

**Diffusing Fata Morgana**  
**Timothy Cooper**  
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*NB. This text is slightly adapted to include quotations and examples that were presented on slides and to include sound examples, that I have made available for download, that were included in the presentation.*

## **1. Introduction**

Thank you for the introduction and thank you to BEAST for having me to talk today.

The things I'd like to talk about today are the kinds of strategies I use for speaker placement, diffusion and amplification in mixed-media music. I'm going to talk about these things in the context of *Fata Morgana* and how I interpret that particular work. This will relate to reality and unreality in a couple of ways.

The most obvious way is that in a live performance the clarinetist's are very real, living people. Simon Emmerson has written about the privileged anchoring role that living performers have in mixed-media music<sup>1</sup>. They act like an anchor, and any action in the electroacoustic materials will be perceived relative to the performers.

The musical fabric of the electroacoustic part also plays on levels of reality. The sounds range from being easily relatable to the live clarinets to fairly abstracted. The abstracted sounds tend to explore the intrinsic characteristics of the source material.

It is also worth acknowledging that sounds projected by loudspeakers aren't ever actually real. Sounds might explore implied realities, but, as we know the source of the sound in acousmatic material is not present. Denis Smalley has spoken about the opportunities that this affords the composer when thinking about levels of surrogacy and source bonding (Smalley 1997, p. 110). The relationship between apparently real and apparently abstracted sounds in *Fata Morgana* is reflected in the multi-channel electroacoustic part and this needs to be reflected in the diffusion of the work, which we will come onto later.

## **2. Analysis**

### **2.1 Analytical Approach**

The reason I want to talk about the musical materials before talking about diffusion is probably obvious to this audience. After all, one could probably call BEAST the spiritual home of the pragmatic approach to sound diffusion. It seems a little churlish to quote Jonty Harrison when he says that 'there is good and bad

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<sup>1</sup> '...in live works the instrument is the anchor and we can never for long leave the realm of its influence it cannot easily tolerate digressions into anecdote. We always refer back to its presence. Such a privileged anchoring function is more usually ascribed to the voice.' (Emmerson 1997, p. 148).

diffusion' or when he tells us that 'not any old fader movements will do'. He talks about the need to sculpt, coax and caress sound materials in diffusion. (Harrison 1998,p. 124)

Diffusion being a subtle art means we need to carefully respond to the work at hand. Harrison<sup>2</sup> and Henriksen<sup>3</sup> both talk about interpretation and analysis as being important in diffusion and not going through this process is surely one of the route causes of bad diffusion. Obviously both of these views are principally aimed at acousmatic music, but much of what they say applies just as readily to mixed music.

## 2.2 Clarinet Materials

Having identified the need to understand the work I'll pick apart some of the more important aspects for consideration. *Fata Morgana* is composed for four clarinets – three Bb clarinets and one bass clarinet – and a four channel fixed electroacoustic part. As discussed the piece explores the illusion between real and unreal clarinet sounds. It also plays on the implied reality of the electroacoustic sounds I just mentioned.

In the piece the clarinets typically work as a unit. The clarinet material is in one sense quite simple. There are generally two kinds of material:

1. Very sustained material that can be either homophonic or more linear – this is a sound example of the clarinets beginning homophonically but becoming more linear. (sound example 1)
2. Secondly, more gestural material. This is usually made up of groups of unmeasured, fast, short notes where the players react to each other's entries. These small individual gestures create more significant collective gestures in the following example. (sound example 2)

## 2.3 Electroacoustic Materials

Moving on to the electroacoustic part this is mostly made up of clarinet sounds but also has some closely made recordings of small stones.

Whilst the electroacoustic part is composed in four-channels it is conceived in stereo. The spatial perspectives at play explore ideas of landscape and perspective in a frontal sense. The piece plays on the anchoring role that the

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<sup>2</sup> '...it cannot be stressed too strongly that decisions about speaker placement are made with reference to musical (perceptual/practical), not technical (conceptual/theoretical) demands.' (Harrison 1998, p. 124)

<sup>3</sup> 'Knowing and understanding the musical content of the work is therefore a key issue. A successful performance requires that the sound diffusionist is intimately familiar with the work in question, and has analysed it in terms of its structurally significant spatial components.' (Henriksen 2002, p. 99).

clarinets naturally assume and the electroacoustic materials approach and recede relative to the position of the ensemble on stage.

None of the perspectives play on surround-ness though. The four-channel electroacoustic part is more like the use of stems that BEAST and other composers and groups have been exploring. The first two channels carry the materials that are source bonded to the clarinets. These materials act like a bridge between the live instrumentalists and the wider sound world of electroacoustic part. (sound example 3)

The other channels carry the more processed, abstracted sounds. (sound example 4)

## **2.4 Relationships between Instrumental and Electroacoustic Materials**

Having looked at the materials that make up the parts I'd like to move onto looking at the perspectives these make when combined. I'm going to talk about three spatially important passages in the work.

