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Sonic Bodies: Sonification and the hybridization of aesthetic experience

Maria Kapsali

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Introduction

This article examines the use of sonification, and movement sonification, as a tool for engagement with artworks within institutional spaces. It focuses on the relationship between artwork and visitor and the way sonification, by offering an audio-centred mode of engagement, complicates the aesthetic experience. Consisting of a range of techniques for representing data in sound (Walker and Nees 2011), sonification is being increasingly used as a form of ‘auditory display’ of information (Vickers *et al.* 2017: 89) as well as a compositional practice that combines the intentions of the artist with the characteristics of the particular event that is being sonified (Parkinson and Tanaka 2013). Movement sonification is a subcategory of sonification as the data that are sonified emerge from the user’s movement. Sonification is a form of mediation that has at its source an event, an object or an image, aspects of which are rendered into sound through a series of correspondences, and is finally received by a listening subject. Sonification, therefore, uses sound as a means of revealing in a specific sensory modality certain elements of an external reality that may or may not have an auditory dimension. As an interdisciplinary practice that crosses scientific and artistic boundaries, sonification is a hybrid, and one that raises questions about the relationships between the various components out of which it emerges. What is the relationship between the original event and the sounds that sonify it? According to what criteria should sounds be selected and according to what principles should they map onto aspects of the source-event? What kind of relationship might emerge between an embodied listener and the sonified artefact? Where does the sonification activity take place and where is it located in relationship to its source?

As we shall see, this complex set of interactions becomes particularly acute when the source-object of sonification is an artwork. Artworks, at least within institutional contexts, are classified as a form of ‘visual art’ and, unlike other events

that are sonified, for example the movement of animals or the unfolding of environmental processes, they are considered to be stable, finished and mute objects. As a result, the sonification of an artwork raises questions not only about the way it is expected to be encountered—can a painting be heard?—but also about what the artwork is. The sonification of artworks therefore comprises a hybrid entity that occurs out of the combination of at least two distinct components but also foregrounds the ontology of these components. This article examines instances of sonification of artwork by drawing on Bruno Latour's seminal study We Have Never Been Modern (1993) with the aim to demonstrate the way sonification, and movement sonification in particular, may enrich aesthetic experience and collapse the boundaries between visitor and artwork.

According to Latour (1993), hybrids are entities that transcend artificial divides between nature and culture and exemplify the twin processes that underpin Western modernity: one insists on keeping nature and culture separate while the other entangles them in never-ending combinations. Hybrids, therefore, are a manifestation of both the ongoing mediation that is constantly mixing subjects and objects as well as the persistent purification that seeks to keep them apart. In response to the interlinked crises in which the modern world finds itself, Latour proposes to shift the focus away from the two poles and concentrate instead on the space in-between. Following Latour, this article not only argues that sonified engagements with artworks constitute hybrids; they clearly do and so do many other interpretive technologies used in the museum sector. By drawing on Latour's distinction between 'intermediaries' and 'mediators' (1993: 78–9), the aim is to distinguish between different kinds of hybrids in terms of the relationship they assume between subject and object. With reference to specific examples of sonification, the proposition of this article is that sonification can foreground an understanding of hybridity as an expressive and embodied process, which can, on the one hand, dissolve strict, yet artificial, distinctions between subject and object, and on the other, open up a space for their co-mingling.

The article begins with a brief overview of the way art appreciation is understood and practised within Western institutional contexts as well as the way in which educational and engagement activities seek to render art accessible to visitors, including partially sighted and blind audiences. Against this background, I

will examine specific approaches to the sonification of artworks followed by a discussion of the project Sonic Bodies (2018) that explored the use of movement sonification as a means for a multisensory engagement with sculpture. Based on the kind of experience that Sonic Bodies made possible, the article concludes with a consideration of the contribution that movement sonification can make to aesthetic experience.

