CONDUCTING ANIMATED NOTATION: IS IT NECESSARY?

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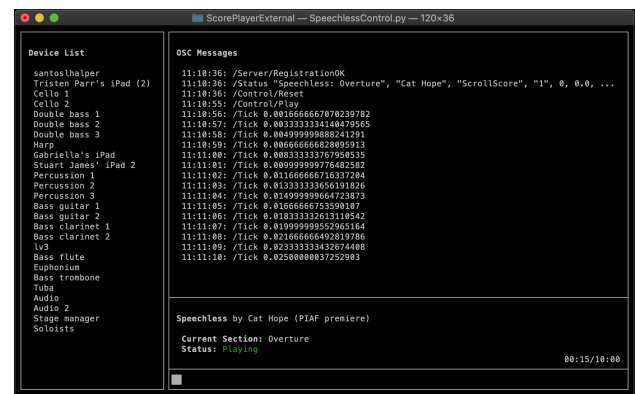Monash University
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ABSTRACT

At the 2019 Perth Festival, Western Australia's largest and most nationally significant arts event, a new animated notation opera by Cat Hope was premiered. This sixty minute staged work for thirty piece orchestra, thirty voice community choir and four vocal soloists ran over six nights and was led by musical director Aaron Wyatt. The score was delivered over 26 networked iPads in the orchestra within the Decibel ScorePlayer application [1], controlled by the musical director, and both the choir and vocal soloists memorised the graphic score. In addition to directing the preparations for the performance, Wyatt conducted the orchestra and singers from the podium each night.

This paper discusses the role of the conductor in this performance, and examines the role of the conductor in works performed from animated notations more broadly. A questionnaire was sent to the orchestral members who participated in the performances of 'Speechless' asking a series of questions about the impact and role of the conductor in the work, and their responses inform the body of this paper. Overall, the responses indicate that although the score presentation for the work on the networked iPads was very exacting, the role of the conductor was essential for extracting musicianship and nuance in each performance.

1. THE SCORE FOR SPEECHLESS

The score for Speechless is divided into five movements: Overture, Act I, Act II, Interlude and Act III. The scores for each of these movements are contained within a single score file and in performance, a python script connected to the ScorePlayer automatically loads the next movement once the previous one is finished. They are started manually by the conductor so that there is more control over the amount of time before each movement. Because of the networked nature of the iPads, the only interaction that the musicians need to have with their score is to choose their specific part. Additionally, the script used to partially automate the playback of the score has a curses [2] interface (see figure 1) that shows information about the current playback state, allows for control of the score and most importantly shows the list of the iPads that should be connected to the network. As can be seen in the figure, this device list is in the left hand panel, and the device names appear in white here because their status is not polled during playback in order to limit any non-essential network traffic. Had the score been stopped, connected devices would be shown in green, disconnected ones in red, and the server iPad in blue, allowing the user to very quickly ascertain the status of the network. The top right panel of the interface shows any OSC messages that have been sent by the server, and the lower panel shows the current playback status, including a progress bar.

Figure 1. The interface to the Speechless controller script, displayed here during playback of the overture.

There are fourteen parts in the score. The mixed community choir is divided into four mixed groups, each made up of a combination of age, ability and gender, and each group is connected with one of the vocal soloists, as there are sections when the soloist will join their connected choir group. A bass orchestra – that is, an orchestra of musicians playing below Middle C in pitch – is also featured [3] and is subdivided into like instrument groups. Each group is designated by different colours; red for low brass (tuba, euphonium, two bass trombones), green for low winds (4 bass clarinets, contrabass clarinet, contrabass bassoon, two bass flutes), blue for low strings, (four cellos, six double basses) purple for percussion (the percussionists including one rock drummer playing a bass drum kit, two percussionists playing bass drums, tam tam, cymbals, a.m. radios and other instruments) yellow for electronics (including Theremin), and orange for piano, two bass guitars and harp. There is also a colour for each of the vocal soloists, and a related shade of that colour for each of the four choir groups [4].

The score in the Decibel ScorePlayer can be seen with the complete orchestration, as required by the conductor, or with one part highlighted, obtained by presenting the remaining parts at a low opacity. The score opens at the

full score, and the highlighted part can be revealed by the individual iPad user dragging the finger in an upward motion, scrolling through until their part is revealed [5]. The score progresses at a pace set in the ScorePlayer, and each musician reads the score at the point of the playhead [6].

