

Mapping Human Values: Enhancing Social Marketing through Obituary Data-Mining

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1. Preliminaries

Traditionally, marketers have sought to influence behavior and choice with the ultimate end of promoting the interests of employees, clients, or marketers. The domain of marketing was convincing individuals and groups to purchase certain products over others, to spend rather than save, and to upgrade after having decided to buy. Starting in the 1970s, marketing researchers began to recognize that the persuasive techniques they had developed could be harnessed for other purposes, as well. This was already obvious in the case of political advertising, in which platforms and policies could be linked with consumers' interests and self-concepts; relatedly, Kotler and Zaltman (1971) convincingly argued that marketing techniques could be used to promote the social good, with marketers' own material interests taking a back seat. In this approach, Kotler and Zaltman stated, ideas, ideals, and causes can be "sold" just like "cigarettes, soap, and steel." Andreason & Kotler (2008) later defined this type of "social" marketing as indistinguishable from traditional marketing except insofar as social marketers seek, as an ultimate end, to benefit their target audience and society more generally. The authors of this chapter are not ourselves marketers, but two philosophers and a psychologist. We interlopers in the world of marketing are especially interested in its social variant because we study ways to realize and encourage ethical behavior and choices, such as donations to charities that help to end and alleviate the effects of global poverty.

We approach our goal by linking two concepts from the field of marketing (*means-end theory* and *laddering*) with one from the philosophical field of *virtue theory*. Means-end theory has philosophical precedents in Aristotle's *Nicomachean Ethics* (2000) and John Stuart Mill's *Utilitarianism* (1861 / 1998), but has been developed in richer empirical detail by Reynolds & Olson (2001). According to this view, individuals' desires, goals, and values are organized in a relatively stable hierarchy with more specific, concrete, local, and instrumental preferences (e.g., wanting sports team A to prevail over sports team B) at the bottom and more general, abstract, global, and intrinsic values (e.g., pride in one's community) at the top. Between the maximally abstract and the maximally concrete are various mixed states that might be both somewhat general and somewhat abstract -- not hyper-local, and potentially valued both instrumentally and intrinsically (e.g., the vicarious feeling of triumph).

Laddering is a technique for exploring individuals' value-hierarchies. In a common interview-based version of laddering (Reynolds & Olson 2001), the marketer asks a consumer why she, for instance, purchased a product. Typically, the answer to this question identifies some concrete feature of the product at one end of the hierarchy, such as its ingredients or immediate effects on the consumer. The interviewer then iterates the "why"-question until a fundamental, intrinsic value is identified. Repeated further, this process generates a chain of increasingly global values. To the extent that the interviewed consumer is typical of the group the marketer wants to target, her value-hierarchy can be used as a model of the group's values. Once the model is formed, it can be harnessed as a rhetorical tool. One standard way of doing this is to point to the features of a product that can be expected to engage people's mid-level values, explicitly or implicitly draw the connection to such values, then point in the direction of the relevant intrinsic values. For instance, the marketer of a chocolate product draws the target

audience's attention to the fact that the ingredients are from Brazil and Ethiopia. This concrete feature is then connected with the mid-level of exoticism. Exoticism is in turn connected with the intrinsic value of originality. The basic idea behind this strategy is that persuasive messages are likely to fall flat if they are (perceived as) irrelevant to what the consumer cares about. Though it may be possible, to some extent, to change what people care about, it is easier and more effective to establish the relevance of one's product or service to what they already care about.

As we have described it thus far, laddering seems to generate only linear networks between local preferences and global values. Common sense, philosophical reflection, and empirical research all suggest otherwise. For instance, in the Schwartz Values circumplex model (1992), the degree to which individuals value benevolence is positively correlated with the degree to which they value universalism and tradition but negatively correlated with the degree to which they value achievement, power, and pleasure. This suggests that values are embodied in complex, non-linear networks, and that marketing messages will be more effective to the extent that they utilize more routes towards the same higher-level value.

For this reason, we believe it is worthwhile to pursue means-end research not just through linear laddering but also with explicitly network-theoretic methods. One way to employ this method would be to data-mine existing corpora that may be rich in expressions of both communal and individual values. It remains an open question how to most accurately measure the distribution of values in a population. Several approaches have been developed, including the Schwartz circumplex mentioned above, as well as the models of Kahle et al. (1986), Rokeach (1973), and Graham et al. (2011). Graham et al. (2009) counted the number of value-laden words in sermons from politically liberal and conservative churches in order to make inferences about relative value structures within liberal and conservative groups more generally (while sermons

from liberal churches focused relatively more on issues of group loyalty and concerns about harm and caring, sermons from conservative churches focused relatively more on issues of spiritual or physical purity and obedience to authority). Graham et al. utilized a lexical approach to understanding evaluative language, according to which everyday language reflects folk conceptions about the nature of morals and values more generally. This approach predicts that ideas that are particularly important to a community will naturally gain expression in that community's language, often as discrete descriptors (e.g., "loyal," "authoritarian," "nature-loving," etc. – see Christen et al., forthcoming). This type of lexical approach has a well-established history in the study of personality traits, a field that is also beginning to re-introduce evaluative terms (e.g., "wicked") to what it considers descriptors of traits (Saucier, 2009). Graham et al. (2009) focused specifically on popular words in religio-political discourse, and actively filtered out words unrelated to Moral Foundations Theory (Haidt and Joseph, 2004). With a similar lexical approach, we sought to examine the extent to which virtues, vices, and values more generally are carried in the language of different communities in the general (theory-agnostic) person-descriptors they use. Thus, unlike Haidt and Joseph, we planned to only filter out non-person-descriptors rather than applying a pre-determined moral framework.

