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'You never been on a ride like this befo':

Los Angeles, automotive listening, and Dr. Dre's 'G-Funk'*

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Abstract

Since the 1920s, multiple historically specific factors led to the automobile-saturated environment of Los Angeles, contributing to a car-dependent lifestyle for most of its inhabitants. With car travel as its primary mode of mobility, and as a hub of numerous cultural industries throughout the twentieth century, the city has been the breeding ground for a number of car cultures, including hot rods, custom cars, and lowriders in addition to the large output of films and music recordings produced. In rap music of the early 1990s, producer/rapper Dr. Dre's (Andre Romelle Young) creation of a style labelled 'G-funk', according to him, was created and mixed *specifically* for listening in car stereo systems. This article provides one case study of music's intersections with geography, both the influence of urban geography on music production and the geography of particular listening spaces. As borrowing is central to hip-hop's ethos, Dr. Dre's production reflects how musical materials become re-used for a new space, updated and customized for the automotive listening experience.

Keywords: Dr. Dre; Los Angeles; music production; rap music; urban space

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Los Angeles has yet to produce its own Hart Crane and the freeway has yet to find its poet. When such a poet emerges, the freeway will be seen as something more than a series of construction projects engineered by the Department of Public works or a particular mode of transportation. The freeway will be more fully revealed as an expression of the total complex of signification that is our culture (Brodsly 2002: 280).

—David Brodsly, 'L.A. Freeway: An Appreciative Essay'

Cruzin' down the block
And my system bangin' out about a million watts...

—Daz Dillinger, 'My System'

'Southern California is man made, a gigantic improvisation'. These are the words of Carey McWilliams, who in his 1946 *Southern California: An Island on the Land*, argued for the exceptionalism of the region: Los Angeles is 'sociologically detached from the rest of the country...a kind of sovereign empire by the western shore' (quoted in Sitton and Deverell 2001: 3). McWilliams's book was a foundational investigation into the city that Dorothy Parker famously described as '72 suburbs in search of a city' (Fleming 2009: 46). The characteristics and idiosyncrasies of Los Angeles have been exposed to observation and scrutiny throughout its modern history, as representations of the city, real and imagined, have been projected worldwide through myriad lenses as the source of numerous cultural industries. This article explores one interaction between these two elements: the character of Los Angeles at a particular place and time and its effect on one of its cultural products—the emergence of so-called 'West Coast Rap' in the early 1990s.

Since McWilliams's book was first published, the city of Los Angeles has proven to be a significant case study for urban geographers and others (Caughey 1977; Bottles 1987; Brilliant 1989; George 1992; Davis 1992; Soja 1996; Scott and Soja 1996; Klein 1997; Keil 1998; Sitton and Deverell 2001; Banham 2001; Silver and Ursini 2005). Decentralized earlier than other American cities with an extremely high population density within its sprawl, it is a metropolis whose car dependence shaped its early development, paving the way for post-WWII suburban developments elsewhere. The primary purpose of this article is to provide a case study that highlights the interaction between the cultural production of music recordings and geography,¹ both the influence of urban geography and the geography of a particular listening space on rap music production.

After an investigation of sound, space and Los Angeles, I focus on the Los Angeles-based rap music producer, Dr. Dre, and his creation of a style labelled 'G-funk', which according to him, was created and mixed *specifically* for listening in car stereo systems. As borrowing is so central to rap music's ethos (and to hip-hop culture more

1. Key books that investigate the links between popular music and geography include Forman 2002, Krims 2007 and Cohen 2007.

broadly), Dr. Dre's production reflects how musical materials become reassembled for a new space, updated and customized for the automotive listening experience. We can thus consider a study of musical recordings that acknowledges its intra-musical discourse as mediated by spaces in order to analyse how technology and geographical specificities of space and place have shaped the music composed.

Sound and space

In recorded music of all genres and eras, sounds have histories. As always, these sounds are mediated by their socio-historically situated interpretations. What we may overlook, however, is that sounds are *spatially* situated as well, either being used with the (conscious or unconscious) intention of a particular playback space, or becoming associated with an idealized listening environment or environments in other ways. Playing music in certain spaces, from the dance club to the stadium to the coffee house, has a direct effect on how these sounds and their spatial associations are interpreted.²

In short, sounds can imply or suggest distinct listening spaces, interpretations that are inevitably culturally, historically *and* spatially situated. For example, the use of what I call 'jazz codes' (e.g. harmon-muted trumpet, 'walking' acoustic bass, or a saxophone riff) may imply the small, smoky enclaves of a jazz club, or perhaps imply playback on a high-fidelity system in a more domestic, middle-class environment. A recording of a symphony orchestra often suggests the listening space of a concert hall, which in many cases, was the space in which the composer assumed that it would be heard. The use of synthesizers and drum machines in rap and electronic dance music, or of guitars in rock and metal, may suggest a larger club or stadium atmosphere, to be played through large PA systems rather than from speakers embedded into a laptop computer. In the broadest sense, genres (or musical codes as a 'genre synecdoche'; see Tagg 1999: 26–7) can imply idealized listening spaces, based on actual practices, compatibility with specific playback technology and spaces, extra-musical discourse such as media reception, and their stereotypical representations in film, television and other media.

