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My earlier work on the *prison endpoint* of audio visual link technologies found that a 'soundtrack of incarceration' often infiltrates prison audio visual link studios and may be unintentionally transmitted to the remote courtroom (McKay 2016, 2017, 2018a,b). This article shifts attention to the *courtroom endpoint* of audio-visual links to examine the audio dimensions of this form of communication. Drawing on case law and transcripts from Australia, New Zealand and England, this article identifies a range of acoustic issues, or glitches, that are analysed through the lens of emergent criminological and socio-legal understandings of sound to grasp the sonic world of increasingly technologised courtrooms.

# Glitching justice: Audio visual links and the sonic world of technologised courts

Carolyn McKay  
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*I am getting feedback, hang on.<sup>1</sup>*

## Abstract

My earlier work on the *prison endpoint* of audio visual link technologies found that a 'soundtrack of incarceration' often infiltrates prison audio visual link studios and may be unintentionally transmitted to the remote courtroom (McKay 2016, 2017, 2018a,b). This article shifts attention to the *courtroom endpoint* of audio-visual links to examine the audio dimensions of this form of communication. Drawing on case law and transcripts from Australia, New Zealand and England, this article identifies a range of acoustic issues, or glitches, that are analysed through the lens of emergent criminological and socio-legal understandings of sound to grasp the sonic world of increasingly technologised courtrooms.

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1 Counsel for the plaintiff, *Plaintiff S111/2017 v Minister for Immigration and Border Protection* [2017] HCATrans 97 (8 May 2017) <http://www.austlii.edu.au/au/cases/cth/HCATrans/2017/97.html>

## **Introduction**

The courtroom – itself – was surprisingly quiet and still as I entered. An extended family, occupying almost the entire public gallery, sat tensely while the magistrate perused a bundle of documents for a long ten minutes. The lawyers and court staff were all silent. On the side wall hung a screen, divided into images of three immobile men. The men were dressed in green prison uniforms and the screen captions indicated that they were being broadcast live from three separate prison Audio Visual Link (AVL) studios. A telephone suddenly rang, some indistinct conversation rose up, a door clanged shut, a woman shouted for someone called Roy, and I realised that these intrusions into the silent courtroom were from the remote environments. Throughout the morning, these random prison noises continued while one hearing was interrupted by loud screeches – what I will refer to as sonic glitches – due to feedback and poorly functioning audio technology. Trying to communicate through the deafening noise, the magistrate asked the remote prisoner to raise her hand if she could hear him, but there was no response.

This article commences with an overview of the development of digital justice (Byrom 2019; Donoghue 2017) and the place of AVL therein. After introducing the notion of the glitch, the article surveys the emergence of socio-legal and criminological theoretical frameworks that provide a heightened focus on sensory experience in general, and sound in particular. Building on my earlier work regarding the ‘soundtrack of incarceration’ in prison AVL studios (McKay 2016, 2017, 2018a,b), the article then draws on case law and transcripts from Australia, New Zealand (NZ) and England and Wales (England) to examine AVL audio glitches – disturbances, failures and malfunctions – from the courtroom perspective. This case law analysis demonstrates the impacts of audio problems on legal procedure by examining the hearing rule, courtroom rituals and practices, the quality of the AVL technology, the complexities of remote interpreting by AVL and the added burdens of poor quality technology, the silences left in court transcription and the increasing ease of muting remote participants.

While the cases are drawn from criminal procedure, civil procedure as well as migration cases, the findings are analysed through the lens of sensory criminology and socio-legal sonic conceptional frames to understand the acoustic world of increasingly technologised courtrooms and the specific implications for criminal justice.

## **Background**

Both civil and criminal justice systems in many jurisdictions are rapidly being digitised with new communication technologies mediating face-to-face interaction and replacing the need for legal participants to occupy co-present, shared physical spaces. AVL technologies and videoconferencing platforms such as Skype, Zoom and Microsoft Teams are increasingly used to connect individuals to courtrooms from a range of disparate, remote spaces including legal aid offices, chambers, police stations, prisons and immigration detention. This technological integration is giving rise to the concept of *digital justice* (Byrom 2019; Donoghue 2017), a natural offshoot of the broad uptake and embedding of technologies into most aspects of 21st century existence. It is now common for justice participants, whether witness, victim (Cashmore 1990; Ellison 1999; Hanna et al. 2012; Tinsley & McDonald 2011) or defendant, to access legal advice and other services or appear in court using AVL from remote or distributed locations (Donoghue 2017; Mulcahy 2011; Rowden 2018; Rowden et al. 2013; Tait et al. 2017). Such technologies are used in criminal justice for guilty pleas, bail, sentencing and parole hearings, appeals, psychological assessments, legal conferencing and for vulnerable victims and expert witnesses to give evidence in court (Diamond et al. 2010; Hillman 2007; Rowden et al. 2010; Terry et al. 2010; Wallace 2011). There is widespread usage of videoconferencing technologies in civil procedure, and Fully Video Hearings, where all parties participate remotely, have been piloted in England's First-tier Tribunal (Tax Chamber) (Rossner & McCurdy 2018: 1; see also Rossner & McCurdy 2020). The rationales for the ambitious programs of court and legal practice digitisation, for instance England's £1.2 billion digitisation program (Leveson 2015), have been

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primarily premised on economic and efficiency measures and framed by risk aversion and security concerns. There is a digital revolution taking place in court space and the administration of justice (Tomlinson 2019) but the ramifications of these significant transformations in procedure are not yet fully understood (Ward 2015). The concept of unmediated *viva voce* or ‘by word of mouth’ evidence is diminishing as courts recognise that evidence and proceedings can now – and often should – be delivered in other modes (e.g. *R v Selini* [2019] NZHC 998; *Wealleans v R* [2015] NZCA 353; *R v O* [2012] NZCA 475).

Poignantly, I write this article at a really strange point in time. The COVID-19 or coronavirus pandemic is putting a stop to human gathering (see, for instance, *Public Health (COVID-19 Restrictions on Gathering and Movement) Order 2020* (NSW)). ‘Self-isolation’ and ‘social distancing’ are the prevailing buzz words in current circumstances of spreading global contagion. Music festivals, sporting matches and arts public programs are being cancelled; I am videoconferencing my university teaching from home. In the courts of law, COVID-19 is having a major impact on a range of criminal justice decisions and procedures (ABC Law Report 2020; *Kabil v The Queen* [2020] NSWCCA 56; *Rakielbakhour v Director of Public Prosecutions* [2020] NSWSC 323; *R v Madex* [2020] VSC 145; *R v Stott (No 2)* [2020] ACTSC 62). Jury trials are being suspended and legal participants encouraged to maximise the use of online court facilities, digital technologies and AVL (Supreme Court of NSW 2020a). Courts around the world are moving to ‘virtual’ models of digital justice spaces (JUSTICE 2016), such as NZ’s Virtual Meeting Rooms in which ‘some or all participants...attend the hearing by videoconference... or teleconference’ (NZ Ministry of Justice 2020: np). Similarly, in England, there is a rapidly increasing use of telephone and video hearings and, as at 6 April 2020, 85% of cases heard in England were by AVL technology (HMCTS 2020b). The UK *Coronavirus Act 2020* and Schedules 23–27 have expanded the availability of live links in criminal proceedings and temporarily modified other legislation including the *Criminal Justice Act 2003*, *Crime and Disorder Act 1998* and the Criminal Procedure Rules (HMCTS 2020a). AVL and videoconferencing

have – very suddenly – become critical to the infrastructure of most institutions and businesses, and the delivery of essential services. It begs the question, is this just a ‘glitch’ in normal courtroom practice or are we witnessing a watershed moment in criminal procedure and, perhaps more broadly, human interaction?

