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Autism-as-Machine Metaphors in Film and Television Sound

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Around the turn of the millennium, a cultural fascination with autism emerged. With the broadening of the diagnostic criteria and more awareness about the condition, the public's interest expanded considerably, which resulted in the publication of several novels including *About a Boy*, *The Curious Incident of the Dog in the Night-Time* and *Little Green Man.* Each of these works coincided with what has been declared by scholars as "syndrome publishing" and "autistic bandwagonism" (Murray, 2008, p. 157), and this led to the creative outpouring of non-autistic representation of autistic characters in films, television programs and other cultural texts.

Through the publishing of these books, as well as the releasing of films and TV shows featuring autistic characters, autism has garnered "narrative appeal" (Murray, 2008, p. 25). Stuart Murray (2008) writes that this phenomenon within culture "signifies possibly the most radical form of personal otherness." (p. 25). This signification of otherness reinforces the myth that autism is incomprehensible, frightening, and logically incoherent, and that although autistic people are technically human, we are not fully people with our own forms of subjectivity. It is through this "personification" of otherness that metaphors about autism emerge; metaphors that situate autism as something that is separate from humanness and humanity, and autistic people as not-quite-human.

Because of this cultural fascination with autism, a number of narratives and metaphors have surfaced in the media. Among these is the comparison of autistic people to missing puzzle pieces, confusing aliens, impenetrable fortresses, and malfunctioning robots or unfeeling machines. This collection of tropes has informed the public's perception about autism, its diagnostic classification, as well as autistic personal identity and cultural identification. Snyder and Mitchell discuss the "centrality of narrative" in the public's perception of disability; how the American public accesses their information about disability (and autism) through narrative television, books and films

(Murray, 2008, p. 4). Murray (2008) asserts that these cultural portrayals of autism "create an idea of autism, rather than try to reflect one" (p. 4) and are therefore the driving force in the formation and dissemination of new and harmful stereotypes about autism.

I am a scholar of music and sound; I am also autistic and very bad at math. My aim for this essay is thus twofold: to establish the relevance of sound in the dissemination of harmful stereotypes about autistic people; and to specifically address the (often harmful) filmic and televisual association of autistic people with numerical, mathematical, or computational abilities. To do so, I will examine the use of metaphors in filmic and televisual representations of autism and will determine the extent to which music and sound play a role in their creation and transmission.

According to Mitzi Waltz (2003), autism metaphors harken back to the ways in which autism has historically been symbolized: through allegories of self-loss, animalism, inhumanity and otherness. While these metaphors have little basis in reality, and do not reflect autism or autistic people, she argues that they speak "volumes about cultural anxiety and the use of representations of disability in the discourse of humanness" (p.8). Lakoff and Johnson (1980) argue that metaphorical thought is something people are generally oblivious to, yet metaphors are an invaluable tool for understanding deeper human conceptual systems. They assert that metaphors do not just exist in language, but permeate our everyday lives, influencing how we think, and the actions we take (p.3). Metaphors have the power to shape cultural texts, and therefore public and medical understandings about autistic people. The mental imageries produced by metaphor can be articulated sonically or visually, and can completely bypass linguistic articulations.

Sound and music are two media through which machine metaphors are signified, and I would contend that they are the least recognized, yet possibly some of the most influential. In the first part of this essay, I provide an overview of autism metaphors and how they are rooted in antiquated and debunked medical theories about the origins of autism. In the second section, I discuss the phenomenon of the savant and how autistic people are often depicted as supercomputers, investigating how sound and music are deployed in showing the internal workings of the autistic mind through the metaphor of the computer. These depictions incorporate mechanical sounds

in order to simulate the working of the autistic mind (or rather, the mind of the savant), which invites what scholars such as McGrath and Dula term "the ableist gaze" (Dula, 2020, p. 199; McGrath, 2017, p. 184). In the third section, I analyze how the machine metaphor persists in filmic constructions of the autistic voice and how this reinforces the ableist gaze, or what I will refer to as the ableist ear. I look at films and television programs, including *Rain Man*, *Mercury Rising*, *The Big Bang Theory*, *The Good Doctor*, *Community*, *Touch*, *Atypical*, and *The Accountant*. I reveal the sonic, and musical metaphors presented by composers and sound designers and uncover how the soundtrack reinforces and generates dominant narratives about autistic people as mechanical. My scope is broad: there is no way to fully encapsulate the numerous films that sonically associate autistic people with machines. I aim to broaden the scope of studies of autism within audio-visual media to emphasize a multi-sensory approach.