2. AIMS FOR AN OPERA CONDUCTOR

In spite of the animated, graphical nature of the score, many of the considerations for conducting the opera were the same as they would have been for a more conventional production, and the conductor took on a largely familiar role. They were responsible for rehearsing the soloists, chorus and orchestra, first separately and then together. And one of their main roles during the performances was to ensure a high level of coordination between the singers on stage and the orchestra, alongside managing balance. There were a number of factors that complicated this, some of which were unique to the type of score, and others more commonplace.

Figure 2. The orchestra for speechless, situated on the stage behind the soloists and choir. The scrim behind the conductor is the only separation.

The staging decision to place the orchestra behind the singers is one that is becoming increasingly common in newer productions, and it makes a great deal of sense when performing in a venue not originally designed for opera or musical theatre: the lack of an orchestra pit generally necessitates a more creative approach to be taken with spacing and the positioning of the ensemble. (See figure 2. Additional video documentation can be found online [7].) The obvious downside to this is that direct eye contact with soloists or members of the chorus becomes impossible. Cues have to instead be given into a camera, losing any sense of directionality. It becomes incredibly important that the singers know the structure of the work well and for there to be at least some visible differentiation between cues from the conductor so that the soloists and chorus know exactly which ones are meant for them. It also makes it harder for the conductor to react to what is happening on stage, although this can be alleviated slightly using technical solutions, such as cue lights to signify when to start movements that are dependent on staging. A benefit of the lighting desk and the ScorePlayer both support-

ing OSC [8] meant that the process of sending cues tied to lighting states could be largely automated. (See figure 3)
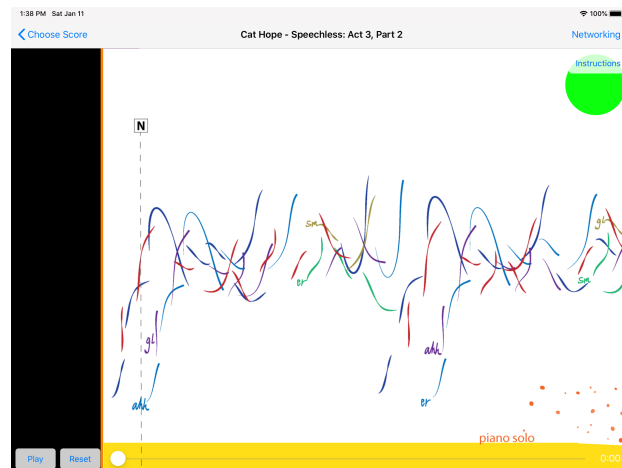

Figure 3. The start of Act 3 Part 2 showing a cue light delivered directly to the conductors score, triggered by a change in lighting state.

The main challenge faced as a conductor in directing the work is the lack of traditional pulse or rhythm. This also proved to make memorisation for the singers a slightly daunting task, and so a large part of the role became guiding the soloists through their phrases, and helping the choir with their entries. While the music often achieves a timeless quality through the use of long drones and glissandi, the timing of these is generally deceptively precise, and the continuous, scrolling nature of the score makes it hard to offer any concession to the singers. So with no need to conduct any sort of beat pattern, the conductor is freed (using largely vertical gestures) to outline the vocal contours for the soloists as an aid to memory and as a way to keep the timing exact. The other hand is left free for cuing, or can even be used to show a second line in the case of a vocal duet.

It is important to note as well that while the opera eschews traditional notions of rhythm and tonality, it is still highly structured, and has many features that you would expect to find in a more traditional work. There are aria and recitative-like passages for the soloists. There are recurring motifs and phrases that are repeated, sometimes in inversion or retrograde. There are places where the singers echo the contours of the orchestra and vice versa. Being aware of these structural elements and knowing how they fit together is vital in interpreting the work, and in this way the role of the conductor remains unchanged [9].