Looking at art

It would be safe to assume that encounters with art in public institutions in the global North are predominantly associated with quiet perambulations in spacious white rooms interspersed with regular pauses in front of artworks and labels as well as browsing at the gallery shop and an opportunity for further contemplation or socialization at the cafe. Arguably a gallery visit is a heavily scripted event, determined by the architecture of the building, the layout of the exhibition space, the histories and expectations associated with 'art', the dispositions and previous training of the individual as well as the sociality of the specific visit. The part of the script concerned with the experience of the artwork is also determined. According to James Elkins, aesthetic engagement manifests through what he calls the 'Official Museum Pace': 'an ambling walk, punctuated by stops to glance at paintings and slight forward bends to read labels' (2004: 171). Echoing Elkins, Christopher Whitehead observes that 'to visit an art museum—at least for a sighted person—is to engage in a formal practice of sustained and concentrated looking' (2012: 18, emphasis in original). Accordingly, Whitehead points out that the use of written or recorded text is one of the main interpretive mechanisms employed by curators in an attempt to provide visitors with information on the artwork that will facilitate their process of meaning making (xiv).

Elkins's term encapsulates not only the main kinetic and cognitive activities that make up a gallery visit but also their highly dispassionate character. Indeed, the 'Official Museum Pace' has been long in the making and is interwoven with the institutionalization of art, on the one hand, and the founding of museums and galleries as public institutions, on the other. Arnold Berleant (2016 [2005]) charts how the development of traditional aesthetics served a hegemonic function, delimiting the domain of art, divorcing it from daily experience and imposing distinctions between different modes of aesthetic engagement, in the process

naturalizing a particular understanding of art and excluding others. Ladislav Kesner similarly argues that from the nineteenth century onwards, the appreciation of art became equated with 'restraining any overt expressions, silent admiration and contemplation' (2006: 13). 'Such measures and regulations', points out Kesner, 'created a model of proper behaviour, whereby the required and expected decorum codified the nature of the encounter with a work of art, turning it into an orderly, controlled experience' (2006: 13). Echoing Kesner, Elkins further speculates that an emotionally and kinetically restrained attitude may also be paradigmatic of the presupposition that artworks are not expected to provoke powerful emotional reactions, which are nonetheless admissible in other art forms (2004: 169).

The presentation of artworks in galleries and museums not only makes them available to the general public but is also premised on and engenders a specific encounter. Artworks are expected to be seen (as opposed to be felt, touched or heard) from a distance that is deemed safe both for the artwork (in terms of the institution's conservation mission) as well as the visitor (preventing the latter from lapsing into uncontrolled emotional reactions).^[note]¹ Keeping a safe distance is a key aspect of the artwork's insurance and ensures that, whatever responses the artwork may generate, these will remain within a private internal landscape, spatially, kinetically and acoustically circumscribed. Aesthetic experience in institutional spaces is, therefore, underpinned by a double process: on the one hand, 'a single correct way of appreciating art as artifice' is established and, on the other hand, 'other aspects of the reaction and response to works of art' are suppressed (Kesner 2006: 13). Within this configuration, the artwork, as a material and affective object, is evidently present but constantly deferred, precluded, cordoned off or encased. The visitor, as a sensory and embodied organism, is also present but she too is cut off from a wide range of possible reactions and affective registers. It could be argued, therefore, that aesthetic encounters within gallery and museum spaces exemplify the purification process that according to Latour (1993) aims to keep subject and object distinct from each other.

Nonetheless, it is important to stress that museums and galleries are tasked not only with the conservation of artefacts but also with making them available to the public. The real and affective gap between object and visitor caused by the disinterested attitude of aesthetic theory becomes mediated by a range of

interpretive mechanisms, such as labels, audio guides and exhibition catalogues, as well as educational activities, which often offer opportunities to visitors to experiment with a wide range of expressive tools. Accessibility, and not only availability, has become an integral part of museum policy and is, as Whitehead (2012) notes, both a buzzword that may have a direct impact on the funding of an organization as well as an ethical imperative that sits at the heart of the museum's role as a civic institution. What is more, following the introduction of the Disability Discrimination Act in 1995 as well as the consolidation of disability rights, public institutions are expected by law to make their collections available to the public in ways that do not disadvantage visitors with impairments and/or disabilities. This may manifest in several ways, including permanent features, such as ramps, as well as temporary interventions, such as guided tours and touch tours.

