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## Webs of Proximity and Just-in-Time Information

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Our original proposal intended to examine the dis-ease that occurs when two separate disciplines have unsynchronized webs of proximity with the same clients. The dis-ease impacts the clients, the fields, and the practitioners. Disciplines and fields of study address complex, time-sensitive, and diverse concerns, issues, and challenges, however, gaps exist in our understanding of whether these bodies of knowledge and disciplines navigate information environments as collaborative partners or as separate and distinct sources. For those that operate within more than one discipline, exploration into webs of proximity highlight dis-ease and concern that disciplines are operating individually rather than collectively.

We had been examining relationships of different webs of proximity as they relate to just-in-time information needs, particularly those of individuals with disabilities. In particular, we were concerned with the impact of alignment / misalignment of webs of proximity of professions tasked with serving those with such information needs. Rehabilitation counseling and information science represent bodies of knowledge and practices in navigating complex information environments. Anecdotal evidence suggested that lack of alignment of professional webs of proximity could slow or stop the discovery of just-in-time information. While we were working on the exposition of our model an unexpected, confusing event catalyzed a different approach to modeling of relationships among webs of proximity. Although this event itself was outside the realm of just-in-time information concerns of people with disabilities, the insights it provided will enable a more nuanced approach to those concerns. We present that here.

For the conference presentation at the Annual Meeting of the Document Academy, we sketched the concept of a web of proximity and the complexities of two separate and interconnected disciplines operating within their separate webs of proximity and the potential of shared webs of proximity. We discussed the concept of an individual with a disability operating at the center of the web pursuing an individual information need.

At the heart of the Document Academy is a commitment to critiquing each other's work for the benefit of all. In that spirit, conference participants engaged in lively discussion of what is the true center of the web, who benefits from webs of proximity, and if the metaphor of a web is most appropriate to expand awareness of the individual information experience and connections between different bodies of knowledge. The just-in-time information construct central to the webs of proximity became lost and connection was blurred. Post-conference, contextual development of the construct and complexities of webs of proximity were considered. Feeling that deeper exploration of rehabilitation counseling and

information science would be misguided without further development of the web of proximity, we shifted our focus to explore and probe more deeply the complexities of webs of proximity. Here we present an emerging concept as it relates to just-in-time information.

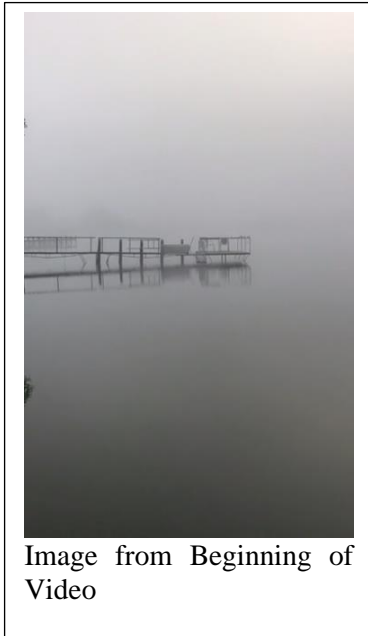
### **Just-in-Time Information and Twitter as Information Channel**

By happenstance an unforeseen event provided context appropriate for discussion of webs of proximity that maintained a just-in-time information experience. We invite our readers to view a video central to our exploration prior to providing contextual details.

[Link](#) to Boettcher video

What comes to mind after viewing the video? What do you believe is the central subject of the video? What do you believe was the content creator's intent? What message were they sending to their followers?

