3 'A repertoire of means for imagining music'

Notation cultures and the musical imagination

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In *Music, Imagination, and Culture*, Nicholas Cook defines a musical culture as 'a repertoire of means for imagining music' (Cook 1990, 4). Could notation form part of such a repertoire? What would this mean for our understanding of notation, and conversely, of the musical imagination? Cook continues that 'it is the specific pattern of divergences between the experience of music on the one hand, and the images by means of which it is represented on the other, that gives a musical culture its identity' (Cook 1990, 4). These 'images' include not just music notation, but also analyses, metaphors, discourse, and audiovisual media—indeed, a similar argument can be found in his work on musical multimedia, which argues that musical cultures are 'cultures of the relationship between sound and representation' (Cook 1998, 270).

Cook's work takes a phenomenological approach to music and the musical imagination: later in *Music, Imagination, and Culture*, he writes that the 'basic identity' of a musical culture 'lies in its mechanism for constituting sounds as intentional objects' (Cook 1990, 223), and he draws on the work of philosophers such as Jean-Paul Sartre, Maurice Merleau-Ponty, Alfred Schütz, Don Ihde, and Roger Scruton. He argues that 'musical lines have no material existence' (Cook 1990, 24) and to hear a melody rise or fall, or to hear a series of chords in terms of their harmonic movement—in other words, to hear sounds as music—requires an imaginative act on the part of the listener that separates the sounds from their sources. Citing Merleau-Ponty, he distinguishes 'two sides of the musical fabric', comparing the composer or musician to a writer who deals only with language, yet 'suddenly finds himself surrounded by meaning' (Cook 1990, 135). There is a fundamental distinction between the materials that make up music (which are not inherently musically meaningful) and their imaginative experience (which is): 'Scores represent the back of the musical fabric: and whereas from the player's point of view the score is prehistoric to the performance, because [...] it is abolished in the act of performance, for the listener it simply does not exist' (Cook 1990, 156).

Cook's main goal throughout the book is to shed light on the discrepancy between ordinary listening and 'musicological listening' (Cook 1990, 152). The score, in the sense of a predetermined musical structure that can be grasped synchronically, as opposed to the moment-by-moment unfolding of musical movement in performance, does not exist for the listener. This same argument can also

be applied to performers. Performers 'abolish' the score in the sense that, through their precise interaction and embodiment of musical motion, they construct the flow of musical time in a way that is incommensurable with the synchronic representation of time in the score, turning the performance into what is essentially a 'communal improvisation' (Cook 1990, 131).

In this regard, Cook's argument exemplifies a general tendency across the various movements towards disciplinary innovation in musicology around 2000. Whereas most music scholarship up to the 1990s concentrated on the score as a representation of musical structures, more recent musicological approaches argue for an understanding of music in terms of practices of performing and listening rather than of musical 'works' (as, for example, in Cook 2001, 2013), and such arguments have usually proceeded from a critique of notation. The role of notation as a means for imagining music is precluded by this argument for notation's inherent unmusicality. That is why the 'relationship between sound and representation' in which musical cultures consist is characterized as the negotiation of a pattern of *divergences* rather than correspondences between sound and image. In this way, notation tends to stay out of sight—either it is regarded as a transparent means of representation, or it is outside the realm of music altogether. Neither perspective sheds much light on the role of music notation in the creative process of performers.

In this chapter I draw on my fieldwork with two notational practices to interrogate the role of notation in the musical imagination. First, I draw on work with blind musicians who use notations especially designed for the visually impaired. I show that the act of imagination that determines the 'relationship between sound and representation' is not cut off from material reality, but is developed in the negotiation and assemblage of notation as a material artefact. Second, I discuss a practice of conducted improvisation, in which musicians use hand signals and gestures to create improvised music. In this case, too, the notation mainly functions to assemble a piece of music, indeed this act of assemblage takes place in the course of performance. Drawing on the work of Alfred Gell, I argue that the imaginative act of hearing sound as music is not a matter of detaching sound from its material source, but rather of hearing it as emerging from this material infrastructure. The sound is thus not detached from its source; rather, its causality is dispersed across this musical assemblage.²

