NYUx Theories of Media and Technology - Philip Hughson - philipfhughson@gmail.com - January 2021

Portfolio reflection - Conversations with past projects

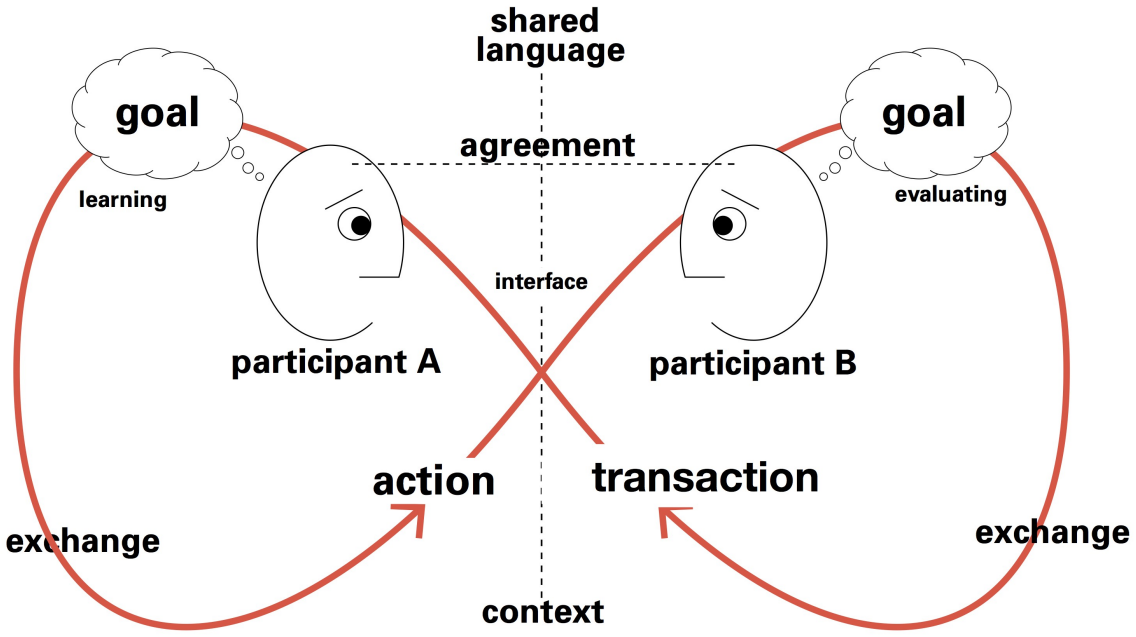
In this reflection, I use Conversation Theory, which I explored in my third and final project of the Theories of Media and Technology course, as a lens with which to re-examine my first two projects [1]. I hope to show that the insights it gives into these show its value and flexibility as a theory, and suggest that it is a fertile theory - or metaphor - to explore in future work.

I discovered Conversation Theory while researching how the notion of the cybernetic organism, or cyborg, might be applied to the human imagination. It was something of a lightbulb moment for me in the context of this course: it gave me a richer perspective on ideas I have been pursuing, on and off, since my masters thesis, which looked at imitative kinaesthetic learning in rock climbing (Hughson 2015); and also in the final project for the Creative Coding course, which used internet video as a medium for imitation (Hughson 2020). Essentially, I realised that imitation can be looked at as a means by which ideas are transferred between agents, and understanding verified through action. This idea can be subsumed into the larger structure of Conversation Theory, which allows ideas to be developed between agents, with a notion of goal, evolution or progress, rather than mere reproduction (or learning of existing ideas).

For this reason, I think it is more interesting to reflect on my two earlier projects using the lens of Conversation Theory, rather than sticking only to topics covered in the course: I started with cybernetics in the first project, and in the third looked at cyborg theory as applied to the extension of the human imagination, asking how we might expand our capacity to perceive possibilities through artificial extensions of our selves, and found that Conversation Theory offers a good framework for understanding how this might happen. Gordon Pask, its progenitor, developed it through his interest in artificial cybernetic systems, and my projects have similar concerns, so it can be understood as an offshoot of cyborgian thinking, but the theory does not limit itself to flesh and artifice combined.

