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Knowledge Map Prototype

We are all familiar with how our academic pursuits inform our thoughts, but we are less clear on how our media consumption affects our moods. Our application attempts to visualize these effects on mood and explore how these effects may be correlated to selected scholarly readings. Time spent reading and change in mood throughout reading is visualized along the x and y axis enabling individuals to track their mood associated with various pieces of literature.

The goal of this design is to incorporate knowledge acquisition with mood tracking. Knowledge acquisition is operationalized as any piece of scholarly citable literature that an individual externally encounters and then internally processes by reading. This quantified measure allows for self-reflection on where one's knowledge base is derived. Tracking is conducted on all incoming literature that an individual reads, reporting the topic of literature as well as the amount of time spent reading. This information is then transformed into a visual representation of what an individual's "quantified reading" would look like. In this visualization, time spent reading, title of reading, and change in mood is depicted visually according to each individual. With these quantified readings, a user is able to quickly process how they have spent their reading time, how particular readings can influence their mood, and how their quantified readings compare to others. [7] [13] This could empower users to understand more deeply how they interact with literature and how this interaction with literature is integrated in their shared mind.

Our design metaphor revolves around the core idea of how to transmit information of data to people in an interesting but insightful way. The data is multi-dimensional, reporting categories of time, mood and effort. The final concept considers how to map the relationships between multi-dimensional data to people's familiar knowledge base, but at the same time representing interesting insights in a beautiful and playful way . [3][8][9]

Mood tracking data for our prototype was inputted through the app T2 Mood Tracker [15]. To test our design, this app was used by four subjects. The rating category used was "general wellbeing". All subjects tracked their level of mood before and after reading. Readings tracked were logged by title and restricted to scholarly class readings in order to compare readings among group members. Subjects also recorded how long they spent reading. Data comprised a report of the mood ratings in .CSV format and was shared among group members. All the .CSV documents were extracted and organized through Microsoft Excel. The final data

visualization prototype was coded in-house and modeled after the popular Gapminder visualization style. [8]

The Core Themes:

The design and execution of this prototype was informed by an examination of what it means to quantify relative phenomena, in this case moods. While our prototype does an excellent job of visualizing the participant's relative reaction to the readings, it must be considered viewed as a small part of an ongoing exploration of our central questions rather than as an end in and of itself. As such, we would be remiss if we did not share and explain the core thematic elements that informed the composition and design of our mood-mapping visualization application. The four elements that exemplify our current foray into the rhetoric of the quantified self movements can be understood as self-reflection, aesthetic visualization, quantification, and evaluation. We find that reflections on or reactions to these core thematic elements are present within the majority of the literature both on and within the quantified self movement, and we would like to briefly describe how our project both enjoins with and intervenes upon these themes. We believe that the identification and discussion of these or other analogous themes is essential in order to join the broader discussion on the quantified self movement.

The first and possibly most essential element of this project is that of self-reflection. In our understanding, self-reflection is both the principal motivator and primary benefit of any self-centric knowledge acquisition process. [12] [14] To a certain degree, the quantified self movement can be understood as part of a long philosophical tradition; sages and scholars alike have repeatedly stressed the importance of self-knowledge in attaining enlightenment, credibility, nirvana, etc. Introspection and philosophical contemplation have historically been the only available tools for those individual seeking to 'know thyself', but the advent of biometric tracking and genomic sequencing technologies have allowed for applicable the application of discrete metrics and objective analysis to the messy subject of the self. While it is still an open question as to whether the practices and process endemic to the quantified self movement actually constitute self-reflection in the classical sense, it cannot be argued that these efforts are attempting to concretize and clarify the perpetually obscured mind-body apparatus, albeit through external indications (heart rate, gut flora, genome sequence) rather than an internal holistic assessment and analysis of one's mind and body. Our own work stands alongside other historical attempts to investigate or describe who we are through scientific techniques, ranging from misguided forays into scientistic self-ascription via the now-defunct procedures of phrenology to the curious mix of interpretive methods and objective procedures used in contemporary psychology. Our prototype aims to intervene in this area by highlighting the efficacy of shared self-reflection; after all, what is the point of knowing oneself if there is no larger community for the sake of comparison? In this way, our own individual attempts at self-

reflection can be combined, allowing us to transmute an project of self-reflection into one of communal and sociological significance.

