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Technomillennialism: A Subcultural Response to the Technological Threat of Y2K

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The year 2000 (Y2K) computer software problem is framed as a technological boundary and cultural object. The author documents and analyzes three subcultures' constructions of Y2K. The three subcultures are millennial (Evangelical-Charismatic-Pentecostal) Christians, militia-patriot survivalists, and computer professionals. Each subculture interpreted, received, comprehended, and explained the cultural object of Y2K. Combining the data from content analysis and interviews, the author creates a detailed picture of each subculture's response to Y2K. She compares and contrasts the three subcultures. Each subculture created a subcultural filter based on previously held value and belief systems, attitudes toward technology and computers, and interpretations of social environments to create a unique picture of Y2K. She examines how each of the subcultures framed technology through the framing of it as a technological object. Each response was located within the technological determinism versus social determinism debate and juxtaposed with its place in the technology as utopian or dystopian.

Keywords: *technology; culture; Y2K; millennial; subculture*

At the end of the twentieth century, the computer became a symbol representing all technology on which Western society had come to depend. The year 2000 (Y2K) computer software problem threatened the reliability of the computer and, as a result, threatened the stability of the dependent relationship. In a nutshell, the Y2K software problem was the prospect that some computers would process the date 2000 as the date 1900 due to a faulty date storage system and would either produce errors in their expected behavior or shut down completely. These computers controlled aspects of communications, electricity, transportation, finance, medicine, employment, and the government. Predicted scenarios ranged from a few days of inconvenience,

similar to a bad snowstorm, to that of complete global shutdown and resulting chaos over a much longer period of time.

However, none of the predicted catastrophes or resulting social chaos came to pass. Most Y2K problems were solved before the date changed from 1999 to 2000. Some said that Y2K was a flop, a dud, and a nonevent. Independent of whether the world as we know it ended or not, Y2K was a sociologically significant event. Landes (1998) argued that there have always been subcultures that predicted a grand transformation of the world on a specific date.

However, they have always been wrong—the end has never come . . . but ironically, while these true believers may have been wrong, they were rarely inconsequential. The preparations that were made in advance usually produced profound social change. . . . In other words while the apocalypse they prophesy has never come, in more pedestrian terms, millennialists often succeed: the world is a different place after them. (P. 2)

Thus, technological or social dud or not, Y2K had an impact on society and its many subcultures. Subcultures have framed Y2K and acted on that framing in unique ways that have provided an opportunity for sociological study at the subcultural level, independent of an actual technological disaster.

The Y2K technological threat perfectly coincided with the much-anticipated change of century and change of millennium. Millennialism as a social phenomenon has been theorized (Cohn 1970, 1993, 1995; Landes 1998; Barkun 1974; Bull 1995; Grosso 1995; O'Leary 1994; Desroche 1979) to be composed of the anticipatory beliefs and actions of a population in response to an imminent social change, usually a calendar change or the predicted end of the world as it is known. These beliefs and actions, although highly intermingled in the Western world with Christianity, go above and beyond religion and have been theorized to consistently apply to secular groups (Lamy 1996; Feenberg 1991, 1997). Millennial belief has been conceived of as emotional in nature (Landes 1998; O'Leary 1994).

The Y2K problem became an emotional issue, around which the expectations of the apocalypse formed. Y2K was viewed with both trepidation and as an opportunity to re-create society. In either case, it occasionally was met with expectations and preparations, such as hoarding water, food, cash money, gasoline, and ammunition; moving to a remote mountain compound; and learning specialized skills to cope with the anticipated changes. It is these expectations and preparations that I would argue are the true impetus for social change rather than the anticipated change itself (Landes 1996).

Approaching Technology

Although Y2K has been interpreted culturally, Y2K was first and foremost a technological phenomenon. The three subcultures that are the focus of this work built their subcultural responses to Y2K as a threat of technological failure. Technology is culturally created and creates culture. The subcultures discussed in this work took Y2K in and framed it through their cultural understandings of technology. It is essential to understand the possible range of cultural understandings and how they were formed around the issue of technology.

Theorists have repeatedly questioned the place of technology in society, most notably in the twentieth century, coinciding with Western culture's exponential technological development. Andrew Feenberg (1991) coined the term "instrumental-substantive debate" to contrast theories about technology as either neutral or deterministic with more modern theories of technology. Both the instrumentalist and substantist frameworks (Heidegger 1977; Marcuse 1966; Adorno and Horkheimer 1947; Ellul 1965; Ferkiss 1974; Mumford 1934, 1970; McLuhan 1965) are faulty in their assumptions. Both see technology and modern society as an unchanging destiny. They both have problems with agency, in that instrumentalists give none to technology and substantists attribute none to society.