Rap music is no exception to this; a recording of a rapper will sound strikingly different if accompanied by a solo acoustic guitar than by a drum machine and keyboards; the former arguably suggests a more intimate space than the

2. Krims has written of the shift in the character of urban environments, including a trend towards heightened design intensity in interior spaces (e.g. the use of music recordings in shopping malls and cultural quarters). Increased use of music as a component of design has strongly affected how music recordings inhabit these locations and, in many cases, affects the music produced for them. For a more thorough presentation of recorded music as design, see Krims 2007: xiii–xli, 127–62. Regarding the design intensity of spaces, see Lash and Urry 1994: 15.

latter, a sonic texture notably uncommon on most rap recordings.³ As it began from playing records through large loudspeakers at block parties in the Bronx, rap music is still largely characterized by its high volume and attention to the low frequencies in the musical spectrum (Rose 1994: 75). It is not that unconventional, then, to hear music that originates from another genre re-orchestrated to reflect the synthesized timbres often found in rap (such as the use of Carl Orff's setting of 'O Fortuna' from *Carmina Burana* (1937), re-orchestrated for Nas's 'Hate Me Now' [1999]). And whether or not sounds are digitally sampled, recorded or re-recorded, producers and engineers pay precise attention to how the sounds are orchestrated and mixed, often with distinct listening environments in mind.

Sound and place: Los Angeles

Los Angeles features prominently in the history of automobility, as the automobile has been central to everyday life for many of its inhabitants since at least the 1920s. Los Angeles was the only metropolis in America whose major development occurred entirely within the automobile era (Brilliant 1989: 121–2). The city expanded to become a decentralized metropolis at a moment when the car was gaining popularity and becoming more affordable (epitomized by Ford's Model T, manufactured 1908–1927), and it was one of the first to have a number of its residents and industrial workers living in single-family detached housing at a distance from its centre. Because of this, Los Angeles was never a true walking city like previously established American cities. Its development as an automobile-dependent region, simultaneously dense and sprawling, undoubtedly bestowed a unique effect on various social and cultural realms.⁴

Earlier than most other American cities, Los Angeles became enamoured of the modernizing potential of the automobile. The car was seen by many as a solution to the inefficiencies of public transport, one that could change the spatial organization of the modern city for the better (Bottles 1987: 211). One writer commented in the 1920s that 'If California ever adopts a new State flower, the motor car is the logical blossom for the honor' (Brilliant 1989: 5). In the 1930s, a California

3. An example of this is two versions of 2Pac's (Tupac Shakur) 'Thugz Mansion' on his posthumous double-album *Better Dayz* (2002).

4. Although Robert Bruegmann notes that sprawl has never had a coherent or precise definition, he states that it is 'most often described as unplanned, scattered, low-density, automobile-dependent development at the urban periphery' (Bruegmann 2005: 2). It is important to note that the urban sprawl in Los Angeles (and Detroit) occurred much earlier than post-1945, while mass suburban sprawl in the United States occurred after the Second World War. As the second largest city in the United States, and the sixth largest in the world (as of 1996, Soja 1996: 1), the character of Los Angeles is one of a decentralized metropolis, rather than a city centre with multiple suburbs.

city planner declared that 'it might be said that Southern Californians have added wheels to their anatomy' (quoted in Urry 2005: 31). The car dependence of the Los Angeles environment has not waned since the early automotive era; as of 2004, one half of Los Angeles is dedicated to spaces designed specifically, and often exclusively, for the automobile (i.e. the 'car only' environments of freeways, roads, and parking lots) (Urry 2005: 30).