The second central tenet of the project is that of aesthetic visualization. The quantified self movement is data-intensive; seemingly every measurement of the self produces metrics, percentages, and numerical data nearly beyond reckoning. This is a difficult issue for our relatively innumerate society, as raw biometric data is nearly incomprehensible to the general population. This is by no means an indictment of contemporary numerical literacy, as abysmal as it may be. Rather, it is an acknowledgement of the fact that much of the data produced by quantified self techniques is, by and large, adequately understood only by experts in the associated field. The average person cannot be expected to derive meaning or solace from raw genomic data, regardless of its import; such interpretation requires specialized training. As such, our project aims to bridge the gap between scientific and artistic data visualization. While our data and it's representation are grounded in procedural rigor, our visual implementation aims at poetic descriptiveness; we wish to capture the subjective *feeling* of effortful progression through a text rather than simply portraying the collected data as referential of, but removed from, the associated emotional import. [11] To this end we have created an interactive and playful user experience wherein subjective aesthetic satisfaction plays an integral role in portrayal of data. While the quantified self movement has proven to be competent at collecting and analyzing data, it still struggles with the conveyance of meaning and the evocation of appropriate emotional states. Our project aims to intervene on this point by maintaining the internal conviction that all data requires contextual explanation, but not all explanations should be done textually. We believe that by putting our data within an accessible and approachable visual context we can more readily engage participants in a discussion on interpretation.

While all of our central themes are essential, perhaps none is more fundamentally requisite than that of quantification. The reduction of phenomena to discrete quanta is the foundational cornerstone of modern science. A quote (questionably) attributed to Galileo declares that the basic task of a scientist is to "Measure what is measurable, and make measurable what is not so."This dictum as applied to the quantified self has wide-reaching implications, far beyond the immediately apprehensible possibilities for analysis afforded by the statistical and analytical manipulation of discretized metrical phenomena. Quantification opens the door to a veritable cornucopia of data-driven activities, ranging from personal tracking and assessment to the discovery of emergent patterns in metadata. Our own project engages with the possible implications of quantifying knowledge work. Long considered outside the purview of pedestrian labor management, knowledge workers have rarely been subject to same minute quantification of time/value that is so pervasive in the business world. While our project is an admittedly light-hearted, exploratory affair, it would be altogether irresponsible to ignore the possible ramifications of a comprehensive and systematic quantification of knowledge work. [10][4] Though such a system may seem impossible (or at the very least ill-advised), it is important to remember that quantification allows for such analysis, regardless of advisability. As

such, a scholar of the quantified self must continually grapple with the crucial dilemma; do we drive the data, or does the data drive us?

The final element of our project deals with the issue of evaluation and, to a lesser extent, self-improvement. There is an implicit (and occasionally explicit) understanding that the ultimate goal of quantifying the self is to use the information garnered in the process of quantification to create a better, more ideal self. As such, the process of self-quantification necessarily tends towards attempted or actualized changes in behavior, cognition, or lifestyle. This process is the least procedural aspect of the quantified self, as it requires that one surmounts the cognitive dissonance resulting from differences between one's relative, personal understanding of the self and the 'real' objective self portrayed through biometrical quantification. For instance, a hefty individual may have to come to terms with the fact that their BMI indicates that they are clinically obese, rather than their subjective experience of being of average size. The quantified self movement requires that you accept the objectively quantified data as your actual self, and make adjustments to your behavior accordingly. This evaluation can form sort of 'roadmap' for future goals, or, conversely, may be rejected out of hand as non-representative of the self. [1] Though evaluation is central to our conceptual understanding this project, we are unwilling to ascribe the value statements that are necessary to perform evaluation. There is no 'right' amount of time in which to read an article, just as there is no objectively 'correct' mood for reading. We have purposely and conspicuously left such judgements to the experts, which, in this case, is each particular quantified individual.