### **Glitching**

According to my Apple Dictionary application, the word ‘glitch’ stems from the 1960s and astronauts’ terminology for sudden current surges and malfunctions or hitches, while Torben Sangild (2004: 258) suggests its etymology is from the Yiddish “glitshn,” to slip, slide or glide. The word is used to refer to everyday anomalies, breaches, errors or poor quality in software, data processing, and electronic and electrical systems stemming from unknown sources that cause transient disruptions or more serious harms such as data loss, lack of synchronisation or calibration, or system failure (Dasu 2013). Sangild (2004: 258) argues that glitch only refers to minor malfunctions, interferences or troublesome performance – ‘bugs’ – not the total collapse of an electronic system.

Glitch has been co-opted by other disciplines. The glitch aesthetic has evolved in experimental audio visual and new media arts to embrace both intentional and serendipitous fragmentation, pixelation, looping and repetition of imagery and sound, while recognising the tension between patterning, predictability and chaos (Betancourt 2016, 2017). In the music industry, glitch has developed from an undesirable audio malfunction, unwanted by-product or sonic artefact during recording, reproduction and replay, and into an electronic music genre and aesthetic in its own right (Bates 2004; Kelly 2009; Sangild 2004; Zareei et al. 2015). Lo-fi analogue quality, glitch samples and the hiss and crackle of vinyl records have been aestheticized and are often spliced into electronic music production. Does this process of repurposing conspicuously anachronistic sound provide an expression of the authentic and the human by deliberately embedding error? Glitch electronica resists digital perfection and, instead, allows us to tune

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into the flaws that are ‘ordinarily filtered out’ (Krapp 2011: 75). Such ‘noise, error and glitch’ are forms of ‘digital culture that [go] against the grain of efficiency and ergonomics’ and perhaps serve to highlight the ‘system of transmission itself’ (Krapp 2011: ix, 77). Eliot Bates considers the underlying ideologies of audio fidelity and, its antithesis, the glitch: ‘If...we define “high fidelity” concerns in recording *as the pursuit of truth*, then in this context the glitch is *the betrayal of the simulation*’ (2004: 288).

This article extrapolates from this assertion to consider the impact of technical glitches in courts of law and legal pursuits of truth. For the purposes of this article, glitch is used to refer to the unintended audio interferences, corruptions and lacunae brought about by courtroom audio technologies that, it is argued, may result in a lack of fidelity in both sound and, by extension, criminal procedure. It includes issues of ‘static, echo, voice delay and difficulty in hearing’ (*Hamzy v Commissioner of Corrective Services and the State of NSW* [2020] NSWSC 414, [21]) that are reported in case law and transcripts. The word has entered everyday mainstream language and is sometimes used by courts to refer to technological malfunctions (*R v Qaumi & Ors (No 55)* [2016] NSWSC 1068, [30]).

### Making Sense Through the Sensory

*The Pixelated Prisoner* and other publications outline my empirical research into understanding prisoners’ lived experiences of using AVL for access to justice: courtroom ‘appearances’ and legal conferencing (McKay 2016, 2017, 2018a,b). This research contributes new insights into the prison endpoint of AVL and, as observed by Sarah Moore, provides a ‘story about video-link technology in the courtroom: its tendency to go wrong, be poorly-implemented and under-funded, and to derail proceedings’ (2019: 497). Much of my book focuses on the spatial, embodied and visual elements of AVL from the prisoners’ perspectives (McKay 2018a). I concentrate on the ‘visual turn’ and visual criminology given that AVL, often referred to as *video* link or *videoconferencing*, seemingly privileges the sense of sight (Carrabine

2012: 464; see also Brown 2014; Brown & Carrabine 2019; Rafter 2014).

The sensory privileging of sight can be traced back to ancient Greek philosophy (Arendt 1978; McClanahan & South 2020). Other theorists, including Virilio (1994) and Foucault (1977), have explained the potency and power of the visual: how state institutions, law enforcement, judiciary, military, corrections and the media seek to control individual subjects' viewpoint of the world, their vision and visibility. Such institutions, according to Foucault (1977), seek to assert hierarchy, discipline, supervision and asymmetric surveillance using visual techniques. Moreover, technologies, such as AVL, can be seen as part of the 'industrialisation of vision' (Virilio 1994: 59) and the mediation or severance of vision from the human observer (Crary 1992). Representing the hegemony of vision or a sensory bias towards sight (Jay 1993; Levin 1993; McClanahan & South 2020; Sterne 2003), AVL can be analysed as an ocularcentric technology that fails to sufficiently attend to the other sensorial experiences such as sound: it is perhaps a technology in which 'the eye dominates the ear' (García Ruiz & South 2019: 126).

There have been growing challenges to the dominance of vision across a range of disciplines that draw attention to the other somatic senses: gustation, olfaction, and the tactile sense as well proprioception and the haptic (Mulcahy et al. 2018; Rowden 2018) leading to emergent theories including the socio-legal sonic turn and sensory criminology. These theories can be productively applied to AVL that engages with one other human sense: the sense of sound. Rowden (2018: 273) writes: 'We are in essence replicating only two human senses through the videolink', rather than the full panoply of human senses (see also Mulcahy et al. 2018). As a technology that only engages with two senses, AVL challenges a phenomenological perspective that treats all the senses as embodied and entwined (Merleau-Ponty 1964, 1968). It is important to note that AVL is often used as an audio alone connection between remote locations, intentionally without video at all (see for example *Taniwha v The Queen* 2016 NZSC Transcript 8; *R v Ngo*

[2003] NSWCCA 82).

Emergent sensorial theoretical engagement seeks to examine auditory perception, the place of sound in everyday existence and everyday technologies, and its social, cultural and political contexts (Drobnick 2004; Kelly 2009). Critical criminology and socio-legal scholarship have seen growing interest in sensory experience and, in particular, acoustic experience. Does the increasing use of digital technologies in so many aspects of work and life as well as our intimate connection with our personal digital devices and podcasts mean that there is a heightened awareness of the sonic world and a deeper engagement with listening?