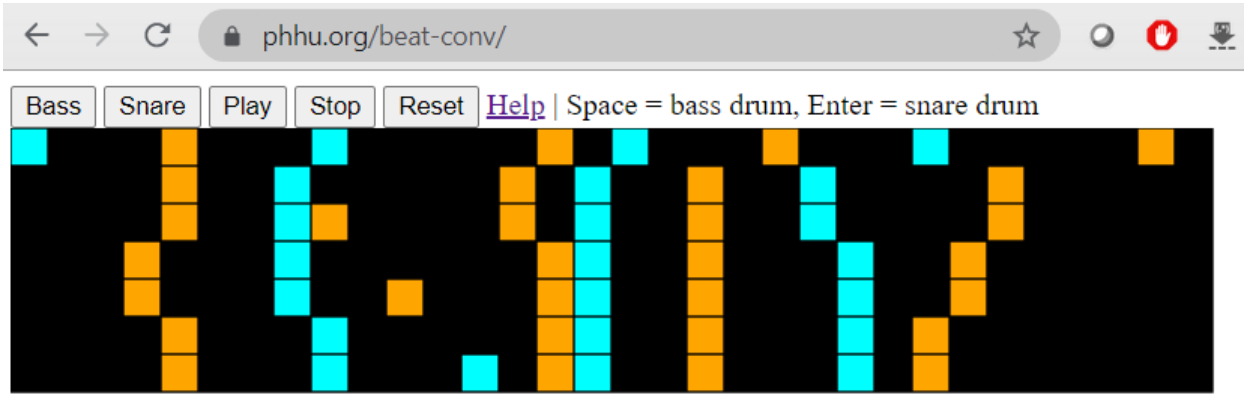
But what is Conversation Theory? Developed by Gordon Pask in the 1970s, and promoted more recently by his student Paul Pangaro[2], it involves interaction between two minds or entities, which could be people, entities, artificial systems, or possible different parts of a same person (as when we talk to ourselves, for example). These two communicate using a common language: possible a human language such as English, possibly music, possibly something else. Both agents have goals in the conversation, and for it to work, should be able to compare ideas, find common ground, and make progress, or be altered somehow by the conversation, perhaps being able to take action in the world as a result of it. Conversations help to define boundaries between entities, and shared consciousness emerges as a result of them. Thus, in the context of cyborg theory, we could imagine a conversation between a person and an artificial system which creates a cyborg whole; or we might imagine artificial extensions of ourselves being used to enable as to have conversations or interactions we could not otherwise have (trivially, the smartphone). We could also imagine more

poetic notions of conversation, such as the interaction between land, sea and wind producing beaches, and so on. Or we could theorise the interaction of a designer with a sketchbook as a conversation between two alternating "p-individuals", or selves within the designer, one who makes sketches, and one who reads them and responds to them, a kind of cyborgian feedback look which serves to develop design ideas. Pangaro offers the following summary diagram of the relationship:



after Dubberly Design Office 2008

If the title of my first project, "Beat Conversations", makes it is clear that I was already concerned with conversation, it was developed without reference to Conversation Theory. I was reacting against the notion of communication as being about transmission of a pre-made message, as in the model of Shannon. I questioned whether noise was always an undesirable element, as it struck me that people often seek out moderately noisy environments - such as cafés - in which to have conversations. To test this, I created an exchange of two bar drum rhythms between a user and a computer. The computer replicates what the user has played, but introduces random variation into its responses; and it is left to the user to replicate or vary them in response, in real time.