This brings us to our perhaps surprising choice of corpora: we believe that obituaries are an especially rich resource for identifying people's values. This claim is based on both intuition and philosophical reflection. Intuitively, among all publicly-available media, obituaries would be among the best candidate bearers of values and virtues. Because obituaries are succinct and explicitly intended to summarize their subjects' lives, they may be expected to include only the features that the author or authors find most salient, not only for themselves as relatives or friends of the deceased, but also to signal to others in the community the socially-recognized

aspects of the deceased's character. Linda Zagzebski, a philosopher who specializes in virtue theory, proposed that "one way to express the depth required for a trait to be a virtue or a vice is to think of it as a quality we would ascribe to a person if asked to describe her *after her death*" (1996, emphasis ours). Such posthumous descriptions have a summative character to them, so positive or negative valence in them is presumably meant to evaluate the deceased's moral identity as a whole. In a similar vein, in Acceptance and Commitment Therapy (ACT), a popular form of clinical psychiatry, one of the primary interventions employed to help patients clarify and connect their values is to ask them to write their own obituary or eulogy (Hayes et al., 2011). Additionally, because social marketing typically aims to promote moral or social ends, the values relevant to social marketers are especially likely to crop up in these documents.

Beyond these essential connections, extracting values is also potentially useful to social marketers for several pragmatic reasons. First, obituaries, unlike other value-laden corpora such as sermons, diaries, and letters, are published in newspapers and readily available online. Second, it is fairly straightforward to use metadata to segment obituaries (and therefore markets) based on potentially moderating variables such as age, race, socio-economic status, location, gender, and so on. Third, obituaries tend to focus primarily or even entirely on moral values and virtues, which are typically the virtues and values social marketers wish to engage.

We expect the values expressed in these records to be diverse but also interconnected. Different communities and individuals are highly unlikely to unanimously agree on a single set of norms or ideals, but it would be equally surprising to find no significant overlap. Thus, the ideal approach to analyzing these texts will be sensitive to the typical (lack of) correlations between the various ways that we praise the dead. This sort of analysis could be conducted by developing an extensive list of positive and negative correlations between each term or phrase,

but human observers have little to gain from a sprawling list of correlations between hundreds of variables. Thus, where we aim to present a holistic picture of the virtues expressed by each community, we will do so in the form of network graphs that simultaneously represent hundreds or thousands of correlations in a single, easily digestible representation of the data.

We report two approaches – one qualitative, the other quantitative – to the scientific study of virtue and value through obituaries. We begin by reviewing studies 1 and 2, in which obituaries were carefully read and labeled. We then report study 3, which further develops these results with a semi-automated, large-scale semantic analysis of several thousand obituaries.

Study 1: Local Obituaries

Given our goal of using obituaries to further our understanding of ordinary people's values, it was important to select sets of obituaries that are representative of the general public's values, insofar as this is possible. To this end, we selected local newspapers with obituaries of people from all walks of life instead of targeting obituaries of larger newspapers that selectively write about famous individuals. We anticipated that obituaries from newspapers such as *The New York Times* would be both more selective (only covering a few famous or infamous individuals) and more comprehensive (written with the goal of telling a rich and captivating story of those few individuals whose lives were deemed worthy of note). We also found that, while *Times* obituaries are authored by professional writers, the obituaries of ordinary folks in local newspapers are composed by laypeople. The stories of (in)famous individuals in the *Times*, while more interesting, include a full range of virtues, vices, and value-neutral descriptions. Our initial goal, though, was to target obituaries as a means of developing a better understanding of *positively* (or at worst neutrally) valenced terms and phrases (see Study 2 for a brief discussion of obituaries from *The New York Times*).

Methods

Obituaries published between November 2013 and January 2014 were collected from newspapers in four cities: *The Register Guard* (Eugene, Oregon), *The Mat-Su Valley Frontiersman* (Wasilla, Alaska), *The Flint Journal* (Flint, Michigan), and *The Hampshire Gazette* (Amherst, Massachusetts).¹ These were read with an eye to agent-level descriptions of the deceased (e.g. ‘hard-working’, ‘honest’, ‘generous’). General categories of traits were developed inductively as obituaries were read, with additional categories added as new types of descriptions were found that did not match previously added labels.

Results

We collected and analyzed 930 obituaries (52% female) in total across the four cities:

City	Total Obits	% Female	Trait Types ²	Traits/Obit ³
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¹ Eugene was chosen because two of the authors reside in Eugene. Wasilla was chosen for potential cultural differences between Eugene – a somewhat large, left-leaning university town – and Wasilla – a small, right-leaning suburb adjacent to a major military base. We initially intended to collect obituaries from Detroit, Michigan, to represent a rust belt city with a substantially lower median income, but it proved difficult to find newspapers printing local obituaries, so Flint was chosen in its place. Finally, we chose Amherst as it is one of the most liberal, highly-educated cities in the United States.

² “Trait Types” refers to the number of unique traits recorded across all obituaries from the city.

Eugene, OR	169	45%	76	2.69
Wasilla, AK	49	57%	40	1.92
Flint, MI	147	55%	74	2.16
Amherst, MA	565	53%	279	4.64
Total	930	52%	469	1.98

We were particularly interested in investigating trends in the co-occurrence of descriptions of the deceased within obituaries. To see this, the co-occurrence of traits X and Y was treated as an undirected edge in a network, with the weight of each edge equal to the total number of obituaries in which the deceased was described as both X and Y. The resulting networks for each city and the combined network of traits are represented visually below. The graphs below were generated with either *Gephi*, using a standard ForceAtlas layout with heightened stabilization, attraction distribution, and label adjust, or with *NodeXL*, using a standard Harel-Koren Fast Multiscale layout.⁴

³ “Traits/Obit” refers to the average number of trait-words (regardless of their uniqueness) recorded in each obituary from the city.

⁴ Initially, all graphs were developed with Gephi, but Gephi has limited options for differentiating nodes without using color as a distinguishing feature; thus, NodeXL was chosen for its ability to use different shapes to represent various node features. If you want to see additional graphs in living color, we invite you to visit www.alfanophilosophy.com/media/mapping-human-values.