Although the automobile is a popular, arguably necessary, object throughout most of the United States, it has frequently played sidekick in media representations of Los Angeles, a city described by Ashleigh Brilliant as 'pathologically bent upon advertising itself' (1989: 18). Hollywood, television and the music industry have been prime agents for this 'advertising' of Californian ideologies that often celebrates concepts such as youth, excess and the body (Rickels 2001). Exemplary cultural products of this sort include the Beach Boys, Jan and Dean, *American Graffiti* (dir. George Lucas), *The O.C.* and subgeneric labels such as 'West Coast Jazz' or 'West Coast Rap'. Southern California is the site of numerous car-culture developments, including hot rods, lowriders, General Motors' prolific designer Harley Earl, the customization and pinstriping of George Barris and Von Dutch as well as car audio customization and competitions.⁵ Additionally, the region helped to foster numerous car-inspired inventions into American life such as the 'drive-in' movie theatre, the suburban shopping mall, 'cruising', the motel, drag racing, fast food, and trademarked modes of music production.⁶ Los Angeles has undoubtedly contributed to the automobile as a ubiquitous object of 'compulsory consumption' (Soron 2009) in American society, within which listening to music has become an important activity.⁷ The popularity of the car as a listening environment is one reason why music producers and engineers make use of it after a given recording session, and may change aspects of the recording in light of how it sounds in the automotive space.

5. Car audio customization is currently a thriving business that markets products to numerous subcultures of car audio enthusiasts globally. 'Boom cars' are often the result of these custom automotive sound systems. These cars function as a car-sized 'boom box' and dispel sound throughout the surrounding environment, often a source of frustration for communities as neighbourhoods fight to have legislation passed against such loud automobiles. Some car audio-philes hold competitions for the loudest and highest quality automotive sound systems, referred to as 'sound offs', 'crank-it-up competitions' or 'dB Drag Racing' (see Hoffmann and Bailey 1991: 71–2 and the International Auto Sound Challenge Association at www.iasca.com).

6. Music producers from automobile-centric cities such as Miami, Los Angeles, and later Houston, Atlanta and Memphis began to construct recordings in light of developments in car audio, creating such rap subgenres as 'Miami bass' in the 1980s (Sarig 2007: 12–19, 30–1), G-Funk in early 1990s Los Angeles, and 'crunk rap' from Atlanta, Memphis and other regions of the South in the early 2000s.

7. For automotive listening in the UK context, see Bull 2003, 2005.

The automobile and music production

The automobile sound system has been an important listening reference in many styles of music production since at least the 1960s, with the advent of Top 40 radio and the car's role in youth cultures. Steven Pond writes, 'Bowing to the importance of radio airplay, pop producers up to the late sixties routinely calibrated their final mixes to cheap car speakers, which could accommodate only a limited frequency range' (Pond 2005: 132). As producers would tailor their mixes to the car stereo, the needs of automotive listening were accommodated by the timbre and volume of the music produced. As Warren Belasco has written, 'The greatest success in rock 'n' roll usually goes to those whose music suits the hyperkinetic formats of the Top-40 stations that transmit primarily to car radios and transistor receivers' (Belasco 1980: 264).

Furthermore, music producers and radio stations use a technique known as dynamic range compression which decreases the overall range of dynamics for a given track in order to make the music sound louder without increasing peak amplitude. They do this to compete with other 'loud' albums or stations, but also for when the music is expected to be played in loud environments such as bars, shopping malls, restaurants, and automobiles (Levine 2007). Automotive listening (particularly with 'stock systems', those that come with the car) demands a high level of dynamic consistency; listening to a classical symphony without compression can prove to be frustrating, for example. Like earlier technologies of the phonograph that had an effect on the duration of works composed and recorded (Katz 2004), the car stereo shaped other elements, such as the timbre of popular music recordings. As recording technology improved, so did the ability to tailor music to specific listening spaces.

Unlike car audio technicians who consider the car to be a far-from-ideal listening environment compared to the home (Pettitt 2003: 20), many music producers speak positively of the automotive listening space. When asked by an interviewer what the ideal listening environment for a minisystem was, producer and artist Stewart Copeland commented:

I've already got one: the car stereo—which is the first and best minisystem if you think about it. You're in this cocoon where you can have a really big sound in an enclosed environment. Then there's the fact that you're driving with scenery moving past... When I record an album, I spend months listening to it in the studio. I listen to it every day going back and forth in my car. I check it out on tiny systems. And then I hear it coming out of the radio, so I know what it sounds like (quoted in Baber 1997).

The 'car test' or 'car check' was and still is used in record mixing, as the car is often the first place that a mix is heard outside the studio.⁸ California sound engineer Patrick

8. A cinematic example of this can be found in the film *Once* (2006); after the band records their demo, the engineer takes them out for a drive to hear the mix.