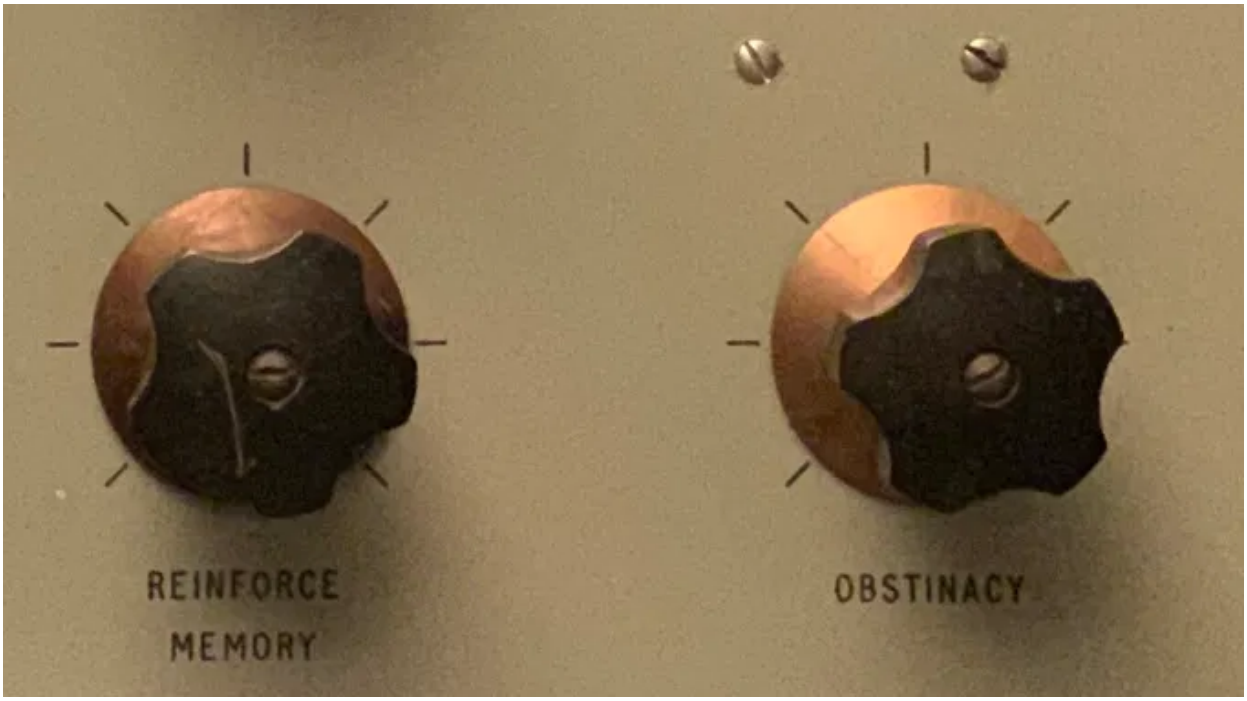


From the perspective of Conversation Theory, this project already has many of the necessary elements. There is a common language, expressed in the code as a series of 32 digits representing patterns of bass and snare drums. Both computer and user can understand these, though it different ways: the computer is more accurate, but also far more limited in conceptual understanding. In particular, it has no sensitivity to rhythmic patterns of groove, and its variations are completely arbitrary. This is a problem from the perspective of Conversation Theory: the agent the user is in conversation with apparently has little capacity to understand the goals of the user. Of course, we might ask what these goals are: perhaps to improve their ability to perceive and reproduce rhythm, as part of a musical training. But typically, when we do such training, the teacher is sensitive to the level and success of the student, only providing more challenging patterns when the student has expressed mastery of something more basic. The project here lacks this kind of sensitivity, and there is no means for the user to feed back the need to slow down, for example. It becomes frustrating to use for this reason.