Historical Context

It is from the medical model of disability and the medicalization of autism that most pervasive metaphors and narratives have become entrenched in popular discourse. Jenny Corbett writes that "the discourse of psychology relies heavily on metaphor, and is largely responsible for bringing literary conventions and 'poetic imagery' into common use in discourse about disability" (Waltz, 2003, p. 24). The topic of metaphor in scientific and medical research has long been contested, including by scholars such as Susan Sontag (1978), who discussed how metaphors can impose stigmatizing moral frameworks onto people with disabilities (p. 6). Stigmatizing metaphors do not just remain in cultural texts: they impose themselves on the lives of autistic people and become stereotypes. (McGrath, 2017, p. 198).

Machine metaphors are peppered throughout the clinical history of autism, particularly taking root in early associations of autism with coldness, emptiness, and detachment. In early twentieth-century psychiatric literature, autism theorists were largely influenced by the psychoanalytic theories of Freud. Some theorized that autism was triggered by childhood psychosis; some believed that autistic children have no "real feeling" (Wing, 1997, p. 15); others assumed autism to be a purely psychological phenomenon with no physical basis.

Leo Kanner, for example, suggested that autism was caused by "cold, detached, humorless, rigid parents who were perfectionists, caring for their children like attendants caring for a *machine*" (as cited in Wing, 1997, p. 16, emphasis added). Kanner's theory, termed the "refrigerator mother" theory (Broderick & Ne'eman, 2008, p. 466), was influential on subsequent medical literature, particularly on the works of revered psychotherapist Bruno Bettleheim, who incidentally was later exposed as a plagiarist and a fraud (Boxer, 1997). His 1967 book *The Empty Fortress: Infantile Autism and the Birth of the Self*, deploys a number of metaphors (that are currently used) in describing autistic people and their parents, while expanding upon the "refrigerator mother" theory (Waltz, 2003, p. 2).

Bettleheim also advocated for the use of metaphor within medical literature, and his ideas formulated the basis for many common autism metaphors and stereotypes that can be viewed and heard in films and television shows. He wrote that "psychoanalysis teaches us that all myths. . . have their source in an unconscious wish" and that these myths are often fabricated to quell certain fears we have about our own reality. Therefore, he argued that at the root of any psychoanalytic theory is some element of fiction, and metaphors are therefore valid and useful within a medicalized context (Waltz, 2003, p. 1).

These clinical association of autistic people with unfeelingness, coldness, detachment, and emptiness set the stage for the proliferation of the autism-as-machine metaphor in the 1960s. James McGrath (2017) argues that the 1960s saw an increase in the use of automated, and computer devices in the workplace, most notable the "desktop calculator." He argues that since the 1960s, comparisons of autistic people to machines have occurred in "accordance with technological progress and its social and cultural impact." For example, he writes that in the 1988 film *Rain Man* "Raymond Babbitt's autistic 'savant abilities' are formatively juxtaposed with the efficiency and function of a pocket calculator" (p. 68).

Autism-as-machine metaphors have been not only present in mainstream scientific discourse, but also in counter-cultural discourse. The 1960s anti-psychiatry movement is an intriguing example of the machine metaphor within critiques of mainstream medical literature. Whereas, for example, many anti-psychiatric theorists considered schizophrenia or psychosis to be a liberated or spiritually enlightened state, they discussed autism conversely,

representing social isolation, Marxist alienation, and capitalism. Whereas madness represented nature and prevailing humanity, Fromm, Laing, and Pearce considered "autism as a metaphor for the rise of an inhuman, materialistic modern culture" and asserted, perhaps superciliously, that "an alienating culture actually causes the condition autism" (Waltz, 2003, p.8). This is noteworthy because during the 1960s, within the dominant medical establishment, autism and schizophrenia were thought to exhibit similar "phenotypic" similarities, and therefore were considered to be the same condition until the publication of the *DSM III* in 1968 (Dvir, 2011 ; Blashfield, 2014). Meghan Warner Mettler (2015) argues that madness was often co-opted and appropriated by counter-cultural members who used its "otherness" to signify "subversive or rebellious power" (p. 184). Indeed, madness functioned as a metaphorical framework for hippie authors and political radicals for whom madness was often a symbolic identity and revolutionary aesthetic. I would argue that the comorbidity between schizophrenia and autism during this time transformed autism into both a symbol of subversive power and a metaphor for industrialism, capitalism, technology and other artificial (and mechanized) manufactured social constructs.