James Parker's work, informed by an immersion in sound studies, particularly contributes to socio-legal understandings of the sonic. While there is a developing sensitivity to the role of sound in public and private spheres in Parker's 2015 monograph, more recently, his work has come to examine the specific auditory dimensions of legal process, architecture, acoustic space and human experience to understand the soundscape or 'acoustics of jurisprudence' (Parker 2011: 963). The concept of acoustic jurisprudence is further developed in Parker (2018a,b) to examine the soundscape of law, recognising the myriad ways law engages with sound, the juridical soundscape and the acoustic elements of legal diction, orality and words.

In terms of criminology there is a groundswell of interest in the senses. Andrew Millie (2017) seeks to develop an aesthetic criminology, drawing attention to other sensory experiences including sounds and smells. One of Keith Hayward's reconceptualizations of the relationship of space and spatiality to crime examines ethereal soundscapes and acoustic spaces to generate an *acoustic criminology*: 'our understanding of space... must now extend to include the ambient, unseen 'sonic ecology' (2012: 458). Michelle Brown and Eamonn Carrabine (2019: 200) argue that there is a need to develop a criminology of the senses and take account of 'acoustic, affective, haptic, olfactory and sonic approaches', in essence, to recognise the embodied phenomenological experience. Bill McClanahan and Nigel South (2020) attune to non-visual senses,

particularly sound, and suggest the need for a sensory criminology that recognises the multisensorial nature of perception. Affiliated with these approaches is Alison Young's (2019; see also Wall 2019) exploration of affective atmospheres and spatial criminology. Ascensión García Ruiz and Nigel South examine city soundscapes, anthropogenic noise, aural pollution and the subjective experience of sound within a framework of green cultural criminology and call for 'a criminology of sound, noise and the aural' (2019: 126, 136). Their work has resonance here in terms of the excessive human-generated noise in prison environments that can infiltrate AVL sessions, discussed below.

Moving to prison-centric sonic scholarship, Katie Hemsworth presents a deep engagement with carceral soundscapes and draws attention to the material properties of sound, 'auditory epistemologies or *acoustemologies* (Feld 1996)' (2016: 90) (emphasis in original; see also Russell & Carlton 2018: 1-3 on 'counter-carceral acoustemologies' or soundtracks of resistance). Katherine Zoe Herrity's 'aural ethnography' of the prison soundscape is, of course, right on point (2019: 10). In Herrity's view, the lack of serious consideration given to the auditory in the field of prison studies has meant that a crucial aspect of the subjective embodied experience has been ignored. Carceral soundscapes have also been explored in Trevor Paglen's (2006) covert recordings, Tom Rice's (2016) examination of prisoners' acoustic agency and Emma Russell and Maria Rae's (2019) earwitnessing of detention.

### **The Soundtrack of Incarceration**

During my prison fieldwork I encountered the unique sonic qualities of the carceral world that I later found impacted prisoners' legal experiences when using AVL. The spatial attributes of sound are clear and Jonathan Sterne writes: 'Anyone who has heard...footsteps in a concrete hallway...can recognize that listening has the potential to yield a great deal of information about surfaces' (2003: 19). That is, auditory experience provides spatial, geographic, atmospheric and material clues according to phenomenologist Don Ihde (2007). Sound can be directional and assist in echolocation – in situating our spatial

relationships or 'auditory spatial orientation' (Ihde 2007: 194).

With this background, what are the audio elements at the prison endpoint of AVL? As Hemsworth writes, prisons have particular, complex sonic environments, atmospheres and feelings, 'laced with intimidation' that 'touch' incarcerated bodies (2016: 91-92). The sounds emitted from prison architecture are *felt*: as one of Herrity's participants observed: 'See those doors bang...it goes through you, you feel it in your body' (2020: 27). Drawing from García Ruiz and South (2019), the carceral soundscape is largely anthropogenic: the sound of non-human nature rarely intrudes. The soundscape is also the product of the technologies, inanimate but audible objects, materials and surfaces that shape sound. Collectively these elements create a particular sonic and spatial orientation with a dehumanising force (Hemsworth 2016). As detailed elsewhere, prisons are extremely noisy due to the high density of inhabitants living within a fortified structure of hard reflective and echoing surfaces (McKay 2016, 2017, 2018a,b). Noise is unwanted and disturbing sound (Herrity 2019). During my audio recorded fieldwork interviews with 31 prisoners in the AVL studios vicinity of two prisons, the daily background prison noises that permeated those recordings were sometimes so excessive and intrusive that I had to pause my interviews.

The prisoners I interviewed raised a range of surprising audio issues from the AVL prison endpoint (McKay 2018a). Electronic interference is not uncommon during AVL (Fowler 2016). One woman told me that the AVL 'gave feedback and there was a high buzzing sound...a whining or buzzing' that interfered with her ability to hear her remote legal aid lawyer (participant F01). A number of people spoke to me about the frustrations of failing or non-existent audio (and/or video) and how that was 'head wracking' (participant F05). Other prisoners spoke about not being able to 'hear very much of what was going on' and consequently not comprehend the legal matter (participants F07, M11). The telephone console in the AVL custody suite, that provides a means to communicate with a remote lawyer during court matters, was 'staticky' according to participant F11.

Concerns were also expressed about the lack of soundproofing of the AVL custody suites and the consequences for holding confidential legal conferences (participants M02, M13; see also *Hamzy v Commissioner of Corrective Services and the State of NSW* [2020] NSWSC 414). The prisoners spoke about how surrounding and omnipresent quotidian prison sounds – what I have referred to as the ‘soundtrack of incarceration’ – infiltrated the AVL studios during their court hearings or legal conferencing sessions (McKay 2016, 2017, 2018a,b). This soundtrack included the call-and-response between prisoners held in nearby AVL holding cells and prison officers, there were directives from the loud PA system, thuds and altercations between inmates, and the clang of heavy metal security gates (see also Herrity 2019; Russell et al. 2020). These were unwelcome distractions and intrusions often during serious interactions when concentration, comprehension and confidentiality were required. Banging noises and other uncontrollable sounds can cause prisoners distress, and add to their cognitive load (Herrity 2019, 2020; Rowden & Wallace 2019).

Of significance to this article’s focus, some prisoners became aware that the soundtrack of incarceration was not only penetrating the prison AVL studio but also being unintentionally transmitted live by the AVL to the remote courtroom. The audio from the prison AVL studio is usually broadcast into the courtroom via the courtroom’s general audio system (Kashyap et al. 2018). AVL technology thereby creates a reciprocal visual and sonic interchange between the prison and courtroom endpoints: I found that as the courtroom enters the prison, simultaneously, the prison enters the courtroom.