Scholars in actor-network theory have argued that in order for something to function as a representation of reality, it has to be assembled by a process of innumerable steps of measurement, calculation, and translation (Latour 1986). For Bruno Latour, the concept of 'composition' means putting together and rendering compatible a range of different objects, assembling them so that they can work together while retaining their heterogeneity (Latour 2010). Rather than directing our theoretical attention to the correspondence between representations and reality, we should aim to describe how this process of mobilization enables the function of representation in the first place. Similarly, notations assemble and mobilize music theories, musicians, instruments, and playing styles, and they work not because of their representation of musical structures (visual or otherwise), but because they

construct relations that allow music to sound (Schuiling 2019b). Kyle Devine and Alexandrine Boudreault-Fournier argue that, insofar as music notation makes possible the storage, transmission, and processing of musical information, 'notations are media infrastructures' (Devine and Boudreault-Fournier forthcoming).

I argue that the musicality of performers lies precisely in their knowledge of how to interact with their materials to make music, and that their imaginative musical engagement with the score is a matter of negotiating the infrastructure assembled by it. Cook's definition of notation as a 'script' (Cook 2001) emphasizes that performance is essential to its nature and function and points to the role of the score in constructing and mediating social relationships between musicians. Building on this argument, I have defined notations as 'interfaces for imagining virtual musical relations' (Schuiling 2019b), to further embed notation in an ecology of technology and creative practice. The 'correspondence' of notation to the music performed can be interpreted, not in terms of the similarity between a ready-made model and reality, but rather in the meaning that Tim Ingold gives to the term: the development of a mutual responsiveness between musicians and the materials assembled by the notation (Ingold 2017).

Notations for visually impaired musicians

Blind and partially sighted musicians have a variety of means to read music. The most common is Braille music, which uses the same system of raised dots as literary Braille, but assigns different meanings to the symbols to transmit musical information. Figure 3.1 provides an example. Although Braille music is designed to convey the same information as staff notation, functioning as much as possible as a transliteration of the content of a score for sighted people, there are some crucial practical differences. First, it is usually not possible to read and make music simultaneously, as musicians usually need both hands for both tasks. This means that they have to go back and forth between reading and playing, constantly reiterating and retracing their steps until the piece is learnt by heart. Sight-reading is only possible in very particular circumstances:3 a keyboard player may read the part of one hand with the other, or singers might read their notes while singing if they already know the words by heart. This brings me to a second difference: Braille is a fundamentally one-dimensional, linear system, in which all information is given step by step in a purely symbolic form of representation. It has no iconic resemblance to musical movement; there is no indication of relative pitch height by providing a visual analogy to aural experience, representing higher notes higher on a staff. In fact, there is simply no such thing as alignment: the left and right hands are notated separately in keyboard music, as are the music and lyrics in vocal music, or the different parts in scores for ensembles and orchestras, or even contrapuntal lines for polyphonic instruments that would normally be notated on one staff, and the only way to know how they fit together is by trying it out or imagining it.

Braille music seems to be an even better example than staff notation of a notation that is 'prehistoric' to performance and that represents the 'back of the

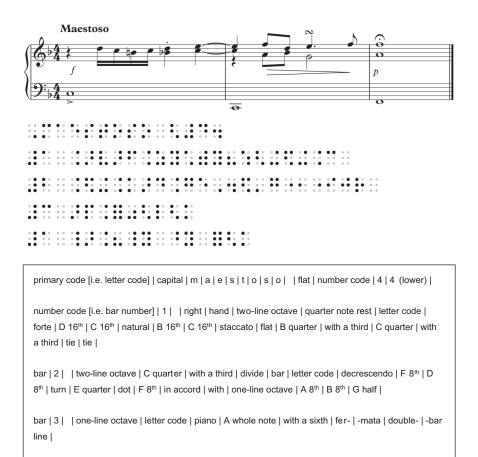


Figure 3.1a and 3.1b A short example of piano music with a Braille translation, and a transliteration of the Braille code in English.

bar | 1 | | left | hand | small octave | ac- | -cent | letter code | forte | C whole note | bar line | great

octave | C whole note | bar line | letter code | piano | F whole note | double- | -bar line

musical fabric'. Cook's argument that the score is 'prehistoric' refers to the work of Alfred Schütz (Schütz 1951; see also Cook 2007), who argues that in performance, musicians share in an experience of inner time. The notation is prehistoric, since it stands strictly outside of the time in which music unfolds. I will not concern myself with this argument here (though see Schuiling forthcoming), but the idea of notation as 'prehistoric' suggests that there is much to be gained from an engagement with notation in an archaeological rather than a historical mode (I draw this distinction from Moseley 2013). That is to say, we should address its role not as a representation of music, but as a form of material culture, supporting human activity by constructing and mediating musical infrastructures; it is

the 'techno-epistemological configurations underlying the [musical] surface', to paraphrase media archaeologist Wolfgang Ernst (Ernst 2011, 239), that demand our attention.

