Article 1 – Immersed in Pop: 3D Music, Subject Positioning, and Compositional Design in The Weeknd's "Blinding Lights for Dolby Atmos

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Introduction

While stereophonic sound has been the dominant release format for popular music for decades, innovation into audio formats has persisted outside the pop sphere, and sometimes attempts are made to bridge such innovations with popular music and culture. In the contemporary multimedia landscape, this includes technologies such as virtual reality[1] and so-called 'immersive' formats[2] like Dolby Atmos and Sony 360 Reality Audio, both of which are 3D sound formats which began implementation into the streaming services Amazon Prime Music HD, Deezer HiFi, and Tidal HiFi in late 2019 and early 2020.[3] However, there is a persistent notion among creators and scholars of popular music that stereo sound is somehow a defining feature of pop music[4]—that at some level, be it functional, economic, or aesthetic, stereo is the de facto frame for the pop stage. While it is difficult to argue against the fact that stereophonic sound is central to popular music production practices, the notion of its default status is challenged through the ever-increasing use of immersive and interactive media technologies on streaming

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[1] For example, in autumn 2019, Björk released an album of music videos in Virtual Reality entitled *Vulnicura VR*.

[2] The terms 'immersive audio' and 'immersive format' seem at present to be the standard terms used in the music technology field to describe any multichannel audio format which is at least '2.5D', or hemispheric sound either over loudspeakers (surround sound with height) or in binaural over headphones (as is typical in virtual and augmented reality). In 2019, the Audio Engineering Society held the Immersive and Interactive Audio conference, which brought together academics and industry partners to "explore the unique space where interactive technologies and immersive audio meet and aims to exploit the synergies between these fields" (http://www.aes.org/conferences/2019/immersive/).

[3] https://www.digitaltrends.com/home-theater/what-is-dolby-atmos-music-and-how-to-get-it/

[4] In the opening of their anthology on multichannel audio, Théberge, Devine and Everett claim that "stereo is a living part of sound culture" (Théberge, Devine, and Everrett 2015, 1). While the research in this volume is of value, it also is at the centre of a romanticised narrative that puts stereophonic sound at the end of music recording's inevitable progression through technology. This narrative seems to be one somewhat shaky ground given the rapid emergence of 'new media' technologies, as described above, that challenge stereo's predominance in all forms of media, including popular music.

services such as Tidal and Spotify, and social media platforms like Facebook and YouTube.

How are the aesthetics of pop compositions altered or maintained in immersive music productions? How does this effect compositional design, performativity, staging, and space? This article attempts to address the changing effects immersive and interactive technologies have on these aspects of popular music by suggesting a model for close analysis of such music. This model will help the reader better understand immersive popular music by demonstrating how music production technologies and practices relate to already established ideas about music interpretation and the relationship of the artist and the viewer of a pop composition. In an effort to demonstrate the model's efficacy, I turn to a discussion of a song by the R&B artist The Weeknd entitled 'Blinding Lights', which was mixed in both stereo and Dolby Atmos 3D formats and released in late 2019.

Dolby Atmos is a flexible, object-based 3D audio format. In short, this means that the format is based around a standard surround sound configuration (such as the 5.1 system common to home theater systems), with an added processor for handling sound objects, which can be in any location in 3D space and rendered at playback to the user's sound system. For example, a user with a 5.1.2 Dolby Atmos system has five speakers in surround sound, one subwoofer, and two speakers elevated above their main left and right speakers. In 2019, Dolby announced "Atmos Music," which promised to deliver thousands of audio-only music releases on various streaming services in the format in the coming few years. Notably, many of The Weeknd's most popular releases, as well as those of pop artists from Lizzo to Elton John, are currently available in Dolby Atmos on a growing number of platforms.

Modelling immersive popular music

For some time, popular musicologists have suggested approaches that aid and assist interpretations, recognizing that we are nonetheless listeners, fans, and participants in popular music and popular culture (Hansen et al., 2021; Scott, 2009). Accordingly, my approach to pop music analysis centers primarily around the identification of musical codes.[5] Therefore, the question of who is listening

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[5] By 'musical codes', primarily I am referring to semiotic and hermeneutic approaches to music analysis (i.e. close readings), which consider the music as 'text' which is interpreted through the identification of various features (technological, aesthetic, cultural, functional, etc.) which are referred to as codes. For a

becomes particularly relevant, acknowledging that my interpretation will surely differ from the reader's as my background, tastes, location, time, etc., will lead me to identify some codes as significant and others as irrelevant. David Brackett reminds us that codes are never decoupled from their interpreters, and that "listener 'competence'… refers to the range of subject positions available to a listener dependent on that individual's history and memory" (Brackett, 2000, p. 13). Similarly, Stan Hawkins has problematized the identification of musical codes (Hawkins, 2002), insisting that "there is always a sense of legitimacy in one's own brand of hermeneutics that seeks to validate the means of one's craft"(Hawkins, 2001). Given that pop texts generate a range of possible subject positions from which to interpret, it follows that they can be understood as staged. In other words, each interpretive subject positioning represents a staging of the current listener that is as nuanced and complex as the listener's competence allows.

Central to the analysis is the concept of staging, which requires some unpacking. Competing with each other are two related but different ways of thinking about staging. In one sense, staging refers to the physical or perceptual positioning of sound objects in the recorded space—the placement of the performance on the stage. Although they do not explicitly employ the term 'staging', this definition of the term is highly congruent with Allan Moore's soundbox (Moore, 2001, 2012) and William Moylan's perceived performance environment models (Moylan, 2002, 2012). Of course, these models, like this work and that of many others, use this concept to move from the sonic perceptual towards the metaphorical and musicological, considering how the artist constructs aspects of performance and identity that contain deeper meaning for listeners. For example, Moore bridges the perceptual with the hermeneutic by introducing proxemic relationships as ways to interpret aspects of the performance persona (Moore, 2012, pp. 185–186). Philip Auslander discusses the ways in which liveness both constructs and is constructed by recorded music (Auslander, 2008, pp. 73–127), and I would suggest that his argument is about how the staging of rock records dictates the staging of live performances and vice versa, which of course has a huge impact on the listener's interpretations of meaning, subject position, persona, and authenticity. This article uses concepts of staging in similar

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more in-depth discussion, see the introduction to Stan Hawkins' book Settling the Pop Score (2002), which deals with musical codes and hermeneutic methodologies extensively.

ways to these to show how 3D music reconfigures the performance stage, both in terms of its perceived physical parameters and its hermeneutic relationship to listeners.