The double role of museums and galleries as both (gate)keepers and as public-facing and public-funded organizations entails, as Nathaniel Prottas notes, that the encounter of artworks is often underpinned by 'a stark choice between experience and contextualization' (2017: 2): the former seeks to open up the visitors' response to an artwork in the here and now and is the task of museum educators; the latter is concerned with the positioning of an artwork within a particular history and context and is the priority of art curators. Prottas contends that these two trends can be productively combined, once interpretive activities take into account both artistic intention and historical context as well as the dialogue that unfolds between visitor and artwork in the present moment (5). However, Prottas (2017: 4), as well as Whitehead (2012: xviii) and Hooper-Greenhill (2004: 51), also admit that the dialogic and experiential engagement with art that museum educators aim to foster has remained distinct from curatorial practice and aesthetic theory. It can also be pointed out that the hermeneutic activities that Prottas, Whitehead and Hooper-Greenhill have in mind predominantly rely on acts of looking and talking. Drawing on her ethnographic research with non-sighted visitors, Fiona Candlin similarly reports that non-visual forms of aesthetic engagement, such as tactual ones, are not considered legitimate ways of knowing but regarded as 'a substitute for sight' (2003: 104). She further points out that 'art education neither encourages discussions about art's materiality... nor does it have the vocabulary to cope with the non-visual' (104–5). Even when alternative modes of engagement are permitted or actively encouraged

within institutions, visually centred and/or spatially distant behaviours continue to be the norm.^{[note]2}

Yet such behaviour is provisional, since it is only one approach among many. In fact, as Candlin argues (2010: 2), despite the dominance of strict etiquettes, different modes of encounter have always found their way into institutional spaces, ranging from the tendency of undisciplined visitors to touch artworks to the connoisseur's expert handling. Non-visual types of engagement not only are possible but they could engender different experiences and knowledges; indeed, they could lead to a radical re-thinking of what artworks are and how visitors can know them. Berleant makes a similar point:

[T]he ways in which we experience art depends [sic] not only on the features that the art object exhibits; they are equally the outcome of how we enter into association with it. This, moreover, is not just a matter of the attitude of mind which we bring to the object. Our experience is as much an outcome of the bodily attitude we assume when we engage in a kind of aesthetic exchange with it. (Berleant 2016 [2005]: 141)

To put it otherwise: if we move past the assumption that an artwork is to be looked at and that a visitor is first and foremost a viewer, then other relationships become possible. For example, Candlin envisages an alternative approach whereby 'a subtle vocabulary dealing with non-visual aesthetics would be developed and the emphasis on an art object's appearance would be considered extremely limiting and one-dimensional' (2003: 108). In a similar vein, Kesner calls for 'enhancing the activity of seeing as a true body-mind interaction in the space of the gallery' (2006: 16). Accordingly, the remainder of this article examines the way the use of sonification in galleries may be both dictated by normative forms of engagement and provide different modes of aesthetic appreciation. As I will argue, although the prioritization of sound may dislodge the centrality of vision as the dominant sensory modality, it does not automatically displace or replace an understanding of artwork and visitor as two distinct and separate entities.

Sonification in the gallery

In view of the significance of access, the sonification of artworks could be seen as a response to the need for developing alternative forms of engagement,

especially for those visitors who rely on non-visual sensory modalities. Sonification foregrounds the auditory sense as the primary means of communication and one of the questions that emerges is what kind of aesthetic engagement this alternative sensory focus produces and how this relates to established behaviours and thinking. I will review two projects here, one that was expressly designed for blind and partially sighted visitors and another that made a series of recommendations for the sonification of artworks. Eyes-Free Art aimed to render paintings available to blind and partially sighted visitors by creating four successive zones in front of the painting, each of which offered a different kind of information and interaction with the artwork.^[note]3 Zone 4, which was the furthest away from the painting, played a piece of music that presumably captured the painting's mood. Zone 3 entailed a sonification of the artwork that was triggered by the movements of the visitor's hand. As a visitor moved their hand in relation to the surface of the painting, colours, contours and outlines were represented by different sounds and sonic qualities. In this way the visitor could gain a sonic impression of the painting's composition and the relationships between its different elements. Zone 2 involved sound effects that corresponded to an object or scene that was depicted in the painting. Finally, Zone 1, which was the one closest to the painting, offered a verbal description of the artwork (Rector *et al.* 2017: 9–11; Rector *et al.* 2017b).