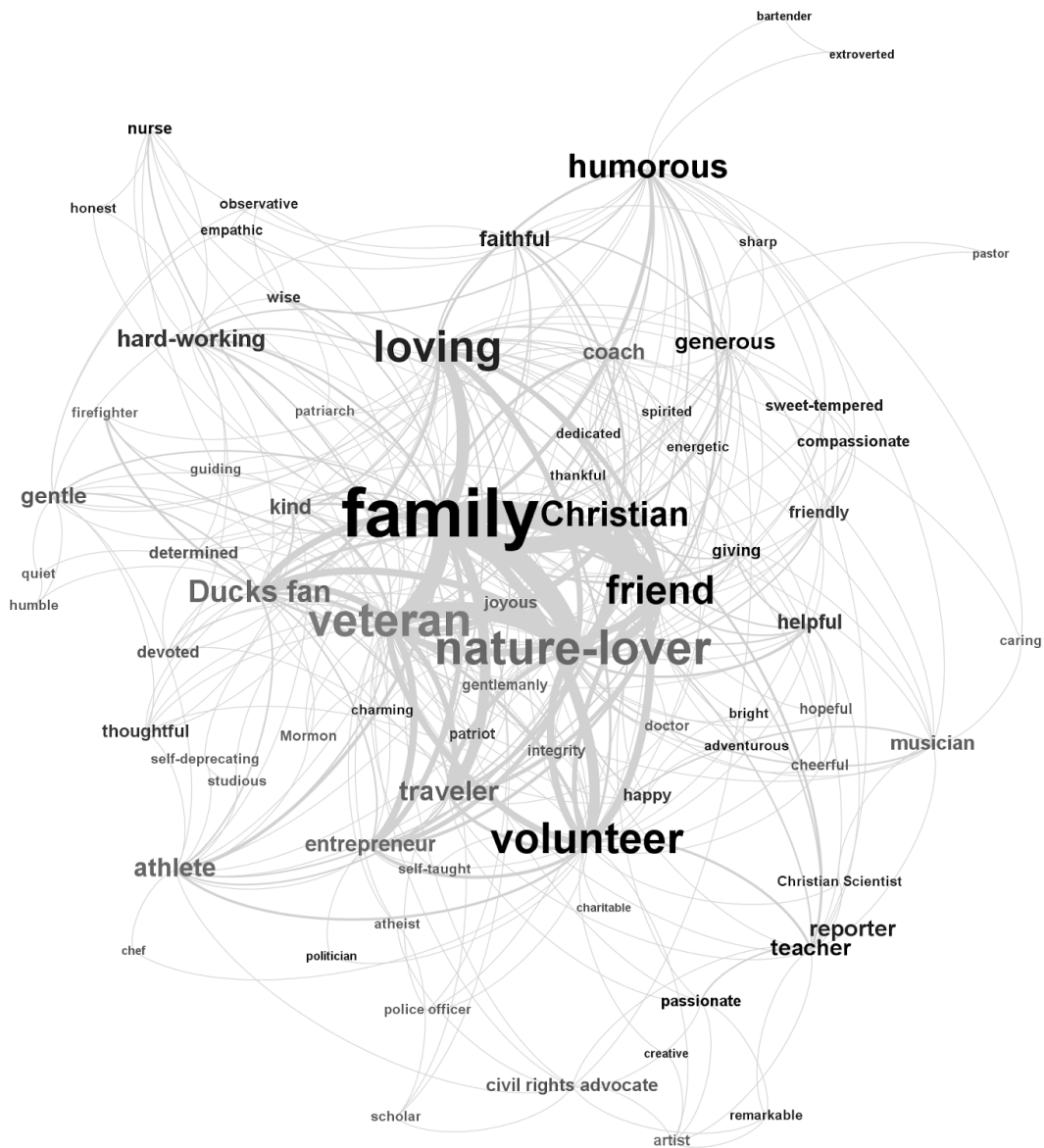


Figure 1: Traits ascribed in obituaries in the *Register-Guard*, Eugene, Oregon.

Figure 1 displays the traits ascribed to the deceased in Eugene. This graph depicts trait frequency with size (e.g., “veteran,” a common term in this set of obituaries, appears prominently, while “helpful,” which was less common in this set, appears smaller). Gender differences are represented with label shading, with terms darkened to the extent that they tended to be ascribed to women and gray to the extent that they tended to be ascribed to men. Finally, line thickness

represent the frequency of co-occurrence of traits, with thick lines indicating pairs of terms that were frequently ascribed to the same individual. A label's position is not meaningful on its own, but positions carry meaning in relation to the positions of every other node. In graphs such as this, node positions are determined by an iterated application of three forces: (1) gravity, pulling all nodes to the center, (2) attraction, pulling nodes together if they are connected by an edge, with the strength of the attraction determined by the weight of the edge, and (3) repulsion, whereby all nodes are pushed away from all other nodes.⁵

Similar analyses were conducted using the trait-terms gathered from obituaries from the other three cities (Figures 2, 3, 4, and 5).

⁵ As such, the spatial proximity of two nodes may indicate an important connection between the two, but this need not be the case. If there is an edge with high edge weight connecting the two, this will certainly pull them closer together. However, the position of any two given nodes is a product not just of the (lack of) connection between the two, but also the aggregated movement and forces of every other node in the network. Thus, two nodes may end up spatially close to each other even though they have nothing in common, just because they were pushed to those locations by the forces of other parts of the network.