Braille music is intended for a very particular user, who is not only able to read Braille very well, but also has the mental capacity to switch codes between literary and musical Braille, as well as to memorize a great deal of music—both in the short term, because the acts of reading and playing are necessarily disconnected because you need your hands for both of them, and in the long term as blind musicians cannot look at the score as a mnemonic device during performance and thus have to memorize the music as a whole. Understandably, Braille music is considered to be very difficult, and students in school may even be discouraged from learning it, even if they have a talent for music. Braille notation thus highlights how the representation of music in writing is not just dependent on the bodily attributes of the musician who reads it, but also on the way in which the relation between the notation and the musician's body is embedded in a broader socio-material infrastructure. In fact, the musicians I have spoken to were all too aware of the materiality of notation, and the fact that their ability to read music is not just a mental but also a physical skill. They have an acute awareness of the infrastructures that support (or occasionally obstruct) their access to notation, including the various media needed to transmit musical information as well as the institutions such as libraries that uphold this infrastructure.

I began my fieldwork, which is still ongoing, with the aim of studying how this system is used in practice, but quickly discovered that musicians with visual impairments use a range of different forms of notation, and that they frequently combine these to suit their needs or habits. Braille notation only forms part of them, if it is used at all. This is not just because of the limited accessibility of Braille music, but also because there are a lot of different ways to be blind, both in a medical sense, and in the various ways in which people incorporate and perform their impairment in their social lives. Braille is generally considered easiest to learn at an early age, but most people by far, in the Netherlands as elsewhere, become visually impaired only at a later age, and do not learn Braille either because they find it too difficult, because they consider the use of Braille a social stigma, or for a variety of other possible reasons. Moreover, audio devices and text-to-speech technologies are increasingly common, making Braille less necessary for this demographic. Meanwhile, for those that do learn Braille at an early age, the shift from education of most blind children in specialized institutions to regular schools has meant that it has become far less likely to even be aware of the existence of Braille music.4

Paul Houdijk gradually lost his sight as a child; he could read music but had to memorize everything because he had to keep the score very close to his face to be able to read, making sight-reading impossible. When he started to go completely blind in his thirties, he figured he was too old to learn Braille well, let alone Braille music. 'So I thought, there should be some kind of solution. There are all sorts of things dictated onto tapes, like books and magazines, why can't we do the same with music?' (Houdijk 22 October 2018). After some experiments with friends

and fellow musicians, he contacted a library for the blind, where they developed the idea further. Thus, he took the initial steps towards the development of *spoken scores*. Spoken scores combine the transmission of symbolic information with MIDI-based audio examples. They are played on DAISY devices, which are also used for audio books; they divide the music into segments, and in the case of keyboard music, further divide these segments into the two hands. The whole piece is played as an audio example at the beginning, and the prescriptions for each segment and each hand are accompanied by an audio example. Users can pause, fast-forward, rewind, but also repeat or skip certain segments, allowing musicians to assemble the music piece by piece. Houdijk's invention of the spoken score, through his collaboration with specialized educational institutes, has resulted in a new form of notation particularly suited for late-blind musicians. Although its use remains marginal, it has become a new standard way of transmitting musical information for Dutch specialized libraries, and has also spread to other countries.⁵

The principle of adapting notations to one's personal habits, however, seems ubiquitous. The blind and visually impaired musicians with whom I have spoken have all come up with strategies such as these to make their musical lives easier. Like bricoleurs, to use Lévi-Strauss's term (1966), they use the technologies they have at hand, combining and repurposing them as they see fit. Musicians have various ways of doing so. Marcel Bijlo was blind from birth and learned to read Braille music as a child. He started out playing piano, and explained how he learned to bring together the two separately notated hands:

I always started with the right hand and learned that, and then I would go on to the left. But what I noticed was that it was much easier to play the left hand *together* with the right. So I learned the right hand really well, and rather than learning the left hand on its own and then combining them, I memorized the right hand so well that when I learned the left hand I could combine them straight away.