In comparison, my third project, "Melody Conversations", broadly similar in concept, offers a little more sensitivity. By using a neural network pre-trained on existing two bar melodies to produce alternatives, it is able to express more likely musical variations to the user, and this makes for a more satisfying conversation. When using it, I have the impression of being shown possible musical developments which might not have occurred to me: perhaps a passing change of key; perhaps a syncopation; perhaps a substitute note with a similar functional role in the melody. This is perhaps one of the values of AI in the context of interaction design: it allows an ready, rich and suitably unpredictable supply of variation, and if suitably directed, can also supply direction (though I did not do this in the project, in principle a user could ask the AI to train the user towards a certain "goal" melody"). This in itself is an interesting commentary on how the notion of the cyborg might help us subsume artificial intelligence into our beings, rather than being replaced by it: AI can serve as a guide to the possible - or an increase in choices, and Heinz von Foerster puts it - rather than a replacement of human agency:

> At that point Metaphysics appeared and asked her younger sister Ethics, “What would you recommend I bring back to my proteges, the metaphysicians, regardless of whether or not they refer to themselves as such?” Ethics answered, “Tell them they should always try to act so as to increase the number of choices. Yes, increase the number of choices!” (Foerster 1991)

Nevertheless, the "Beat Conversations" project does have the virtue of a more continuous interface, where the interaction is not interrupted by the interface: the beat goes on, in other words. "Melody conversations" does not have the same real time flow, requiring the user to press buttons to progress. If Pangaro's idea of "less interference, more dance" (2019) has value, then perhaps what I can take from the first project is that continuity, or flow, as a desirable quality in human-computer aesthetic interaction. In future projects, the aim is perhaps to combine this possibility of flow with a sensitivity to rate: the project should adapt as the user develops fluency, challenging the user at the correct rate so that they do not get bored, and suffer the right level of frustration. If here were are moving in the direction of the psychology of play, as developed by Piaget and others[3], it is reassuring perhaps to note that Pask's projects involved psychological variables such as obstinacy:



For future work along this line, it might be interesting to think how such variables could be incorporated and regulated.

Analysing my second project - "Two duplicated actor network street furniture installations" - through the lens of Conversation Theory is perhaps more complicated to do, but it is interesting to try. A easy answer might be to say that a picnic table installed in suitably chosen urban context promotes conversation because people sit at it and talk - which they do, in the case of the picnic table upon which I modelled my own picnic table installation. Such an analysis would perhaps be closer to the Actor-Network Theory (ANT) under which I carried out the project. Alternatively, if we wanted to insist upon pushing the cyborg idea, we could argue that the joining of table and person creates a cyborg more disposed to conversation that the usual person-pavement combination:

In the context of Conversation Theory, though, I think it is more interesting to think of the installations (a table and a bicycle pump) as part of a language, or discourse, which can take place in the public domain, or forum, which is created by public space in our cities. If language can be though of as a set of propositions, prompts or provocations, so can objects placed in the environment: an object can be though of as a suggestion, rather than necessarily a definitive or final statement, and as in conversation suggestion and ideas can be iterated (as in the "Beat Conversation" and "Melody Conversation" projects). My installations are examples of this: both were imitations of existing installations in my city, made with resources available to me: thus to some extent there is a common language at play, which I and others can be express and understand. This is also made apparent by the presence of similar installations, sometimes associated with private businesses, in other places in the city:

Identification of the conversational other(s) involved in this case is more complex. We might identify the other as the persons or organisations who installed the original table and bicycle pump which I copied. But since I made the installations, others have become involved: the table was after two days attacked with a saw, its attachment by chain to a nearby bicycle stand removed. A day later, a friend witnessed a city council employee taking photographs of the damaged table. This suggested that somebody had objected to the table - but I do not know who, and can only guess at why. Not wanting to wait to find out, I removed the table and stored it safely. A similar dialogue happened with the bicycle pump: it was used by various cyclists over two weeks, before being stolen, its lightweight retaining chain cut with metal cutters. A day later it reappeared, left near the nearby café - and similarly it is now back in my possession.