For much of the piece the clarinets and electroacoustic material are equal protagonists. The orientation changes moment to moment and this is reflected spatially through electroacoustic materials that approach and recede. The timbre of the clarinets also affects how present or not present they sound at any given moment. The first passage I'd like to play begins with both parts trading gestural material before a more linear textural passage establishes itself. (sound example 5)

The next section I would like to talk about was originally conceived as being purely electroacoustic. I felt that this might cause certain problems in live performance. I was worried that if I asked the four clarinetists to sit on stage and not play for as long as a minute it might feel from the audiences perspective that I had figuratively pressed pause on the piece. Rather than listen to the electroacoustic material I felt they would be waiting for the next clarinet entry when the piece would 'resume'. It was important then to compose material that supported what is essentially an electroacoustic solo. The electroacoustic music at this point has a large sense of depth. It is very textured and there are several spatial layers. The clarinets, following a point of articulation, all play slow trills in their lower register. This allows the clarinets to recede into the background where they contribute without covering the detailed electroacoustic material. In the live performance of this piece, orchestration causes the clarinets to sound more distant than they actually are. (sound example 6)

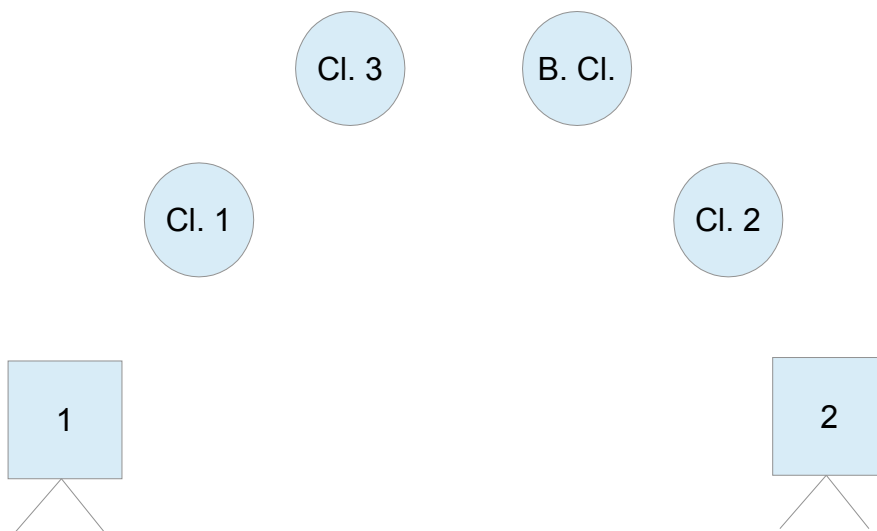
In the final section of the piece a very sustained, textural soundworld establishes itself. At first the very textured electroacoustic material covers the clarinet sounds. As the clarinet material becomes less static they are more equal and as the piece concludes the electroacoustic material recedes into the background. This change in spatial perspective is partly composed into the materials. Early in the section two of the clarinets play very simple held notes. This underpins entries in the other clarinets that articulate the change in clarinet behavior and

the change of spatial perspective. As the piece concludes electroacoustic material thins out and brighter sounds disappear, causing the electroacoustic part to recede into the distance.

This is a good example of a transition that will never be as successful without diffusion. Using only four loudspeakers there will be a sense of the materials disappearing but in a relatively close spatial plane. Through diffusion this transition can be articulated more definitively for a larger audience. (sound example 7)

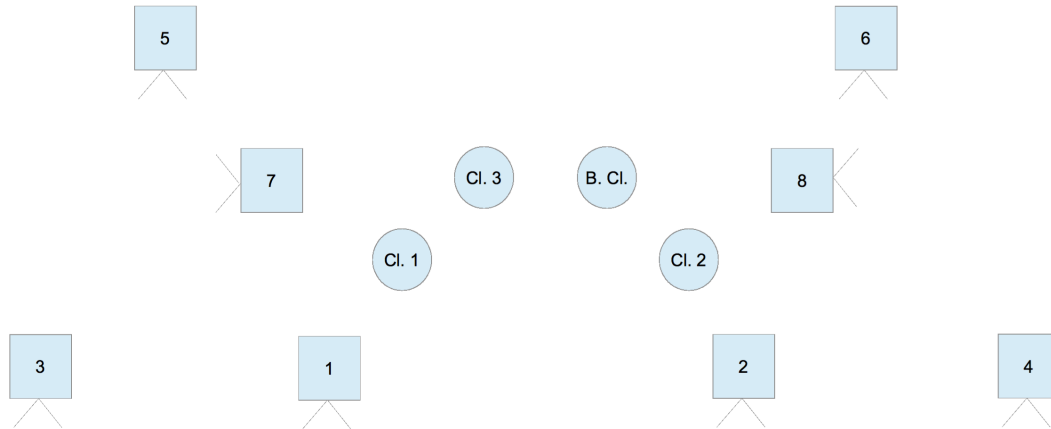
### 3. Speaker Placements in Diffusion

Having unpicked the some of the important perspective in the piece we can start to make some decisions about what kinds of speaker placements might best support the work. In the notes to the score I state that the first two channels of the electroacoustic part should be sent only to speakers adjacent to the ensemble. These sounds interact with the sounds of the ensemble and are the most closely relatable sounds. They acknowledge the anchoring role the ensemble naturally plays and locating these sounds with the clarinet sounds reinforces that anchoring role and emphasises that the action of the piece happens relative to the ensemble and these sounds on stage. As well as sharing the same space, these sounds also share the same loudspeakers that the clarinets are amplified in (example 1)