In focusing my analytic intentions, I have devised a model that serves to deconstruct various aspects of interpretation to relate particular observations about music production aesthetic features to musicological discourses. This model has three areas of analysis, which are *balance and proxemic distance*, *performativity and vocal staging*, and *subject positioning and perception* (fig. 1).
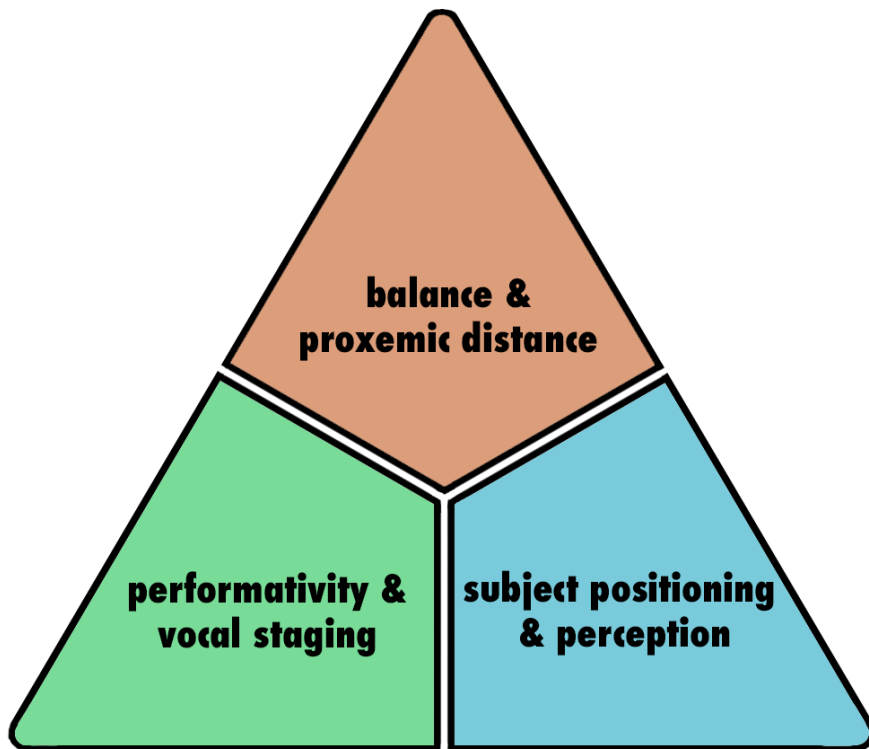

Figure 1: Model for hermeneutic analysis of 3D music

Balance and proxemic distance

The technological means by which panning and balance are achieved in pop mixes are important to understand as they are part of a large palate of tools that create a stage for performers to position themselves in a variety of proxemic contexts (Collins & Dockwray, 2015). Allan Moore refers to Hall's model of proxemics (See: Hall, 1966), or social distances, in reference to popular music spatiality to describe both the perceived physical distance of the performer to the listener as well as "the degree of congruence between a persona and the personic

environment" (Moore, 2012, p. 186). Personae[6] are staged hermeneutically by listeners as they interpret their relationship to performers, and this relationship is both literally and metaphorically spatial. For example, an artist may choose to use very little reverb while singing very quietly into the microphone, such as the famous opening to Salt-N-Pepa's 'Push It', which suggests an intimate and highly sexualized proxemic relation to the listener. In the same song, when the voices of Salt-N-Pepa are heard in rap/hype contexts, the staging is more distant—there is a perceptible amount of reverb and delay, and the rappers are clearly vocalizing at a louder volume, suggesting a social distance that is interpreted as a stage address to a crowd.

Given that the primary mode of dissemination for popular music has been stereophonic sound, it makes sense to begin examining this spatial relationship through a discussion of compositional staging norms in stereo music. In particular, the normative structure of the spatial placement, or balance, of instruments, voices, sounds, and effects in pop music mixes is considered here. The balance of a pop mix has been considered in a number of ways, but here I begin with the idea of the 'diagonal mix', a term coined by Moore that describes a mixing structure that emerged shortly after the introduction of stereo sound where "a lead vocal, a snare drum, and the harmonic bass… are situated centrally on a (very) slight diagonal" (Moore, 2012, p. 32). It is clear that the panning of lead elements in the center while balancing secondary elements across the stereo image is a practice carried on through contemporary popular music production, as evidenced by the emphasis placed on this kind of balance by authors of modern mixing method books. David Gibson's influential manual *The Art of Mixing* refers to the panning of important elements into the center of the stereo image as a presupposition: "As you probably have noticed in mixes, some sounds are right out in front (normally vocals and lead instruments)" (Gibson, 1997, p. 10). Going a bit further, mixing engineer Mike Senior argues for this panning structure from a more practical perspective, suggesting that the reason we put these elements "in the middle of the stereo image

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[6] The term 'persona' in this passage requires unpacking, as it is not used consistently across literature. Here, Moore is referring specifically only to the constructed performer as they exist in the musical text, avoiding extra-musical factors that others explicitly consider as part of the construction of personae. For example, Philip Auslander is careful to distinguish between the 'real person', 'performance persona', and 'character' (2009, 305), while Moore openly conflates the boundaries between these notions (2012, 180-181) and avoids consideration of factors outside the musical text. For a detailed discussion of these definition, see Hansen 2017. (Auslander, 2009; Hansen, 2017; Moore, 2012)

[is] because they'll be the ones that survive best in mono" (Senior, 2012, pp. 126–127). Considering the secondary sonic elements, we get a clearer and more complete picture of balance structure in pop mixes. Gibson claims that "for some instruments, the traditions for the specific placement of left to right have become very strictly enforced" (Gibson, 1997, p. 99). Senior gives a method for accomplishing this balance, which he calls "opposition panning," in which balance is created through panning sources opposite to one another based on their "musical function," such that anything panned to the left, for example, should have a musical equivalent on the right (Senior, 2012, p. 127).