In the 1980s and 1990s, several theorists (Feenberg 1991; Shields 1997; Bijker and Law 1992; Bijker, Hughes, and Pinch 1987; Davis 1998; Strain and Goldberg 1987; Winner 1977; Latour 1981, 1986) began to reexamine the sociology of technology. They rejected the instrumental and substantist views of technology and began to look at technology in the light of critical theory and cultural studies. According to these new theorists, the key to understanding the relationship between technology and society is to be found in the word *relationship* and focuses on the social shaping of technology. Technology is part of culture; thus, from the outset, certain technological innovations occur while others do not, certain new technologies flourish while others do not, certain technologies are diffused globally-universally while others are not, and some technologies are used in unintended and unexpected ways while others are not (Bijker 1992). Thus, technological artifacts, such as computers, the Internet, and software bugs, do not stand apart from society nor do they solely determine the future social and political trends in society (Davis 1998; Strain and Goldberg 1987). These technological artifacts are created and modified within society and are continuously interpreted and reframed within subcultures (Bijker 1992).

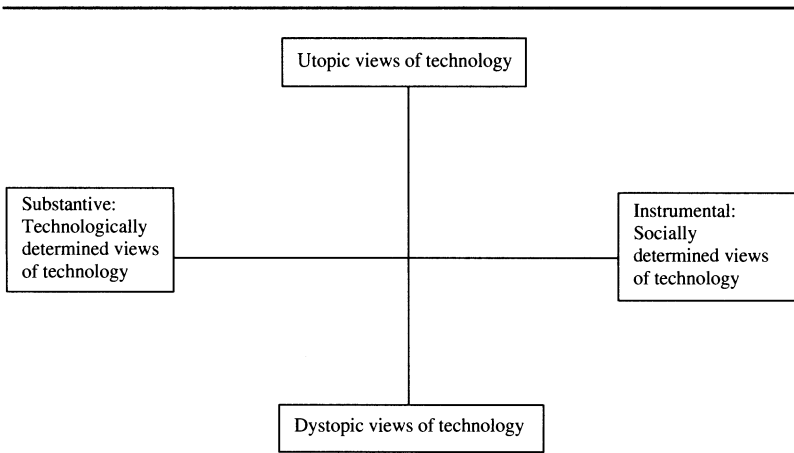


Figure 1. The intersection of two polarized views of technology.

This development in the sociology of technology opened the doors to the study of technology in a cultural, or externalist, light. Several authors (Marx 1964, 1987; Davis 1998; Grosso 1995; Alexander 1992; Rozak 1994; Postman 1992; Tenner 1996) have begun to discuss the emotional framing of technology by modern Western society. They propose that through the interplay between technology and culture, technology has been interpreted and framed as either the savior or the destroyer of humanity. Technology is infused with emotion, both hope and fear. It is depicted as having the possibilities within it to increase liberation and subjugation as well to destroy all that it means to be.

In this article, I propose to locate the subcultural responses to the technological threat of Y2K in two-dimensional vector space. The vertical axis represents the utopic-dystopic debate over the nature of technology, while the horizontal axis represents the technologically determined–socially determined debate over the nature of technology (see Figure 1).

Each of the three subcultures' responses to Y2K discussed in this work can be located in one or more of these four quadrants as possessing positive or negative views of technology, as well as framing technology as determining or determined. Millennial behavior has been described as primarily emotional; thus, the framing of the technological object of Y2K also has had strong emotional overtones.

Technology and computers took center stage near the end of the twentieth century and the end of the second millennium. Technology is framed and shaped by the cultures in which it was developed and consumed. Such framing and shaping are not without a strong emotional component. Technology and computers have increasingly become infused with both hope and fear (Davis 1998; Alexander 1992; Grosso 1995). To understand the relationship between technology, computers, and emotional millennialism, a deeper look at how technology has been culturally located is essential. Erik Davis (1998) made a case for the millennial construction of technology. He stated,

Though the cosmic sense of an ending can be seen as a particular pathology of the historical religions, the eschatological imagination long ago leaked into secular myths of history and scientific progress. . . . Technologies are shot through with myths that frame the story of time, myths of utopia and cataclysm alike. So it should not be surprising that many of the stories circulating about the information revolution feed off the patterns of eschatological thought, nor that technological images of salvation and doom keep hitting the screens of the social imagination. (P. 225)

The most striking aspect of Alexander's (1992) description of computers as sacred and profane is his development of a salvation and apocalyptic rhetoric around those computers. On the salvation side, Alexander found that a broad visionary ideal of progress was laid out. On the apocalyptic side, he said that the computer has always embodied the fear and loathing generated by an industrial society. Michael Grosso (1995) coined the term "technocalypse" and defined it as the convergence of technology and the apocalyptic imagination. Alexander also saw this technological discourse as predicting the cataclysm, the final judgment that is technologically wrought.