The machine metaphor expresses itself in many ways: depicting autistic bodies and minds as robots, calculators, computers, cameras, transducers and other types of mechanical devices. Films and television programs depict both the external representation of autistic bodies and their internal autistic thought processes. Through sound, the external metaphors are presented through a series of sonic allusions to the autistic character's robotic mannerisms, as perceived by the non-autistic characters of a film or television program or the audience watching. These are reinforced primarily through the use of synthesized and artificial sounds, repetitive music, monotone speaking patterns, and other sonic devices that are representative and reflective of outdated or uni-dimensional external behavioral stereotypes and medical theories. The sound design and music deploy mechanical sound effects and repetitive, synthesized music to depict the inner mind of the autistic person. These depictions are common in autistic savant films, where the character retreats into their mind to solve a difficult or impossible (usually mathematical) problem. Such scenes often include a montage sequence that brings you inside the mind of the autistic individual, almost like a disability simulation. They specifically highlight lengthy passages of

time, where the character is hyper-focusing on a task, thus reinforcing their savant abilities. I refer to these montages as *super-abilities montages* because they establish the autistic character's prodigious talents in solving complex problems, particularly math problems or queries. Sound effects such as vintage typewriter or calculator sounds, binary code sound effects or other specific sound mixing techniques evoke the supposedly mechanical nature of autistic thought processes.

The Savant as a Supercomputer

The autistic mind-as-computer metaphor is so prevalent that not only is it used by doctors, directors or others working from the deficit model, but by prominent neurodiversity advocates. For instance, a well-known analogy in describing autism and neurodiversity is Steve Silberman's metaphor about computer operating systems: "One way to understand neurodiversity is to think in terms of human operating systems. Just because a PC is not running Windows doesn't mean that it's broken" (2015). Silberman's analogy is interesting and insightful; however, it reinforces the stereotype that autistic minds function like a computer's central processing unit (CPU). According to Danforth, this "mind as computer" metaphor has been used throughout "contemporary cognitive science providing terms and concepts such as information processing, storage, retrieval and feedback" (Danforth, 2007, 276). The metaphor of the autistic mind as a computer is also pervasive in popular culture; particularly in how autistic people are often portrayed as savants and supercomputers. In what follows, I examine some this trope in the film *Mercury Rising* and the television program *Touch*.

Portrayals of autism in film and television have often become synonymous with portrayals of the savant, although the phenomenon is relatively rare in the autistic population. Depictions of super-abilities reinforce an impossible standard for autistic people. For instance, if we aren't savants, our disabilities become irredeemable in the eyes of neurotypical peers, or society. Rosemary Garland-Thomson puts this succinctly in what she terms the "cultural logic of euthanasia" (Garland-Thomson, 2004, p. 777). She argues that there is a cultural perception that life with a disability is impossible, miserable, and without meaning, leading to societal pressures to either cure or normalize the disability. Garland-Thomson further claims that disability is divided and categorized through this process: some are deemed worthy and

"redeemable," while others are considered "disposable" (p. 778). Certainly, this cultural logic is present in how films that depict autistic characters articulate cultural perceptions about autism; autistic people are often portrayed as gifted savants who are redeemable, but only because of their expediency and usefulness to the film's plot, or to non-autistic characters. Draaisma (2009) argues that in many cases, "media representations of talent and special abilities can be said to have contributed to a harmful divergence between the general image of autism and the clinical reality of the autistic condition." He writes that savant syndrome is often deployed in films to make the viewers aware the character is autistic.