In general, popular music productions in surround and 3D formats have followed a similar panning and balance pattern, referred to as the *front stage image* (Gerzon, 1992; Glasgal, 2001; Moylan, 2002). Similar to the diagonal mix, this spatial structure recreates the stereo sound-stage metaphor in front of the listener, using additional side, rear, and height dimensions for widening stereo images, modelling acoustic spatialities such as performance halls and recording studios, and special effects such as placing the background vocals in the literal background. An iconic example of special effects in surround popular music comes from Allan Parsons' famous quadraphonic mixes of Pink Floyd's 'Money' from *Dark Side of the Moon*, where, in the introduction, the listener is immersed in a cacophony of ringing cash registers and dropping coins. The scene is seemingly without a front image for a few seconds, panning wildly around the listener until the famous 7/4 bass line comes in front and center to stabilize and establish the stage dimensions (Pink Floyd, 1973).

One of the most important mixing tools that impacts on proxemic relationships is reverb and delay which often combine with panning in stereo to create the illusions of depth and distance. This works because, without visual cues, we tend to relate sound sources to imagined causes, which Denis Smalley refers to as "source bonding" (Smalley, 1997, p. 110). Moore's 'sound-box' model describes stereo depth as a function of relative volume and relative reverberation (Moore, 2012, pp. 30–31), as does William Moylan's 'perceived performance environment' model, which has six characteristics, four of which deal with relative relationships of various aspects of reverberation and delay (Moylan, 2012, p. 164). Since real-world sounds propagate our environments full of reflections, they are heard with echoes and natural reverberations, which can of course be replicated with music processing equipment and software. Of course, while realist representations of acoustics may be a goal of some music, popular music often mixes and matches

different spatialities for artistic effect. As Ragnhild Brøvig-Hanssen and Anne Danielsen point out, when hearing multiple spatialities simultaneously "we do not draw upon any given experience with a particular space but are rather forced to attempt an awkward synthesis of a number of such spaces" (Brøvig-Hanssen & Danielsen, 2016, p. 33). Such "surrealism" of spatiality need not be 'unnatural', as typifies popular music as much as the sense of a normal listening process (Brøvig-Hanssen, 2013, pp. 14–22).

Staging in immersive pop mixes can have a great impact on perceptions of proxemic distance. For one, the front stage image in surround and 3D music means that the mix can contain spatio-acoustic detail of much higher resolution, in some cases creating the illusion of replacing the reverberation of the listening space with that of the virtual recorded space. This added acoustics footprint comes at a price, which is that, if used globally, the additional reverb can have the effect of distancing the mix from the listener significantly. The potential downside is that the physical distancing effects the perceived proxemic relation between performer and listener, which can greatly affect the perceived meaning for the listener. In the example I will look at later, a different approach was taken, in which certain elements were given greater spatio-acoustic detail (i.e. reverb and delay) while others were not, allowing those less-processed sounding elements to be interpreted as being closer. It is clear that immersive spatial configurations, for both technical and artistic reasons, can have a great effect on perceptions of proxemic distance.

Performativity and vocal staging

Given that all forms of identity are socially constructed rather than a priori, I generalize a definition of performativity based on Thomas DeFrantz's notion of Black performativity, as "gestures of Black expressive culture, including music and dance, which perform actionable assertions" (DeFrantz, 2004, p. 67). My broader definition is thus that performativity consists of the repetition of performative actions that are denoted by a community as being appropriate for a particular aspect of identity (see also Butler, 1993, pp. 4–12). It is important to understand that performativity in pop music is enabled through technologies of music production and staging. Hawkins pointed out in analyzing Madonna that performativity and performance technologies are inextricably linked, "Behind her productions there is a technical gloss that highlights the striking traits of her aural and visual spectacle… This is rooted as much in musical style as performance design" (Hawkins, 2004, pp. 188–189).

Central to performativity in popular music is the voice, and many scholars have approached subjectivity, agency, and staging of voices in pop music. Although he does not implement hermeneutic approaches, Serge Lacasse categorizes in great detail the multitude of compositional and technical effects used in popular music staging (Lacasse, 2000). Moore's account of vocal staging connects the language of music technology and production with an interpretive methodology (Moore, 2012, pp. 101–118). Importantly, Moore emphasizes both the sonic characteristics of the voice and the lyrical text in his hermeneutic approach.[7] Going further, Freya Jarman uses a Foucauldian frame for understanding the role of music technology in identity construction, and distinguishes between "internal (physiological), external (recording, production), and power" technologies as frames for understanding the construction of voices, and by extension queer identities, in popular music (Jarman-Ivens, 2011, pp. 21–23). The congruences and juxtapositions of sound and lyrics (as well as instrument sounds) are critical to understanding the performance of identity.

Many have approached performativity by focusing on factors that extend beyond vocal staging. For example, Hawkins, in arguing that identity is as much part of a musicological as a sociological discourse, insists that "musical expression has a performative dimension from the outset" (Hawkins, 2002, p. 14). Similarly, Hansen unpacks performativity through hermeneutic analyses of audiovisual pop texts, and considers the various ways in which gender, race, ethnicity, sexuality, class, and other identifying elements are articulated in popular music and music video (Hansen, 2017). In a recent study, Danielsen and Hawkins illustrate that evidence for performative staging can be found when emphasizing the musical text as primary. This they demonstrate in Prince's personas and signature, which is shaped first and foremost through his virtuosity as a singer, guitarist, composer and producer (Danielsen & Hawkins, 2020). Looking beyond the musical text with a focus on racial subjectivity in Black rural feminist trap, Corey Miles cites Fred Moten to "situate Black performance in the Black radicalism tradition, suggesting it disrupts dominant discourses on Black subjectivity and is a form of resistance to

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[7] This is, to an extent, in contrast to methods which focus solely on lyrics or solely on the sound of the voice. For example, Frith says that "the tone of the voice is more important… than the actual articulation of particular lyrics," and that this is "because it is the voice—not the lyrics—to which we immediately respond". (Frith 2004) (Frith, 2004)

objectification" (Miles, 2020, p. 47; Moten, 2003). What these authors remind us is that all aspects of identity are integral to the staging of pop performances.