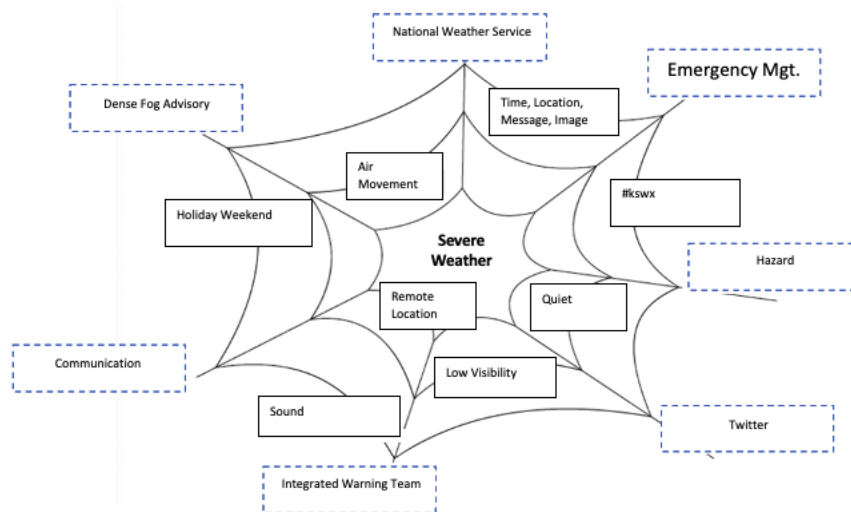
### Content Creator – Backstory



On a cool, beautiful, September morning in the Midwest of the United States, a low-level cloud formation of moisture sat just above a small body of water that limited visibility to a short distance. Glancing through the window of a lakeside cabin, Boettcher observed the thick fog that limited view of the lake and surrounding area to the space just beyond the end of the dock. Captured by the view, Boettcher proceeded outside to savor the moment and capture photos and short videos via cell phone of the weather event for individual curation. Boettcher quickly realized a Dense Fog Advisory was on screen from the National Weather Service (NWS) located about 1.5 hours away. What was a typical Labor Day morning at the lake turned to an intriguing weather event that combined curiosity and a desire to transfer this information to those tasked with understanding all layers of weather events.

Boettcher, also an experienced emergency manager and severe weather communicator within the context of an integrated weather team, captured a 20-second video of the fog and reflected upon the advisory previously viewed on screen. In a moment, reflection of the thickness of the clouds and the serious nature of confirming the Dense Fog Advisory severe weather statement issued that morning by the NWS, Boettcher transitioned into severe weather communicator focus and identified the most appropriate photo or video to share with the NWS via Twitter, an established information transfer channel within the severe weather enterprise (National Weather Service, 2016). Without delay to transfer severe weather information to the NWS and drawing from experience and research, a video long enough to provide visual context and confirmation of the dense fog, and within Twitter length parameters, was selected to capture time, location, message, and image. The text was carefully crafted, hashtags and sources cited, video attached, and the Tweet icon was selected.

Below, the web of proximity that informed Boettcher's decision-making process and content development for the informational Tweet presents an outer level that includes knowledge and experience gained prior to the fog event, and an inner level that reflected the current moment of the severe weather situation.



Boettcher Web of Proximity: Severe Weather

Immediately after clicking Tweet, an error message appeared. Confusion ensued. What button was clicked incorrectly? What portion of the message included too many characters? Was the video too long? Was the NWS tagged incorrectly? Limited cellular connection and wifi connectivity contributed to the confusion.

Upon return to stable connectivity, the error message received from Twitter was reviewed and analyzed. The severe weather message was deleted by Twitter due to violating rules of an appropriate Tweet.

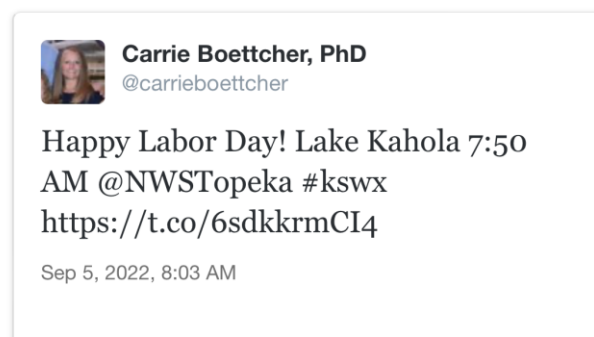


## Delete Tweet

Tweet 1 of 1

Violating our rules against posting media depicting the **moment of death of an individual(s)**.

You may not post content of deceased individuals or moments in which they die with the intent to abuse, or if the media is excessively gory. We will remove this type of media out of respect for the deceased and individuals directly impacted, and to reduce unintended exposure to highly graphic media.



By clicking Delete, you acknowledge that your Tweet violated the Twitter Rules.

