Thunderwire

The strongest point gleaned from this reading was importance of affordances. The affordances inherent to Thunderwire described in the paper ultimately affected the outcome of the study and the conclusions made. This would further highlight the importance of solid design in computer mediated communication (CMC) systems.

First, a technohistorical criticism: Thunderwire represents the limit of system capabilities 10 years before the advent of Skype. If one were to consider Thunderwire as a link between the party lines of yore and the current application, one could call this evolution exponential. Thunderwire is essentially a party line built on top of a dedicated, high-quality platform. As such, it was limited by the capabilities of such a platform. Skype, in consideration of its conference-calling feature only, addresses most of the problems presented with regards to backchannels and user interface mechanisms, namely the ability to see who is present and a system to ensure user attention is placed on a single call. The computational complexity of this feature is not stunning in the present tense, but is a significant advance over the past 14 years, even more so considering the ability to video-conference in full-duplex (and with some degree of scalability).

The overarching trend here is not so much the march of technology, but rather the broadening freedoms afforded by its advance, or the lack thereof. The paper addresses the tradeoff between privacy and social exchange in audio-only systems. If one were to put the telegraph on one end of a privacy spectrum and the Big Brother video conferencing system on the opposite end, it would seem that audio-only media spaces are the ultimate mix of privacy and technology-mediated communication. This, of course, assumes consistent behavior among users. The sense of use gathered from the user study was that a core group of individuals used it constantly to their apparent benefit, while others used it appreciably less. Equilibrium of usage patterns among its users arose. The same could be said of video systems, except when the element of voluntary use is removed.

Discussions of personal freedom aside, the paper made good mention of research conducted in audio media space and the premises made light of its effectiveness. Rather expectedly, it outlined the key principle of transmission quality being proportional to general usefulness, measured by effectiveness, ability to create viable social space, etc. This is in contrast to mentions of users preferring to use video systems over audio only and lowered task quality in the audio-only space compared to face-to-face interaction.

The telephone has been around long enough for the footsoldier of industry to grasp the conference call metaphor that partly describes Thunderwire. The missing element is that users do not share the same physical entry node, i.e. the base station situated atop the middle of a large table. They cannot make the comments or physical gestures unheard by the system to other members situated around the table. This and the lack of formality associated with the conference call is the key difference with Thunderwire. Nevertheless, one could posit that the user would easily develop the necessary schema to understand the system and use it as effectively and in a similar manner as the users described in the paper. This remains speculative, however, due to the nature of the study. Major criticisms include the fact that users had pre-existing social bonds, engaged in similar work, and were drawn from a single pool of possible subjects. The major lack of this study is its applicability to the general populace. It would be interesting to see how social bonds coalesce among those who have vicarious or no relations to each other.
Still, some truths arise out of the study and connect well to CMC as a whole. For one thing, usage patterns seem to closely resemble IRL social patterns. Changes to the system would need to facilitate the user who feels outside the core or at the margins of a group in communication. For another thing, the lack of backchannels seems to limit the usefulness of the space. In an honest, open world, these would not be needed or the issue at hand would be brought to the open and transmitted over the same wire. However, the aside person A needs to make to person B in regards to person C or what he or she is saying still needs to be made privately owing to social norms. Because changing behaviour itself is too far out of the question, a backchannel feature needs to be included somehow. The Skype example provides a solution – it is possible to engage in voice or text chat with the group while maintaining private communication with a single person. Along with backchannels is the need for some visual indicators of group composition and attentiveness, seen in just about any chat system today.

Seeing More

My mind pointed towards the swirly phone-dome thingy when I read the abstract and the name given to the visualization. Though mistaken, one can make the observation that, from an aesthetic standpoint, both Conversation Circles (CC) and Visiphone share a similar visual metaphor, albeit one is swirly and the other more persistent and timely as its name would suggest.

Like the visualizations of other mediated communication data, visualizations of conversation audio suffer from a lack of visible context, focusing on patterns and salience rather than content. The suggestion here is that the visualization will be used by the person from whom the visualization data was gleaned. This use deals with, on one hand, awareness - like the awareness gleaned from Chat Circles about the nature of nearby conversations. This awareness leads to action, spurring the user to alter their patterns of speech, much like how it would induce a curious user to a wellspring of expanding and contracting bubbles in Chat Circles to see what the conversation entails.