In both cases, these were not outcomes I could have predicted precisely, and the question is who acted and why? For the table, I might guess a local neighbour who did not want access to his parking space partially obstructed by a table. For the bicycle pump, perhaps a student or petty thief stole it, and a more socially minded acquaintance suggested they return it, perhaps having seen the logo "Glasgow Pro Bono" on the body of the pump. The fact that I do not know shows an incompleteness in the dialogue: I do not know to whom to address my enquiry for clarification (as I might with "Melody conversation" by playing a melody on my piano until the software recognises it as being the same as one of the AI generated alternatives). Still, it remains within my power to try again with both objects, perhaps choosing a different location, or more thorough security, to reduce the risk of repeated rejection of the installations. In this sense, a basic conversation has left me in a changed state of understanding: though random chance cannot be ruled out, there is probably a difference in the actor network in the location where I decided to put my table; and it is clear that the Bicycle Hoop company were right to insist that security is important for public bicycle pumps. Time will tell whether I can make progress towards my goal of installing a durable public pump more cheaply than the Cycle Hoop (n.d.) offering.

From this experience, we might suggest in line with Actor Network Theory that Conversation Theory needs to include the idea of conversation with multiple agencies. This is not specifically excluded in the Conversation Theory literature: indeed it is suggested by Pangaro, Heinz and others that seeking good conversation is an ethical and useful thing to do. This is a thread which could be extended in future work - especially given the potential ease and speed of communication afforded by internet media.

We might surmise that for there to be effective public conversation about public space, it is helpful to have a means of discussion beyond the language of action. How this can be instantiated I am not sure: perhaps by effective dialogue with the city authorities; perhaps by reference to the Ancient Greek ideal of the forum, the idea that the public have a right to take part in public life and space (rather than just cyberspace, or within the confines of one's own head).

But from Conversation Theory I can take the notion that it is necessary to have conversation with an other in order to make progress artistically: an installation that nobody else can use (say a table installed in a private garden) is a solipsism, a refusal of discourse. In other words, the artist who does not enter into dialogue by exhibiting their works takes no risks and makes no changes, and the work might as well not exist. To turn to the beginnings of this course, I might make reference to the exchange of graffiti I included in my introductory post (Hughson 2020b). This exchange has continued since, showing an example of conversation in a public domain, though to what ended I am not sure: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To conclude, for me this course has shown the value of both of having a broad survey of theoretical ideas, and also of putting them into practice. In the case of my work, Conversation Theory has helped me put a name to ideas I had explored previously without having a clear theoretical handle on them. In general terms, this is perhaps the distinction Foerster makes between discovering and inventing (1991). Previously I would think in terms of memes and evolutionary theory (as proposed by Richard Dawkins (1976), and not the meme in contemporary usage as viral image and slogan), and this risks ignoring the reality of purpose in our world. Perhaps this is the idea of autopoiesis, that the discourses we use - the conversations we have - construct our reality. The gift of our species is the amount of choice that we have in doing so, and an imperative of good design is to try to increase this choice by helping us see it.

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Images

Images are my own, except:

Image of Gordon Pasks obstinacy control from https://pangaro.com/designconversation/2019/03/computing-conversation-a-lecture/

Conversation diagram from Pangaro (2009).

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1. My projects, and there associated theoretical areas, were:

1. "Beat conversation" (based on cybernetics). Available at https://phhu.org/beat-conv
2. "Two duplicated street furniture installations" (Based on Actor-network theory). This consisted of two street furniture installations, both based on similar examples which already existed in my city. One was a wooden picnic table placed at the end of a blocked off street, where it joins a main road. The other was a bicycle "track" pump installed in a similar public space. Both were labelled for public use.
3. "Melody conversation" - based on cyborg theory. (Available at https://phhu.org/melody-conv)

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2. For an introduction to Gordon Pask's work, see Paul Pangaro's webpage at https://www.pangaro.com/pask-pdfs.html ↩

3. See https://psychology.jrank.org/pages/496/Play.html for some background. ↩