3. CONDUCTING PREPARATION

Four members of Decibel new music ensemble were in the orchestra. Decibel is a six piece new music group that focuses on the reading and creation of animated notations, as well as being the research team that developed the Decibel ScorePlayer. Wyatt and Hope are also members but did not play in the orchestra. The four members were able to lead sectional rehearsals where musicians were coached in the

required approach. The Decibel musicians, percussionist Louise Devenish (leading percussion), clarinettist Lindsay Vickery (leading winds/brass), cellist Tristen Parr (leading strings) and electronic musician and pianist Stuart James leading all other instruments. Cat Hope coached the electronic bass players. This allowed the first full rehearsal to be carried out very efficiently with minimal need to stop and start to clarify the notation.

The conductor worked with the choir and the soloists independently, grouping material into different sections to aid in memorising the material. There vocalists were all able to see the conductor in monitors visible form the stage, meaning cues were clear for the start, end and dynamic range of materials. Each group in the choir had a leader that would be the most familiar with the material so that the group could refer to them as a memory aid. The nature of community choirs was such that it was not guaranteed that the same singers would be at every night of the season, making this role particularly valuable. This person would also be the one actively keeping an eye on the monitor, to avoid a whole choir 'looking' at the monitor above the stage. The rest of the section could then follow them aurally.

Unlike the soloists, the parts for the choir were often much more indeterminate, using various simple vocal effects to create a rich soundscape. As a result, their parts could be condensed down to a few pages of material to study, and over the course of a few rehearsals they were able to go from following the projected score to singing from memory with the aid of group leaders and conductor cues. By the time of the sitzprobe, they were working without the projection. The conductor developed an innovative technique that showed what sounds were required using a combination of the shape of their mouth, and hand gestures that matched either their percussive or flowing nature. For example, in their first entry in Act 1 (see figure 4), the choir are making 'tk' sounds, starting sparsely and then gradually building in density. These are shown with short, sharp, flicked hand gestures that get busier as the density increases. As much as possible, these gestures aimed to closely capture the feel of the sounds to draw out an instinctive musical response from the performers, much as would be the case with traditional expressive conducting gestures, or the sculptural gestures of sound painting [10]. (Unlike soundpainting, the precomposed nature of the work removes the necessity for more formally codified functional gestures.)

While it would seem that having everyone follow the score exactly as it hits the playhead should be enough to guarantee synchronised entries, past experience in the Decibel new music ensemble has shown that traditional ensemble skills are still important: there are often slightly different interpretations of the exact moment that an event hits the playhead, and having players moving together and either leading or following as they would in any other traditional chamber work helps to unify the ensemble. It stood to reason that the same would apply in this context, and that having a conductor would help to guarantee that section entries and cut offs were tight. Through the rehearsal process, we
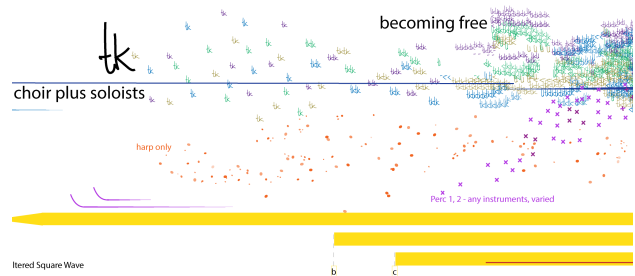

Figure 4. The first entry of the choir in Act 1, represented in the upper half of the image by the small 'tk' symbols.

found this to be the case, particularly for very exposed entries. When players looked up from the score and followed un upbeat given by the conductor, some particularly problematic entries (such as the wind entry in figure 5) were much cleaner.
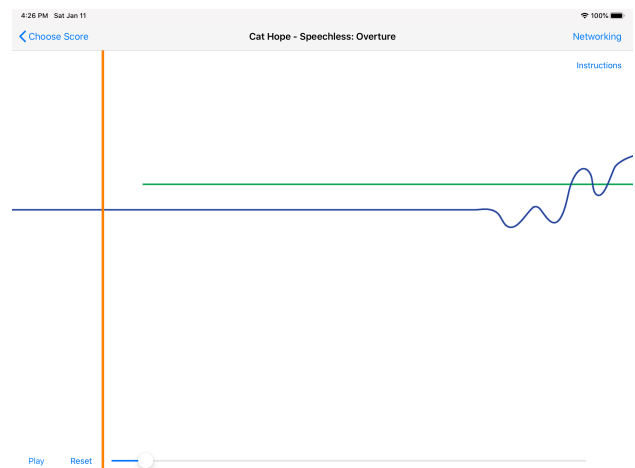

Figure 5. The blue line is a solo cello line that starts the overture. The green line is a very exposed, pianissimo wind section entry that was much cleaner when players watched the conductor instead of the score.