Anthony Baker argues that autistic savant films following the 1988 release of *Rain Man* idealize a "computational, nonhuman model of the autistic brain" (as cited in Draaisma, 2009). The idea of the autistic computational brain is evident in numerous films with autistic characters, but particularly in those that depict the inner mind of autistic characters. This computer metaphor is often employed during super-abilities montages, which portray the extraordinary or genius abilities of autistic characters. In these portrayals of autistic thought processes, the soundtrack is the predominant element that reinforces computational narratives about the autistic mind. Through sound, an internal space is created that is separate from the larger narrative of the film, which typically revolves around non-autistic characters. In this context, the computer metaphor constitutes a complete removal from the individualized self and replacement with a subhuman machine or robot.

Broderick and Ne'eman argue that "the autistic person has gone (whether of his or her own volition or not) to another place, to a separate, spatially removed state, a state of autism, from which, significantly, one might conceivably return'" (Broderick and Ne'eman, 2008, p. 466). The creation of this foreign, autistic mind-space within films is evident through the stark shifting of sonic and visual elements, a shift from the external world of the autistic person, to a voyeuristic depiction of their inner world: a simulation of the autistic mind, deviant in its processing capacities, and therefore fascinating to abled audiences. In super-abilities montages, non-autistic audiences are offered a chance to visit a simulation of the autistic mind-space. In *Mercury Rising*, a young autistic boy named Simon deciphers an encryption he accesses through a popular puzzle magazine, and by doing so, he beats the capabilities of two supercomputers. When he phones in to

receive his prize, the call is answered by two NSA agents who proceed to tell their boss and the head of the NSA of the boy's achievement. His family is subsequently murdered (by the NSA), and Simon is rescued by the valiant FBI agent, Art Jeffries (Bruce Willis).

The shifting from external world to internal mind occurs in the super-abilities montage at the beginning of the film, when Simon rapidly completes a labyrinth-style puzzle in his puzzle magazine and then turns to puzzle #99, a page consisting of letters, numbers and symbols, visually similar to a word search. The images cut between shots of the puzzle page, and Simon's eyes, which are hyper-focusing on the task. As the scene progresses, the camera zooms in, until it focuses on just a few numbers and symbols on the page, and only on the iris of Simon's eye. When watched without sound, the scene portrays Simon's ability to hyper-focus, a common autistic trait, but does not fully convey any computational characteristics, besides the stereotype of autistic people having an affinity for numbers and computers.

When the sound is added, however, the context shifts entirely. As the images alternate between shots of his eye movements and the symbols in the puzzle magazine, the sound designers employ binary code sound effects: a series of computer processing noises and artificial and synthesized beeps and drones. They implement a binary stream that illustrates that Simon's brain is processing complicated mathematical calculations, thus literally portraying him as a CPU. The sound designer's selection of binary code sound effects and binary stream metaphorically implies that Simon's mind functions through sequences of binary code, which are then translated by his CPU (his mind). Draaisma writes that "Simon's performance surpassing the combined efforts of two Cray supercomputers—may reinforce the myth of autistic persons having no true feelings." In this super-abilities montage in *Mercury Rising*, the computer metaphor is articulated predominantly through the soundtrack, and watching the clip without sound again shifts the context. In *The Voice in Cinema*, Michel Chion writes that "the creators of a film's sound—recordist, sound effects person, mixer, director—know that if you alter or remove these sounds, the image is no longer the same" (pp. 3-4).

The television series *Touch* is about a young autistic boy named Jake, with extraordinarily mathematical abilities. In the first episode, it is revealed that Jake has a "gift of staggering genius—the ability to see things that no one

else can, the patterns that connect everything" (*Touch*, Imdb). His mother perished in the plane attacks of 9/11, and his father Martin works odd jobs to pay the bills. Throughout the program, the father is portrayed as incredibly generous and patient; as a "martyr parent" (Campbell, 2018) who is simply trying to "reach" and "connect" with his supposedly absent son. Conversely, Jake is depicted as isolated, unemotional, disconnected and unwilling to be touched by anyone including his father.