To consider such sound dimensions – ‘the ambient, unseen ‘sonic ecology’” (Hayward 2012: 458) of AVL spaces – is to better understand the emergent space of distributed, digital justice. This brings us back to the initial courtroom scenario described in the introduction: the indiscriminate, extra-curial sonic intrusions from the remote custodial environments that were being broadcast into the relative quietude of the civic courtroom (while noting Sean Mulcahy’s 2019: 203 assertion that noise in the courtroom is inescapable). The collision of prison and

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courtroom soundscapes generates a dichotomy of ‘noise and order’ (Parker 2018b: 223). Surely such extra-curial ambient sound and noise is ‘the enemy’ (Bates 2004: 279) of focused legal proceedings and conferences? The fact that background noise, emanating from the remote space during AVL, can interfere with court proceedings is already well recognised and participants are requested to ensure ‘normal’ court etiquette and silence when not speaking (NSW Bar 2020). To understand this and other sound issues at the courtroom endpoint, attention is now turned to recent case law that reveals insights into the audio elements of AVL technologies.

### Case Law

AVL or videoconferencing can be understood as a technology that enables collective listening (Sterne 2003) as well as collective viewing. The use of AVL technologies in Australia, NZ and England is now well established, particularly in the taking of evidence (e.g. *KN v R* [2017] NSWCCA 249 at [66]-[74] per Beazley ACJ, Walton And N Adams JJ; *Kirby v Centro Properties Limited* [2012] FCA 60; 288 ALR 601 at [11] per Gordon J; *ASIC v Rich* [2004] NSWSC 467; 49 ACSR 578 at [16] per Austin J), and in the assessment of witness credibility and demeanour (e.g. *R v Qaumi and Ors (No 9)* [2016] NSWSC 171 at [9] per Hamill J; *Hughes v Whittens Group Pty Ltd* [2017] NSWSC 329 at [21] per Button J; *R v Wilkie, R v Burroughs, R v Mainprize* (2005) 193 FLR 291; [2005] NSWSC 794 at [31]- [32] per Howie J; *R v Lodhi* [2006] NSWSC 587; (2006) 163 A Crim R 488 at [65] per Whealy J), amongst many other procedures. Nevertheless, case law and transcripts identify sonic feedback, disruptions, failures and distortions (e.g. *Plaintiff S111/2017 v Minister for Immigration and Border Protection* [2017] HCATrans 97). The following analysis of case law and transcripts provides ‘authentic courtroom data’ and evidence of real experience (Napier 2011: 173), that is, judicial commentary on the positive and negative implications of using AVL especially in relation to audio issues.

### The Hearing Rule: 'What was that, sorry? Say it again?'

The technological impediments and frustrations to efficient communication in remote criminal procedure are well shown in *DPP v Carroll* [2020] VCC 1484 where audio difficulties between the judge and counsel may be summarised as follows [92]-[110]: 'I cannot hear you that well...can you hear me...I cannot hear you...I cannot hear you either...I can only just hear you...I cannot hear you enough to comprehend what you are saying.' Such technical failures or limitations of AVL have been recognised in a number of criminal and migration cases and transcripts regarding the impacts on cross-examination of remote witnesses (e.g. *R v Warwick (No. 51)* [2018] NSWSC 1555) and remote witnesses who require the assistance of an interpreter (e.g. *KN v R* [2017] NSWCCA 249). In *Tuimaseve and Minister for Immigration and Border Protection* [2016] AATA 924, the respondent's request that the applicant attend by AVL from Christmas Island was declined. Deputy President Forgie reviewed the transcript of an earlier application and noted:

[49]: ... there were difficulties with communication. The first passage is an exchange between the Tribunal member and Mr Tuimaseve. It indicates a common difficulty:

MEMBER: Okay. The other thing I need to assure myself I think, that Mr Tuimaseve is able to hear you and your opponent clearly, and is able to see and hear you and see and hear me. Mr Tuimaseve, *can you see and hear me?*

MR TUIMASEVE: Yes.

MEMBER: Okay. And you feel – you're comfortable enough there?

MR TUIMASEVE: Yes, I'm just – *the audio is a bit of a ---*

MEMBER: *What was that, sorry? Say it again?*

MR TUIMASEVE: Yes.

MEMBER: *Could you repeat what you just said?*

MR TUIMASEVE: *There's like a delay in the audio. (added emphasis)*

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Deputy President Forgie continued at [51]: ‘My own recent experience with video links between mainland Australian capital cities is that it is unsatisfactory. Pixilation is common with consequent breakup of the picture and of the sound.’ This experience was consistent with other AVL hearings with immigration detention centres, described at [51]:

The video link was extraordinarily poor with an *audio delay* of at least, if not in excess, of about six seconds. Furthermore, there was *frequent pixilation and breaks in the audio and video*, which were usually followed by *undecipherable rapid speech* subsequently reverting to normal speed. (added emphasis)

At [52], Deputy President Forgie found that procedural fairness required that the applicant be able to attend the hearing to give evidence, be cross-examined and be able to hear what was said in the hearing:

That is to say, he must have a means of communication by which he can present his case and *hear the case that is put against him*. He must have that proper opportunity to hear the case that is put against him so that he can address those issues. (added emphasis)

In this instance, it was found that if the applicant could not hear that evidence, he could not give proper instructions to his legal representatives [53]. This decision draws attention to the common law ‘hearing rule’ – *audi alteram partem* – a requirement that a person who may be adversely affected by a decision should be able to understand and answer a case brought against them (Butt & Hamer 2011; McKay 2018a). The decision also raises the negative implications for effective communication in its discussion of the fractured audio resulting in ‘undecipherable rapid speech’ [51]. If verbal communication is mediated and distorted by AVL to such an extent that it is rendered ‘undecipherable’ then that, too, can be seen as denigrating the ability to understand and answer a case.

Of course, certain common law ‘rights’ that favour an accused are not absolute and must be balanced against the rights of all parties including the need to protect witnesses (*R v Governor of Brixton Prison* [2002] 1 AC 556; *R v Ngo* [2003] NSWCCA 82). For instance, in *R*

*v Camberwell Green Youth Court and Ors* [2005] UKHL 4, it was held that, provided the defendant's *lawyers* could see and hear witnesses, the receipt of evidence by live video link did not infringe Article 6 of the *European Convention on Human Rights* regarding the right to confront witnesses. It does seem that while courts may restrict an accused person's *vision* of a vulnerable witness, they are less likely to accept any restriction of the audio elements. From the perspective of an accused person, being able to hear is fundamental to exercising the rights to defence (Cassim 2005).

### **Waving, Not Hearing**

In addressing the lack of audio during AVL, courts often resort to gestural forms of communication. For instance in *Cloud v State of Queensland* [2004] HCATrans 56, Kirby J was recorded in the transcript as stating:

So long as Mr Keane can hear. Can you hear, Mr Keane, now? We cannot hear you, but as long as you can hear. *If you cannot hear, please make vigorous waving sounds and noises.* (added emphasis)

A range of new rituals have emerged with the increased use of AVL (Licoppe and Dumoulin 2010) and the physical waving at and by remote participants has emerged as a common courtroom practice. If a remote participant cannot hear, the protocol in NZ includes raising a hand, or alerting counsel through 'gesture or verbalisation' (NZ Ministry of Justice 2018, Appendices 2 & 3: 26). Sometimes this form of non-verbal communication becomes 'histrionic' (*R v Baladjam & Ors* [No 41] [2008] NSWSC 1462 at [7] per Whealy J discussing waving in the context of high security enclosed courtroom docks; Gibbs 2017). Where audio has failed, it has been reported that NZ judicial officers have resorted to holding up written signs to remote prisoners (Ford 2017). These examples demonstrate the spatial, corporeal and sonic demarcations that audio visual technologies may create between remote clients, lawyers and other participants, and the inception of new procedural practices and protocols to address the spatial and corporeal divide (McKay 2018a).