Olguin states, 'If I'm mixing "unassisted" I'll check the mix in my stock system in my truck, and also check it in my custom system in my Mercedes'.⁹ Olguin ensures that his mix works for the majority of car owners (stock systems) as well as for the greater clarity, improved frequency response, and bass extension of a custom ('aftermarket') system. Studios normally have a number of sets of speakers for different instances of listening, selectable at the flip of a switch; and some studios (such as Sony Studios in New York City) have or have had a car speaker system built into the studio as part of their reference speaker configurations.¹⁰

In addition to the car's serving as the producer's listening reference, producers have also become more conscious of the idea that a recording is intended to fill a particular space, rather than to reproduce a performance accurately. Krims notes a trend in new classical music recordings that have shifted their aim from 'concert realism' to an 'abstract soundstage' that considers specific playback spaces rather than aiming to replicate a concert-hall performance. In many hip-hop-based music genres, the 'star producer' (e.g. Timbaland, Dr. Dre, Lil' John, Kanye West, Pharrell Williams) will be valued for how his/her music fills a space, such as a car or jeep, rather than what s/he can do in live performance (Krims 2007: 161). The trademarked producer will be advertised on albums, assuring listeners that the product that they buy will fill space in a particular way (Krims 2007: 160).

Some have theorized that the sub-bass frequencies central to rap music and other 'urban' music genres are inspired by the urban soundscape, presenting a direct relationship between the sonic elements of an urban environment and the music produced from it *and* for it. Producer/engineer Ralph Sutton states that:

Some people have a predisposition for certain styles of music. I grew up in a 60-cycle domain; I was born in Chicago but we moved to the inner part of LA early on, right in South Central. And there's always low frequency going on, whether it's the bus going by, the airplane flying over, the jackhammer in the background. So there are certain frequencies we are exposed to for long durations of time, and, obviously I'm not a psychologist, but I think that has something to do with it. If you grow up in an inner city where this is going on all the time, that gives you a different disposition; there's music in that noise. When you hear construction noise and something falls down, there's your boom-boom right there. A different part of that noise is your snare¹¹ (Sutton quoted in Massey 2000: 293).

9. Email correspondence with the author, June 3, 2008. Olguin has worked with a number of commercially successful groups and artists, such as Papa Roach, Black Eyed Peas, rapper E-40, and Cake.

10. Hank Shocklee of the production team The Bomb Squad confirmed the existence of a custom car audio system in New York's Sony Studios. Hank Shocklee, interview with the author, March 8, 2009.

11. Pianist Matthew Shipp echoes the link between the urban environment and music

His '60-cycle domain' refers to frequencies at 60 Hertz (cycles per second), according to Sutton, the frequency of a Roland TR-808 kick drum. Whether to be drowned out as exterior sounds (as iPod earbuds do well), or become one with them, urban sounds, including those from the automobile, have had a direct effect on so-called 'urban music' genres and other forms of cultural production.

Consideration of the relatively small space of the car interior in production and mixing effects elements such as dynamic compression, how frequencies are equalized, and, in particular, the sound quality of low frequencies (both the aural and corporeal sensations from subwoofer playback). While the opinions of music producers are far from homogeneous, testing music mixes in the car (both stock and custom) has been a rarely acknowledged standard practice; and if we then consider both the playback spaces and speakers involved, we can better analyse the ecology of how a music recording interacts with the listener in particular environments.¹²

Dr. Dre and 'G-Funk'

Dr. Dre (Andre Romelle Young), the 'chief architect of West Coast gangsta rap' (Gold 1993: 40), was born in Los Angeles, California. He was a club DJ, then producer and rapper with groups The World Class Wreckin Cru and N.W.A. (Niggaz With Attitude). After leaving N.W.A., he spent all of 1992 producing his first solo album, *The Chronic*. What emerged was a sound that he christened 'G-Funk' (G for 'gangsta'), inspired by the P-Funk of George Clinton, and borrowing from Leon Haywood, Isaac Hayes, Curtis Mayfield, and Donny Hathaway, as well as utilizing the 'talk box' and other vocoder-esque effects similar to those of electro-funk groups like Zapp and Cameo.¹³ The result was a highly layered effect, a mix of (often high-pitched) synthesized sounds, live instruments such as guitar and bass, and an added emphasis on low-end frequencies.¹⁴

composition in the decision to incorporate electronic technology into his jazz music (quoted in Nicholson 2005: 144). Chuck D of Public Enemy also describes the sounds of different rap styles as they were shaped by different geographical regions (Forman and Neal 2004: 413).

12. For further anecdotal evidence of the importance of custom car audio systems in hip-hop production, see also Schloss 2004: 191–2.

13. This link between Dr. Dre's music and that of the 1970s is a formidable one, particularly in the borrowing of elements from 1970s funk, and imagery and characters from 1970s Blaxploitation film. See Demers 2003.