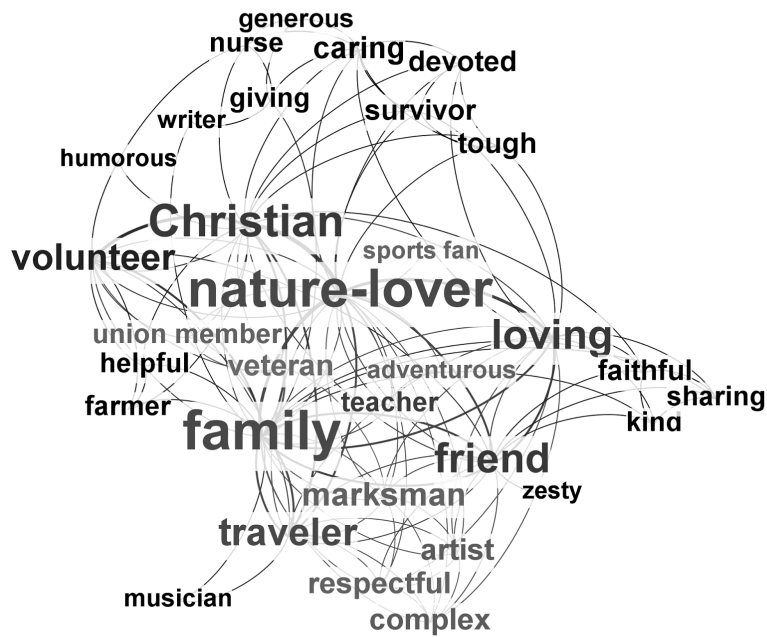


Figure 2: Most common traits ascribed in obituaries from *The Mat-Su Valley Frontiersman*, Wasilla, Alaska. Node size is based on frequency of occurrence, label shading reflects gender (black = female, light gray = male), and edge width is based on the frequency of co-occurrence.

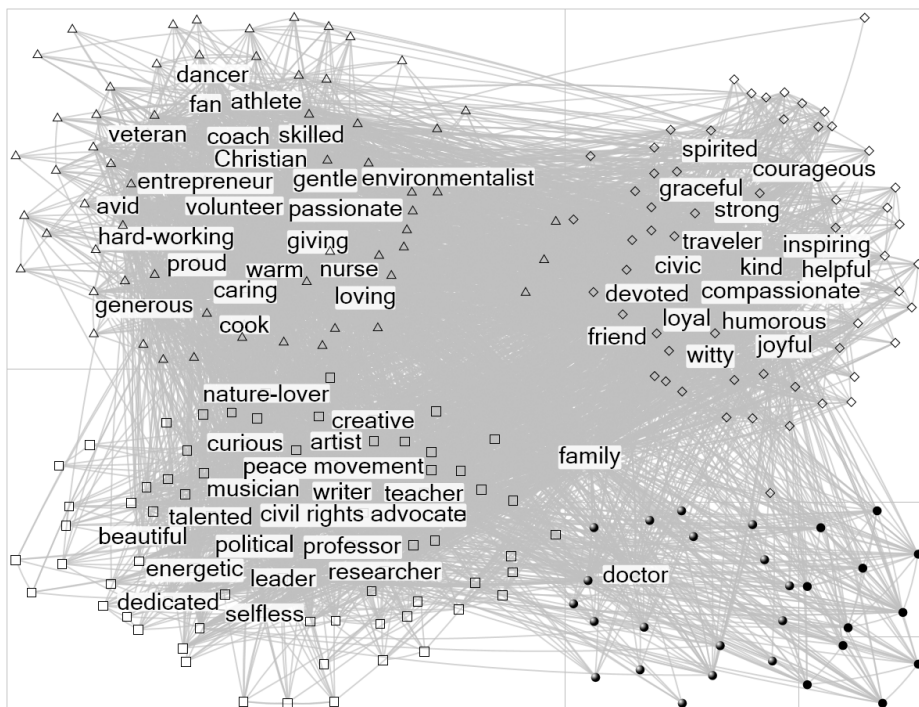


Figure 3: Traits ascribed to the deceased in *The Daily Hampshire Gazette*, Amherst, Massachusetts. Nodes were grouped by the Clauset-Newman-Moore clustering algorithm, resulting in five groups. Nodes with PageRank > 1.3 were labeled. Graph layout was determined by the Harel-Koren Fast Multiscale algorithm with nodes clustered by group membership. The group membership of unlabeled nodes is indicated by their shapes (e.g., circle, triangle), and labeled nodes belong to the group of the nearest non-labeled node (note that Family belongs to the same group as Doctor).