### **Turn-taking, Quality Control and Technical Glitches**

Sound issues do not just impact remote defendants and witnesses but also legal practitioners and the judiciary. Audio lags and difficulties in replicating ‘normal’ face-to-face conversational turn-taking can result in counsel seemingly interrupting the judicial officer. In proceedings by AVL, counsel for the applicant was having ‘trouble hearing’:

Your Honour, there is a difficulty in that I cannot hear at times when your Honour speaks and so I am not aware whether or not your Honour has finished speaking, which is why it appears that at times I am interrupting and I apologise for that. (*Cowgill, Ex parte – Re MIMLA P19/2003* [2003] HCATrans 662).

Audio visual links require high quality audio transmission and the maintenance of turn-taking etiquette between the various remote speakers (Braun et al. 2016) so as to avoid overlapping speech in court that compromises audibility (Fowler 2016). With the lack of usual face-to-face nonverbal cues, combined with the distancing effects of videoconferencing and linguistic and cultural differences, it can be difficult to avoid speakers talking over each other.

Of course, some of the above cases are quite old in terms of technological lifespan and obsolescence; videoconferencing technologies have greatly improved over the last two decades. But, back in 2004, Gummow J noted in transcripts that ‘We live in an age of modern but incompetent technology’ (*Pico Holdings Inc v Wave Vistas Pty Ltd & Anor* [2004] HCATrans 382), and ‘It is a very unsatisfactory method of trying anything by video link, I am afraid. The noise that is on the line this morning is just an indication of that’ (*Gunter v Hollingworth & Ors B99/2001* [2002] HCATrans 157). With improved technology, audio lags and delays are apparently becoming less common (ABC Law Report 2020) although ongoing AVL difficulties and problems with server capacity have been reported (NSW Bar 2020; *R v Macdonald; R v Edward Obeid; R v Moses Obeid (No 11)* [2020] NSWSC 382). A transcript from Australia’s High Court indicates intermittent audio issues during a criminal appeal (*Cumberland v The Queen* [2020] HCATrans 49):

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BELL J:...Ms Shaw, can I interrupt you for a moment? We do not – or certainly in this Court I am not hearing any audio. I do not know whether Justices Gageler and Nettle can hear you, but I cannot.

GAGELER J: I cannot.

NETTLE J: I cannot.

MS SHAW: Can your Honours hear me now?

NETTLE J: Yes, thank you.

BELL J: Yes, thank you, Ms Shaw.

MS SHAW: Thank you. That was our fault at this end, your Honours. I apologise.

This case, as Jeremy Gans (2020) observes, is notable for the digital distribution of the High Court with AVL connecting participants over three states and two territories and the three justices seemingly in three separate locations during the COVID-19 pandemic. Despite occasional technical interruptions, various courts have been reassured that ‘notwithstanding the national shutdown the wheels of justice have been enabled to turn’ (*Re EK (A Child)* [2020] EWFC 25 at [5] per Mostyn J).

English scholarship indicates that out-dated technology may still be in use providing variable audibility and poor synchronisation between the audio and the image (Fowler 2016). Rowden & Wallace (2019) discuss how poor quality audio and synchronisation impacts the testimony of remote expert witnesses. Interestingly there are not necessarily any particular legislated standards in audio visual quality (Rowden et al. 2010 provide a summary of Australian requirements). But it is recognised that, in relation to the NSW legislation (*Evidence (Audio and Audio Visual Links) Act* 1998, s 20A), the AVL equipment must be functional so that:

the persons giving evidence (or making submissions) can see and hear the persons in the courtroom (or other place) and vice versa. It says nothing about the particular quality of the AVL link. It is difficult to see how evidence from witnesses whose credibility is crucial could be given via AVL if the witnesses and the court could not see or hear each other. (*Russell v Scott & Anor* [2017] NSWSC 1720 at [128] per Adams J)

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This legislation focuses on the availability of the technology rather than its standard or quality (*Evidence (Audio and Audio Visual Links) Act* 1998 (NSW) ss 5B, 5BAA, 5BB, 7, 22C). While this returns us to the significance of the hearing rule, it does not assist with setting any minimum standard in the audio and visual quality. A number of guidelines and researchers advocate for optimal, high, broadcast quality standards and specifications for: video and sound equipment; configuration; the synchronisation of audio with video; lip synchronicity for interpreters; audio coding and codecs; echo cancellation; microphones and microphone positioning; speakers and amplification, at all ends of the technology, especially in cases involving interpreters (Braun & Taylor 2011; Braun et al. 2016; European Union 2013; Fowler 2013, 2016; Lulham et al. 2017; Kashyap et al. 2018; Napier 2011; Rowden et al. 2013). In NZ, a judicial officer must consider certain criteria including the quality of the technology when determining remote participation by AVL (*Courts (Remote Participation) Act* 2010 s 5). Some jurisdictions provide specific guidance on technological failures. For instance, the Chief District Court Judge for NZ provides a ‘Technological failure protocol’ to deal with faults in the audio-link, video-link, or both, including ‘drops in quality’ and loss of ‘fidelity of the internet connection faltering’ (NZ Ministry of Justice 2018: 24).

That ‘technical glitches’ (*R v Qaumi & Ors (No 55)* [2016] NSWSC 1068 at [30] per Hamill J) or ‘hitches’ (*Re EK (A Child)* [2020] EWFC 25 at [5] per Mostyn J), resulting from poor quality technology or internet, including the loss of audio, can create delay, adjournments, disruption and inefficiencies in proceedings and occur not infrequently, is made clear by case law and transcripts (e.g. *A (Refusal of Article 15 application for transfer)* [2017] EWFC B41). Jane Donoghue (2017) discusses instances of substandard quality audio and video links in English magistrates’ and family courts, particularly the poor sound and image quality and the impacts that may have on lawyer-client communications, remote clients’ comprehension and judicial assessments of remote witnesses and defendants. However, other than in cases of the complete technological failure, it seems that courts are

reticent to identify unfairness when the technological quality is merely poor (Donoghue 2017 discussing *R v Akhtar (Siddiqua)* [2016] EWCA Crim 390). A civil matter dealing with the plaintiff's application to adjourn for reasons including the conduct of proceedings by AVL due to the COVID-19 pandemic, found that the available AVL technology was sufficient. It would only be instances of 'insurmountable technological difficulties' that would justify an adjournment (*Roach v Malsave* [2020] NSWSC 364 at [45] per Adamson J). In another civil matter, the application to adjourn a virtual court trial was refused, despite a range of recognised likely 'technology hiccoughs' (*Capic v Ford Motor Company of Australia Limited (Adjournment)* [2020] FCA 486 at [12] per Perram J). However, returning to Bates' (2004) explanation of music glitch as antithetical to audio fidelity, perhaps a technical glitch in a court of law suggests a departure from an indisputable truth.