14. The primary object which connects the 'boomy bass' of rap music to the automotive soundscape is the car subwoofer. Available in the car stereo aftermarket since the early 1980s, the subwoofer is a large, enclosed loudspeaker (8 to 18 inches in diameter), and like any speaker, is a transducer that turns electric impulses into mechanical energy/sound waves (Pettitt 2003: 59). The subwoofer specializes in producing the lower-frequency waves in the sound spectrum (roughly 20–120Hz), omni/nondirectional sensations of sound perceived as an amalgamation of

One example of this style is the layers found in Dr. Dre's 'Nuthin But a "G" Thang' from *The Chronic*. The high synthesizer riff, derived from Leon Haywood's 'I Wanna Do Something Freaky to You', has become (in both timbre and melody) an important signifier of Dr. Dre, Southern California, and more widely, of the gangsta rap or 'West Coast rap' subgenre. As New York MC Mims raps of different geographical regions in 'This is Why I'm Hot' (2007): 'Compton to Hollywood/As soon as I hit L.A. /I'm in that low, low/I do it the Cali way', the riff from 'G Thang' accompanies the stanza.

As opposed to East Coast rap producers at the time, Dr. Dre shifted from his sample-based N.W.A. production style to a style that rarely digitally sampled directly from the source record itself. He might have used a 1970s record for ideas (a melody, beat or riff), but employed musicians to re-record the sounds that he wanted. In re-recording all the material live, in addition to avoiding high copyright mechanical fees, Dr. Dre had greater control over all of the individual tracks. He often used a Mini-Moog synthesizer, other keyboards such as Wurlitzer, Fender Rhodes, Clavinet, and Vox V-305 organ, as well as a Roland TR-808 drum machine, employed by many rap producers for its kick drum bass 'boom' sound. This flexibility was important to Dre, often labelled a perfectionist in the studio (Gold 1993; Tyranigel 2001; Swenson 2006).

The connection between the *sounds* of 'G-Funk' and their implied listening space merits investigation: Dr. Dre envisioned that the primary mode of listening would be through car stereo systems. He explained in a 1992 interview with Brian Cross:

I make the shit for people to bump in their cars, I don't make it for clubs; if you play it, cool. I don't make it for radio, I don't give a fuck about the radio, TV, nothing like that, I make it for people to play in their cars. The reason being is that you listen to music in your car more than anything. You in your car all the time, the first thing you do is turn on the radio, so that's how I figure. *When I do a mix, the first thing I do is go down and see how it sounds in the car*¹⁵ (Cross 1993: 197; emphasis added).

For Dr. Dre, the automotive listening space represents an idealized reference because it is reflective of the way he perceives that people listen to his music.¹⁶

pitch recognition and a feeling of pressure (as sound measured in decibels is also known as sound pressure level or SPL) (Anet 2003: 60–2). In other words, the lower the frequency, the greater possibility that one will begin to feel the sound.

15. A similar sentiment was shared by producer Marley Marl when he said that he made the album *Steering Pleasure* 'for people who wanna have som'n cool playin' in their rides. You won't get the same effect if you play the tracks through a regular system; you need a hype car system. The beats are programmed to make the speakers howl, you know what I'm saying' (quoted in Keyes 1996: 239).

16. Rapper Ice-T also expressed an association of his ideal listeners with the car stereo sound

The centrality of the car to his lifestyle can be seen in a number of Dr. Dre's music videos from *The Chronic*, as well as from other G-Funk-associated artists such as Ice Cube ('It was a Good Day'), Nate Dogg ('G-Funk') and Warren G ('Regulate').¹⁷ These videos feature the car prominently as crucial to the everyday lifestyle of Compton's black male youth.¹⁸ Car imagery was also found in album liner notes and advertising; *The Chronic* was advertised in 1992 in hip-hop magazines like *The Source*, with Dr. Dre standing prominently in front of his 1964 Impala, firmly establishing the link between the album and the prominence of the automobile in G-Funk imagery even before the music was released.¹⁹

The Chronic went on to become the best-selling hardcore rap album in history at the time, and Dr. Dre helped facilitate his next production credit, Snoop Doggy Dogg's *Doggystyle*, in becoming the first rap album to debut at number one on the *Billboard* charts. This synthesized 'post-funk' or 'post-soul'²⁰ sound would characterize what is known as the 'G-Funk era' from 1992–1996, emblematic of a 'West Coast Rap' aesthetic still influential in hip-hop production. *The Chronic* is often described as a crossroads in hip-hop historiography, the point when rap music became less about the rap itself (accompanied by unobtrusive beats), and more about how well the rapper incorporated him or herself within the producer's sound world (Sanneh 2004: 230).

system when he said of one album, 'We did *Power* in LA ... The board was connected to the biggest system we could build that resembled a car stereo system, so we could check how it sounded when real people who would buy our tapes listened to that shit. Big woofers and all that' (quoted in Coleman 2007: 249).