The binary code of technology as sacred and profane is an excellent metaphor with which to view the juxtaposition of the millennial change and the Y2K software problem. Millennialism has been characterized as a time of strong emotions—hope and fear—accompanied by the threat that the technology on which we have become so dependent may fail us. The Y2K problem presented technology in its most apocalyptic sense, the destroyer of modern life. As in millennialism, some feared this change while others hailed it as an opportunity. Given the strong opinions and feelings associated with technology, and particularly technology in a context of millennialism, one might have expected Y2K to evoke diverse emotions, particularly hope and fear, in many segments of the population. Within the realm of culture, technology

has been infused with images of salvation and destruction through various forms of culture during the latter half of the twentieth century.

Research Design and Method

The focus of my research is on how three distinct subcultures interacted with the technological cultural, or boundary object, of Y2K. Star (1989) described boundary objects as

objects that are both plastic enough to adapt to local needs and constraints of the several parties employing them, yet robust enough to maintain a common identity across sites. They are weakly structured in common use, and become strongly structured in individual-site use. A boundary object “sits in the middle” of a group of actors with divergent viewpoints. (Pp. 37-54)

A similar concept is the cultural object, a “shared significance embodied in form, i.e., an expression of social meaning that is tangible or can be put into words” (Griswold 1987, 214). The cultural or boundary object of Y2K is the reference point from which each of the subcultures in this work will create meaning. Four actions can be performed by the actor (or subculture in this case) on the cultural object: intention, reception, comprehension, and explanation (Griswold 1987). The actor intends and receives, and the social agent comprehends and explains. “Intention and comprehension involve understanding the meaning of the cultural object as constituted by the object itself, internal to it; while reception and explanation involve framing the cultural object in relation to some large, external system of meaning” (Griswold 1987, 215). Star asked essential questions when referring to boundary objects that have guided this research. How do social worlds (or communities of practice) intersect through objects? How do people share an object but have different definitions of it and different uses for it? How does the simultaneous “sameness” and “difference” of the object play out materially, and in specific work situations (Star 1989)?

The three subcultures that I analyze are millennial Christians, militia-patriot survivalists, and computer professionals. Each subculture was chosen because of their professed millennial beliefs and/or actions concerning the end of the century and/or involvement with the technological problem itself. The millennial Christians and the militia-patriot survivalist subcultures were principally defined by their social beliefs and behaviors, whereas the computer professionals were at least initially defined by their profession.

Subculture: A Definition

I have chosen the subculture as my unit of analysis. The sociological term *subculture* has become a widely used concept in recent years; yet with all this usage, it has received very little critical attention (Hull unpublished paper, August 1976). It has often been construed as synonymous with deviants and their activities, or the “sub” has somehow been interpreted to mean inferior. There is no denying that the subculture concept is applicable to the study of deviance. What is meant here is that subculture refers to any group of people within a culture who formulate a way of behaving that includes some of the dominant features of this culture and includes certain features of this culture not found elsewhere in the society. A quotation by Etzioni (Arnold 1970) presents a similar view: subcultures are usually characterized by the fact that an individual can function within more than one subculture at one time, with varying degrees of commitment, and sometimes pass through several stages as he or she grows older or his or her attitudes change. Thomas Lasswell (1965) stated,

Every group that is at all functional must have a culture of its own that is somewhat similar to the cultures of other groups with whom it interacts. Such a group culture is not partial or miniature; it is a complete, full-blown set of beliefs, knowledges, and ways for adjustment to the physical and social environment. . . . The culture itself is not smaller than the great culture. . . . The group which enacts it is smaller than the great society. (P. 211)

Thus, the study of subcultures can also contribute significantly to the study of the larger society. I claim that the subculture has all the attributes of a larger culture yet is on a smaller scale. The subculture has beliefs and behaviors, which overlap with the wider culture, yet also possesses unique qualities. I propose that the subculture is the primary locus of meaning creation around cultural objects.

The Christians and Christian belief represented in this work are not representative of all Christians. The churches represented in this study were selected because they focused on Y2K to a significant degree. I label them millennial Christians throughout this work to distinguish them from the much larger body of Christians in the United States. Essential to all participants chosen is the belief that the end times, as mentioned in the Bible, were drawing near and Y2K may have been a contributing factor.

The militia-patriot subculture is identified through several criteria that fell into three areas: psychological origins, views of the apocalypse, and views of government and authority. The origins of survivalist-patriotic thought lie in

fear of the disintegrating “Old World order” and declining American wealth and influence in the world. In the second area, the survivalists, militia, and patriots believe the apocalypse is likely to be man-made, brought about by social and economic collapse, environmental degradation, and/or civil or nuclear war. In the third area, the survivalists, militia, and patriots possess a deep-seated mistrust of government officials, an obsessive hatred of federal authority, a belief in far-reaching conspiracy theories, and a feeling that Washington bureaucrats have utterly discarded the U.S. Constitution.