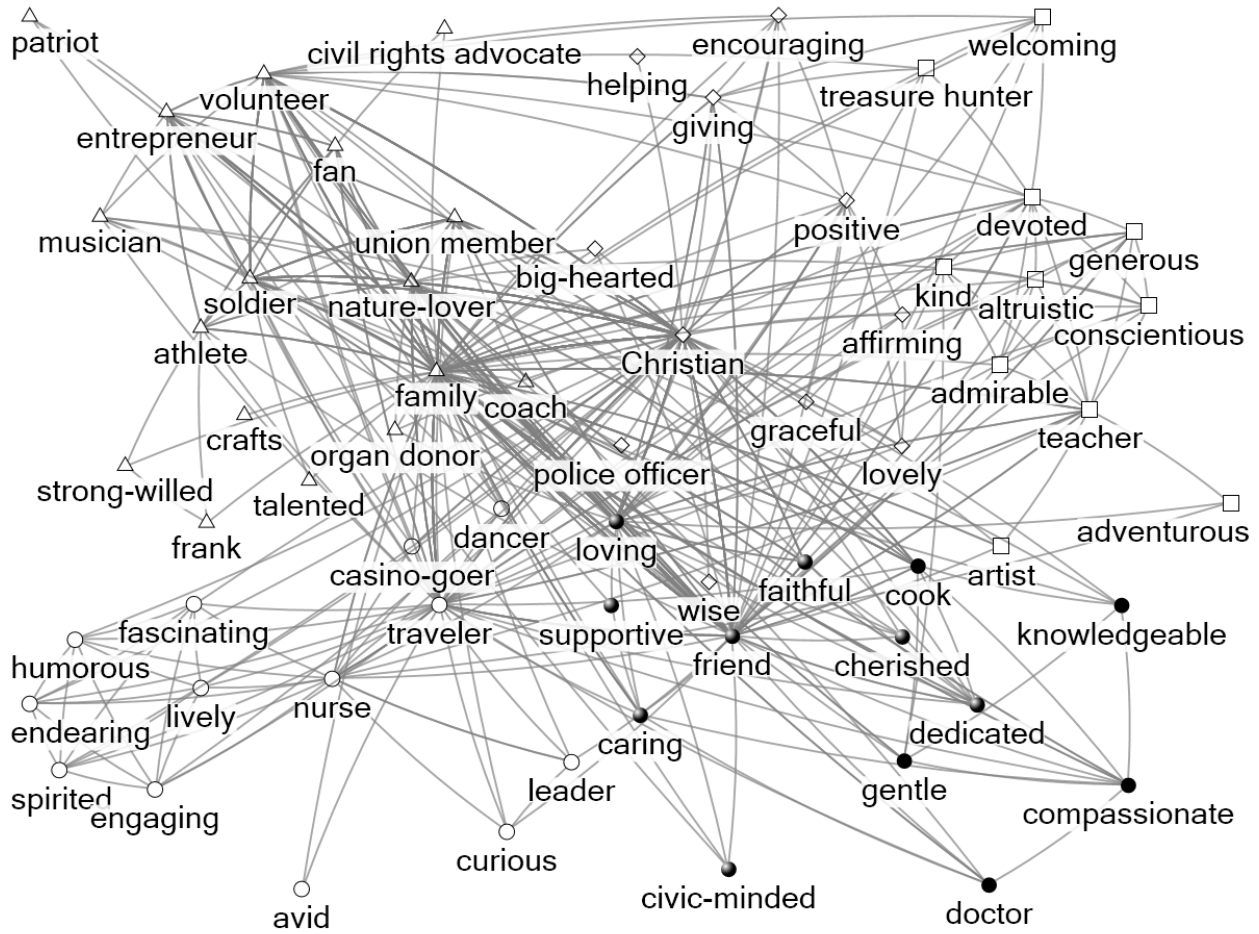


Figure 4: Traits ascribed to the deceased in the *The Flint Journal*, Flint, Michigan. Graph layout and methods are identical to those used for Figure 3, except that all nodes were labeled, labels are positioned directly below the labeled node, and Clauset-Newman-Moore clustering algorithm produced six groups.

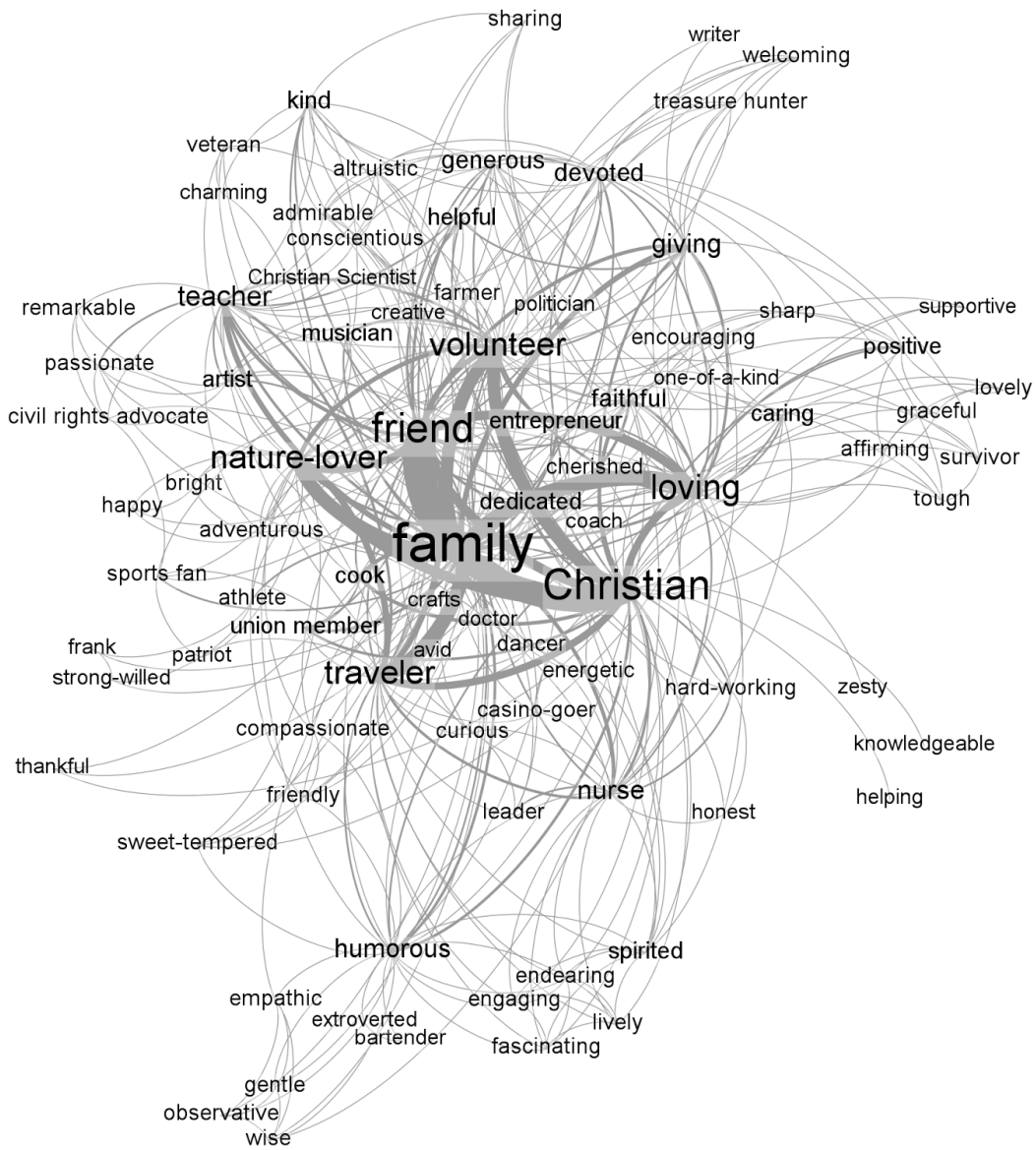


Figure 5: Combined graph of female obituaries from Eugene, Wasilla, Amherst, and Flint. Graph layout was determined with the ForceAtlas layout algorithm. Edge width is based on degree, and node size is based on weighted degree.

social marketing campaign. They would of course want to connect with people whose identity involved being a nature-lover. One straightforward way to do this would be to call attention to the direct environmental impacts the Sierra Club has, connect those with mid-level values, then connect those to the valued identity of being a nature-lover. In addition, however, a social marketer might try to connect through closely-related identities, such as being athletic or being a veteran. Instead of or in addition to saying, “Support the Sierra Club! We help save the coastal redwoods, an intrinsically important forest that any nature-lover would hold dear,” they could say, “Support the Sierra Club! We maintain trails through the coastal redwoods, a beautiful hiking trail that any athlete would want to traverse,” or “Support the Sierra Club! We help save the coastal redwoods, a national historic location dear to any patriot.”