17. Associations of rap music with the automobile became so ingrained that it became the source of parody, such as an early 2000s Avis/XM Satellite Radio commercial that featured three middle-class men in business suits, white and Asian in ethnicity, commuting to work, listening and rapping along to Lumbajac's '2Gs'. The lyrical topic of the song, making money, fit the men appropriately, but the commercial subverts the imagined audience for the genre of music, usually presented in myriad representations as lower-class African-American youth.

18. As Los Angeles has had tremendous surges in population and growth since the 1880s, a fluid yet variable flux of ethnically and racially diverse peoples have emigrated to its favourable climate, which is not to say that they have always co-habited unproblematically. Some of these historical examples include the treatment of Chinese immigrants in the late-1800s and afterwards, the Japanese internment in 1942, the Watts riots of 1965 and the Los Angeles Rebellion in response to the Rodney King verdict of 1992. In fact, Dre's *The Chronic* and G-Funk have been interpreted with consideration to the post-riot gang truce in Los Angeles. These racial and political contexts, crucially important to rap music, automobility and Los Angeles, are beyond the scope of this journal article. See Chang 2005 and Kajikawa 2009 for thorough treatments of this, and Gilroy 2001 for a discussion of race and the automobile.

19. This image, used in advertising, is also located on the inside of the CD booklet of the album.

20. Eithne Quinn labels the G-Funk Era as 'post-soul', referencing Nelson George's book *Post-Soul Nation* (2004) (Quinn 2005: 143).

At a time when the sounds of rap music were rarely discussed with any detail in journalism, media reception of *The Chronic* often indicated attention to the character of specific sounds, and connected them to the extra-musical imagery of Los Angeles and the automobile. In addition to the recognizability of 1970s funk music, imagery from early-1990s, 'hood films and music videos helped to link synthesizers and bass extension to a 'dirty' sound said to represent the ghettos of Los Angeles. Jon Pareles, after describing the sound of G-Funk at length, noted that *The Chronic* was 'a hermetic sound, sealed off from street noise as if behind the windows of a limousine or a jacked-up jeep' (Pareles 1999).

Reception of Dr. Dre's production also made associations between the wide-open spaces of the West Coast and the development of G-Funk. To quote Dyson, 'West Coast hip-hop tailored its fat bass beats and silky melodies for jeeps that cruise the generous spaces of the West' (Dyson 2004: 421); the ideology of 'The West' helped to create a dichotomy between G-Funk's 'somatic' sound often linked with automotive listening, and the allegedly more 'cerebral' East Coast sound from groups such as Gang Starr and A Tribe Called Quest. One writer includes pop rap artist MC Hammer (from Oakland, California) in this West Coast aesthetic, and suggests that his sound and implied listening spaces were more conducive to mainstream success:

In no uncertain terms, West Coast rap spelled out the acceptable and unacceptable ways to court mainstream success. On the East Coast, however, it was still just courting. New York rap often seemed deeply insular—the tricky wordsmith pyrotechnics and cryptic references of innovators like Gang Starr, Poor Righteous Teachers, and early Tribe Called Quest was much to be played on Walkmans while riding on the subway or cut up by DJ Red Alert in sweaty afterhours underground clubs. Also, much of it was interior—just listen to Rakim go back to the womb on 'In the Ghetto'—as well as spiritual, frequently laden with the insider-only rhetoric of Muslim sects like the 5 Percent Nation. West Coast hip-hop, in contrast, was driving music, ready-made to blare out of car windows and share with the world. And as Hammer found out with the gargantuan sales of *Please Hammer...* there are more pop-friendly car drivers in America than subway-riding New York rap ideologues (Diehl 1999: 129).

