. One of the methods of determining this "belongingness" is by comparing the levels and times of arrival of various components between the two ears to determine whether they come from the same place. Such components have a stronger sense of belongingness, or homogeneity.

Grouping sounds together in the same space (as is the case with mono) is one way of "glueing" them together, making them sound like they are an integral part of a larger whole.

But if you want to be able to hear the constituent parts of your mix as clearly as possible it's better if they appear to come from different positions (something that is possible with stereo). Such combinations of sound obscure – or "mask", in the [psychoacoustic language](#) – each other

less. This is known as "binaural release of masking" (binaural because it requires two ears to work) and it helps us hear one person's speech through the babble of others – the "[cocktail party effect](#)".

Of course this can be too revealing, George Harrison recalling that stereo mixes "[ruined the sound from our point of view ... it all sounded very naked](#)". Comparing the mono and stereo mixes of "Taxman", the McCartney guitar solo demonstrates these aspects of spatial presentation – unfortunately copyright doesn't allow the two versions to be presented here.

In mono the solo takes (quite literally) centre stage and dominates, its partial masking of the other instruments enhancing its importance. In stereo, although it is at a similar level, it is moved to far right of the [auditory scene](#) and the parts in the opposite speaker are not so obscured. We can hear those parts more clearly, but the alpha dominance of the solo is diminished.

Whilst the underlying acoustics and psychoacoustics do not change, responses to the musical art of mixing are subjective. One person's exciting clump of homogenous sound is another's muddy mess, one's revealing heterogeneous spread is another's diluted smear ("[they took a heavy record and turned it into a piece of ice cream](#)" – John Lennon this time, on the stereo mix of "Revolution").

Two ears, one speaker

When listening in mono there is something to bear in mind. When the same sound emanates from two loudspeakers, the two sound waves interfere with each other creating boosts of sound at some frequencies and reductions at the ears, leading to a subtle but undesirable change in the spectrum of sound. With just one speaker, there is just one wave and so there is no interference (if we ignore the effects of reflections of that

wave from walls and other surfaces in the room).

So, by all means enjoy the different quality of [sound](#) in mono mixes (and the different approaches taken in those mixes) but, if you are going to have only one channel you really ought to have only one speaker too.

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