(Bijlo 30 October 2018)

Bijlo's technique allows his left hand to interact with his right, bringing together the movement in both hands in such a way that he can hear straight away how the music emerges from it, rather than postponing this until after he has rehearsed both hands. Rather than working only with materials and 'finding himself surrounded by meaning', he is able to interact with his materials in a way that is musically meaningful. He subsequently moved away from playing the piano and started playing the recorder as his main instrument, and developed a comparable method: reading the music in Braille, he would whistle the notated melodies and record them, after which he would play his recorder while listening to himself whistling.

Hedda Schueler plays piano and sings in a choir; like Bijlo, she was born blind and learned to read Braille music at a young age, but she does not really use it. Although she sometimes orders a Braille score when the choir is engaged in a larger project, she primarily studies by ear, using MIDI-based audio files made by one of her fellow choir members. Having perfect pitch, learning by ear is easier for Schueler than for most other people, but learning a new piece of music still

involves assembling various different materials, if only to bring together music and lyrics:

I usually start with the melody. I don't always have the text, so I have to look that up and then I'm not always sure if it's the right one. But when I've learned the melody it's usually easier to remember the text; I usually make a Braille copy of the text and then I take that along to the rehearsal to learn it.

(Schueler 9 November 2018)

Like Bijlo's strategy to learn the parts for his two hands when playing piano, this way of working assembles the different constitutive parts of the music in a way that makes it clear how they interact with each other. Schueler also explained that in difficult passages, it is very important to have an audio file that also contains the other vocal parts, so that it is clear how one's part interacts with the others. She even described how she could enact this interaction by playing the other parts on piano:

If I notice I find it difficult to remember a melody for voice, because of a modulation for instance, I play it on piano and that makes it easier to remember even though I'm supposed to learn singing it. Usually if I have the MIDI file with the other voices I can manage, but when I'm practising it can be useful to play all the voices on piano, or only the soprano part against which I can sing my alto part, that gives me a frame of reference.

(Schueler 9 November 2018)

Lacking a synoptic *view* that links the different parts of the musical infrastructure together, this strategy allows her to create such connections in sonic and kinaesthetic terms. Like the audio examples on a spoken score, or Bijlo's learning of one hand against the other, this is a way to overcome the one-dimensionality of the spoken instructions, Braille notation, or an audio example of a single part.

These ways of rehearsing music are not so much a way of 'abolishing' the score, but of developing a sense of correspondence with the materials assembled by it. This development constitutes part of their musical skills; it is through their engagement with them that they develop a sense of the sounds they play as music. Rather than abolishing the notation, they weave it into their musical practice (Payne and Schuiling 2017). Moreover, although each musician has their own way of negotiating the difficulties of Braille music, they do so with a body that is already in correspondence with several technological media, and their acts of bricolage make use of the habits already developed in these relations.

Kobranie

Kobranie is a system of gestures and signs to conduct a group of improvising musicians. It was developed by saxophonist Esmée Olthuis, in the context of the Tetzepi improvising collective that grew out of the Dutch improvised music workshop scene. Since the 1970s such systems for conducted improvisation have emerged

across various free improvisation scenes; Kobranie was initially inspired by John Zorn's *Cobra*, although it quickly developed in quite a different direction.⁶ Olthuis teaches this sign language to first- and second-year students at the HKU Conservatory in Utrecht, as well as in workshops for audiences ranging from primary school children to groups of professional musicians. My research was mostly conducted in her first-year classes at the conservatory, as I observed how students went from learning their first set of signs to the end-of-year exam in which they have to conduct their own piece, supplemented by some additional interviews with students individually and in a group.