I suggest that it is through the processes of vocal production and mixing that the artists' performativity is most impacted in the shift from stereophonic to immersive popular music. The recorded voice in popular music is recorded and processed through layers of reverb, compression, and other effects in ways that create a vocal sound which cannot exist in nature, but simultaneously fees acceptable and "natural" to listeners (Brøvig-Hanssen & Danielsen, 2013), and while this kind hyperreality is a common feature of popular music (Brøvig-Hanssen & Danielsen, 2016, p. 117; Lacasse, 2000, pp. 116–137), 3D music extends this hyperreality to an embodied interaction with the staged performer. 3D sound is of course a central feature of virtual reality, as can be experienced for example in Björk's 2019 release of the album *Vulnicura VR*.[8] However, I assert that the staging of the listener in 3D popular music does not require the high level of interactivity available in VR experiences but is an inherent aspect of the 3D sound format. In this way, the use of immersive music technologies in combination with existing pop vocal staging techniques has the potential to dramatically affect the possibilities for performers to stage their identities.

Subject positioning and designed perception

As much as artists perform identity through pop mixes, the real or assumed identities of listening subjects are also on display in musical texts. Here we turn to the concept of subject position, a term frequently used in media studies that describes the way in which media, through their formal properties, solicit particular responses by the interpreter. Quoting Clarke, "The notion of a subject-position is an attempt to steer a middle course between the unconstrained relativism of reader-response theory… and the determinism… of rigid structuralism" (Clarke, 2005, p. 93). My goal here is to understand the impact of immersion in 3D music on subject positioning. In a study I have undertaken with Hawkins, we have theorized how spatialities in immersive media necessarily stage listeners into the sonic environment in ways that can often be thought of as compositional: the listener of immersive audiovisual media is a staged object of

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[8] Zachary Bresler and Stan Hawkins have written research about this very album, which is forthcoming.

the compositional design, their presence implying agential self-positioning.[9] This self-positioning is similar to that studied in video games. For example, Karen Collins has theorized deeply about interactivity in video game sound, and how sound in interactive media is the "method, material, and mediator of experience" (Collins, 2013, p. 13). Importantly, however, 3D music does not need the active interactive involvement of the listener to imply agency. Rather, my claim is that agency is impacted through the construction of the stage in and around the listener.

Illustrating subject positioning in compositional design, I turn momentarily to the verse of another track by The Weeknd, the 2016 hit 'Starboy'. Briefly, this song is a dark, braggadocio R&B track featuring the producers and performers Daft Punk. In the first verse, Tesfaye is heard singing close to his falsetto register but in his full voice and at a low volume into the microphone, using a technique that might be described as "cry" in Estill vocal technique (Steinhauer et al., 2017). Looking at the ways that other artists in pop and R&B such as Prince, Michael Jackson, Justin Timberlake, Pharrell Williams, and others have used this vocal styling, it is generally associated with an attitude of love or seduction.[10] However, juxtaposed against lyrics like "I'm tryna [sic] put you in the worst mood," and "Made your whole year in a week, too," it is clear that Tesfaye is instead engaging in a calm, sarcastic 'talking down' to the listener. Tesfaye's masculinity is on display in this verse, as well as a clearly straight-male subject position. In the last lines of the verse, he sings, "Main bitch outta your league too, ah / Side bitch outta your league too, ah." Here, Tesfaye seems to presume that the listener is male (and straight) and positions them as such by sizing up his masculine superiority through sexual conquest. As this example makes clear, any interpretation of the music requires a reading of the relationship between performer and listener, and various staged aspects of the identities of listeners, presumed or not, must impact on this perceived relationship.

Perhaps the most compelling argument about the relationship between 3D music technology and subject positioning is that immersive music more easily enables embodied interpretations. In her essay on embodiment in virtual reality, Morie suggests that embodied experience in immersive media (specifically virtual reality) necessitates an isochronic existence of the body "in both the real and virtual

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[9] Forthcoming research by Bresler and Hawkins on the VR music videos released by Björk in 2019.
[10] An example of cry technique being used in a sexually/romantically intimate way can be heard in the 2010 song 'Hypnotize U' by N.E.R.D., which is sung by Pharrell Williams.

worlds" (Morie, 2007, pp. 127–128). Certainly, in all media there exists the possibility that subject positions allow the viewer to experience an alternative point of view, even to the exclusion of their own, a phenomenon described throughout cognitive science, for example, in the notion of the flow state described by Csikszentmihalyi (1990). Morie's notion of the bifurcated body that experiences both the real and virtual simultaneously is important because it informs us that immersive media experience, which certainly includes 3D popular music, comes with a unique type of subject positioning that involves the sensory experience of being surrounded with audio and/or visual environmental cues, which importantly exist simultaneously to those coming from the listening environment, as well as the metaphorical embodiment cues that exist in the text itself. As I have exemplified in the 'Starboy' example, the music of The Weeknd is replete with both implicit and explicit subject positions and performative stances. The use of immersive music technologies for dissemination such as Dolby Atmos, in these cases, serves to exemplify agency in these positions, granting the performer a more spacious environment in which to paint their identity and the listener new opportunities to engage and interact with the performance in ways that constitute new embodied experiences and subject positions.

Blinded by the lights: Analyzing The Weeknd in Dolby Atmos

On The Weeknd

Shrouding himself in mystery and anonymity early in his career on YouTube and SoundCloud, Abel Tesfaye was known in the beginning only by his stage name 'The Weeknd', and he has arguably contributed to transforming R&B and pop music since he emerged in 2011. Known for being a pioneer in the 'alternative R&B' style, The Weeknd is well on his way to becoming one of the most important pop icons of his generation. His music varies in style from polished number-one pop hits to dark, some might say utterly strange, R&B ballads. Like many of his peers, he makes constant reference to unashamed drug use, addiction, sexual encounters of every variety, and hesitation towards the whole affair of pop stardom. Listening to songs from throughout his career so far, such as 'High for This', 'The Hills', 'Can't Feel My Face', 'Starboy', and 'Heartless', a central theme runs through his work: ambivalence. Sometimes it is deeply coded, hidden behind the upbeat pop production of Max Martin or Daft Punk. Other times, it comes out quite explicitly as exemplified by this chorus lyric from his 2019 hit

'Heartless', "All this money and this pain got me heartless / Low life for a life 'cause I'm heartless."