The computer professionals are defined as being part of the technological elite. They work in restructured organizations where they became part of an expert sector in which technical expertise is the basis for authority. They develop a strong political belief in libertarianism, capitalism, and the individual. They highly value technology and see it as restructuring all human behavior.

My research questions are as follows:

1. How does each group frame the Y2K issue, and how consistently do individuals frame the issue?
2. What group and/or individual actions derive from the subcultural/cultural definition of the problem?
3. What is the relationship each comparison group has with technology and computers?
4. How does each group integrate their predicted Y2K computer problem results into a previously constructed cultural system?

These questions are answered using two principal methodologies: content analysis and the interview. The research was conducted between February 1999 and February 2000.

Content Analysis

Content analysis “is really a set of methods for analyzing the symbolic content of any communication. The basic idea is to reduce the total content of a communication to a set of categories that represent some characteristic of research interest” (Singleton, Straits, and Straits 1993, 381). Periodicals were selected to represent subcultures based on preliminary interviews conducted in the early spring of 1999. I chose a sample of periodicals that was suggested as representative of each subculture by its members. It was made clear to me that these periodicals were well read among the subcultural population. I confirmed this in later interviews. In several of the interviews and field observations, copies of these periodicals were noted lying around

participants' homes, and stories from specific editions were mentioned by the participants themselves. I systematically analyzed them during a twelve-month period by creating thematic categories around my research questions. I catalogued frequency, intensity, type, and context of these thematic categories between January 1999 and January 2000. I used the publications of the subcultures to reveal the subcultures' attitudes, beliefs, and values concerning their millennial activity, the Y2K problem, and technology.

In respect to the millennial Christian subculture, I examined two periodicals, *CountdownY2K: A Christian Response to the Millennium Bug* and *Endtime: World Events from a Biblical Perspective*. Two periodicals were chosen to represent the two diverging types of premillennial belief, pretribulationist-dispensationalist and historical, as well as two Christian views of interpreting the Y2K issue as reflected in the full interviews. In the content analysis of the militia-patriot survivalist subculture, I examined two periodicals, *American Survival Guide: The Magazine of Self-Reliance* and *Countryside: A Small Stock Journal*. Two periodicals were chosen to represent the wide-ranging set of beliefs held by those interviewed. In the content analysis of the computer professional subculture, I examined a single periodical, *Infoworld*. I selected a single periodical for this subculture because the periodical was published often enough so that I could draw a large enough sample from one periodical. Second, *Infoworld* seemed to represent all the participants' points of view well. A sample of thirteen issues (25%) was drawn from the fifty-two issues of *Infoworld* published during the calendar year 1999.

Interviews

I gained information from the participants through qualitative, semistructured, in-depth face-to-face and telephone interviews and some field observation. I interviewed forty-five participants total, fifteen from each subculture—each participant was interviewed twice, once pre-Y2K and once post-Y2K—a total of one hundred hours of interview time and as many or more hours of observation time. This study is meant to be seen as a multifaceted case study and is by no means generalizable. However, as with the study of all subcultures, certain inferences can be made about human nature, the social construction of technology, and the wider American culture. I selected the participants in each of the three subcultures using purposive sampling and referral sampling. Referral (or snowball) sampling was used in the cases in which moral, legal, or social sensitivities surrounded the behavior in question and posed some serious problems for locating and contacting potential

respondents. Demographic information was collected for each of the participants, such as age, gender, race/ethnicity, marital status, years of formal education, profession, annual household income, and religious affiliation. They were nearly identical in three major demographic categories: gender, race/ethnicity, and level of education. I do not believe that the few demographic differences between the groups can account for the respective subcultures' differential framings of Y2K. For demographic information concerning the participants, see the appendix.

Both the millennial Christian and survivalist subcultures were treated as deviant subcultures due to the fact that they perceived that both the United States and Albuquerque, New Mexico, were hostile environments to Christians, especially the charismatic kind. At the core of all of these statements was fear of persecution because of their beliefs and lifestyles. For each of these two subcultures, I selected six starting-off points: in the case of the Christians, it was six churches, and in the case of the survivalists, I contacted local survival and weapons stores, the leaders of the New Mexico Militia, and the publishers of a locally published militia-patriot newsletter.

I considered the computer professional subculture to be a professional subculture, not a deviant one. I contacted six organizations that employ a large number of computer professionals. I asked each of my contacts to list all their computer professional employees by number. I selected two or three numbers randomly from each list. The corresponding name was then given to me with appropriate contact information.