Links to Class Readings

Self:Quantified Panopticon:Internalized Privacy:Problematized

The historical and theoretical underpinnings of the quantified-self movement's utopian vision can be analysed from a variety of perspectives, ranging from Foucauldian disputations on power to Benthamite reflections on surveillance. While a complete survey of the various theoretical and philosophical influences within the quantified self movement is beyond the purview of this project, we would be remiss if we did not highlight and explicate a few of the key influences that these figures have had on our work.

It is possible, and in this case instructive, to view the quantified individual as an exercise in Foucauldian governmentality done in miniature. While Foucault posits the concept of governmentality as existing between the sovereign state and the individual, we have taken this concept a degree further; while no man may be an island, for our purposes we may consider an individual the State. The quantified individual is a an exercise in governmentality that creates a sovereign/population relationship between the conscious individual and the components or processes that make up said individual. That is to say, the conscious self is attempting to perform a census on his/her own body, with the aim of regulating or regimentalizing. In his treatise on

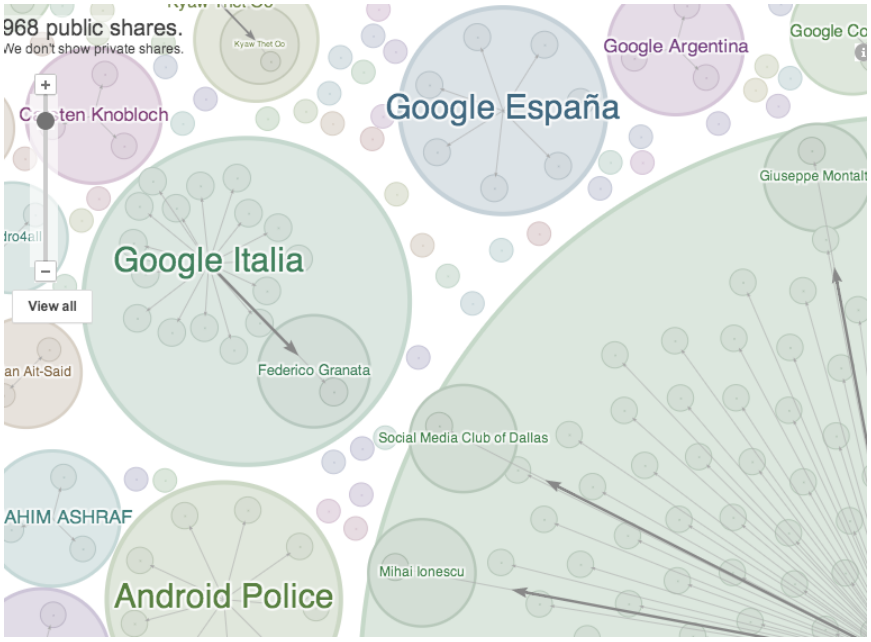
governmentality, Foucault states that "...a person who wishes to govern a state well must first learn to govern himself…". [6] In this context, the quantified individual is reimagined as their own state, and "To govern a state will therefore mean to apply economy, to set up an economy at the level of the entire state…". [6] In order for this economy to be created, it must be analyzed on a suitably granular level; at the level of the population, family, individual, or any further subdivision of the same. Yet such an economy cannot be enacted on the same scale as the analysis; it must be enacted "at the level of the entire state", which in this case is the holistic quantified individual. [6] This subdivision is essential for identification and classification, two core components of the work of the quantified individual. The quantified self movement is an internalization of the systems of discipline and control imposed on the individual. Foucault assures us that "Generally speaking, it might be said that the disciplines are techniques for assuring the ordering of human multiplicities.". [5] The partitioning of interrelated systems into quantifiable metrics is an attempt to create a multiplicity out of a unitary individual for the purposes of discipline, to segment and separate the integrated systems our consciousness into disparate, visible, and quantifiable components. Once each aspect of the human has been identified, classified, and quantified we will finally be able to assume true control of our bodily selves, or so the utopian rhetoric goes.