The music of The Weekend is loaded with imagery and reference in ways that demand interpretation from listeners. In addition, The Weeknd has had much of his music remixed for Dolby Atmos 3D, making the simultaneous existence in stereo format useful for comparison. Here, I analyze the track 'Blinding Lights' by The Weeknd from the 2020 album *After Hours*. I approach the analysis explicitly in the terms of the model I presented earlier and work through each of the three conceptual frameworks in order.

Balance and proxemics
In the first verse of 'Blinding Lights' there are already points of comparison between the stereo and 3D versions in the spatial construction of the mix. The instrumentation in the verse is relatively sparse, consisting primarily of the lead vocal, kick and snare drums, and a simplistic synth bass. In the background is a heavily low-pass filtered saw-wave arpeggio, and some small percussion hits enter in the second half of the verse. To visualize the mix, I employ Moylan's "Perceived Performance Environment" diagrams, which are an apt way of modelling the perceived spatial layout of a mix in both stereophonic and surround sound music (Moylan, 2002). However, since the music we are analyzing is in 3D, rather than surround, and therefore contains sound in the height dimension, I have included a color-coding to the diagram to show relative elevation between sources.

Looking at PPE transcriptions of the verse, the stereo version is a clear diagonal mix structure, with the lead elements occupying the space directly in the center, while the filtered synthesizer is a spread image that occupies the majority of the stereo width while being perceived to be in the rear because of its relative volume and high amount of reverb. The lead vocal has a small amount of reverb and delay, and this is done in stereo and panned to the right and left of the image. In the Atmos mix, a standard front stage image can be heard in the verse, where the stereo structure is more-or-less recreated in front of the listener. However, there is some clear elevation panning, such that the bass and kick feel as if they are centered around the listener and somewhat lowered, while everything else excepting the lead vocal has been elevated. In effect, this creates room for those other voices to be more present in the mix without taking the space of the lead vocal, an effect that is particularly noticeable upon the entrance of the syncopated percussion sounds, which are noticeably louder than in the stereo version. Additionally, the vocal

delay and reverb envelopes the listening position from behind, again allowing for a much closer and immersive feeling without the need to reduce the amount of reverberation.
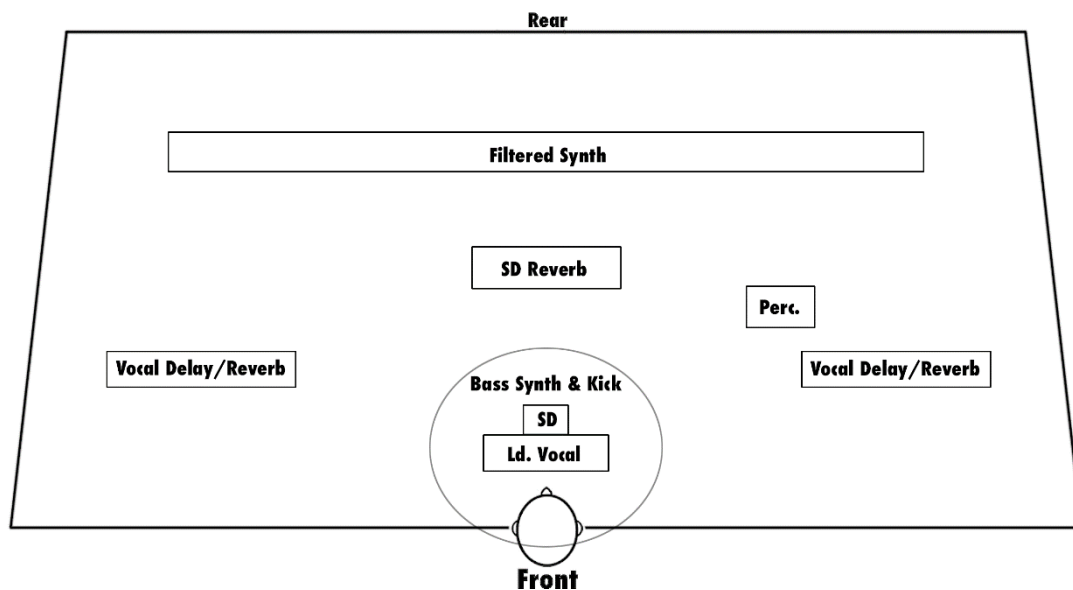