### **Interpreters, AVL and Layers of Complexity**

Any loss of audio is particularly critical in cases where interpreters are required and this occurs in criminal courts as well as in migration matters. The presence of interpreters, even in physical proceedings, affects courtroom dynamics and interactions but interpreting by AVL adds another layer of complexity (Napier 2011; Napier et al. 2018). This is because both visibility and audibility are critical in court interpreting (Fowler 2013, 2016). The 'disadvantages of video linking may be increased in circumstances where the witnesses are vulnerable... [and] need interpreters' (*Kimathi & Ors v Foreign and Commonwealth Office* [2015] EWHC 3684 (QB) at [29] per Stewart J).

In *CQX18 v Minister for Home Affairs* [2019] FCAFC 142, the court noted that the unrepresented appellant had appeared for judicial review by AVL from an immigration centre while the interpreter appeared separately by telephone link. The transcript of the hearing evidenced AVL transmission problems: the appellant could not hear when the AVL froze, the interpreter could not keep up with the translation, but the primary judge did not have the missing parts re-interpreted. The case of *Gibson v The State of Western Australia* [2017] WASCA 141

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calls attention to the intersection of AVL, interpreting and vulnerable defendants. The appellant, Mr Gibson, had lived most of his life in a remote community in the Gibson Desert and spoke Pintupi and Kukatja, but his English language ability was limited and he had a cognitive impairment. The case evidences a trail of communication breakdowns: various instances where the appellant had complex legal conferences in-person or by AVL with his lawyer, who only spoke English, either without an interpreter at all, or with an interpreter by AVL. For instance, there was a meeting between:

the appellant and [the solicitor] at Casuarina prison. [The interpreter] attended the meeting by videolink. At the meeting, the appellant ‘was trying to tell [the solicitor] that [he] didn’t kill that white fellow’. [The solicitor] showed the appellant a handwritten document comprising three pages and headed ‘Instructions of Gene Gibson’ ... [the solicitor] wrote the document and then read the document aloud in English. [The interpreter] read the document aloud in Pintupi. The appellant did not ‘really understand’ the contents of the document...The appellant signed the document because [the solicitor] told him that he had to sign it. (*Gibson v The State of Western Australia* [2017] WASCA 141 at [122 (5)])

In various meetings, the appellant had endeavoured to tell his lawyer, in-person or by AVL, with or without an interpreter, that he did not kill anyone and yet he was advised to plead guilty. Ultimately, it was held that the absence of a qualified interpreter during the appellant’s interactions with his solicitors contributed to the miscarriage of justice and he was acquitted of manslaughter.

The case law draws out the particular relationship between technical glitches and interpreters and English case law contains many examples. First of all, there are instances where the AVL technology functions well, even after initial glitches:

After some initial teething problems, the father was able to give evidence by video link with the assistance of the interpreter. In general I thought the combination of the interpreter and the video link worked well and the father was able to give good evidence. (*Gloucestershire County Council v JD & Ors* [2018] EWHC 3553 (Fam) at [68] per Williams J)

In a case of recognized poor quality technology, the judge was still able to assess evidence translated by an interpreter:

F and his parents gave evidence from Egypt by *poor and barely adequate video links*. Despite the *shortcomings inherent* in hearing evidence in this way, including the limitations on observing a witness through such a poor link, I was able to gain a sufficiently clear impression of their evidence. (*X (A Child) (Female Genital Mutilation Protection Order: Restrictions on Travel)* [2017] EWHC 2898 (Fam) at [3] per Russell J) (added emphasis)

The differences in AVL interpreting experience is clear in *ML v KW & Anor* [2013] EWHC 341 (Fam) where Jackson J at [4]-[5] stated that ‘the court’s task in judging the truthfulness of witnesses is made *less easy when evidence is given by video link through an interpreter*’ (added emphasis). Witnesses appeared from Kabul while the interpreters were in London and the two interpreters experienced difficulties. However, another witness had a good video link and ‘very able interpreter’.

But in other cases, judicial officers have been challenged by video links:

The video link to the Czech Republic frequently froze visually *leaving me only with sound*. I lost the chance in this case in respect of the three crucial witnesses from the Czech Republic to assess their *demeanour*. All the vital evidence from the Czech Republic had to be professionally translated. The translator gave a heroic performance but the exercise was completely unsatisfactory leaving me again unable, because of translation, to judge these important witnesses’ *demeanour*. The father also gave his evidence by video link or for much of the time *only by audio link*, again translated. *It was very difficult for me to judge him in the way that I am required to do so*. (*D (A Child)* [2014] EWHC 3388 (Fam) at [15] per Mostyn J) (added emphasis)

This case demonstrates that when the visual element fails and the judge is left only with the audio element, this situation can diminish the judicial function, despite the interpreter’s ‘heroic performance’. The conflation of technical problems with interpreting requirements and dialect specialists is made evident in the following:

Arrangements had been made in advance for a video link with Pakistan

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and for Urdu interpreters to attend to interpret for the mother, father and witnesses. *As ever with a video link the connection was poor which led to considerable problems with hearing the witness* – the mother’s younger brother. (*M v F & Ors* [2018] EWHC 1720 (Fam) at [30] per Williams J) (added emphasis)

The problems were compounded by the fact that the parties and witnesses needed interpreters with different dialect skills, and the logistical difficulties in re-arranging the video links and interpreters. One case summed up the implications of technical glitches and poor quality:

There were *significant delays* on the second day of the trial because the video link booked for a witness to give evidence from Country Q, an EU state did not, in the event, work. There were further delays on the third day before the link finally worked.

...

I heard evidence from a number of witnesses via interpreter. There is a *loss of immediacy* for the witness for the advocates and for the Court while questions and answers are translated. For Miss Conesar who gave evidence via video link, that was exacerbated by delays on the line between the UK and Country Q, an EU state. There is also a *loss of subtlety of meaning and in phraseology* and I bear all that in mind when assessing the evidence of witnesses. (*C (A child: care and a placement order)* [2018] EWFC B87 at [3], [32] per DJ Keating) (added emphasis)

Poor quality AVL transmission and technological failures produce procedural delays. Such issues are aggravated when evidence is being provided remotely and mediated by interpreters, leading to further delays, the ‘loss of immediacy’ in fluid dialogue and ultimately, the diminution ‘of subtlety of meaning and phraseology’. Fowler (2013, 2016) questions the impacts on the quality of justice given the increasing use of AVL for defendants, witnesses and asylum seekers who do not speak the language of the court, and she calls for greater training in court interpretation by AVL. The findings of the Cardiff University Law School Bail Observation Project (2016) into the use of video links in asylum and immigration tribunals confirm the depersonalising

experience for detainees as well as the compounding disadvantages when interpreters are required. According to that project, any technical failures aggravate the already disadvantaged situation. The project also notes the amplifying distractions of background noise, alarms and telephones that can infiltrate and disturb these proceedings.