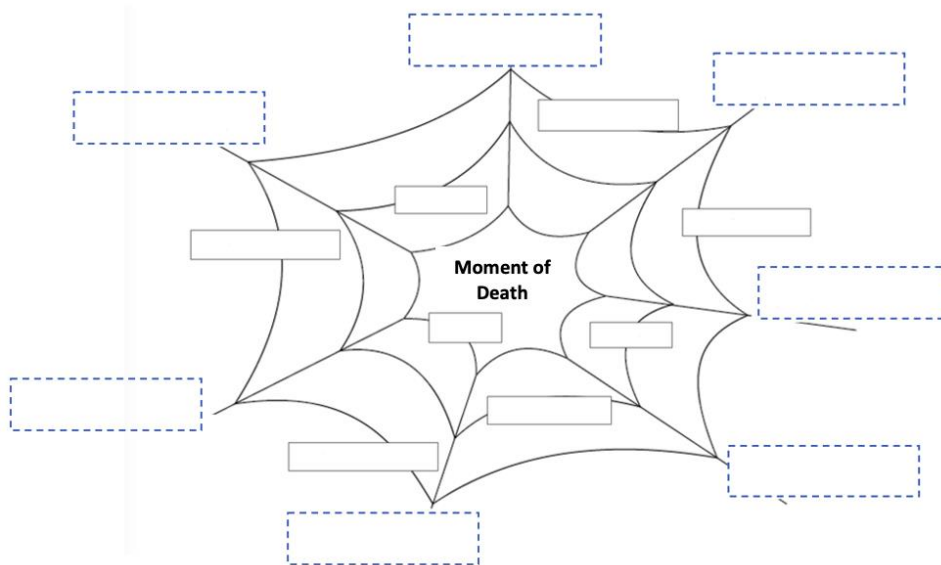


If you think we've made a mistake, submit an [appeal](#) to us. Please note that should you do so, your account will remain locked while we review your appeal.



Boettcher Screenshot of Twitter "Delete Tweet" Message

Confusion continued as the “Delete Tweet” message listed as an “Option” on the mobile screen challenged the function and purpose of just-in-time information. By the time the error message/delete message was understood by the content creator, the intensity of the severe weather event had passed, and the information channel was broken. As an established information channel in the severe weather enterprise in the Midwest, Boettcher assumed Twitter would be available and accessible to communicate the just-in-time information to the NWS and confirm a dense fog was indeed in the area. Instead, the information channel, Twitter, stopped the transfer of information and became a barrier to just-in-time information. Confusion turned to dismay with a mix of irritation and betrayal as the content creator began to realize the inappropriate use of the social media resource was assumed. Hence, an informational Tweet became a (deleted/defunct) document as options were limited and acknowledgement of violation of Twitter Rules was required to continue use of the social media resource. Essentially, the system made a mis-informed decision and the only step offered was for the content creator to admit guilt.



Web of Proximity: Twitter Moment of Death

Initial web of proximity for the situation at hand. Boettcher’s attempt to send a video of interest to severe weather analysts had been blocked by Twitter for depicting a moment of death or gore. No explanation of just what attribute or set of attributes of the video prompted this severe step.

### **Attributes and Relationships: Content Creator Reaches Out**

In the midst of attempting to make sense of the Twitter posting debacle, Boettcher shared the video with O'Connor and Bonnici. First, she shared the Twitter decision. So, both experienced the video with prior knowledge of the labeling around death and gore. Although all three of us hold doctorates in information science, we each hold different levels of knowledge around systems and technology. But we also share knowledge of epidata and proximity that influence how we evaluate information. We share our reactions as part of the efforts to make sense and problem-solve the system error.