These methods were chosen to create a synergy that would provide the most information about each subculture with respect to their framing of the Y2K issue. The preliminary interviews gave me insight into the types of periodicals that would be appropriate and representative of each subculture. This preliminary interview also provided contacts later used to locate participants. This mixed methodology worked well in providing a comprehensive picture of each subculture.

Findings

As depicted in Figure 1, the views of technology expressed by the subcultures examined in this work can be located in a two-dimensional vector space. All three subcultures possessed elements of both instrumental and substantive and utopia and dystopian views of technology in their subcultural views. Each subculture combined these views of technology into a unique subcultural worldview.

If one examines both millennial Christian periodicals together as representing millennial Christian views of technology, one ends up with three points. First, technology was seen as a neutral tool that could be used for both good and evil, to further millennial Christian goals or hinder them. Second, technology was seen as a cultural object on which humans could become dependent that took away from the proper relationship between humanity and God, which is one of dependence and exclusivity. This relationship must remain supreme to honor and worship their God. No other relationship with any human or object may impede this relationship. Third, the growth and expanded uses of technology were viewed as part of a set of prophetic signs from the Bible heralding the great tribulation and the Second Coming.

An example supporting this claim can be found in the March/April edition of *Endtime* in the article titled "Y2Khaos and the Mark of the Beast." Irving Baxter (1999) stated,

Some religious leaders are teaching that the crashing of computers brought on by the millennium bug will certainly usher in the prophesized cashless society and the mark of the beast. . . . Y2K could certainly cause the world to, more and more, expect global problems to be solved by the International community. It could conceivably result in the establishment of an international authority to oversee global computer operations. (Pp. 8-9)

In the same month, in a letter to the editor, a reader wrote,

If we let A=6, B=12, C=18, etc. all the way through Z=156. If you take the word COMPUTER and apply these values to the letters, you will find that they add up to 666. In Revelation 13:18 ". . . Let him that hath understanding count the number of the beast; for it is the number of a man; and his number is six hundred threescore and six." I don't believe that this is a coincidence. We have speculated that the computer chip will be "the Mark" now we have proof! (Briant 1999, 7)

Overall, millennial Christian participants said that technology made their lives easier and more comfortable. About three-quarters of the participants expressed the belief that they had become extremely dependent on technology. Those that expressed this opinion usually felt somewhat uncomfortable with their level of dependence. For more than half of the participants, technology was characterized as an evil force that fragmented society, turned humans away from God and each other, and ultimately became an idol replacing God. These participants hoped that Y2K would upset our modern technological society so that the old ways of life, values, morals, and lifestyles would reemerge. Thus, for the Christians we can locate technology

somewhere in-between the substantive and the instrumentalist ends of one axis—at times technology was both determining and determined—and the dystopian end of the other axis—technology led to more evil than good.

For the survivalist periodical *Countryside*, to be dependent on technology was also to be dependent on the industrial age and its economy. Since both were believed to be failing, dependence was seen as a self-inflicted death sentence. To be dependent on technology and the industrial age was also framed as morally wrong. The industrial age, and the technology behind it, was seen as the juggernaut of progress rolling over all that stood in its way, regardless of life and freedom. In the January/February edition of *Countryside*, J. D. Belanger (1999) stated,

There are those who think more material goods and more material wealth signify a better life. . . . Tens of thousands of acres of fertile land that are destroyed for bigger airports, bigger shopping malls, wider superhighways and ever more ostentatious houses are, in their opinion sacrificed for a good reason: to maintain and add to the growth of the industrial society. The industrial age is dying, with or without a computer date problem. Trying to keep it alive with Band-Aids is futile. (P. 10)

Another example of this in the same edition is,

No matter what happens with the computers and microchips, thinking people are never going to look at the world the same way again. They are aware that Y2K isn't so much a technical problem as it is a cultural one. The disruptions that it may cause will not be mended by more technology, but by humans, working together to solve social problems. The problem is not the lack of a 19 or 20 in a computer, but the extreme division of labor and interdependence Y2K so dramatically demonstrates. (P. 110)

In *American Survival Guide*, technology was framed as a tool used for evil. Those that were highly technologically skilled and knowledgeable were not framed as having the ability to help save humanity but rather were seen as having the ability to harm humanity. The technologically dependent were framed as victims of the technological elite. According to this periodical, a good survivalist would have weapons to fight in both the physical and online worlds. Thus, for the survivalists we can locate their concept of technology also in-between the substantive and the instrumentalist ends of one axis, yet perhaps closer to the instrumental end, and the dystopian end of the other axis.