Figure 2: Verse of Blinding Lights, PPE transcription, stereo

Overall, the spatial difference between the two versions is that while the stereo version consists of a wide diagonal mix, the 3D version emphasizes the voice by surrounding the listener in it when possible while accentuating elevation in the background elements. This creates a wholly different set of proxemic relationships, as elements that are backgrounded in the stereo version become foregrounded in 3D. Additionally, the 3D format allows for different kinds of spatialization, such that nearly all elements can receive more reverb and delay, and that acoustic treatment can be panned in different directions to create the sensations of close-up sound sources that have long reverb times. While this is difficult to achieve in stereo mixing, it is quite common and much easier in 3D.
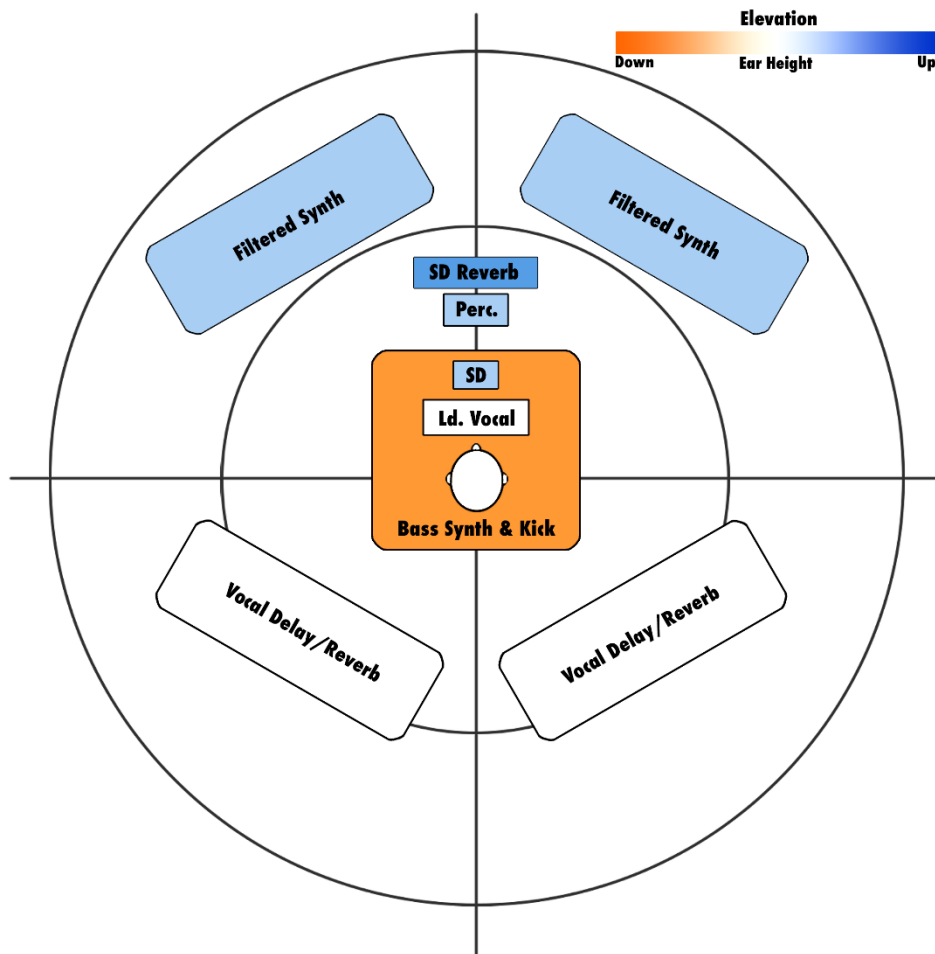
Figure 3: Verse of Blinding Lights, PPE transcription, Dolby Atmos

Performativity and vocal staging

From the first entrance of the voice in 3D, it is clear that the reverb and delay of the lead vocal are panned to the rear, while the lead voice itself has been left relatively acoustically dry and in front. Compared to the stereo, this has the effect of both increasing the spatial qualities of the voice while giving it even more size and immediacy with respect to the listening position. This approach of surrounding the listener in Tesfaye's voice is used throughout. Moving to the chorus, the voice is double (or triple) tracked, and the chorus of vocal lines and their associated reverbs and delays take up considerably more space in the Atmos mix, allowing the listener to hear more of the voice without obscuring the very impactful instrumental track. Cleverly, the instrumental hook of the song, played by a synthesizer reminiscent of the famous introduction to a-ha's 'Take On Me',[11] lands at the end of the chorus without any voice to compete against it. In both versions

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[11] For a detailed analysis of this, see (Hawkins & Ålvik, 2018)

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of the song, this synth is panned to the same place as the respective lead vocal, and in the Atmos version of the song the lead synth is given similar immersive treatment.

As with many contemporary pop productions, the voice in 'Blinding Lights' is heavily processed through various layers of compression, auto-tune, reverb, and delay, and in some parts is also double-tracked to add to the hyperreality of modern vocal music production. This comes through particularly in the verse, where it is clear that Tesfaye is singing at a low volume into the microphone, which in combination with the heavy compression allows us to hear mouth and throat characteristics in the voice which would otherwise be inaudible. Although he is singing in what sounds to be a comfortable range for his voice, the quality is thus both strained and intimate, suggestive of exhaustion and juxtaposed against the brightness and energy of the timbre and tempo of the track. This ambivalent sonic characteristic matches the exasperation of the lyrics:

> *I been tryna call*
> *I've been on my own for long enough*
> *Maybe you can show me how to love, maybe*
> *I'm goin' through withdrawals*
> *You don't even have to do too much*
> *You can turn me on with just a touch, baby*

The use of metaphorical language that obfuscates Tesfaye's relationships with women and with drugs is a play on words to which he frequently returns. Here, the use of the word "withdrawals" blurs our interpretation, as we are unsure if the one who will "show me how to love" is a lamentation of the loss of his lover or an admission that he doesn't feel himself unless high. Turning to The Weeknd's other music provides no answer, as he frequently refers to drugs as being like the women in his life, and vice versa.[12] This kind of vocal production in combination and juxtaposition with lyrics and instrumentals is one of the many ways in which Tesfaye stages his contradictory identity: he is tired, yet energetic; lonely, yet fulfilled; turned on, yet completely without desire.

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[12] Probably the clearest rendition of this "drugs as women" metaphor comes in the song "Can't Feel My Face", in which Tesfaye apparently personifies his drug addiction as a toxic relationship which he cannot (or doesn't want to) end.

Later in the pre-chorus and chorus, we hear a double-tracked version of Tesfaye singing at full volume, occasionally with a cry-like quality when reaching the top of his register. Subtle as it is, Tesfaye is quite clearly using auto-tune throughout the song, cleverly leaning into the boundaries between notes at certain points in a way that effectively creates the illusion of a vocal break using the auto-tune processing. The voice in the verse also seems to be processed in parallel, so that the dry, compressed line is quite forward, while the reverb and delay version of the lead vocal are processed via a side-chain gate that 'opens up' the volume at the end of each line. In effect, this technique creates both the dry, forward voice while allowing the lush, layered reverb and delay to sit behind without bringing the lead back in space with it. In the 3D mix, this reverb and delay is panned mostly behind the listener, which again creates more space for the lead voice. In my reading, this draws attention to this effect in the rear even more than in stereo, reinforcing an interpretation that the singer is calling out into an empty void. Here, there is ample evidence that the 3D mix reinforces a level of ambivalence.