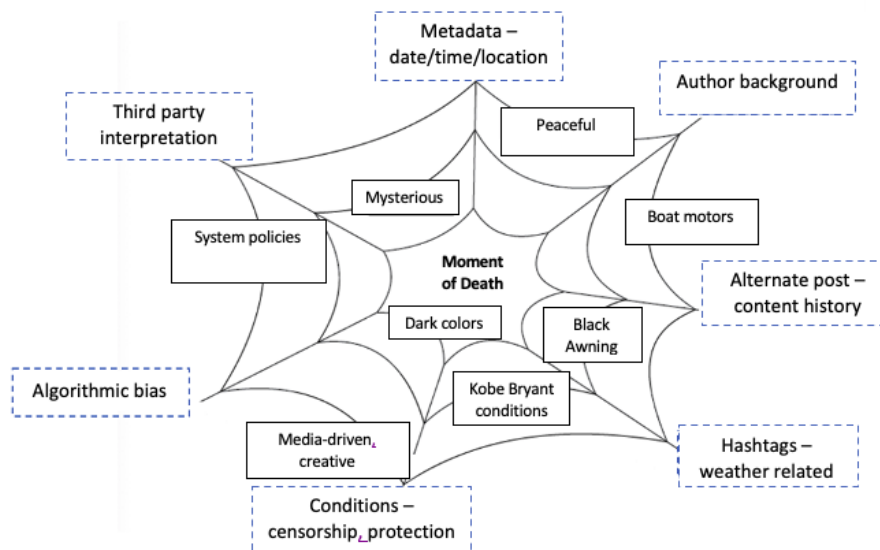
Webs of proximity is an evolving construct rather than an exact model (Bonnici & O'Connor, 2022). The specific example of an individual with an information need working within two webs of proximity created dis-ease for conference participants and blurred the intent of exploring the information experience of an individual with complex needs navigating a tight timeframe. Reframed as a weather emergency, just-in-time information within the context of a weather event influenced by the algorithm of an information professional without the knowledge or information experience relevant to situational context, the dis-ease transitions to how did a cloud formation become a visualization of death?

Is the algorithm developed to protect against gore in online social media an invasion of our web of proximity? What epidata in the dense fog Tweet set the stage for a potential prevention of cognitive authority in a shared space? What epidata, the details of the Tweet, hint to the “moment of death of an individual”, or a non-death context? A collaborative space was not in place between the information technology creator and the information user prior to the information behavior action. Perhaps the red thread of information (Bates, 1999) in webs of proximity is trust, safety, and shared meaning. When time is a critical element of the transfer of information, described and discussed here as just-in-time information, shared meaning-making may be the center of the web of proximity.

Our original proposal intended to examine the dis-ease that occurs when two separate disciplines have unsynchronized webs of proximity with the same clients. The journey began with an exploration into webs of proximity, individuals with disabilities, and just-in-time information and became more complex as it transformed into an inquiry of just-in-time information, epidata, algorithms, and proximity of multiple unsynchronized webs of proximity. In the violation of Twitter rules message, the individual was cited as central to the purpose of the removal of the Tweet. Simultaneously, however, the individual was removed from the web as the emphasis became epidata in the video. If the situation were an ongoing severe



weather event, the potential for delayed communication exists. If an individual sought the assistance from social media resource groups for time-sensitive information to navigate a life situation, the potential for delayed communication or assistance exists. Return to the individual in the webs of proximity construct is essential in continued inquiry and to refocus on the function and purpose of just-in-time information.