The interface combined several modes of engagement, which aimed to offer an experience that was both aesthetically pleasing and conceptually coherent. As Candlin notes (2010: 132–9), a key question that accessibility initiatives must address concerns the types of knowledge that a visitor needs in order to appreciate the artwork. On the one hand, haptic exploration can provide important information about the object's materiality but often needs to be supplemented by conceptual and/or historical knowledge. On the other hand, audio guides as well as other forms of verbal description are more suitable for offering contextual information but often fail to communicate the artwork's affective dimension. Here again we see the tension between contextualization and experience noted by Prottas and the difficulty of combining them within the same activity. It could be argued that Eyes-Free Art managed to strike a balance between the two by providing different kinds of information: sounds and music that pointed towards the affective qualities of the artwork as well as facts and concepts that located the artwork within a specific

movement or period. Importantly, these two streams of information were recognized as having equal epistemological value and their proximal relationship allowed the visitor to move freely between them. Furthermore, by animating the space in front of the artwork, the four zones could potentially enhance the embodied and kinaesthetic dimension of the visitor's experience. As information could only be retrieved within the parameters of a specific zone, it was localized within the exhibition and in relation to the specific painting. In this way, the sonification experience could both provide blind and partially sighted visitors with a medium that suited their needs and kinetically integrate them within the flows and rhythms of the gallery space. As such, it could be argued that Eyes-Free Art constituted a powerful form of mediation that rendered aspects of the artwork—routinely understood to reside in the visual—into another modality and thus made it available to another sensory register. As the painting was encountered on different terms and through different means, sonification gnawed at the authority of the visual and turned the visitor from a (partially) viewing to a listening subject.

At the same time, however, Eyes-Free Art replicated conventional kinetic repertoires. As the research team point out, the visitor's orientation towards the painting and away from the centre of the room allowed the sonification experience to blend in with the social choreography of the gallery. Frontal orientation was also an essential part of the system's recognition function, since it determined the triggering of the sound cues—and if the visitor's position was not exact, the system would provide verbal correction (Rector et al. 2017a: 7). As noted already, Eyes-Free Art went a long way towards flattening hierarchies between different sensory encounters and ways of knowing. Yet, the act of facing the artwork from a comfortable distance remained the chief reference point according to which the whole experience was organized, even though a key premise of the whole project was to 'free' art from the organ of vision. The mandatory frontal orientation not only replicated but disciplined visitors in following the 'Official Museum Pace'.

Another question evoked by Eyes-Free Art concerns the relationship between the sounds and the painting. As the project's research team acknowledge, the choice of the music in Zone 4 and the gesture-produced sounds in Zone 3 raise a host of issues in terms of veracity and representation but also in terms of choice. Who is bound to choose the sounds and music that would accompany a specific artwork and

according to what criteria? These questions are not limited to sonification, but underpin the curatorial process as well as the aesthetic encounter per se. According to Berleant, aesthetic engagement involves 'a kind of re-making' aimed at reproducing 'the order of experience' that is inherent to an artwork (Berleant2016 [2005]: 8). The question that interpretive strategies need to address is how far can or should such re-making go. How different or distinct can the interpretive experience be and still enable an engagement with a specific artwork or body of work? And what happens in the space that stands between the original artwork and its interpretation? Eyes-Free Art employed a combination of methods, including the use of Mechanical Turk Workers, that is freelancers, who were tasked with choosing one music genre out of thirteen to match with a specific painting (Rector et al. 2017a: 8). Similarly, Nadri et al. propose 'matching quality' as a key criterion for the successful sonification of artworks: 'the ability of the sonification to match the painting's cognitive and emotional message and reflect the scene presented by the painting' (2019: 324). Matching quality aims to ensure that the sonification 'carr[ies] similar meaning to the artwork' (ibid.). Here again the artwork is understood as a stable point of reference to which the sonification needs to remain faithful. Whether and how this can be measured, however, is a lot more elusive and indeed Nadri et al. admit that matching quality will be on 'a subjective scale' (ibid.).