Turning to the short bridge (which comes in around 2:18), Tesfaye goes up in pitch near the limit of his range, singing noticeably louder and shifting towards a more public proxemic address:

> I'm just comin' back to let you know (back to let you know)
> I could never say it on the phone (say it on the phone)
> Will never let you go, this time (ooh)

Here, the repeated lyrics in parenthesis are echoes of the main line, and in the 3D mix, they are positioned behind the listening position, alternating between left and right. Additionally, they are filtered significantly such that they have a quality like that of a telephone or megaphone. In the stereo version, these are panned hard left and right and are also much louder than in the 3D mix. My perception in the Atmos mix is that the lead voice is 'closer', and the rear positioning of the 'background' echoes creates an almost 'devil-over-the-shoulder' feeling that positions the repetitions as internalizing thoughts to the subject position, rather than simply echoes or reiterations from the performer. I read this spatial structure as placing emphasis on the desperation in the lyrics while increasing the overall aesthetic feeling of being immersed in the voice—a very powerful moment in the song.
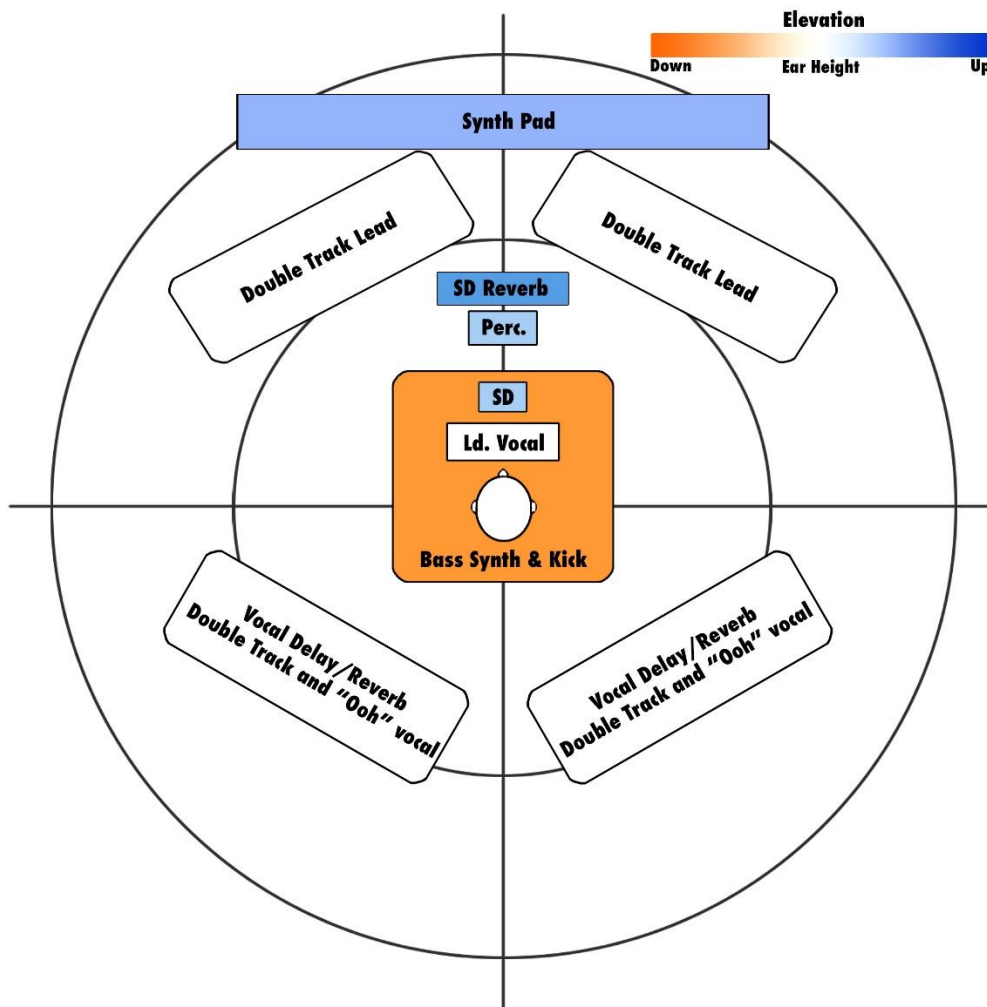
Figure 4: Chorus of Blinding Lights, PPE Transcription, Dolby Atmos

Implicit in The Weeknd's performativity is the matter of race, and while the music of 'Blinding Lights' offers few surface clues, turning to intertext, a picture emerges that allows us to gaze at this very important and interesting aspect of Tesfaye's staged identity. An immediate question in attempting to ascertain meaning in the lyrics is: what are the 'blinding lights'? The song itself is set in Las Vegas, the city that never sleeps, but he says, "Sin City's cold and empty / There's no one else around me," leading us to interpret the lights as being those of the late night/early morning strip. The outro of the previous track on *After Hours,* 'Faith'*,* has an almost seamless transition to 'Blinding Lights' and offers a different interpretative frame. Here we shift to an arrhythmic wash of atmospheric synths and a heavily filtered voice that sings slowly "I ended up in the back of a flashing car, with the city shining on my face. The lights are blinding me again." Many in the media have speculated this moment, and the lights in 'Blinding Lights' as a reference to a 2015 incident in which Tesfaye punched a police officer while being arrested in

Las Vegas.[13] In fact, in an interview in 2020 with the web magazine NME, Tesfaye clarified this point, speaking about the outro to 'Faith', he claimed that the period of his life in which this event occurred was "the darkest time of my entire life", and that the sirens in the background of the 'Faith' outro is "me, in the back of that cop car, that moment."[14]

Figure 5: The Weeknd in the introduction of the 'Blinding Lights' music video

At the beginning of the music video for 'Blinding Lights', a bloodied closeup of Tesfaye who is writhing in pain is visible, and in several live performances of the song for late-night television shows such as *Saturday Night Live* and *The Late Show*, Tesfaye performed with blood and bruise makeup and a large, white bandage across the bridge of his nose. He also performed in this makeup at the 2020 MTV Video Music Awards, where 'Blinding Lights' won awards for Best R&B Video and Overall Best Video, and he used his platform there to speak in solidarity with the Black Lives Matter movement, his bloodied face now clearly interpreted as a statement about the growing awareness of police brutality towards

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[13] https://www.theguardian.com/music/2015/oct/23/the-weeknd-abel-tesfaye-avoids-jail-time-after-punching-police-officer, https://www.billboard.com/articles/columns/the-juice/6436581/the-weeknd-arrested-for-punching-las-vegas-police-officer, https://www.nme.com/news/music/the-weeknd-opens-up-about-2015-arrest-2643452, https://genius.com/The-weeknd-blinding-lights-lyrics.
[14] https://www.nme.com/news/music/the-weeknd-opens-up-about-2015-arrest-2643452

Black citizens in American communities. In fact, the context of the events of 2020, including the Covid-19 pandemic and the Black Lives Matter movement, offer many new interpretations of the song, from the lamentations of empty streets and lonely feelings to powerful illustrations of Black struggle.