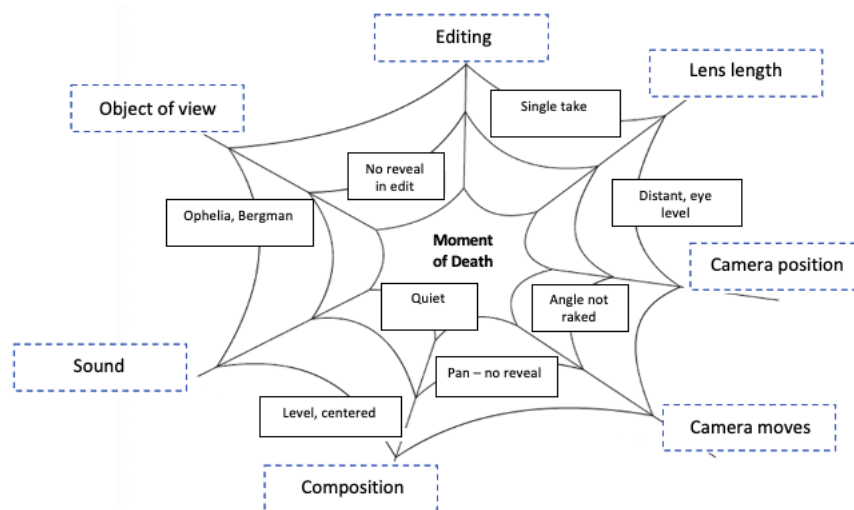


Bonnici Web of Proximity: Moment of Death

On a warm, clear, Labor Day holiday in the deep south, Bonnici received a couple of messages from Boettcher on her iPhone via text. Knowing Boettcher was facing some tough challenges, she was keen to monitor the texts relatively closely to be of emotional support. Knowing Boettcher was spending the holiday weekend at a lake in the Midwest, Bonnici was not surprised to receive a video of Boettcher's locale. Being informed of the provided reasons for the censorship actions on Twitter's part, Bonnici was wondering what kind of video she would be witnessing. Perhaps it was the introduced references to death, Bonnici's reaction was the video was a bit dark and gloomy with an air of somberness. Thoughts turned to this being the scene for some sort of Hallmark movie laden with sadness. But no indicators of death or gore were evident. A brief view of a canvas awning indicated a familiarity with a funeral home. However, that could have been influenced by the knowledge of and reasons given for censorship of the Tweet. But almost immediately and concurrently outboard boat motors could be seen under the dark canvas awning. Thoughts were "who would boat in for a funeral?" She knew this was not filmed in

Venice, Italy. Finding the situation perplexing, Bonnici viewed the video again consciously searching for evidence of death and/or gore while also staying aware of any clues that would indicate otherwise. None arose from the second or subsequent viewings of the video Boettcher shared.

These reactions and approaches speak to Bonnici's approach to social media and systems. She is intrigued over disconnects between systems and users. As an educator of information professionals in technology-mediated environments, her instructional goals include informing students to be aware of users of systems. Human aspects are emphasized in systems programming approaches, so she is keenly aware of systems, programmers, and users. Her keen examination seeking evidence of any given perspective on computing and human errors is not surprising in this context. Her ultimate goal is to determine the cause of the error and use this to inform systems and processes more useful for computer-mediated information sharing and discovery. Bonnici's ongoing and most prominent interest in this situation is finding out why Twitter (through human programming) missed attention to evidence that would approximate Boettcher's intentions for sharing this video.



O'Connor Web of Proximity: Moment of Death

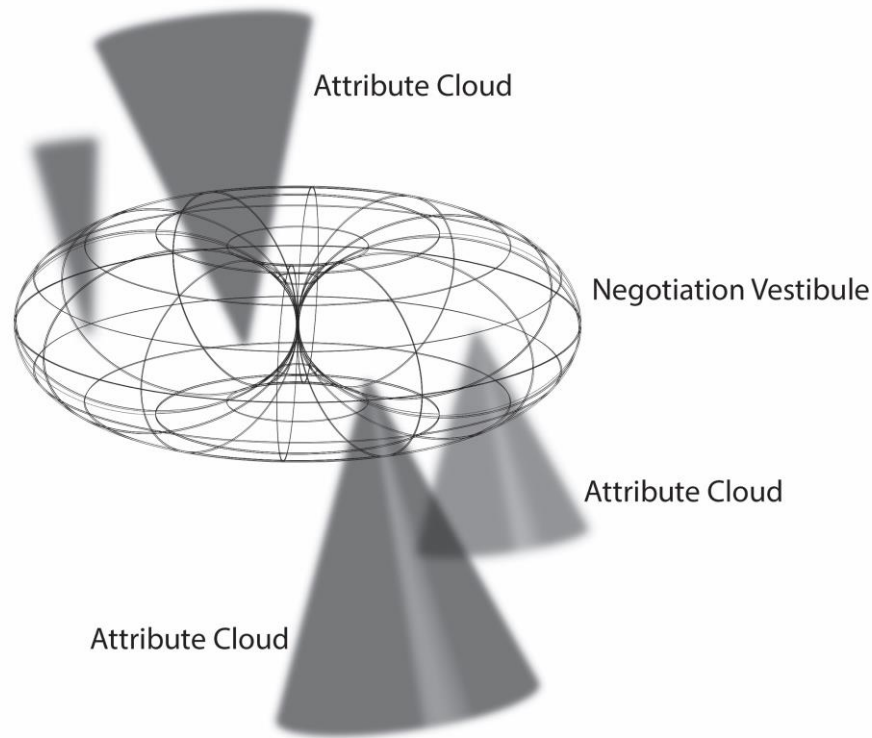
Looking at the Boettcher video as a film theorist, O'Connor notes that what is on the screen does not give any immediate image of "moment of death" or of "gore" and presents little if any of standard cinematic coding for death or gore. The primary