It is eventually revealed that Jake (who is non-verbal) speaks through numbers rather than verbal communication. Jake's inner world is depicted quite frequently in the film and consists of several prominent autism tropes and metaphors, most notably that Jake's mind processes information like a computer. The first episode begins with Jake's narration about the Fibonacci sequence; there are patterns and ratios throughout the universe, making up everyone and everything. In the background of this narration, we hear mechanical calculator and typewriter sounds, which start to repeat, creating a rhythmic musical backdrop. Synthesizer sounds soon begin, layering a chordal sequence on top of the rhythmic and mechanically percussive backdrop. As the music progresses, the calculator and typewriter sounds become increasingly complex and combine with the rest of the music, which transforms into thematic material for the rest of the episode and the entire series.

At the end of the intro, Jake states: "I was born 4,161 days ago on October 26, 2000." At this moment, the synthesized sounds cease, and a music box emerges, accompanied by the rhythmic mechanical calculator and typewriter sounds from the start of the sequence. He declares, "I've been alive for eleven years, four months, 21 days and 14 hours. And in all that time . . . I've never said a single word." This prelude sequence is present at the beginning of most episodes with the same, or similar, mechanical and percussive instrumentation.

Jake communicates through numbers, thinks using mathematics, and can process vast amounts of numerical information, like a supercomputer. Using the vast amounts of information he processes, he can achieve impossible feats such as predicting the future or guessing phone numbers. Similar to Simon from *Mercury Rising* sound reinforces, and indeed, generates the metaphor that his mind is a CPU. Without sound and music, this introductory

sequence in *Touch* would not hold the same meaning; the machine metaphor is largely held and subliminally implied through the use of sonic and musical devices, which, interestingly, are combined in this unique musical score of sound effects.

Computer metaphors separate autistic people from personhood, and they cause real-life damage to autistic people, as they are often the basis of bullying, dehumanizing treatment by healthcare professionals, employers, or others. Sonic machine metaphors are deployed in countless other films and television shows: camera shutter sounds are used to depict the inner workings of the minds of Shaun in *The Good Doctor* and Temple Grandin in the biopic *Temple Grandin*. These similarly depict their abilities to process vast amounts of information through mechanical metaphors, but the soundtracks also imply that autistic people have photographic memories. McGrath (2017) asks:

> is the autistic-brain-as-computer analogy healthy for understandings of autism in a neurotypically dominated world? Computers have no rights. The nearest thing to human feeling embodied by a computer is exhaustion. Computers are here to serve—until a more efficient model arrives, or the present one expires. (p. 71)

The Ableist Ear and the Autistic Voice

There are two important considerations in relation to the construction of the autistic voice in cinema: the sonic qualities of voice (such as timbre, volume, and pitch), and considerations of voice as verbal or non-verbal communication of self. Autistic people in discourse are often discussed as not having a voice, as not being able to speak for ourselves, or that non-autistic people must speak for us, and give us voice. In cinema, we therefore tend to hear various pieced-together elements that supposedly signify autistic voice, but these are often manufactured by non-autistics and for a non-autistic audience, and performed by non-autistic actors. McGrath (2017) asserts that portrayals of autistic characters in film or television "bear a greater resemblance to each other than to actual autistic lives and identities" (p. 13). The autistic voice therefore is co-opted and distorted in cinema for the hearing pleasure of the audience, and it is recycled, based on past interpretations. McGrath further suggests that the "neurotypical

gaze often creates a lucrative spectacle" (p. 186), using two visual terms, *gaze* and *spectacle*, that neglect sound as a primary medium for disseminating harmful ableist narratives about autistic people. I would also argue that implementing a multi-sensory terminology when discussing film is more true to the form and is linguistically more inclusive for people with sensory or sensory processing disabilities. I therefore propose the ableist *ear* to describe the "lucrative spectacle" created when various vocal signifiers of autism are pieced together by non-autistic actors and presented to largely non-autistic audiences.

Within culture, autistic people are portrayed singularly, with observable and easily definable traits that are easily recognizable and digestible by non-autistic audiences. These films almost exclusively have non-autistic actors playing the part of autistic characters, a phenomenon that many disability activists and scholars refer to as "cripping up" (Novic, 2018). Michael T. Hayes (2003) argues that disabled people in film are typically reduced to a set of "signs and symbols," and it is "only through their articulation" that "people with disabilities are afforded an existence in Hollywood movies" (p. 117). Furthermore, film directors tend to hire psychiatrists or psychologists (especially pediatric specialists) to assist them and the actors in creating a supposedly accurate portrayal of the autistic character(s). For *Mercury Rising*, for example, director Harold Becker hired the head of Pediatric Psychiatry at the University of Chicago to help create a more "realistic" character (Draaisma, 2009). This advisor then counseled Miko Hughes, the child actor who played the part of the autistic boy Simon.