From this it is clear that vocal staging is a primary tool that artists use to perform identity and persona, and this is made more vivid through the use of immersive music technology. By altering how the voice is positioned and processed to envelop the listener, the artist has reconfigured the stage to more include the listener and, at times, help the listener be immersed the vocal performance.

Subject positioning and perception

So far, I have delved into the ways in which The Weeknd has staged himself and the sonic structure that has been composed to support his identity. Now I want to turn briefly to the ways that the listener engages with immersive media, and how the subject position is constructed for them. At this point in the analysis, it is important to reiterate is that subject position is, by its very definition, ecological and highly dependent on which subject is being positioned. Clarke defines subject position as something that lies in the music: the "way in which characteristics of the musical material shape the general character of a listener's response or engagement" (Clarke, 2005, p. 92). However, as I have already problematized, the musical codes that are marked as relevant by one analyst may draw very different interpretive conclusions to those delineated by another. In other words, although here I intend to discover some generalities about subject positioning in this track, the analysis is unavoidably derived from my own hermeneutic self-positioning.

Unlike other music by The Weeknd, such as 'Starboy', subject positioning in 'Blinding Lights' is less defined and more broadly open to a wide variety of often contradictory interpretations. Sonically, the voice in the verses of 'Starboy' are dry—certainly compressed, but nearly without reverb and delay creating an extremely intimate 'spaceless' sound that reinforces the sensation that the singer is speaking directly to the listener. In 'Blinding Lights', the voice is treated with such a wash of reverb and delay that it feels as if the singer is in a huge and empty space, screaming into the void. While this is the case in the stereo version of the song, it is even more pronounced in the 3D mix since the voices are panned around the listener and the reverb tails are more present and easier to perceive even as they fade to the background. This effect is clearly discernible in the verse, as each line

is delivered over the course of about a measure, often followed by a measure or so of rest which is filled completely with reverb and delay that bleeds into the next line. In the chorus, the end word of each line is either "lights", "touch", "night", or "trust", and these hard, often sibilant consonant endings are perfectly timed with delay to create additional percussive movement on the offbeats.

In the lyrical analysis hitherto, it becomes clear that Tesfaye is purposefully obscuring the intended recipient of his words, forcing us to ask: to whom is he singing? Frequently he addresses a 'you', but I do not believe this is intended to address the listener as such. Rather, in this case the listener is an outside observer, and the subject of the singer's address is purposefully unclear, and, as I suggested earlier, lines like "I'm going through withdrawals" and "I can't sleep until I feel your touch" suggest a personification of addiction. One interpretation of the subject position is that the listener is transported to an observational stance that sees the performer who loudly laments to this nameless personification, and the heightened spatialization of the voice in 3D sound serves to further exemplify this position. Again, this is accomplished through the panning of the voice and its reverb all around the listener and the way in which that brings the main sound of the voice forward while creating a huge amount of empty-sounding space around the listener. A simultaneous interpretation is that the Atmos version allows for an embodied subject position—I hear the voice as dry because it is my voice, and I hear the echo all around me because it I am crying out to nobody. Regardless of the fact that these two subject positions are contradictory, it is nonetheless possible that they are not mutually exclusive, and one can hold on to them simultaneously. In fact, such contradictory spatial interpretations are part and parcel of popular music production. In terms of surreality in spatiality, Brøvig-Hanssen and Danielsen point out that "musical spatiality has a tendency to point the listener toward a real-world physical phenomenon even as it acts to undermine that reality" (Brøvig-Hanssen & Danielsen, 2016, p. 27). Likewise, the hyperreality of the immersive stage in 'Blinding Lights' creates a subject-position that is simultaneously embodied and distant, both extremely close and far away. In this way, the Atmos mix has reinforced the staging of ambivalence through the reconfiguration of the stage.

Conclusion

Increasingly, immersive and interactive editions of pop music are part of the mainstream media landscape, and as such it is important to put a focus on the ways

that such media impact on various interpretive aspect of pop texts. As I have attempted to demonstrate in this article, the relative differences between traditional stereo and immersive versions of pop songs lies not in the composition, but in the mix. While aesthetic features certainly change when moving between different forms of music media, structures that define the composition remain more-or-less consistent. In other words, any aesthetic changes are attributable primarily to the media format itself and can be seen as aesthetic features of the format. Analogizing to painting, aesthetic differences between the same image painted on different surfaces is a correlate of the aesthetics of the canvas, not necessarily the image.

In terms of proxemic distance perception, it seems that the amount of possible perceivable physical space has a large effect on perceptions of social distance. In 3D pop mixes, spatialization of musical elements and acoustic modelling serve to increase or decrease the apparent size and distance of performers and sounds, which in turn can create different possibilities for understanding and interpreting the musical content. Generally, acoustic modelling results in distancing (i.e. the intimate becomes the personal; the social becomes the public, and so on). Changes in proxemic perception will inevitably widen or narrow the possible meanings one can gleam from the text. Finally, frame of reference is critical in this context, as the perceived differences between stereo and immersive music will vary greatly based on the one's scope. Zoomed in on minute compositional detail, one sees little difference. However, zooming out towards meta-structures in space, interpretative stances, subject positions, and performativity, once can see that the reconfiguration of the performance stage creates new possibilities for all these aspects of music recording and performance.

Finally, as with all pop artists, The Weeknd carefully turns to staging to shape the perception and interpretation of various aspects of identity, including of course specific aspects such as race, ethnicity, gender, and class. The 3D music format, in this case Dolby Atmos, serves to reconfigure the stage. It changes the perceptions of relational space between the performer and audience, immerses the listener in the singer's identity through new approaches to vocal staging, and reinforces an interactive and embodied listener subject positioning. If music technology and its staging point to social and cultural self-positioning by artists and interpreters of popular music, then surely the dramatic ways that immersive and interactive media impinge on staging are important to consider; it is these kinds of media that continue to emerge more mainstream in the popular music sphere.

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