object in front of the lens is lake water with apparent low cloud, mist, or fog. It is possible that such an image could be associated with Ophelia drowning or with a setting in Bergman's *Seventh Seal* associated with the character Death, but this would be such a distant connection as to be nearly unimaginable. The same objects, particularly with the slow pan of the scene from left to right, could just represent a lovely quiet morning of a retreat from hectic city life. The camera makes no rapid moves, is not in any threatening position, the composition does not challenge the viewer's eyes, the editing does not increase tension – in sum, neither the objects on camera nor the cinematic “grammar” present the purported offensive content.

This is not to say that a quiet opening scene could not pre-sage something frightening or unsettling; indeed, that is quite common in narrative films. Yet this brief video is a single take of a lake scene with an ordinary camera movement to give a broader view. It might be possible to argue that the appearance of the rear end of a boat in the last few frames could signal an impending death by the blades of the motor or drowning in a boating accident; yet, again that requires a significant leap from the small data set. Perhaps there was a boating accident at that lake and the system deduced that from the GPS data attached to the image; but even if that were the case, the video does not show the “moment of death” or “gore.” Every subsequent video of kids swimming or a parent and child heading out to do some fishing or every couple walking hand in hand by the lake would have to be censored.

When people look at a photograph or a video, they see only what is on the screen in front of them – a representation of a spatiotemporal particular. That is processed within a broader set of abstract universals, the general patterns and assumptions that build up through experience. The spatiotemporal particular of Boettcher's video of a lake with evidence of circumstances of interest to weather forecasters does not present either overt data of the sort alleged by Twitter, nor does it present any generally understood cinematic abstraction or indication of the alleged offending material.

## Reconfigured Model



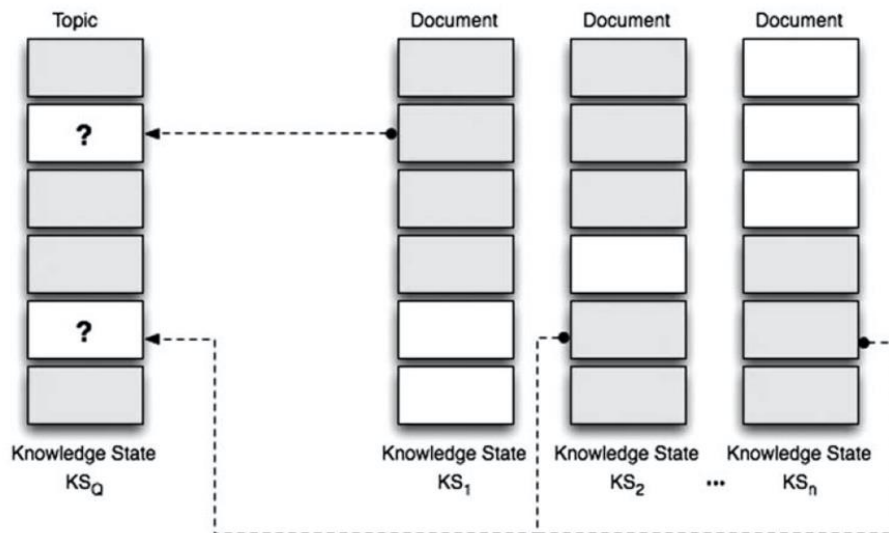
Negotiation Vestibule: the structure in which similarities, relations, and possible resolutions are accomplished. Rendering by Deama Khader.

In our current model of proximity, we use the web as a representation of attributes and relationships at play among seekers, authors, and documents – whether a particular set of relations ultimately proves to be successful. The fog / death episode with Twitter has caused us to think more deeply about the circumstances of the accomplishment of proximity. Twitter could be considered to have been the channel between Boettcher and [weather service;] however, it is not a channel in the sense of a neutral pipe whose only constraint is carrying capacity and resistance. Rather, it is a construct through which messages flow together with a set of rules that are meant to block proximities of certain sorts – unwanted / illegal proximities such as political disinformation, unwanted sexual material / offers, and disturbing images of death and gore.