One-quarter of the millennial Christian participants saw Y2K as a punishment from a jealous God who could not stand humanity's ignorance of him. Technology and modern life drove people away from God, so God would

then destroy technology and modern life to take away the distractions from humanity. Modern American society was compared to Sodom and Gomorrah, a society that God destroyed. The Christians were demanding that God judge America as he did Sodom and Gomorrah. Y2K might have been that judgment. One of the Christian participants, Jen, a forty-seven-year-old secretary, also quoted passages about Noah and Sodom and Gomorrah. "Americans are overdue for judgment. Y2K could be the beginning of the great tribulation." Ted, a forty-nine-year-old minister, explained, "If God doesn't judge America, then he owes Sodom and Gomorrah an apology." Tom, a fifty-one-year-old financial planner, quoted the Tower of Babel story. He conveyed,

It would be the ultimate irony if God used technology to confuse technology so that society would break down. God uses irony. God is a jealous God. He commanded humans to not create any images to worship other than him. Today technology has become more important than God. We worship at the altar of technology. Judgment is coming. Maybe technology will be taken away from man through the Y2K issue.

Every one of the militia-patriot survivalist participants addressed technology with mixed feelings. In general, they felt that some technology had improved their lives. Most found that they had become at least somewhat dependent on technology to survive. Some participants expressed the desire to live without most of it and a desire to return to more traditional ways of doing things. All found that technology was essentially neutral but could be used for good or evil because people were both good and evil. Many used the phrase "a gun [or knife] could be used to hunt or defend by one person and to kill by another." The gun or knife was not evil; the human being using it was. In some cases, a participant viewed the government as having used technology for evil against the American people. A survivalist participant, Jim, a fifty-four-year-old unemployed man, said,

We know the government regrets having given us the Internet. It is a powerful tool. Technology is being used against the American people but it can also be a tool for defense against the government. Technology is both a friend and foe. We could go back to a 100 percent manual, technology-free life if we had to tomorrow. We've got survival skills and we're not worried about the loss of technology.

Each subculture had a unique way of characterizing technology. The one aspect of this characterization that was similar across subcultures was that some level of technology had made their lives easier and more comfortable. For the Christians, this was a statement they made reluctantly with immediate

qualifications. For the survivalists, this was an embarrassing admission of guilt. For the computer professionals, this was a carefree statement made with an unquestioning air of complete acceptance. The computer professionals alone expressed unequivocal comfort with technology's place in their lives.

In both the millennial Christian and the militia-patriot survivalist subcultures, the high level of dependence that the participants, and Western society, had on technology was seen as problematic, although for different reasons. For the Christians, technology was seen as a force that could drive one away from God. For the survivalists, technology dulled one's survivalist skills and lulled one into complacency. Dependence on technology was characterized by both to be similar to drug or alcohol addiction.

The computer professionals also professed a high level of dependence but did not find it problematic. Their dependence was considered "normal" and even brought joy to many participants' lives. Some used their level of dependence to form part of their identities as they self-identified as "techie" or "gadget guys." I find that this difference is due to what belief each subculture places at the center of its subcultural identities. For the Christians, the Christian God and his worship are at the center of their subcultural identities, and anything that could distract them from that singular purpose was questioned and shunned. For the survivalists, the ideals of self-sufficiency and self-reliance are at the center of their subcultural identities, and again technology could be framed as a threat to those two ideals. For the computer professionals, technology itself is at the core of their subcultural identities and, in some cases, their personal identities. There is no cognitive dissonance created between their subcultural identities and technology; thus, there was no discomfort with their level of dependence.

Each subculture can be located along the substantive-instrumentalist axis. For the millennial Christians, technology posed the greatest threat and thus was framed as the most substantive-deterministic in nature. The millennial Christians framed technology as having essential evil qualities in some cases. Technology could be viewed by the millennial Christians as leading humanity away from God. The growth of information technology and computers could also be seen as human hubris for which God would punish humans. For the survivalists, technology posed less of a threat than for the Christians. In this way, it was characterized as in the middle between substantive and instrumentalists poles.

The survivalists did not construe technology as essentially evil. However, the most powerful technology was in the hands of evil men and women who wanted to take freedom away from the survivalists. For the militia-patriot survivalists, the nature of technology and computers was inexorably intertwined

with who owned, used, and controlled the technology. Their views can be located closer to the dystopian end of the axis. The computer professionals were not at all threatened by technology and thus saw technology as mostly but not purely instrumental. They did see technology as a very powerful tool that made life generally better, more convenient, faster, more fun, and exciting.