In light of the relationships that sonification assumes between its constituent parts, it could be argued that it exemplifies the kind of hybridity that is paradigmatic of modernity. According to Latour, hybrids are subjected to the following process:

The modern explanations consisted in splitting the mixtures apart in order to extract from them what came from the subject (or the social) and what came from the object. Next they multiplied the intermediaries in order to reconstruct the unity they had broken and wanted none the less to retrieve through blends of pure forms. So these operations of analysis and synthesis always had three aspects: a preliminary purification, a divided separation, and a progressive reblending. (Latour 1993: 78)

As the enjoyment of art became institutionalized and designated to a realm that is distinct from the everyday, artworks become both purified and separated from the subject. Interpretive activities, then, such as the sonification system reviewed here,

constitute hybrids that aim to blend subject and object, art and visitor, while they insist on their separateness. It could be argued that the impasse reached by sonification results precisely from an attempt to look for equivalence or 'matching quality' between two realities that have been deemed a priori to be separate. In view of the opportunities and issues that arise in sonification of artworks, the following section discusses an instance of sonification that was not premised on frontal orientation and instead aimed to encourage a wider range of kinetic repertoires. The discussion that follows is not intended to serve as a set of guidelines for successful sonification. Rather, the aim is to explore the potential of sonification to serve as a means of 're-making the artwork'.

Sonic Bodies and danced sculptures

Sonic Bodies was installed for a week in November 2018 at the Leeds Art Gallery and was aimed at sighted, partially sighted and blind visitors.{{note}}4 Funded by and presented as part of the Being Human Festival, the project aimed to explore the use of movement sonification as a means to develop a multisensory engagement with selected sculptures. As noted already, movement sonification enables the synchronous production of movement and sound through a mediating system that picks up the data of a person's movement and represents them in sound. To this sonified dialogue between the person and their movement, Sonic Bodies added the artwork as a third point of reference. Sonic Bodies employed two different systems of movement sonification. One system involved a mobile phone that the visitor would handle while tracing the sculpture's outline. The sound would be generated in response to the visitor's hand gestures and was played back through headphones. As such, this system took place in the gallery space and in close proximity to the sculpture. The second system utilized Sonolope, a technology that employs the sensors embedded in mobile devices to collect data about the user's axis and position in space, and re-produces them in sound.{{note}}5 In this variation, the mobile device can be attached to different parts of the user's body and the sound is emitted from four speakers placed in a square formation and around the area in which the user is moving. The spatial requirements of Sonolope entailed that the system was placed in a separate space and at a distance from the sculptures. Here I will focus on the movement sonification activity that utilized Sonolope in

relation to two sculptures: Kiss (1966) by Francis Morland and The Lure of the Pan Pipes (1932) by Gilbert Bayes (hereafter the Lure).^[6]

The two sculptures are very different from each other both in terms of style and formal characteristics. The Kiss consists of two long, thick, black cylindrical tubes intertwined in a self-standing three-dimensional braid. The Lure is a relief in cement. On the one side, two adolescent girls, one sideways and the other with her back to the viewer, extend their bodies from right to left in an attempt to look at the other side of the sculpture. On the far-left corner of the other side, a crouched figure of Pan with pipes in hand is facing in the direction from which the girls are turning, evidently waiting for them to respond to his call. Both sculptures stage a relationship between two separate components—the two tubes entwined in the Kiss and the girls about to meet Pan in the Lure. The Kiss is abstract, but the weaving of the two strands acquires a cultural and emotional specificity by the artwork's title. The Lure, on the other hand, is descriptive and in a sense theatrical; there are clearly identifiable characters suspended in mid-motion, as they are about to face each other. If the Kiss, through its formal aspects and title, invokes sensual pleasure, the Lure stages a moment of sexual awakening. The two sculptures are thematically close but stylistically apart.

The process of developing the sonification of the artworks engaged with the questions identified in the previous section: according to what principles would the sounds be chosen and what would the relationship be between each artwork and the sonification? In addition to these questions and unlike other instances of sonification, a key aspect of Sonic Bodies was the visitor's movement. As such, it was clear from the beginning that any attempt of the sonified product to 'match the quality' of the original sculpture could be undermined or complicated by the visitor's spatial and kinetic choices, which could take the sound in unexpected directions. Whereas sonification assumes a listener that will remain relatively fixed, movement sonification can only work with a moving–listening subject. Sonic Bodies therefore operated according to two levels of mapping.