Study 2: *New York Times* Obituaries

We anticipated that local newspapers would be a useful place to look for variability in expressions of commonly shared values. However, we also wished to investigate the obituaries of significant figures because these might give us a better picture of the character traits of people who are commonly seen as great and the noteworthy. It might be that individuals generally take certain traits to be virtuous for friends and loved ones, such as honesty and dedication, while evaluating famous individuals in a different light, perhaps differentially valuing traits such as leadership and decisiveness. To explore this possibility, we read and coded obituaries from *The New York Times*, following a similar set of methods as in study 1.

Methods

All obituaries published by *The New York Times* from 1 October 2013 to 1 February 2014 were read and analyzed. As with study 1, information was gathered on the age at death, gender, and expressed character traits of the deceased.

Results

A total of 74 obituaries (13% female, a shocking statistic) from *The New York Times* were read and labeled based on trait-ascriptions found in the obituaries. Three-hundred thirty-seven trait types were included in the sample, with an average of 8.5 traits per obituary. These data were then translated into a network format, treating co-occurrence of a trait within an obituary as an undirected edge between trait nodes, resulting in 3,939 edges. The resulting network is seen in the figure below.



Figure 7: Descriptions from *New York Times* obituaries. Graph layout was determined by the Harel-Koren Fast Multiscale algorithm, with nodes adjusted to avoid label overlap. The fifty nodes with the highest betweenness centrality were labeled while all other nodes are represented by shapes. Traits only ascribed to men are marked with circles or labels in lower-case. Traits only ascribed to women are marked with triangles (no top-ranked nodes were female-only). Traits ascribed to both men and women are marked with rectangles or labels in upper-case.

As in study 1, the resulting sets of traits were analyzed from a network perspective. Where someone was described as both X and Y, an undirected edge was created linking X to Y, with edge weight based on the total number of people described as both X and Y.

Discussion

Value-maps like the one in Figure 7 represent a complex social structure of valuation. They show what ordinary or somewhat-well-placed people consider important about praiseworthy and noteworthy individuals -- not necessarily what those individuals were really like, nor what they aspired to be like. Nevertheless, since people, especially famous people, tend to be extremely concerned with how they're perceived, even such maps of second-order values can be useful. For instance, suppose a lobbyist for the Nuclear Age Peace Foundation, an NGO committed to the abolition of nuclear weapons, were appealing to heads of state in hopes of persuading them to support nuclear disarmament. They would of course want to connect with the desire to be seen as good leaders. One straightforward way to do this would be to call attention to the direct societal impacts of disarmament, connect those with mid-level values, then connect those to the valued identity of being a good leader. In addition, however, a social marketer might try to connect through closely-related identities, such as being honored. Instead of or in addition to saying, "Support disarmament! It protects innocent lives, an intrinsically valuable resource that any leader would hold dear," they could say, "Support disarmament! It will lead citizens and foreigners alike to honor and esteem you."

Study 3: Large-Scale Data-Mining of Local Obituaries

After manually reading over a thousand obituaries in studies 1 and 2, we were interested in developing methods for automatically encoding the traits ascribed in obituaries on a significantly larger scale. Hand-coding has clear advantages, especially with regards to our confidence that sampled obituaries are correctly parsed as ascribing traits to the deceased (rather than, say, commending caretakers for their devotion to the deceased). However, if an automated or semi-automated process should turn out to give similar results to the results of manual reading, we

could be reasonably confident that the automated processes are not too compromised by misapplications of terms to the deceased (false positives) or missing content (false negatives) to render their results suspect. To gather more data and to test general reliability of a semi-automated data-mining process, we sought to test new methods on a batch of several thousand obituaries.

Methods

Obituaries were collected from *ObituaryData.com* in collaboration with the Alumni Office of the University of Oregon. *ObituaryData.com* is a data-warehousing company that maintains a subscription to the United States' Social Security Death Master File, allowing a wide and nearly complete sample of deaths and respective obituaries within the US.⁶ The University Alumni Office's account included permission to search the full text of all archived obituaries for the keywords "University of Oregon" and "U. Oregon." We conducted automated acquisition of the entire collection of obituaries matching these terms, totaling 13,209 records from March 2000 to May 2014 and containing over 3.9 million words.

Gathered records comprised the following information about the deceased: name, city and state of residence, date of birth, date of death (or, lacking this, date of obituary publication), and full-text obituary content. Age in years at death was calculated from date of birth and date of death. In addition, forenames of the deceased were used to guess gender (Female, Male, or Unknown). To accomplish this, we compiled the most popular 4,275 female and 1,219 male

⁶ *ObituaryData.com*'s "About" page claims that their records are 95%+ complete.

names in the US as of 2005, based on 1990 US Census Bureau Data and other sources in 2005.⁷

The female and male name-lists were each ordered by decreasing popularity of name. The forename of the deceased in each gathered obituary record was then compared with both lists and assigned the gender of whichever list in which it appeared higher (e.g., if the name of the deceased was given as “Bobby” in the obituary record, the record was listed as “Male,” because “Bobby” was listed as a more popular male than female name in the Census Bureau name lists).