### **Court Transcription: [Inaudible] Justice**

Interestingly, the lack of audio quality flows into the quality of court transcripts. In one case, a witness gave evidence from overseas by video link:

The connection was unfortunately lost on a couple of occasions, and the *sound quality was poor*, such that *the transcript of her evidence is missing several words*. Nevertheless, although the process was sometimes slow, and required certain answers to be repeated, I am satisfied as to what her evidence is on the relevant matters. (*Neil & Anor v Henderson (Rev 1)* [2018] EWHC 90 (Ch) at [141] per Zacaroli J) (added emphasis)

Despite the poor audio quality and the missing text in the transcript, clearly the judge found the evidence satisfactory. But the problems of noise for transcription services in technologized courtrooms are recognised:

Competing noises in courtrooms increases difficulty for monitors to hear and will impact the quality of the transcript such as typing near microphones or shuffling of papers and coughing into microphones. (NSW Bar 2020: 16)

The Supreme Court of NSW (2020b) provides specific guidance to practitioners to assist with fidelity of transcription services. In a joint criminal trial, *R v Macdonald; R v Edward Obeid; R v Moses Obeid (No 11)* [2020] NSWSC 382 at [12] Fullerton J noted that the virtual court, launched in an attempt to continue proceedings following COVID-19 measures, suffered significant and repeated technical difficulties with parties dropping out and having to reconnect and:

From time to time counsel were also *difficult to hear* and on other occasions their submissions were fractured or time delayed. Despite the

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valiant endeavours of the court reporters, *the integrity of the transcript suffered* as a result. (added emphasis)

In *Registrar of the Supreme Court v Jenkins* [2019] NTSC 51 at [247] (see also *Jenkins v Todd* [2017] NTSC 26) transcripts recorded the following dialogue from the respondent who had thrown a tantrum in the court cells and removed his clothes. AVL from the cells to the courtroom was arranged so that the respondent could make submissions on sentencing and the transcript recorded:

I would like to see my solicitor. I [inaudible] report. You're not providing [inaudible] justice. Leave me the fuck alone [inaudible]. (added emphasis)

Court transcription services aim to 'capture every word' (Auscript 2020: np) and 'court reporters are expected to be the best ears in the room' (Jones et al. 2019: e32). However, in the above example, clearly some of the AVL dialogue was unintelligible; or perhaps the gaps in the verbatim transcription may be accounted for by paraverbals or nonverbal expressions. Nevertheless, such linguistic lacunae in the official written version of verbatim accounts undermine the cohesion of meaning and accuracy of legal records, although probably not to an extent of rendering it wholly untrustworthy (Fehringer 1982). But I suggest that this case does conjure, to re-purpose the transcript above, the concept of *inaudible* justice.

Audibility and inaudibility are particularly important when the link is only an audio link, or telephone. *SafeWork NSW v P&K Bezzina Pty Limited*; *SafeWork NSW v Paul Martin Bezzina* [2020] NSWDC 91 provides an example where the hearing was conducted via merged mobile phone calls when both the audio visual link and audio link failed to connect. In *Taniwha v The Queen* 2016 NZSC Transcript 8 (see also *Taniwha v The Queen* [2016] NZSC 123), the court questioned the impact of AVL on demeanour assessments during cross-examination. Counsel for the appellant argued that in detecting deception: 'without the distraction of both audio and video, it tends to be the case that the advantage is more towards the audio alone' (*Taniwha v The Queen* 2016 NZSC Transcript: 9). Glazebrook J agreed:

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There is research to suggest that if you just hear something without seeing something that you're actually more likely to detect falsehood because you're not distracted by visual clues that might not be correct (*Taniwha v The Queen* 2016 NZSC Transcript: 10).

This transcript of court proceedings raises the issue of audio detached from a visual cue or material source, for example, a spoken response heard without seeing its human origin. In contemporary criminal courts, there are a range of sounds transmitted from one remote legal space to another without any image. For instance, there are the ambient sounds produced by the prison environment that may be transmitted to the courtroom by AVL severed from their visual context. Several cases identify the indiscriminate transmission of random sounds from unseen sources to other spaces during AVL proceedings. Even the slightest movement of paper can disrupt proceedings. In *the matter of Conomy* [2019] HCATrans 178 Mr Conomy stated: 'Sorry, your Honour, there is a lot of noise coming through. Perhaps that is just the paper. Anyway, I will keep going.' In *Marsh & Anor v Baxter* [2016] HCATrans 22, French CJ interrupted counsel for the applicants to say:

Just before you go on, Mr Walker, I think there is a bit of noise coming through the microphone – it may be pages turning at the other end – so if solicitors and counsel at the other end could be careful to keep the pages away from the microphones. It seems to be a very sensitive pickup.

Similarly, in *Public Trustee of Queensland v Fortress Credit Corporation (Aus) 11 Pty Ltd & Ors* [2010] HCATrans 49 French CJ stated: 'Just a minute. I think...you are turning pages close to a microphone. You may be generating more noise than we need.' These cases evidence the apparent impact that even insubstantial noise can make on legal proceedings, the breach of the presumed silence of legal performance (Mulcahy 2019), how noise can be readily and inadvertently transmitted between disparate spaces, and the need to control environmental noise through technologies, architectural devices and design (Mulcahy 2019). Court protocols seek to guide remote parties to control their sounds by restricting their bodily movements and finding 'a remote site

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that is free from as much background noise as possible' (High Court 2020: np). Minimising random sounds also assists in maintaining the integrity of court transcripts.

### Muted Justice

The existence of AVL facilities mean that disruptive defendants can be removed from courtrooms and enabled to 'appear' via remote witness rooms or courtroom cells (McKay 2016, 2018a). Moreover, the technologies allow judicial officers to deactivate the AVL or intentionally mute remote defendants and witnesses with the flick of a switch. For instance, in *Jenkins v Todd* [2016] NTSC 21, Kelly J at [10] stated that:

During the course of that directions hearing Mr Jenkins interrupted me, spoke over me, objected to being required to stand when he was being spoken to, and failed to do so. I had him removed from the courtroom and gave him the option of participating in the directions hearing via audio-visual link from the vulnerable witness room [7] or not at all.