To gain the perspective of the orchestral musicians and to see if they agreed with our assessment of the situation, we invited a number to take part in a survey related to their experience in the production. They were asked a series of yes or no questions and were then given the opportunity to elaborate where desired. Seven of the thirty musicians took part, and six of them responded to every yes/no question. (The responses to these can be seen blow in table 1.) Six out of the seven agreed that the conducting had an affect on the accuracy. And while opinions were split on whether the opera could have been performed without a conductor, the six who responded to the question all believed that the opera could not have been rehearsed without a conductor.

When asked to elaborate on how the experience might have been different without a conductor, a number of common themes came up in the responses. While many of the respondents picked up on the issue of the cohesion of entries and cut offs, some also went further, suggesting that unity of articulation, interpretation and approach were all

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aided by the presence of a conductor. Here are some of the ways in which respondents felt the production may have been different if unconducted:

> Much less accurate, no feel of how the piece fits together

> There would not have been a strong link between the vocalists and the orchestra. There also needs to be a central point fo [sic] balance and articulations.

> Sectional entries and exits would have been less uniform and controlled.

> Less cohesion among players More hesitant [sic]

> It would have been a messier performance, in terms of variations of interpretation of notation, in terms of ensemble togetherness, in terms of unity of approach.

> I feel as if the musicians would have kept their heads down a lot more and stayed unaware of the overall context of their parts. With time though this could be a learnt skill but very difficult for orchestral musician without someone to follow whether it is a conductor or principle player.

The last response raises an important point for consideration. Given that the timing of events in the score is delivered through a constant stream of animation in a manner that doesn't neatly align to any quantised, internal pulse for the musicians, it is very easy for them to become highly focussed on the iPad directly in front of them. Having a conductor as an alternative point of focus helps them to look up and engage more with their surroundings.

4. CONDUCTING THE PERFORMANCE

In conducting the performance, the main focus was on maintaining the level of ensemble and musicality that had been developed throughout the rehearsal process, as would be the case for any production. The soloists generally took priority, especially when they had either duets, or long aria-like phrases, and it was also important to encourage and reassure the choir as much as possible. In spite of this attention given to the stage, it was still possible to cue many of the orchestral entries and cut offs, especially ones that were exposed or that involved multiple sections of the orchestra.

  Additionally, gesturing the shaping of phrases and showing the dynamics helped to heighten the level of expression produced by the ensemble. While there are a number of noisy, climactic moments in the opera, there are also quite a few long passages that need to be kept as soft and still as possible. The danger in these passages is that the volume gradually starts to creep up after a period of time, and actively gesturing for the dynamics to remain soft helps to

Question	Yes	No
Does the conductor offer something important beyond the score?	6	1
Does the conducting have an effect on accuracy?	6	1
Do you look at the conductor as much as you would when performing from a conventional score?	5	2
Do you feel the work could have been performed without a conductor?	3	3
Could it have been rehearsed without a conductor?	0	6
Were the conducting gestures unique for this type of score?	3	3
Did the conductor provide something different or do something different to what they usually would?	4	2
Did you find the Decibel ScorePlayer easy to use?	6	0
Was the score easy to understand?	6	0
Did the conductor elaborate on the score in any way?	5	1

Table 1. The results of the musician survey.

prevent this, particularly across repeat performances where it is easy for complacency to settle in.

  While this outlines the main aims that Wyatt had while conducting the performances, the question remains as to how effectively these aims were met. And if they were, did they enhance the performance to an extent that justifies the presence of a conductor? To answer these questions, we need to turn once again to the results of the musicians' survey.

4.1 Ensemble and Expression

Was the conductor's focus on maintaining ensemble and guiding the phrasing and musicality of the work effectively conveyed to the players? As a follow up to their thoughts on whether the gestures used were unique and whether the conductor provided something different on this occasion, the survey respondents were asked where the conductor's emphasis shifted given the lack of beats in the work. Their answers showed that they perceived the shift exactly as was hoped.

> The conductor helped to indicate changes in section, timbre, articulation, dynamics and so on.