#### Example 1 - Clarinet Layout and Main Speakers

The other channels should be diffused in order to recreate the changing spatial perspectives. These are the sounds that can be more distant than the live clarinets and can create a wider frame. Ordinarily the speaker placements - depending on available resources and the space - will reflect something like the frontal arrangement of a BEAST main 8 with speakers added to flood the stage (example 2). (Harrison 1998,p. 121-122)



**Example 2 - Concert Diffusion Potential Set-Up**

This arrangement allows me to make the sounds more distant, more present or more wide depending on the requirement of the piece from moment to moment.

So why **not** use side and rear speakers. For a start none of the spatial perspectives in the piece play on surrounded-ness. There is also the visual aspect to consider, the players on stage are drawing our attention forwards, and they are our frame of reference or anchor. So to divorce the sounds projected by the loudspeakers from the ensemble on the stage creates a particular kind of tension that the materials in *Fata Morgana* don't address. In *Fata Morgana* there isn't a sense of the clarinet sounds being sent out into the performance space, or that they are one part of a larger spatial frame. In some spaces it may be necessary to use side fills or even think about diffusing the electroacoustic part into side and rear speakers but that should certainly be done with care. Similarly, high speakers could be added, but it would be important, in this context, to make sure that the overall sound world is still grounded with the ensemble.

#### **4. Strategising Mixed-Media Diffusion**

So having decided roughly where speakers might be placed, and assuming that these will be adjusted according to the requirements of the space I'd like to briefly talk about how transferrable I think these strategies are.

I feel this approach is successful in realising *Fata Morgana* and **can** be for other works conceived in stereo. I know when diffusing stereo mixed pieces I will maintain a principally frontal image that frames and supports the on-stage action. I know that I can use amplification to reinforce the sound of acoustic instruments and bring them forwards into the world of the electroacoustic part. How I use amplification in *Fata Morgana* is quite particular.

The amplification in performances so far has been relatively light. The work has only been presented in relatively small concert spaces so I cannot be totally definitive about this. In *Fata Morgana* it is important not to dislocate the players sound from their playing positions by amplifying so strongly that the sounds are perceived as coming from the loudspeakers. This is a venue specific issue and I doubt there is a hard a fast rule, but through loudspeaker positioning and careful

balancing of acoustic versus amplified sound I can amplify to the point where the sound remains connected to the player on stage. Of course I'd take into account just how loud that is, but this perspective usually means I am using quite light amplification for the space. Unless a piece consciously uses extreme amplification to reveal aspects of instruments this is what I would ordinarily do.

## 5. Next Steps

Rather than draw any particular conclusions I'd rather talk about where I'm intending to go next.

There are a couple of aspects I need to think more carefully about on a practical level. Firstly, to what extent can I communicate my intentions for the piece? Secondly, what is the most useful way to do this, if this is in fact important?

Those questions inevitably lead to further questions. If I've composed a piece that involves live performers and fixed electronics this implies that a live performance is almost a necessity. If I want the pieces I compose to be able to travel do I need to be clear about how the piece should be diffused? If I were to send a fixed piece I probably wouldn't send much more than a few ideas, partly because I wouldn't want to insult the intelligence of whoever is diffusing the piece. I'd hope that they'd listen and respond to the materials and not just randomly wiggle the faders for effect. So what's different about a mixed piece? Well, the spatial relationships between the live and electroacoustic parts aren't necessarily clearly expressed through analysing a score and listening to the electroacoustic part. Careful rehearsal will help the performers unpick certain aspects, but I shouldn't expect them to necessarily stumble upon exactly the right settings in a rehearsal that reveal the exact spatial perspectives the piece plays upon. So I guess the question is, is this a problem of notation? Do I need to find a way to express this in the score in line with the instrumental and electroacoustic notation? Or would a written description be more appropriate? What about a recording? Recordings that can reflect what might be considered the ideal listening experience in a live concert.

Of course there are already a number of answers to these questions in the context of looking at approaches from other composers. Boulez and Stockhausen scores probably suffer from a case of too much information. Getting to the crux of the issue can be quite tricky and working out exactly what the piece needs isn't always clear, in spite of the extended instructions.

On the other hand there are composers who completely release the responsibility to the performers and diffusers. Their scores probably contain no additional instructions beyond notating where the electronics should start and stop.

I'd like to think that I'm somewhere in between. I think I DO have a responsibility to the piece to try to communicate what the piece needs. BUT as this is a piece that exists most purely in live performance then I also want to let the piece go and allow it to be interpreted.

Aesthetically I am interested in exploring how I would need to re-imagine the relationship between performers and electronics in pieces that play on surrounded-ness. In the kind of spatial and perspectival relationships that can acknowledge the live performer or performers on stage but also allow the sound world to move beyond that stage.

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