One level involved the correspondences between the sculpture and the sound that were developed by the sound artist in consultation with the rest of the team. The bipartite structure that underpins both sculptures was sonically represented through

the development of one pair of sounds per sculpture. Each pair consisted of two tracks that were audibly distinct but had similar rhythmic structures. The tracks for the Kiss were produced out of abstract synthetic sounds that oscillated in pitch over a temporal signature that mirrored the wave-like pattern of the sculpture. The tracks for the Lure made use of real pan pipes, reflecting the sculpture's title. The second level of mapping involved the relationship between the tracks and the visitor's movement. Although the tracks that were triggered by the visitor's movement were pre-recorded and thus fixed, some parameters of the sound, such as speed, volume and direction, could change in relation to the movement. For example, a change in the orientation in which the sensor faced would affect the orientation from which the sound was emitted.

The development of two complementary tracks per sculpture meant that the movement sonification activity could take two forms. It could be undertaken by an individual visitor, who could trigger one or both tracks, depending on the number of sensors they were carrying. Or it could be done in pairs, with each partner controlling one of the tracks. The movement sonification activity for the Kiss took place in an empty space and was available for one or two visitors at a time. The movement sonification activity for the Lure employed a gauge that split the room in two and invited each partner to occupy one side of the partition. In this way, the movement sonification employed a simple scenographic device that replicated the key relationship between the characters of the sculpture. In the same way that the girls can hear but cannot see Pan, each visitor could hear their partner on the other side of the gauge but could not see them. The timbral and temporal characteristics of the sound tracks created for the Kiss aimed to encourage curvilinear movements and spiral spatial pathways that enabled a three-dimensional exploration of the interweaving pattern that made up the sculpture. The movement sonification activity for the Lure, on the other hand, was presented as/facilitated a call and response game, which similarly aimed to capture the playful and yet not entirely resolved encounter that is depicted in the Lure.^[note]⁷ What was prioritized, therefore, was the development of a set of sounds that would enable visitors, through their movement, to encounter and explore the sculpture's 'order of experience' through a remediation of its formal and/or thematic characteristics into sound. This remediation was further complicated because the correspondences between sound and artwork

were contingent upon an additional set of mappings between sound and movement. For this reason, the sculpture was understood as a set of relationships that could be explored through a series of unfolding 'dialogues' between body and sound as well as between partners. Similar to the exchanges between visitors and artwork that, according to Prottas (2017) and Hooper-Greenhill (2004), museum educational activities aim to foster, Sonic Bodies was open-ended and experiential. The ensuing dialogue, however, was premised on a multisensory kinaesthetic engagement that was markedly more varied than the 'Official Museum Pace' and distinctively less logocentric than the hermeneutic model proposed by Hooper-Greenhill and Prottas.

Sonic Bodies can be seen as a hybrid engendered out of a combination of human and non-human entities, material and immaterial bodies: mobile devices, visitors, sculptures, movement abilities and preferences, sounds, cables, software, institutional protocols and Wi-Fi signal. However, unlike Eyes-Free Art and other forms of interpretive activities, the content that Sonic Bodies presented to the user was not information about the artwork. Rather, the aim of Sonic Bodies was to remediate the artwork's formal characteristics and create an experience where artwork and visitor could meet within a set of kinetic, spatial and auditory relationships. These relationships were emergent, since they could only be activated in the here and now of the visitor's interaction with the system, but they were also rooted in the embodiment of the visitor, the characteristics of the artwork and the way these characteristics were translated in sound by the sound artist. The purpose was not to find some kind of truth related to the artwork but rather to open it up, transmuting its formal characteristics into a network of possibilities for expression.

In this way, Sonic Bodies can be seen as an attempt to employ movement sonification as a 'mediator' in the way proposed by Latour: 'the point of separation—and conjunction—becomes the point of departure. The explanations no longer proceed from pure forms toward phenomena, but from the centre toward the extremes' (1993: 78). According to the process described by Latour, the artwork is no longer, or not exclusively, an original referent that needs to be matched by the sonification system. Rather what is prioritized is the range of possibilities for exploration, expression and sociality the artwork qua interpretation renders present. As opposed to an intermediary that mediates between two separate entities, movement sonification becomes a mediator, an 'actor... endowed with the capacity

to translate what they transport, to redefine it, redeploy it, and also to betray it' (Latour 1993: 81). As such, Sonic Bodies approached the artwork as a map of relationships that could unfold through sensory and kinetic arrangements.[{note}]8 This, I argue, complicates both what we think an artwork is, and is for, and also opens up new possibilities for what the visitors' bodyminds can do with artworks.