These rules are intentional noise in the system. In some instances that noise, that blockage of the signal is desirable / warranted by one of the parties to a proposed proximity between a sender and intended recipients; in other instances, the blockage results in the failure of proximities valued by all parties. The fog / death episode with Twitter encouraged re-thinking of our just-in-time model with synchronized webs of proximity. We have looked back to an earlier instantiation of the web of proximity model that renders Twitter (or any other physical channel) as something more than a passive carrier.

We do not abandon the web model, rather we expand both the possible nature of the webs and account for the space of their entanglements. We use “clouds of attributes” to account for the varieties of webs that might co-exist – each web being a cloud of attributes and relations, whether two-dimensional, three-dimensional, or perhaps even more. The commons where the various parties are conceived as engaging in a negotiation, we have termed a vestibule – a space where various parties can “meet” and look for functional similarities of attributes.

In the figure below we present a spare version of such an engagement. A person with some question, in the broadest sense of the term, here represented by “Knowledge State  $KS_Q$ ” seeks proximity with another Knowledge State (or States) with some shared attributes / antecedents (shaded cells) so as to be understandable AND has shaded cells “matching” the  $KS_Q$  cells with the question components, insofar as they are recognized.



In our Twitter example, we can say that the [weather service] is the  $KS_Q$  holding a standing need for severe weather observation data, and Boettcher as  $KS_X$  data likely to fit into the standing empty cell of the [weather service.] A Twitter algorithm detected something that completely blocked the connection between Boettcher and the [weather service.] We have yet to discover the actual reason, but in a just-in-time situation such as possible extreme weather, the complete blockage rendered knowing the reason (in this instance) to be irrelevant. The utility of the data had essentially evaporated. The architecture of the negotiation vestibule and its rules of behavior stood in the way of proximity beneficial to the parties involved.



Perhaps more troublesome is the lack of a work-around, a means of rapidly asking for and receiving an exception or explanation. Hypothesizing that there was something in the words accompanying the original offending tweet, we stripped those off and re-tweeted the video. In mere seconds the same result was produced by the Twitter system. Looking at the pair – video and text – does not yield any satisfactory plausible cause for the decision. There is nothing such as “scene of the tragedy” or “reminds me of Bergman’s *Seventh Seal*.” No moment of death indicators that we can discern. Had the Twitter system considered the text of the Tweet it would have seen the content aligns with Boettcher’s posting history and profile information. As an informal experiment to probe the system, Boettcher captured a video from the same location

on a different day that included calm water and clouds, minus the fog. The text was crafted, hashtags and sources cited, video attached, the Tweet icon was selected. The Tweet was posted to Twitter as quickly as the previous error message was received making the decision by Twitter on the first video all the more inexplicable.

The vestibule is brought back into our model to indicate that the act(s) of bringing webs of proximity into synchrony is (are) achieved in an imaginary, neutral space; rather the space has physical and regulatory structure that causes it to be a participant in the achievement conversation – not necessarily a cooperative participant. Even absent rules and regulations and possible aberrations of their deployment, the time required to find appropriate webs and relations among webs might be significant.

Persons with a just-in-time information need require place prominence in the negotiation vestibule, that is to say, as little necessity as feasible to know rules together with overt outreach from other “Knowledge States” to the j-i-t person and one another. Our Twitter episode suggests the need for an alarm / “may I speak to the manager” component of the negotiation vestibule, an accessible solution process. That is, users of a time critical information system require a more immediately available “Helpdesk” solution for whichever party experiences difficulty in sending their time-critical message.

The negotiation vestibule and webs of proximity return the journey to the complexities of just-in-time information and the critical inclusion of the individual in the information experience. Three webs of proximity and ongoing negation of the misinterpretation of a severe weather video have not resolved dis-ease of this research team. The journey is not complete and has not come full circle. Instead, the complexities have grown, and we reflect back to the spirited discussion at the Document Academy Annual Meeting. We appreciate the comments of our DOCAM colleagues that stimulated our re-thinking of the model. In the spirit of DOCAM, we present our current state of affairs and look forward to presenting a reinvigorated model soon.

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