Note [7] explained that the 'purpose of this was to ensure that Mr Jenkins could see and hear everything that occurred in the courtroom via the audio-visual link, but would be prevented from interrupting and disrupting proceedings by having his microphone placed on mute if necessary.' In *R v Ronald Edward Medich (No. 31)* [2018] NSWSC 248 a witness appearing by AVL made verbal outbursts, addressed the judge with a raised voice, interrupted the Crown, and provided answers that were non-responsive to the questions asked. Bellew J ordered that the AVL be terminated. In *State of New South Wales v Russell* [2018] NSWSC 1880, Button J noted at [69] that the defendant, who appeared by AVL, used 'a modicum of bad language' towards him, stormed out of the remote AVL suite and refused to speak with his lawyers, and the proceedings were concluded in his absence. But some participants subvert the muting process: in a remote family law matter, the 'poorly behaved' father constantly spoke over Ryan J and challenged judicial authority:

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The father was informed on a number of occasions that if he continued in this fashion, his microphone would be muted...*However, as fast as the Court muted the father, he un-muted himself.* An obvious defect in the system. In short, the father could not be contained. Thus...I terminated the hearing. (*Rumney & Sackes and Anor* [2020] FamCAFC 212 at [19]) (added emphasis)

These cases demonstrate the ways in which AVL technologies can lead to a greater and easier silencing – and exclusion – of disruptive parties. Moreover, the technology explicitly acts as a hierarchical and disciplinary means of offender and courtroom management, and effectively executes a strategy of segregation.

## Conclusion

The case law and transcripts provide compelling evidence of the transformative impact of audio visual link technologies on legal procedure in Australia, NZ and England, and the profound effects on everyday judicial tasks in administering justice as well as courtroom rituals and protocols (Rowden & Wallace 2018). While AVL technologies may assist with judicial workloads and court efficiencies, they may simultaneously add to workplace stress, and generate wasteful adjournments and delays (Wallace et al. 2017), particularly when there are technical glitches including audio failures, distortions, interferences, corruptions and omissions.

What are the implications of glitching justice for high stakes criminal proceedings? The case law reveals the challenges to the hearing rule, fundamental to effective defence and participation, brought about by glitchy audio. Meaning and comprehension are lost when the words spoken by witnesses, counsel and judicial officers are unheard or undecipherable. New waving and gestural protocols have evolved to draw attention to audio failures or disruptions, particularly relevant to disempowered prisoners appearing from closed environments and remote vulnerable witnesses. These are the participants who may bear the brunt of ‘the auditory violence that is embedded in courtroom design’ (Russell et al. 2020: 12) and, I would argue, embedded in the

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implicit exclusionary tactics of AVL. With a focus on the *availability* of technologies rather than their *quality*, combined with some rushed instances of technological roll-out during COVID-19, glitches arise from poor internet, systems or other infrastructure that may not be optimally fit-for-purpose. The problems of audio glitches produced by barely adequate technology are compounded when court interpreting services are required. In the intersection of glitch and interpreting, the case law demonstrates the difficulties in demeanour assessments, procedural delays and instances of injustice. The case law analysis identifies the audio porosity of courts and other acoustic spaces such as custodial AVL rooms, and how both wanted and unwanted noises penetrate and intrude. This porosity can glitch participants' comprehension by adding to their cognitive load (Herrity 2019, 2020; Rowden & Wallace 2019) and glitch the court's transcript. In addition, the cues for 'normal' turn-taking in dialogue are diminished by AVL technologies leading to overlapping speech that compromises audibility and transcription services. Finally, the ability to completely mute remote participants is a particularly potent expression of judicial authority and disciplinary control: an explicit exclusionary exercise.

The lack of fidelity that stems from audio glitch may well produce faltering fidelity in criminal procedure. The audio glitches in contemporary criminal procedure are material elements in courtroom environments that are increasingly filled with the whirl, hum and feedback of digital technologies. While 'the sonification of user-interfaces, and the muffled noise of hard drives' may lead to an 'aesthetics of failure' that could be celebrated in an experimental arts or electronic music context, the same intrusions represent a rupture or violation of *ideal* criminal procedure and protocol (Cascone 2000: 12-13). Instead, glitching audio draws attention to the 'system of transmission itself' and to the physical absence of legal participants (Krapp 2011: 77).

Going beyond the mere practical and procedural implications, the audio issues of AVL, as identified in the case law and transcripts, foreground the sensorial experiences of the legal participants and parties

involved, whether as judicial officer, legal counsel, witness, defendant or interpreter. Despite the many technological interventions in the criminal justice system, sound remains a highly subjective, internal and embodied experience (García Ruiz & South 2019). Hearing happens through elaborate physiological means. From any creature's or object's movement comes a rush of air molecules, a 'sound roll like tides' towards our ears where, amidst an intricate structure of tympanic membrane, the body's tiniest bones—the auditory ossicles or stapes (stirrup), incus (anvil) and malleus (hammer)—as well as fluid-filled cochlea with minute hairs, nerve cells, pressure, and fluid, we can hear (Ackerman 1995: 177-8). Ackerman (1995) explains how sound waves become fluid waves and ultimately electrical impulses. New electronic or digital technologies such as AVL perhaps take on a further evolutionary task by extending the geographical reach and amplification of what can be humanly heard (Ihde 1990).

On this basis, sensory criminological and acoustic socio-legal conceptions provide cogent means to understand the reverberations that emergent technologies have on the criminal justice system. 'Sonic methods' can reveal carceral disciplinary, surveillance and spatial tactics or, in the cases I have surveyed, tactics of spatial, corporeal, visual and audio demarcation in legal procedure (Brown & Carrabine 2019: 200). A sensory criminological view provides a heightened attunement to embodied experience and allows, in this instance, for the exploration of the new acoustic environments of digitised justice (García Ruiz & South 2019; McClanahan & South 2020). The acoustic spaces of digital justice include prison and detention centre audio visual link studios, expert witnesses' workplaces, legal practices and chambers, remote witness facilities, participants' homes and increasingly empty courtrooms; a conflation of judicial spaces with diverse professional, law enforcement, carceral and residential spaces. AVL provides a reciprocal conduit for audio permeability between these conceptually connected and legally networked but non-contiguous spaces, a conduit that collapses space, distance, purpose, institution and boundary. These disparate spaces are now so interconnected by technologies that the separation of powers and delineation of functions may be diminished

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in the resultant ‘justice matrix’ (McKay 2018a: 19, 164). The web of AVL also demonstrates how closed environments such as prisons are sonically porous, permeable and *not* totally impenetrable ‘total institutions’ (Goffman 1961: xiii, 7, see also Crewe 2009, Farrington 1992, McKay 2016, Rice 2016, Russell and Carlton 2018, Schept 2013).

As digital justice increasingly becomes the default situation, we must attend to, and not ignore, sonic glitches and other audio phenomena. Sensory criminology provides a means to disrupt assumptions about supposed procedural efficiencies, the quality of the criminal justice being delivered and experiences of justice/injustice. This approach reveals the intersections of the sensory with phenomena of crime, justice and power (McClanahan & South 2020). To apprehend the sounds and sonic ambience of remote AVL spaces is to better understand the emergent space of networked or digital justice, and to understand the disjuncture between the acoustics and atmospherics of courtrooms, prisons and the new virtual spaces of digital justice. Sensory criminology provokes an assessment of whether the new virtual spaces are also *just* spaces. To acknowledge the glitch, is to sense a betrayal in the soundscape of law.

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