> Mainly towards dynamic changes and entries. He was excellent in this regard!!!!!!!!

> dynamic, overall mood

> Conducting isn't really about beats for me anyway....the emphasis was the same in that the

conductor shows start and end points of phrases, indication of balance/dynamics/energy etc. Until I read this question, I didn't even notice that the conducting wasn't about standard beat patterns.

This last response helps to paint a picture of why there was such an even split on the previous two yes/no questions. While the gestures for the singers were somewhat unique, many of the expressive gestures directed at the orchestra were ones that the players would have experienced in other contexts. It is partly this familiarity that helped to make them as effective as they were. And while there were more respondents who thought that the conductor did something different to what they would usually do, two out of the three who clarified their answer identified the lack of beat as the primary or sole difference, lending credence to the idea that there were more similarities than differences.

4.2 The Score and Beyond

When asked if the score was easy to understand and whether the ScorePlayer itself was easy to use, all six of the respondents answered yes. In elaborating on this, a couple of the respondents noted that they were already familiar with the software and with the style of music, while others had these sorts of observations about the ScorePlayer:

> Easy to understand and very clear

> Totally suited to this kind of music. Very clearly notated.

And similar comments about the score itself:

> Graphics were easy to read and follow

> It takes some getting used to reading a score of this type but is quite intuitive to read once more familiar.

It is worth noting as well that one of the respondents who was already familiar with the ScorePlayer had encountered technical issues when using it previously, but found that "everything worked well for these rehearsals and performances." This may be the result of stability improvements that have happened throughout the ongoing development of the app, the highly controlled networking environment that was used for the production, or some combination of the two.

The general clarity of the score, and the perceived ease of use of the player help to explain why half of those who responded thought that the show could potentially go ahead without a conductor once we made it through the rehearsal process. (Remember though that this survey was only of the members of the orchestra: the singers, not having the score in front of them, may have had other ideas about how effective that might have been.) But did the conductor help the musicians to get more from the score than was suggested by just the scrolling images themselves? Some of the previous responses have touched on this to an extent, but when asked to expound more directly on whether

the conductor elaborated on the score in any way, respondents generally agreed that the conductor provided additional clarity and further explanation of articulations and markings, and of the general structure of the work. Here are a couple of representative examples:

> The focus was on attack and articulations and the visual representation of these parameters. This lead to a very cohesive orchestral sound.

> Helped to make sense of the markings and had the overall context of the piece in his head which he was able to convey to us. I feel most orchestral musicians will listen to recordings to gauge the context of their parts, so it was helpful for the conductor to go through which parts were playing which "roles".

Tying this all together, six out of the seven respondents agreed that the conductor offered something important beyond the score. Their elaborations on this question provided some of the most compelling arguments as to the utility of engaging a conductor in such a production:

> Aaron provided a greater depth of musicality to the score. Like any orchestral notation the information is on the page however he ensured that the entire orchestra played as one entity. The conduction also created better accuracy of entries within each individual section. Aaron also acted as the conduit between the orchestra and singers / soloists and visa versa.

> Emotion, further guidance, feedback. I feel a strong emotional connection to the conductor so will react better to their facial expressions and gestures than purely to a screen.

> Indications of ensemble balance, encouragement of personal interpretations of notation, clarity of start and end points of whole-ensemble sound where there is a risk of dozens of interpretations of 'end', a sense of unity. (Maybe)

Having a conductor adds a human touch that would otherwise be lacking if the musicians were focussed solely on the screens in front of them. Feedback from the conductor helps them to gauge balance, to feel confident and unified in their entries, and helps them to feel that they have an understanding of how their part fits into the work. All of these benefits suggest that there is still a place for a conductor in large scale, animated notation works.

5. CONCLUSIONS

While animated graphic scrolling scores of the type used in Speechless can be very prescriptive, particularly in how they convey the timing of events, our experience with the production and feedback from the orchestral players show that there are still advantages to be gained from engaging a conductor in the interpretation of larger scale works that

are based around them. Just as a conductor can bring out nuance, encourage phrasing, and foster unity in a more traditional score, so too can they bring these abilities to the direction of a scrolling score, both in rehearsal and performance. They add a human element that complements and arguably enhances this new technological mode of delivery, offering familiarity in this more experimental setting to those who come from a traditional orchestral background.

Acknowledgments

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