This is a telling quote—one that touches the surface of a provocative notion—that the history of popular music success (in terms of single and album sales) could be framed around the music's compatibility to the most utilized or most ubiquitous listening spaces at the time.²¹

Like the car customization cultures of Southern California, Dr. Dre takes old parts and puts new features on old frameworks. Through his 'replays' (Dre's term)

21. Although producers now often tailor or test their mixes for iPod and computer speaker playback, many still use the automobile as an additional reference. Only time will tell how these newer playback devices will shape the sound and success of future popular music recordings.

or 'interpolations', he is customizing the music for an idealized community of automotive listeners. His production style has been described as perfecting a 'gangsta pop formula' (Coker 2003: 143), the 'pop' aspect most likely alluding to his use of the (usually simple) verse-chorus form and the repetitive 'hooks' on the choruses (whether by synthesizer in 'Dre Day' and 'Nuthin But a "G" Thang', or by the voice in 'Gin and Juice', for example). The notion of G-Funk as 'gangsta pop' was not only defined through its song structure and chorus material, but also by the commercial success that *The Chronic* enjoyed, demonstrating that rap music could be successful in the popular music mainstream, what hip-hop historian Chang calls the 'popstream' (Chang 2005: 420). Dr. Dre's production will often craft verse-chorus forms more familiar to non-funk-based popular music by using musical material from funk songs that do not follow this form. Analogous in some sense to Alfred Sloan, the General Motors inventor of the 'annual model', Dr. Dre updates the sounds of 1970s funk. Rather than dismiss such borrowings as unoriginal or unimaginative, one may wish to view such musical 'updating' as reflecting wider cultural practices of contemporary consumer society, part and parcel of the desire to pacify what Vance Packard referred to, in the context of automotive consumption, as 'the upgrading urge' (quoted in Basham and Ughetti 1984: 40).

An example typical of Dr. Dre's early-1990s production that demonstrates this hybridity of material and suitability for automotive listening is the Dr. Dre-produced single 'Who am I? (What's my Name?)', the debut single from Snoop Doggy Dogg's *Doggystyle* (1993). The synthesized sounds include a Roland TR-808 drum machine and a Moog synthesizer bass line derived from Tom Browne's 'Funkin' for Jamaica' from the album *Love Approach* (1979). The sonic complement to the rap, known colloquially as 'the beat', is repeated throughout the song and changes texturally in terms of layering rather than in dynamic range, as it is likely that heavy dynamic compression was used in production to elevate the volume over the road and engine noise of a car (see waveform in Figure 1). The 'Snoop Doggy Dogg' line, collectively sung in the intro, is from Parliament Funkadelic's 'Atomic Dog' and the second vocal line is from Parliament's 'Tear the Roof off the Sucker (Give up the Funk)', melodically virtually the same, but placed on a different harmonic backdrop/frame/chassis. Vocal line three is a quotation of vocal effects from 'Atomic Dog': 'Bow wow wow yippie yo yippie yay'. What I call the 'guitar intro' (bb. 1–2) is a sample from The Count's 'Pack of Lies' from the album *What's Up Front that Counts* (1971), a two-bar excerpt with guitar and saxophones (see Table 1). After the two-bar guitar intro, the basic beat begins, and continues for the duration of the song. Foregrounded lyrical textures travel among Snoop Dogg's laid-back verses, singing in the chorus, and Zapp-like vocal effects (as Zapp frontman Roger Troutman was known primarily for his use of the

'talk box'). The track ends with vocals from an uncredited female voice, who sings improvisational-sounding melismas on the name 'Snoop Doggy Dogg'.

The lyrical topics of the song focus on Dogg's debut as a solo artist, bragging about his lifestyle, locality of Long Beach, and his collaborations with Dr. Dre. As was characteristic of his production style at the time, Dr. Dre borrows from multiple songs and constructs a verse-chorus form. It is a 'simple verse-chorus' form, in that the harmony does not change between verse and chorus, and it is noteworthy that he was able to tailor funk-based material with relatively static harmonic progressions into a repeating four-chord pattern (bm, bm/A, G, F#7). The synthesized bass line and high-pitched synthesizers on 'Who am I?' are consistent with styles used on *The Chronic*. In fact, 'F—wit Dre Day' from *The Chronic* is strikingly similar to 'Who am I?' in terms of the timbre of the bass line, its harmonic motion and the use of high and low frequency synthesizers.

Table 1: 'Who am I? (What's My Name)?'

Musical Phrase	Derived from:
Moog bass line	Tom Browne's 'Funkin' for Jamaica' (1981)
Vocal Line 1	George Clinton's 'Atomic Dog' (1982)
Vocal Line 2	Parliament's 'Tear the Roof off the Sucker (Give up the Funk)' (1976)
'Talk box'	Zapp-style (1978–80s funk band)
Low vocal effects and Vocal Line 3	'Atomic Dog' (1982)

As can be heard in the contrast between bb. 1–2 and bb. 3–4, the basic beat of the song appears stretched so that it fills the extreme ranges of its amplitude, something that would be ideal for environments such as the automobile. The graphic representation of the audio signal in the waveform in Figure 1 shows the differences between the 'guitar intro' and the 'basic beat'.