In Kobranie, the conductor (called a 'processor') stands in front of the group, or usually in the middle of a semi- to three-quarter-circle, and conducts them by pointing to one or more musicians, giving a sign specifying a musical idea, and cueing its execution. These signs, which number around a hundred, include basic ideas like 'start', 'stop', 'long note', 'short note', 'play a rhythm', 'play chords', 'play a melody', and so on. The processor can also specify relative pitch height, indicate relative dynamics and tempo, and coordinate the interaction between specific musicians, for instance by asking someone to support or imitate someone else, asking people to come together or come apart, or asking someone to take leadership over a sub-group (or the whole group). Such signs can also be combined, for instance by asking a musician to support someone with a low, soft, long note. Some signs can be used to construct an overall musical form, for instance by 'taking it to the bridge' or 'returning' to what was played before the bridge; or by asking someone (or the whole group) to 'record' what they play, committing it to memory so that it may be retrieved later in the piece. Finally, some signs indicate a musical style (reggae, hip-hop, punk, and so on), but these are rarely used. The musicians in the ensemble are free to adapt what they are playing to a changing situation or to stop playing, and may also raise their hand to suggest a new idea, which always has to be granted by the processor (even if they then turn it off immediately).

Like many other systems that employ notations or other means of structuring improvisation, Kobranie raises interesting questions about the relation between composition and improvisation. As much as the historical work-centred discourse of classical music has dismissed the creative agency of performing musicians through a hierarchical insistence on *Texttreue*, discourse on improvisation has conversely defined its celebration of performers' free individual expression and egalitarian forms of interaction *against* the use of notation (Cook 2007). Moving beyond this dichotomy, Kobranie takes as a basic premise that limitations can generate new ideas, assisting creativity and freedom in improvisation. Moreover, unlike many other forms of improvised music that maintain an egalitarian ethos, Kobranie is clearly dependent on a hierarchical division between processor and ensemble. However, there is a great deal of reciprocity in the way that this hierarchy is (ideally) enacted. Some of this reciprocity was described to me by one of the students as follows:

I initially found it difficult to go along with somebody conducting me, when I didn't agree with where somebody was going, to shut off that judgment and

go along with them. You develop a sense of trust, and confidence. I now try to really jump in, get into their idea and by doing so also develop new ideas for myself.

(HA 12 October 2017)⁷

In an earlier conversation this same student had commented favourably on the kind of leadership that Kobranie generates:

It's a certain idea of what leadership can be. You can tell someone to do something, but in this case all the musicians actually have as much to say about what they're doing as you. So you fulfill your leadership role, but that doesn't mean that your actions are more valuable than what the others do. So that makes your ensemble members much more . . . really musical people, rather than just people who are doing what you tell them to.

(HA 21 September 2017)

In this regard, learning Kobranie is to a large extent learning how to negotiate such hierarchical relations successfully. The processors quickly see that learning to respond to what the musicians are doing is more effective than trying to hold on to their own ideas about how the piece should go, and the musicians have to learn that they are not just following orders but are in fact creating the musical content, and are thus more in charge of the development of the music than they might at first think.

As I explained in the introduction, Cook's account of the musical imagination holds that to hear sound as music is to separate it from its material source, and to consider the sounds in themselves as intentional objects. The score does not exist for the listener, in the sense that listening to music is not the grasping of a predetermined musical structure, but following the moment-by-moment unfolding of musical movement in the course of performance. However, there is another sense in which the existence of the score has a fundamental impact on the musical imagination. We can imagine two people listening to an avant-garde-sounding piece of music, one thinking it to be a free improvisation and the other thinking that it is a pre-composed work of modern music. These listeners will have fundamentally different musical experiences; though they will probably hear the same basic musical ideas—melodies and harmonies rising and falling, and so on—they will have different understandings of how these ideas relate to each other and how they are developed. To generalize somewhat, the listener to an improvisation will consider these ideas as emerging from a dialogue between the musicians on stage, while the listener to a composition will consider these ideas to be part of a musical argument made by a composer. They will constitute a different intentional object; musical sounds may be related to each other differently, and more importantly, listeners will judge the creative agency of the performers in a categorically different manner.

Part of our musical experience is constituted precisely by our knowledge of how music is made, and this in turn influences both how we conceive of the music ontologically (how we constitute it imaginatively as an object or a process, or something in between) and how we conceptualize the creative agency behind it. Technology reroutes ascriptions of agency. The anthropologist Alfred Gell called this effect the 'enchantment of technology' (Gell 1992). Technology complicates our understanding of causation and agency to such an extent that it frequently transcends our basic grasp of everyday human behaviour. Artworks, Gell argued, are 'technologies of enchantment': we do not just value an artwork's beauty, but also the fact that it is 'beautifully made, or made beautiful' (Gell 1992, 43). As such, technology (and art in particular) breaks through the phenomenological bracketing of material reality. Through a process Gell calls 'involution', artworks mediate social relationships by functioning as an 'index' of networks of human and nonhuman agency ascribed to them by their spectators/audiences who try to account for their enchanting effects on them (Gell 1998).