Using *ConText*, a program developed for semantic network analysis, we performed the following manipulations of the text: (1) changed all letters to lowercase, (2) applied a generic stoplist to the texts, (3) identified bigrams, and (4) merged near-synonyms.⁸ After steps (1) and (2), the resulting text, comprising two million words, was used to generate a full list of terms used in all obituaries; two of the three authors then independently read through this full word list and selected each unigram or bigram that could serve as a description of the deceased. The remaining author then reviewed all terms in cases where the first two authors disagreed. Terms selected by at least two of the three authors were retained; all other words from the original texts were deleted. We then reviewed the list of terms again and identified cases of synonyms or near-synonyms. Synonyms were retained based on the following general rules:

⁷ These name lists were compiled by *MongaBay*, who made them available at

http://names.mongabay.com/male_names.htm and

http://names.mongabay.com/female_names.htm.

⁸ A stoplist is a list of generic words that carry little semantic content (e.g., “the,” “and,” “or,” “an,” etc.) and are typically removed when analyzing large corpora of texts. Bigrams are pairs of words (e.g., “Eagle Scout”).

1. Adjectives (e.g., “Honorable”) were preferable to past participles (e.g., “Honored”), which were preferable to Gerunds (e.g., “Honoring”), which were preferable to nouns (e.g., “Honor”).
2. Words (e.g., “Adventist”) were preferable to phrases (e.g., “Adventist Church”).
3. Singular nouns (e.g., “Airplane,” to describe a theme of a pilot’s life) were preferable to plural nouns (e.g., “Airplanes”).
4. Person-descriptors (e.g., “Pilot”) were preferable to “themes” (e.g., “Airplane”).

After two members of the research team had made independent judgments on conflicting terms, the *openNLP* (*open Natural Language Processing*) package in R was used to automatically tag each judgement suggestion by Part of Speech (POS), including its singular vs. plural status for count nouns. Conflicting judgments were then automatically resolved using the rules above. Conflicts unresolved in this automated way were then resolved manually by the remaining research team member. Through this process, for example, “accomplish,” “accomplished,” “accomplishing,” “accomplishment,” and “accomplishments“ were all replaced with “accomplishment.” In doing so, we ran the risk of conflating semantically distinct terms in some contexts; however, this approach was preferable to not identifying the semantic similarity of these terms in the majority of contexts where they might be used interchangeably.

With the texts filtered and cleaned, we then constructed a semantic map of the obituaries, treating co-occurrence of terms X and Y within the same obituary as an undirected edge in a network. This resulted in a network of 910 nodes and 19,034 edges. Given the scale of this network, it would not be informative to present a visual representation of it in its entirety; thus, we instead developed two simplified visualizations. The first, shown in Figure 8, simplified the network by collapsing closely-connected nodes into a single group node. Using *Gephi’s*

modularity measure (resolution = 1.0), nodes were assigned to groups based on which terms tended to be clustered together. Groups of nodes were then treated as individual nodes.

Results

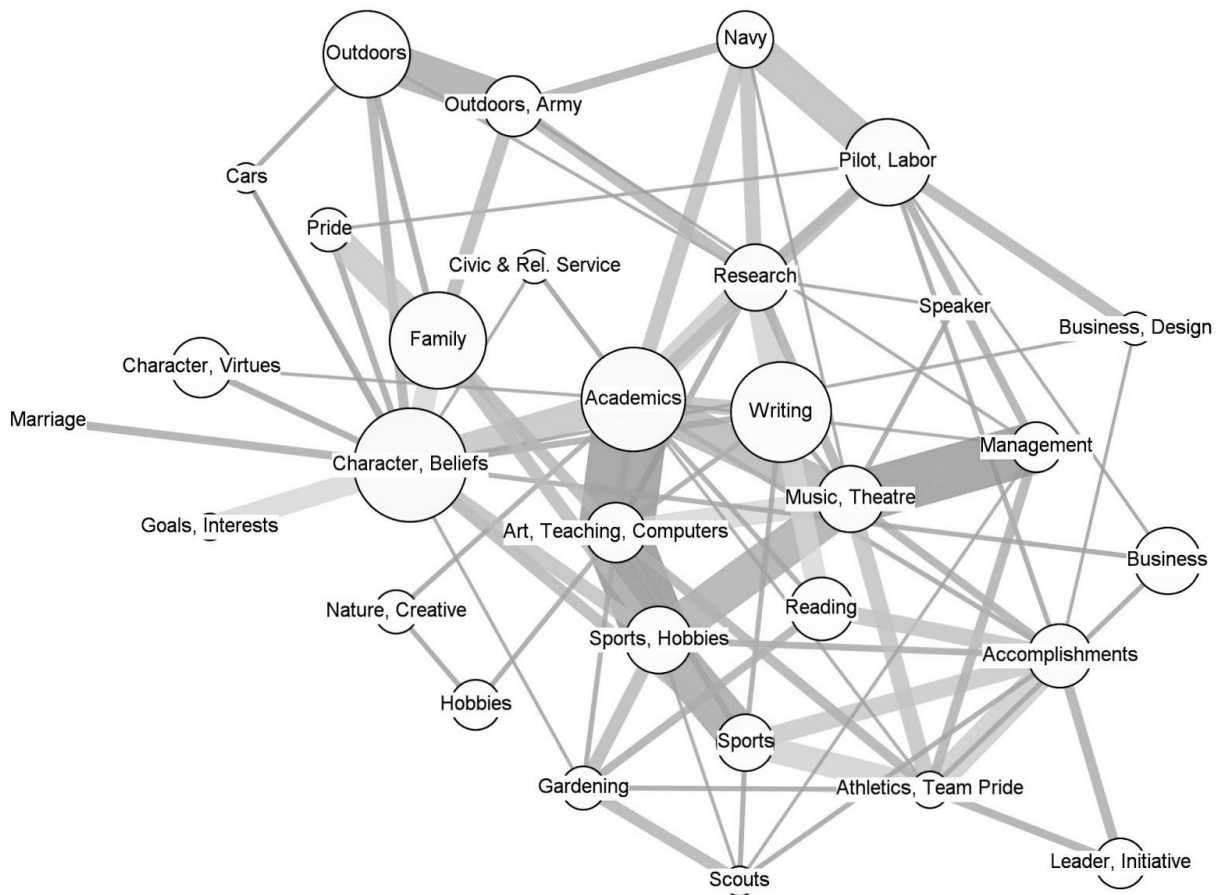


Figure 8: Trait terms identified in the set of 13,209 obituaries, grouped by modularity measure, with groups of nodes treated as individual nodes.