The procedures and processes espoused by the quantified self movement can also be understood as an attempt to make the individual panoptic from the point of view of the agential consciousness. By rendering the various activities of life into numbers and percentages, the quantified individual is attempting to render the hidden machinations of their organic assemblage visible. In order for us to characterize the quantified individual as panoptic, such self-surveillance must combine "the apparent omnipresence of the inspector … with the extreme facility of his real presence.". [2] In this case, omnipresence must take the form of a systematically quantified data regime, wherein the obscured subjects are illuminated through analysis and visualization. The inspector's presence can be purposefully reinterpreted through the lens of the quantified self movement; the "inspector" in this case is the community with whom this data is shared and to whom the individual feels responsible. It must be noted that said community can in fact be the quantified individual, in which case the individual becomes responsible for/to themself.

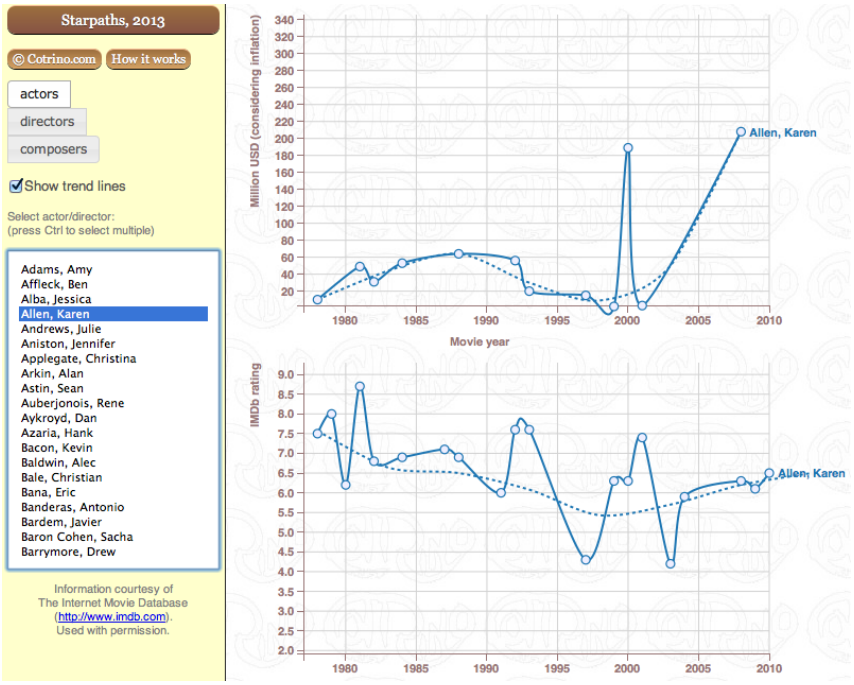
We may fairly safely propose a comparison between the surveillance society enacted by the nascent police state and the relentlessly data-hungry reflective regime that is self-imposed by the quantified individual. In each instance, the unitary authority is attempting to regulate the mass through the technological tools at their disposal. It is within our ability to apply an inversion of the panopticon to ourselves and exert ever more minute control over the self, but is that really the goal of the quantified self movement? Our project aims at complicating this perspective and offering a playful instance of quantification that is not explicitly tied to exercises in discipline. Perhaps in the long run the whimsical, communal aspects of quantification will soften the regimen of data-driven discipline, but at this point we can offer little more than

hopeful speculation. We believe that interventions such as our project provide critical counter-examples to the intrinsic pragmatism of quantification, and we are confident that such interventions will become all the more essential as the quantified self movement evolves and matures.