Conclusion: Towards a kinaesthetic engagement with art

As museums and galleries become a standard component of urban environments, cultural tourism and extra-curricular learning activities, digital technologies constitute a prime means for enabling access, providing education and enhancing the visitors' experience.[{note}]9 While the technologies that make up (movement) sonification systems can serve these aims, they can also offer alternative forms of aesthetic engagement. Movement sonification provides an alternative both to the standard ways in which digital technologies tend to be used as depositories of visual and audio information and to the routine behaviours expected by perambulating visitors. What is more, movement sonification makes possible a re-thinking of the object and the subject and more specifically their respective boundaries. The way it does this is by literally widening the sensory and kinetic repertoires that have been traditionally associated with art appreciation. As such, movement sonification not only constitutes a hybrid, in the way that all technologically mediated activities do. It also sets in motion a process of hybridization every time a visitor interacts with the system. Unlike 'intermediaries' that mediate between subject and object while keeping them apart, movement sonification serves as a 'mediator': it opens up the space right in the middle and in that space the edges of the object and the embodiment of the subject bleed into another. As such, movement sonification brings into question the ontology of the artwork (what is it?), the epistemological potential of aesthetic experience (how and what can we know through sensory engagement?) and finally the politics and ethics of the whole shebang (what is art for and how can one benefit from it?). As sonification is becoming legitimized both as a form of data interpretation and artistic expression, the value of movement sonification lies in continuing to raise these questions. Indeed, if movement sonification can make any claim for a position in the gallery space, it is precisely because it offers a middle point from which subject and object can be re-thought again. From this perspective, the art object becomes a map of sensory and spatial routes that the subject can animate, producing in the

process affective encounters and kinaesthetic realities that have been hitherto forbidden. Visitors and artworks become sonic bodies.[{note}]10

Notes

1 It can be argued here that the senses work synaesthetically and that small or introspective reactions do not automatically equate with an emotionally distant or disinterested attitude. Equally, acts of looking are informed by and operate in accordance with the other senses and can be nuanced in various ways: a look can be reifying, empathetic, involved, passionate and so much more. Yet the point advanced by scholars is not concerned with the biological function of vision, but rather with the prioritization of a specific kind of visual engagement that operates on a principle of distance and disinterestedness.

2 The operation of a safe distance, whether this manifests as a proximal or emotional relationship, also becomes apparent in participatory art. Reviewing works from the 1970s that invited the active involvement of visitors, Candlin observes that concomitant with the presentation of these artworks there were 'techniques' developed by galleries and artists 'for generating "appropriate" audience responses' (2010: 181). Participation was broken down into specific forms of behaviour and interaction, which were monitored by gallery attendants and in the end 'closed down on the works' possible meanings and outcomes' (ibid.).

3 Eyes-Free Art was developed by a team of computer scientists in collaboration with a partially sighted artist and utilized Microsoft Kinect technology.

4 The research team of the Sonic Bodies project consisted of myself, Dr Christine Farion, Jacob Justice, Joe Kent-Walters, Dr Scott McLaughlin and Rafi Siraj. The project was supported by Amanda Phillips, the Education Officer at the Leeds Art Gallery, and was documented by Dr Vanja Celebivic.

5 Sonolope has been developed by technologist Simon East and me. For more information see www.sonolope.com/.

6 An image of the Kiss in the exhibition space can be viewed at <https://bit.ly/3j65xS2>.. An image of the Lure cast in bronze can be seen at <https://bit.ly/319j4SQ>.

7 The range of interactions and the sound samples made possible by the system can be viewed at on YouTube <https://bit.ly/3j3O8d0>.

8 It could be pointed out that the mediation that Sonic Bodies sought to make possible did start from a visual engagement. Looking was the first point of contact, as the project endeavoured to translate the information yielded by acts of looking into different means. Subsequent explorations could focus on ways for encountering the artwork through different sensory modalities from the very beginning.

9 For a discussion on the use of digital technologies in the museum sector as part of cultural tourism, see Cisneros et al. in this volume.

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