To a degree, the computer professionals could be characterized as worshipping technology. They can be located at the far end of the utopian-good axis. Several participants stated that they loved technology, and several others framed technology as part of human evolution that would eventually complete humanity. When asked about technology in general, the computer professional participants took a remarkably substantive position. When speaking about computer technology, they saw it as inherently good. Some participants went beyond stating that technology and computers made their lives easier and more comfortable. They had intense feelings for technology. Two of the participants said that they loved technology. One called himself a techie. Another called herself a gadget woman. Nell, a twenty-nine-year-old tech supporter, stated, "I love technology. I'm technology's biggest fan. I'm a gadget woman." Ray, a twenty-nine-year-old tech support project specialist, stated,

Yeah, I'm dependent. As a matter of fact, I would not get out of bed if it weren't for technology. I would not know what the weather was like outside if it weren't for www.weather.com. I don't buy newspapers or magazines anymore. I get all of my news and information from the Internet. I'm fine with my level of dependence. I'm not afraid that it won't be there. You gotta love it.

For them, technology promised a future full of great things. This worship of technology was exactly what the other two subcultures found to be the most threatening about technology, especially the millennial Christians. The millennial Christians would view the behavior and belief of the computer professionals as idolatry and another example of the slow deviation of American society from its original Christian roots. They might also see the hand of Satan or the Antichrist in the beliefs and behaviors of the computer professional subculture. The survivalists would see the computer professionals as having been duped into providing the national and international governments with more powerful tools to subjugate the American people. The survivalists would have raged at the computer professionals' love and worship of technology as aiding their enemies.

At the same time that they said that computer technology was inherently good, a majority of the computer professional participants also felt that

technology was neutral. They described it as a tool. Here, it is evident that the participants held both instrumental and utopian views of technology at the same time. Evan, a twenty-four-year-old network administrator, stated, "Technology is neutral; it is never good nor evil." Ray, a twenty-nine-year-old tech support project specialist, mentioned, "Technology's neutral. It is only what people make it out to be. It is just a tool. A gun is not evil because it can be used to kill." Dean, a twenty-four-year-old system administrator, said,

Technology is neutral. It is amazing what people can do with technology, science and pure knowledge. Technology can be used for good or evil. For example, fusion is neutral. The pursuit of creating a fusion reactor is neutral. Only at the point at which a decision has to be made to build a power plant or weapons of mass destruction does the technology become infused with value and subjectivity. I'm not upset by technology, but how humans use technology.

Betty, a fifty-four-year-old database manager, stated,

I think of computers as a tool. I don't get emotional about computers or technology. However some technology requires moral decisions. These are not neutral, such as transplanting an organ from one body into another person's body. For example, refrigeration has been both good and bad; it has made nutrition so much better and safer yet it has destroyed the ozone layer. Technology has caused many of our environmental problems but it is also the source of many of the solutions. Human beings by nature are explorers. Technology cannot be stopped. If a person lives in a room with a door they must, by nature, open it.

The computer professionals have used Y2K to further distance themselves from the nontechnical public. They regarded technology as worthy of dependency, love, and perhaps worship. The nontechnical media and public were seen as speaking and writing without knowledge of technology and casting an untrusting eye on it. The central, identifying ideal of the computer professional subculture is the prominent role that technology has played and would play in society. The computer professionals saw technology and themselves framed emotionally, by disrespected nontechnical people, as a threat or even destroyers of society; it is therefore natural that the distance would grow between technical and nontechnical people. As a technologically dependent society grows fearful of the technology on which it has become dependent, computer professionals are framed as both the destroyers and the saviors of society and grow more remote because of that framing.

In all three subcultures, Y2K was seen as both a technologically caused problem and a human-caused problem. However, the ratios of technological to human causes were not equal across all three subcultures.

In the millennial Christian and survivalist subcultures, Y2K was principally framed as a technologically caused problem. The human-caused problems associated with Y2K were framed as a reaction to the technological Y2K problem. In these two subcultures, the failure of technology was seen as the true impetus to the Y2K problem, and the social problems that might result from this failure were seen as tangential and secondary. This belies their more technologically deterministic stance toward technology and further supports their placement toward that particular end of the axis. Technology had the power to cause human problems, not the other way around.

For the computer professional subculture, the problems caused by technology were described as minimal or nonexistent. They did not express much fear of Y2K, but the fear that was expressed was of the overreaction of non-technical people to technology that they did not understand. They believed that Y2K would lead to mostly human-caused problems, if it caused any. This also illustrates how the computer professionals, in contrast to the other two subcultures, can be located closer to the instrumental end of the axis. They believed that humans caused, or socially constructed, their own technological problems.

I believe that a possible explanation for this difference lies in what each subculture believed that they could and could not influence and control. If Y2K was described as a true crisis, then all of the elements to solve that crisis must have been out of their control and area of expertise. I believe that the millennial Christians and the survivalists framed Y2K as a mostly technological problem because they did not consider themselves technological experts and saw the technical elements of the Y2K problem as outside their control. They saw themselves as victims of technology. They did see themselves as able to influence, educate, and at least partially control the behavior of humans around Y2K. They seemed to focus their efforts on the human area. The computer professionals felt that human behavior was outside their control. They could influence how Y2K played out technologically by writing new code fixes but felt helpless at the thought of human reaction and overreaction. For all three groups, Y2K was described as being caused by the element of the problem over which they had the least control and therefore caused the strongest sense of helplessness.