In Figure 8, nodes represent large sets of trait terms. Labels were assigned manually based on the common theme we identified in each cluster. Node size was determined by the number of terms subsumed within each group. Edge width was determined by edge weight, and node positions were determined by an iterated application of the ForceAtlas algorithm.

Discussion

Before we initiated this semi-automated analysis, it was an open question whether this process would produce results similar to the results of manual reading. The results suggest that semi-automated data processing results in a network of trait-terms similar to those identified by the authors in carefully reading individual obituaries, but the results diverge from the results of study 1 in some important respects.

First, we observed a substantially higher frequency of scholarly traits. Far more people were described as writers, scientists, researchers, students, teachers, etc. In the obituaries analyzed in study 1, family, friendship and faith were consistently at the core of the network; in the current study, these traits were still frequently mentioned but were less central to the network than academic attributes. This difference is naturally explained by differences in the original data. The obituaries used for study 1 came from local newspapers where friends or relatives of any deceased person may write about the deceased, but for the present study, obituaries were filtered to include only those mentioning the University of Oregon. Thus, most people described in these obituaries were either students or university employees, so it is no surprise that they tend to be described with more academic language. Second, we observed higher modularity and more distinct patterns in the clustering of traits in the present study. This is best explained by the larger

sample size. With over 13,000 obituaries to draw from, we could more easily identify the real patterns of connections and disregard less frequent or accidental connections.

In the wake of federal and state divestment, public universities face serious budget problems that they've attempted to solve by, among other things, soliciting donations from alumni. We believe that the kind of network we've developed for the University of Oregon could be used to guide their outreach to alumni. In addition to connecting with former students' commitment to academics, social marketers working on behalf of the university could connect to closely-related values, such as moral character, sports, music, theatre, and dance. Instead of or in addition to saying, "Support the University of Oregon! We educate students and perform valuable research," they could say, "Support the University of Oregon! We cultivate the moral character of our students, and we engage the community through extracurricular activities like sports, music, theatre, and dance."

General Discussion and Future Directions

The methods used in the present studies could very easily be extended to consider other public records of value. Using online tools such as *Lexis Advance*, one could scour newspapers or court opinions for specific terms. Using programs such as *ConText*, one could then visualize the term's position in the larger semantic network, and, using sentiment analysis, identify the relative positive or negative valence surrounding the term. Alternatively, researchers could analyze large collections of text from social media sites such as Twitter and Facebook to identify general trends in positive or negative trait-ascriptions. Unlike obituaries, these data will certainly include

large proportions of negative judgments, but tools such as sentiment analysis could help in distinguishing positive, negative, and neutral descriptions.⁹

Obituaries aim to broadcast to readers facts about the deceased and to convey intimate, summative portraits. Nonetheless, it is worth consideration that, especially for obituaries authored by friends and family with the intent to publish in a local newspaper, the work of “morality mining” (Christen et al. 2013) could be interpreted as intrusive. Such concerns are especially salient when researchers are neither members of authors’ local communities (as in the non-Eugene samples in Study 1) nor manually reading and interpreting each obituary as a document of a once-living person (as in Study 3). Aggregating public records that were likely originally intended by their authors to be read singly, while *legally* unproblematic, could be ethically suspect if authors feel that their words are being taken out of context or used for purposes that they did not intend and to which they were not afforded an opportunity to consent.¹⁰

The potential for this type of emotional reaction reveals an ethical weight associated with this class of data, and also points to the value of intent in interacting with these records. This ethical weight indicates the value of these data for research and marketing undertaken with the intent of promoting the social good. It is striking, for example, that religion, personal relations, and community service are emphasized in four geographically and culturally distinct cities. For professionally-commissioned obituaries such as many in *The New York Times* (study 2), we saw

⁹ The work of Diesner et al. (2014) in analyzing the impact of social justice documentaries is especially useful for seeing how the tools of web data-mining and network analysis could be used for social marketing.

¹⁰ For a recent study that caused the kind of uproar we envision, see Kramer et al. (2014).

a very different set of values expressed, with virtues such as being a loving father taking a backseat to leadership qualities such as charisma and entrepreneurial ambition.¹¹ Although this type of research could be undertaken to manipulate a ritual of public grieving into an abstract data-generating mechanism divorced from its original context, those wishing to understand the moral language of local communities, especially to perform value-relevant work within or translating across those author communities, may find valuable insight in this approach.

There are several enticing prospects for applying this research beyond straightforward social marketing. First, if researchers could acquire a comprehensive dataset of obituaries from the Anglophone world, they could compare and contrast values across international geographic lines (e.g., the United States vs. Scotland vs. Hong Kong vs. New Zealand). Such research could be useful to international negotiators. Second, software developers could team up with clinical psychologists and psychiatrists to develop a smartphone or tablet app that guided someone through the acceptance and commitment therapy obituary intervention mentioned above. This could help to partially automate psychological therapy. Finally, software developers could team up with geographers to develop a map of the Anglophone world's values that could be used by people deciding where to live, somewhat like the www.walkscore.com mapping software.

¹¹ The NYT obituary for Yvonne Brill is a good case study for this difference between local and big paper obituaries. Brill's obituary originally began with this sentence: "She made a mean beef stroganoff, followed her husband from job to job and took eight years off from work to raise three children." The author was heavily criticized for leading with family values when he should have focused on her professional accomplishments. The obituary was quickly changed to begin with "She was a brilliant rocket scientist," and no later mention of beef stroganoff.

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