Simon's dialogue, performed by a non-autistic actor, reveals his childhood and vulnerability, a contrast to the strength and autonomy of Art Jeffries's heroic voice and character. Representations of autistic voice in films are therefore based in medical culture, based in the deficit model of the condition, medical biases, and on a set of stereotypes and debunked or antiquated medical theories. These films hardly ever consult autistic people and almost always rely on a few tropes, including that of the unfeeling machine.

Similar to many autism metaphors that originate in medical theories, the way the autistic voice is depicted in film and television is reflective of early theories. Autistic characters in films and television are always depicted with

an atypical prosody, referring to the areas of speech that affect rhythm, pitch, speed and that are often used to verbally convey meaning (Mcann and Peppe, 2003, pp. 325-350). Atypical prosody may lead to (for some) speaking in a monotone voice and being unable to convey sarcasm or inflections when speaking. Although many autistic people do have this particular type of prosody, many do not, and yet films and television programs portray singularly monotone autistic voices. It is notable that the monotone voice is used within film as a signifier of lack of emotion or empathy, as this is not the case in real life; autistic people do not in fact lack emotion, though many of us deal with alexithymia, the inability to tell the difference between emotions (Poguerusse, 2018).

The autistic voice is also deployed in films and television programs to reinforce machine metaphors through the deployment of repeated vocalizations (echolalia), making up words (neologisms), and idiosyncratic language. For example, in *Community*, and well-known to fans of the show, Abed often repeats the word "Cool" several times in a row. This has been a trademark of Abed's character and has become part of the popular lexicon in recent years. In *The Big Bang Theory*, Sheldon is similarly known for his neologism "bazinga!" as well as for his repetitive knocking and repeating of the person's name he is calling upon. This use of sound and stereotyped, repetitive language is employed in television and films to signify autism and (through referencing repetition) to portray autistic thought processes as mechanical and automated.

Autistic prosody is one of the main characteristics that allistic actors exploit in their portrayals of autistic characters on screen. Many who attempt to utilize this trait, do not research their roles, yet this stereotype is so deeply ingrained in culture that it is almost a universal acting technique in portraying autism. Keir Gilchrist, the actor who plays Sam in the Netflix series *Atypical*, admits, somewhat proudly, that he is "the sort of actor who doesn't really prep a lot—I don't do a lot of research for parts. I just go for it, and I usually pull through" and that he is "just a lazy procrastinator"(Keir Gilchrist, Imdb). Gilchrist's portrayal can thus be read through this admission of thoughtlessness. In *Atypical*, Sam's voice becomes one of the central signifiers of his autisticness, and his awkward prosody is often central to humorous moments in the show. The voice in film is one of the primary signifiers that a character is supposed to be autistic; Gilchrist's

non-researched and caricatured impression is no exception. If we were only listening to the show instead of viewing, Sam's autism would become apparent very early on through the use of vocal pitch and rhythm alone.

In *Rain Man*, the voice of Raymond Babbit is also central to the character and to signaling his autisticness. Hoffmann's voice in *Rain Man* has been central to and highly influential upon autism portrayals and is frequently referenced in films and television programs. For example, in a 2018 episode of *This is Us*, the family travels to Las Vegas, and before departing, Randall does his impression of "*Rain Man* blackjack," in which he stands motionless, pretending to count cards while imitating Raymond Babbitt's famous rapid monotone. The stereotypical autistic voice becomes the subject of a joke, resulting from the non-normative prosody depicted in Dustin Hoffman's performance.

Dustin Hoffman's portrayal of autistic voice has become one of the most referenced character voices in film history. Hoffman's Raymond, Gilchrist's Sam, and Freddie Highmore's Shaun (*The Good Doctor*) exemplify the archetypal autistic prosody, limited and singular portrayals that are nevertheless the most persuasive in their fabrication of robot imagery. The autistic voice is often the butt of jokes in television and films, particularly by reinforcing the misnomer that autistic people cannot understand humor. In these portrayals, the pitch is often flat, with awkward and abrupt movements in timbre or rhythm, signifying an almost automated or programmed social response system.