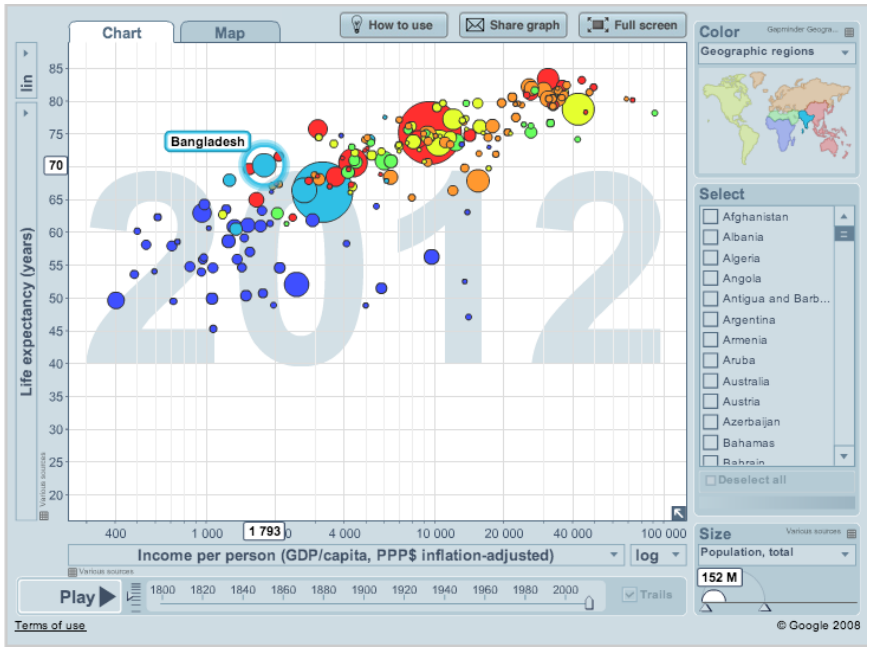
T2 Mood Tracker [15]



Design Exemplar: Google+ Ripples [16]

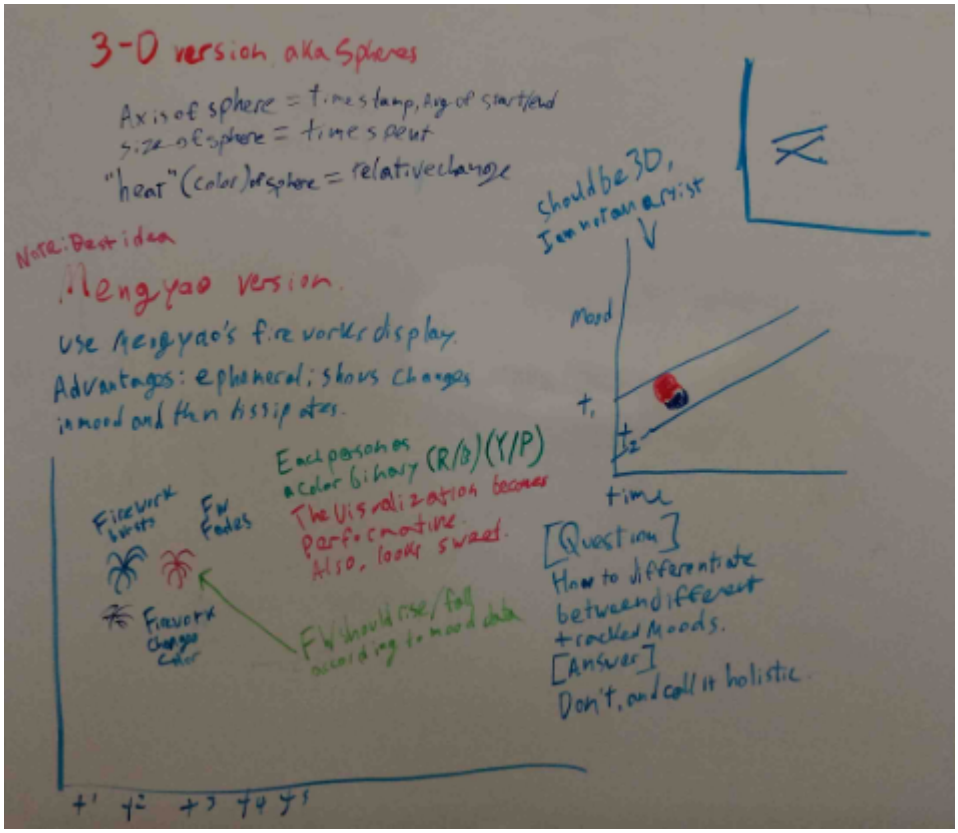


Design Exemplar: D3 Starpaths [13]



Design Exemplar: Gapminder [8]

Design Exemplar: Collaborative Arts [3]



initial sketch

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