For the performer, negotiating the infrastructure assembled by the score is not just a matter of abducting these involuted networks of agency, but is also crucially about constructing their own position as creative agents given the affordances of this network. If notation is an interface, the system or infrastructure with which Kobranie provides a connection is assembled in the course of performance. As such, a sign given by the processor indexes not just their own creative agency, but because they are responding to the music and the sounds of the musicians, it indexes the collective agency and activity of the group and the music that it is making. Conversely, a sound made by a musician in response to such a gesture indexes not just the musical activity of the musician, but also of the processor—who is responding to the sound of the group, and so on. This process, in which indexical relations are constantly shifting, is what Gell calls involution. With the signs, the processor can 'compose' the music, bringing together a range of human and non-human actors and organizing them so that they work together in a common activity.⁸

One important consequence of this process is that the musicians are able to see their improvised musical contributions not just as expressions of their own musical tastes and identities, but as part of a piece of music that has an existence that is significantly independent of their own actions. One of the things that most surprised me during my fieldwork was that the musicians consistently talked about playing 'in service of the music' and of being aware of their 'responsibility' to it. The association of this phrase with a work-centred discourse that sees the creative agency of the musician as subservient to the agency of the composer or the work clearly does not hold in this case. However, there was some suspicion about the idea of improvisation as simply a form of personal expression. As Olthuis told me: 'I think there is a lot of improvisation that starts with the ego. Then it's not about the music but about all sorts of other stuff I'm not sure I want to hear. The responsibility to the music is the most important thing' (Olthuis 29 May 2017). Indeed, Olthuis commented that part of the purpose of teaching the students Kobranie in their first two years is to encourage them to reconsider their musical personalities:

Everyone has their tastes, and that's fine, that's your identity—you can hear that I have a jazz background, and I'm attached to that. But I want to take apart

those new students as much as possible, and that makes them very insecure. Because they can play their instrument really well and that got them into the conservatory, and then suddenly they have to play chaos. That can be a big step. Because they think, I play this instrument so well, the chaos used to be when I couldn't play it yet. [...] But then somebody asks them just 'play a long note, now', OK, dooooooooooo ... that creates a framework that is safe, because you can meet someone's expectations. And then you start to anticipate, what am I hearing, what is the processor hearing? They are making an instant composition and I am part of that.

(Olthuis 29 May 2017)

The Kobranie signs thus create a space for people to act in when they otherwise might not know how. The shared responsibility of building a piece of music created by the use of these signs can help to diminish a sense of insecurity about one's own contribution.

Crucially, Olthuis suggests that the form of collective interaction and the sense of one's own capacity to participate are deeply intertwined with how the students are able to imagine the sounds they are making as music. She continued:

It also teaches them to put the music together in such a way that it becomes something new. That they really start to feel 'oh this can be music as well!' I could give them a bunch of CDs to listen to, but that does not really teach them *how* to listen to new music, because they will just judge it according to their personal taste. If they make it themselves, and compose with it, then they start to learn how to tell their own story with it.

(Olthuis 29 May 2017)

Students generally confirmed that learning Kobranie had changed the way that they listen to music. As one student put it: 'You have to venture onto that philosophical path and consider what this music is about, what is happening, why am I not hearing this as music? That's a challenge' (AD 23 October 2017). Another explained how this reconsideration of sound and music was connected to his ability to participate successfully in the improvisations:

I suppose what was a big 'revelation' for me personally was that music need not be pretty in order to be good. [...] This might sound very strange now, and yet the atmosphere is exactly right . . . so you start listening more in terms of atmosphere, it's creaking and off-key and the rhythm is all wonky. It's really bad music, but it can still be exactly what you want, and it has a lot of power. It's also a matter of working with contrasts, using them in your music. If a piece is only pretty and soft, it feels incomplete.