Michel Chion (1999) writes: "in every audio mix, the presence of a human voice instantly sets up of a hierarchy of perception" (p.5). He argues that in any sonic space, audiences are usually drawn first to the sound of a voice, constructing all other sounds around this focal point. Then, the individual tries to analyze the voice in order to draw meanings from it, including the origin of the voice, or the identity of the voiced (p. 5). Drawing from this analysis, it is likely that the autistic voice is the one of the most prominent features in sonic depictions of autism in film and television. Contrived acting essentializes autistic behavior, and the voice becomes an artificially constructed element in the soundtrack, which holds within it the dominant cultural signifiers of autism.

This, of course, reduces autism in a way that can have devastating impacts on the lives of autistic people whose presentations are atypical, as this can lead to misdiagnosis, late diagnosis, or lack of validation and support.

Conclusion

In this article, I have examined the role of sound in associating autistic people with supercomputers and the impossible-to-live-up-to trope of the math savant. I have also examined the autistic voice as central to the construction of autistic characters in cinema. I have not discussed real autistic representation: that is, films that are by autistic people and that feature autistic actors. This is a topic that requires further scholarly attention. My aim here is not to diminish the impact of the autistic community on combating harmful stereotypes and narratives: I aim to simply point out that we should be paying attention to sound in our cultural analyses. Sound studies is a field that often works from uncritical understandings of sensorial normativity and is littered with scholarship by abled people. I aim to contribute to existing scholarship that critically examines ableism in sound, sound reception, and voice.

McGrath (2017) writes that "narrative quite literally defines how we regard autism itself, how this identity is perceived, as well as experienced" (p. 17), and that metaphors not only effect public perceptions but also "questions of identity and self-construction within the autism community itself" (p. 198). I am non-binary, and was diagnosed at twenty-seven. I am not a young boy with a talent for mathematics, yet I am also not a woman, and therefore my autisticness is largely met with disbelief, erasure, or confusion. Narrative television, books and films inform public perception of disability, and thus I have been on the receiving end of ableist comments that have changed throughout my life—depending on the diagnostic whim of psychiatrists, and trends in popular culture.

Although I have been called many names throughout my life, I have seldom been associated mathematics, at least not until I was formally diagnosed as autistic. I share little in common with Dustin Hoffman's Raymond Babbit, except for that I don't like when people touch my stuff. The ability to win large sums of money in a casino, or to make incredibly complex calculations in my head is not a talent that I have. I don't even know to do simple

subtraction. However, when I first shared my diagnosis with someone close to me, they jokingly asked: "How are you at counting cards?"

There is a part others want me to play when they find out I'm autistic, but I did not sign up for it, and I am not paid for it. There is another part I need to play when they don't know I'm autistic. I am forced to piece together masks from various popular, medical, or historical references, or from thoughts like: what does a person with my body shape act like? What is the correct amount of eye contact? How can I stim without the neurotypicals noticing? Masking is extremely detrimental and stressful for autistic people, and authenticity becomes a complicated experience for those of us who live in a world that punishes our natural ways of being. The worst part is that I cannot safely remove my mask while around others. Joseph Straus (2016) discusses the "familiar metaphorical conflation of a work of music with a human body, both its morphology and its behavior" and that some music "may seem to incorporate disabilities" (p. 16). Therefore all musical works, including film scores, can be analyzed as bodies that are alive, sentient, and "beings with form and motion" (p. 16).

However, the intentional inclusion of signs of disability within music implies a position of musical normativity (and abledness), as well as the choice to include signs of disability within the normative musical body. Musical signs of disability are often described as moments of tension, including dissonance (as opposed to consonance), or atonality (as opposed to tonality); but these are choices based on prior constructions of normality and genre convention. Therefore, the inclusion of machine sound effects in the filmic body is not an incorporation of autism—it is not autism at all. The supposed signs of autism, such as the mechanical moments in a soundtrack can be adorned or shed according to the creative choices of the composer or sound designer. In other words, it is a removable mask.

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their creative practice and as inextricably linked to their consumption of musical and artistic forms.

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