In the waveform, the x-axis represents time and the y-axis represents the voltage level of the audio output. The waveform signal shows that the overall amplitude appears expanded and compressed compared to the introduction, consistent with Dr. Dre's desire to fill the automotive listening space.

The contrast between the high and low synthesizer frequencies in 'Who am I?' and other examples in that style are particularly effective in custom car sound systems, where the highly directional tweeters can exclusively support the high end frequencies, and the power of the subwoofer(s) produce the corporeal sensations from the bassline. The 'human sounds' (e.g. Snoop's rap, collective voices, and female at the end), their locus in the frequency range easiest for humans to hear (3kHz–7kHz), will be supported by woofers/midrange speakers which require much less power than a subwoofer.

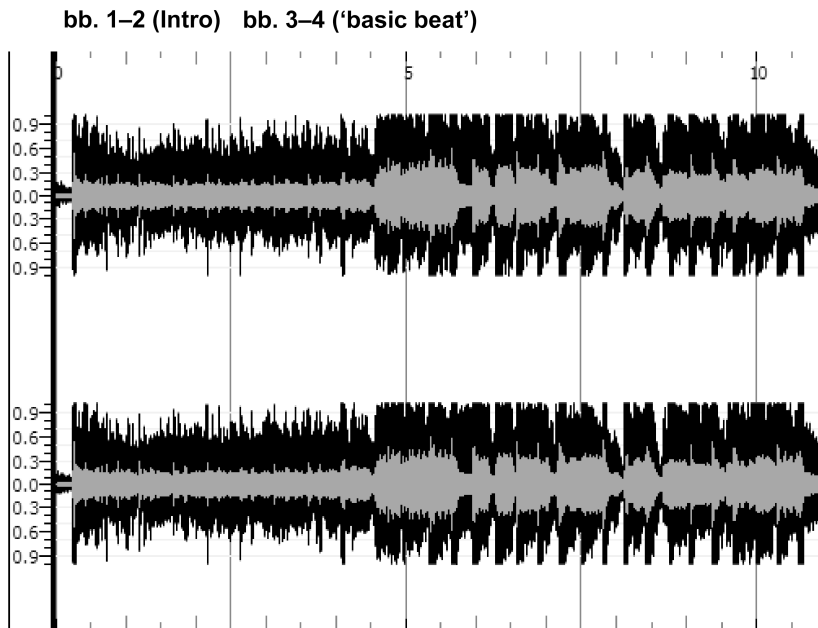


Figure 1: Opening of 'Who am I?' waveform (made with Sonic Visualizer)

Synthesized sounds, dynamic range compression, and prominent bass frequencies are but three elements that seem to be most compatible with the automotive soundscape. The experience of automotive listening is a synthesis of musical technology and automotive technology that must co-exist with each other to be successful; I would argue that popular music recordings can be analysed through this particular, historically specific compatibility. Like the car–driver/driver–car relationship, rap music recordings are a mix of 'human' elements and technology, a mix of man and man-made machine. Consideration of a listening space, the transfer function of loudspeakers and their resonant frequency, should be acknowledged as an important component of subject position in the listening experience.

Conclusion

As a product of place- and space-specific urban car cultures, Dr. Dre's production techniques reflect a desire to customize and tailor sounds for the automotive soundscape. Automobile production, the geographical specificity of Los Angeles, and other mediating cultural practices such as car customization cultures have

shaped Dr. Dre's music production techniques. The automobile has radicalized and revolutionized what we might call the 'everyday lifestyle', empowering those who can afford them and limiting those who cannot (though it is much more complex than such a 'have'/'have not' dichotomy). It is a flexible object that traverses not only urban space, but allows one to travel through urban, exurban, suburban and rural geographies. Geographers have noted that the automobile has had a tremendous impact on the design and planning of cities throughout the twentieth century; what the case study of G-Funk shows is that this automotive impact can also be found in the cultural products from those very same cities.

Marsh and Collett (1986: 4) write that 'It is because the car has so much personal value that we have been, and are still, prepared to alter radically the environments in which we live in order to create societies in which the automobile can feature so centrally'. If the car does indeed define the spaces in which we live, and the automotive space is largely experienced in terms of sound, then one could say that sound (as mediated through the automobile) and our sense of space mutually influence each other. Dr. Dre and his 'G-Funk' productions of the early 1990s, part of a wider hip-hop culture that places high emphasis on an unconcealed intertextuality, is particularly conscious of such idealized playback spaces. These spaces encourage, and are reflective of, particular socio-historically situated modes of listening, modes that have in turn inflected the way music recordings are produced.

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