(AV 26 June 2018)

These comments suggest that hearing sounds as music is not simply to separate them from their material sources; rather, it is to attend to them in their capacity to participate in a process of involution of agencies. Although the relationship between sound and source is put into play, in that musical sounds are not simply directly associated with their source, the conceptualization of sounds in terms of their causation is still essential, especially (but probably not exclusively) for musicians themselves.

Conclusion

Carolyn Abbate writes that 'musical performance challenges notions of autonomy by staging the performer's servitude, even automatism, and upends assumptions about human subjectivity by invoking mechanism: human bodies wired to notational prescriptions' (Abbate 2004, 508). It is a bleak description that makes you wonder why blind musicians would subject themselves to the mechanistic demands of Braille or spoken scores, or why improvising musicians would let others tell them what to do. In both these practices, the agency of musicians emerges partly from their submission to the musical infrastructures in which they become entangled as they play or learn a piece of music. The Kobranie students, playing 'in service of the music', are able to play in such a way that they feel they contribute to the emerging piece, even if what they do is musically alien to them. The blind musicians follow the almost algorithmic instructions of the Braille notation or the spoken scores and play along with audio examples or with parts already learned. This allows them to fully participate in musical life, even if learning a piece can sometimes take extraordinary amounts of time and effort.

Abbate's suggestion that musical performance challenges notions of autonomy, creative agency, and human subjectivity, then, is surely correct. However, this fact need not be understood in such bleak terms; whereas 'human bodies wired to notational prescriptions' might suggest an image of an autonomous agent held down by the strictures of notation—of 'man born free' yet 'everywhere in chains', to use the words of Rousseau—we might also take the practices described earlier as an opportunity to rethink the human in terms of 'interdependence, mutuality, and interconnection' (Goodley and Runswick-Cole 2016, 2). As the examples make clear, by 'wiring' human bodies to the infrastructures that support music making, notations, understood as interfaces, allow musicians to interact with them—and not just in terms of servitude or automatism. If the turn towards performance has often emphasized the creative agency of performing musicians in opposition to a rigidly work-centred music scholarship, perhaps we can now move beyond this binary to investigate how notations fit into the technological configurations that make all 'musical playing' a 'being played' (Moseley 2016). As musicians, we act not just by executing a pre-established design, but by following and joining with the activity of the materials we use; creative work is not always a conscious acting-upon but also a matter of 'active undergoing' (Ingold 2014, 137). As musicians assemble notations and negotiate the materials assembled by it, they weave notation and music together in such a way that their correspondence is not based in iconic similarity, but a function of their being made to work together. If their musicality lies in the skill of developing this correspondence, of actively undergoing the

resonant activity of their materials, then we might look for the musical imagination not in the bracketing off of sound from material reality, but as a way of opening up to material reality, and the involuted causality of sound in the world.

Notes

- 1 This chapter presents some results of a research project on Notation Cultures in Contemporary Music, made possible by a Veni grant from the Dutch Research Council (NWO), grant number 275-35-003.
- 2 On the idea of a musical assemblage, see Born (2005).
- 3 Some might find my use of the term 'sight-reading' inaccurate or even inappropriate; however, in talking with blind and visually impaired people one quickly learns that language is so full of visual metaphors that it is no use trying to avoid them, and in fact they use them themselves just as frequently as sighted people ('nice to see you!'). My use of the term 'sight-reading' can be understood along these lines.
- 4 In 2005, only 0,9 percent of visually impaired people in the Netherlands were between 0 and 14 years old, and only 6,1 percent between 14 and 49 (Stichting Vision 2020 Netherlands 2005). These statistics do not differentiate between visual impairment and blindness (which to some degree is an arbitrary distinction), and it may be that in the case of blindness there is a slightly higher percentage of young people. At the same time, however, the most important causes of blindness since 2005 (cataracts, diabetic retinopathy, glaucoma, and macular degeneration) largely affect elderly people (Rijksinstituut voor Volksgezondheid en Milieu 2020).
- 5 In David Baker and Lucy Green's book on the musical lives of visually impaired musicians, none of the 191 respondents to the survey that was the basis for their research indicated that they used spoken scores (Baker and Green 2017, 123).
- 6 The Dutch word 'branie' means something like 'swagger'.
- 7 Considering that these students are relatively young and only just starting their musical careers, I have chosen to refer to them by initials only.
- 8 On applying the work of Gell to processes of musical improvisation, see Schuiling (2019a, 158–9, 175–8).

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