Not surprisingly, this expectation was revealed by the user study. What was interesting in this paper was the robustness of the user study in comparision to the study done for Thunderwire - this was both qualitative and quantitative. Statistically, the difference between the sessions was significant. Of particular interest, however, were the comments made among different groups of users. While reading this, I drew a parallel between how Thunderwire was used for sociable, unstructured discussion rather than formal dialogue and how CC was found distracting to groups with preset schedules and purposes. It would seem that the usefulness of the visualization decreases in proportion to formality, but that is not to say it is without use. CC could be used in a manner similar to DiMicco's historogram for post-conversational analysis by its participants, but at the expense of the feedback it would provide. (I imagine an implementation using tickmarks to actually provide a temporal measure of length of speech that is important in such modes as parliamentary procedure and determining who does not follow such rules in order).

Otherwise, the application does a good job of reinforcing roles in conversations or making participants more aware of their role. When the hierarchy is flat, say, in an informal discussion, the watchword is egalitarian and the induction is towards fully shared conversation and observation of CC with this in mind. As mentioned in one of the comments, a group with more formal nature will fall into its hierarchical pattern, e.g. the PM communicating more than the developer or tester. The suggestion here is that the user's experience with CC is affected by group dynamics coming in rather than letting CC shape group dynamics, in a similar vein as Thunderwire. If the desire were to radically change
these roles, the application would need some design element to induce such a change.

My final comment regards the user study design. The feeling of the third session was either adjusting their behavior to be more like the second session or overcompensating for the role they took on (immense talker consciously keeping his or her voice out of the conversation). It would be interesting to see, over time, how multiple CC sessions shape conversation habits. One could posit that, over a long enough period of time, CC would induce equal sharing and better group dynamics if multiple sessions like the second one were done in succession. The caveat here is that the absence of CC would have no effect on conversation because participants will become better aware of their own patterns over time.

In Situ *Speech Visualization*

Whereas Thunderwire and CC provide a practical approach to conversation, the visualizations described provide a more elegant, aesthetically stunning experience to the user, more or less in the vein of performance art. The following critique will take a similar approach.

The works build off of foundational work, such as Köhler's phonesthesia experiment. The exercise to the reader is to actually say the sounds 'maluma' and 'takete' and see the translation take effect. The phonologies take shape as something soft and pleasant, like an Eames chair or as something harsh and angular like a Cubist painting, respectively. The implication here is that this will make sense cross-culturally, and that a reversal of the sound-pattern matchings will not make sense, no matter how hard you try. The extension to something like Hidden Worlds is that its patterns will be similarly appreciated by a wider audience and with little explanation of what they are seeing.

The implementation of Hidden Worlds is simply stunning because of the intersecting computational power and artistic vision. That the authors describe it as a "consensual hallucination" speaks to the sort of experience the user will have. I like the idea of augmenting the I-Glasses with the projection table because it gives the non-participant some sense of what's going on, as well as addresses the shortcomings of the I-Glasses. It seems an updated version of this piece would call for less dated technology - perhaps instead of a visual field the size of a postage stamp, current projection glasses could provide an area the size of a Post-It or A5 sheet of paper?

The strengths of RE:MARK lie not only in its sonic properties, but that the added kinesthetic dimension. The exhibit-goer has that additional dimension of control over the visualization by moving his or her shadow to direct the movement of phenomes. I can only posit that the more interactive a piece, the better the experience, and this falls into that category. The paper mentioned a commercial development and it would be interesting to see how the piece evolved.

The last piece, Messa di Voce, is so exceptionally varied in its range of visualizations that it is more or less a cycle of works combined into one - the performance in front of its screen takes on a similar nature. The illustrations suggest an inherent playfulness from a human-artwork interaction standpoint, in particular Pitchpaint, but especially Jaap Bonk's 'performance' component. The singer controls the visualization by virtue of singing but can alter discrete parts of it and release its 'memory'. Most visualization we've studied have been computational, in that we feed them data and look at them - this part represents one of the few where the same occurs, but where user can also change the visualization after it has been produced.

That the piece is incorporated into vocal performance art is a plus as it reflects a multi-
dimensional experience to the audience. The drawback is that components of the piece are tied together and the intent I gather is for the audience to experience someone else using it. It would not be a stretch to untie the compositional visualizations and allow a non-performing user to experience it.