Subcultural Tools

Each of the three subcultures studied in this work included social agents and analysts in relation to the Y2K issue. Each subculture intended, received, comprehended, and explained the Y2K issue. Explanation is the tool that I

used the most in examining how these three subcultures looked at Y2K. Explanation is “the analyst’s drawing of connections between comprehended cultural objects and the external social world” (Griswold 1987, 214). Each subculture looked outward and saw Y2K as a cultural object in the external social world through their subcultural comprehension. The Christians placed Y2K in the center of a world in which the national government and technology were construed as being hostile to Christian values and dangerous to the Christian relationship with God. The survivalists placed Y2K in the center of a world in which the national and international governments were leeching power and liberty away from the average American through conspiratorial actions. The computer professionals placed Y2K in the center of a more and more technocratic world in which they saw themselves and technology gaining power. Each subculture placed Y2K in the center of their worldview, imbuing it with meaning through their subcultural analysis. Griswold’s concept of explanation was key to understanding how each of these subcultures created meaning around Y2K that differed from subculture to subculture.

One observation that arises from this work is that two out of the three subcultures, the millennial Christians and the militia-patriot survivalists, had some similarities in their approaches to Y2K. Despite the radically different identities and ideological sets of each subculture, two demonstrated similarities in their views of the social change that Y2K would produce, the direct causes of that social change, the need to prepare for Y2K, and the emotional response to Y2K. It appears that two out of the three subcultures drew similar cultural elements from the general culture to create a subcultural filter to interpret and frame Y2K.

These three subcultures saw the world differently, perhaps even had diametrically opposed views of it, a fact that strongly affected their perceptions of Y2K as a cultural object. However, beyond their diametrically opposed worldviews were certain similarities between at least two of the groups. The millennial Christians and the survivalists selected cultural elements from the wider culture in technology that colored their perceptions of Y2K in similar ways (Swidler 1986). I argue that these similarities exist because of cultural elements, including attitudes about technology, that these two subcultures adopted and combined with their own subcultural ideologies and values to create subcultural filters that influenced not only how they view Y2K but how they view the world in general.

Each of the three subcultures expressed views of technology that can be located along the axis encompassing both instrumental–socially determined and substantive–technologically determined views of technology. Each subculture chose to incorporate both instrumental–socially determined and substantive–technologically determined views of technology into their sub-

cultural view of technology. This spectrum of instrumental–socially determined and substantive–technologically determined views can also be seen as containing cultural elements that subcultures may have appropriated. Each subculture then used these cultural elements of technology to help them create a subcultural filter of Y2K.

There is evidence that each of the three subcultures had adopted parts of both of these views into their subcultural filters; however, each appropriated them in different proportions and degrees. Overall, the millennial Christians can be located closer to the substantive–technologically determined axis. They adopted a mix of the instrumental–socially determined view and the substantive–technologically determined view, with perhaps more emphasis placed on the substantive view. They can also be located closer to the dystopian end of the utopian–dystopian axis (see Figure 2). They felt that technology had been useful in making their lives more comfortable and easy, at a price. The cost of such technological luxury was seen as the seducing away of humanity from God’s word and side. Technology, for some participants and in *Endtime* magazine, was framed as essentially evil. Technology was an example of man’s hubris and led to technological worship and human pride, not humility in the face of God. The millennial Christians applied these views to Y2K and saw it as an example of God causing, or allowing to happen, the destruction of the technological foundations of society to bring people back to the worship of God, not technology.

The militia-patriot survivalists can be located on the instrumental–substantive spectrum closer to the substantive–technologically determined end but not as close as the Christians. Again, Y2K was viewed according to both instrumental–socially determined and substantive–technologically determined views. However, unlike the millennial Christians, more emphasis was placed on the instrumental–socially determined view. The militia-patriot survivalists believed that technology was mostly a useful tool that had made their lives easier and more convenient; however, technology could become evil if placed in the wrong hands. In this way, the survivalists also can be located closer to the dystopian end of the second axis (see Figure 3). Technology became evil if used by the national and international governments to take power and freedom away from the American people. Y2K was viewed as part of a larger conspiracy led by the national and international governments to upset the normal technological stability of the country enough to declare martial law and take away liberties.

The computer professionals could also be located along the instrumental axis, but they fell much closer to the instrumental–socially determined end of the spectrum. They adopted both substantive–technologically determined and instrumental–socially determined views to look at Y2K. However, this

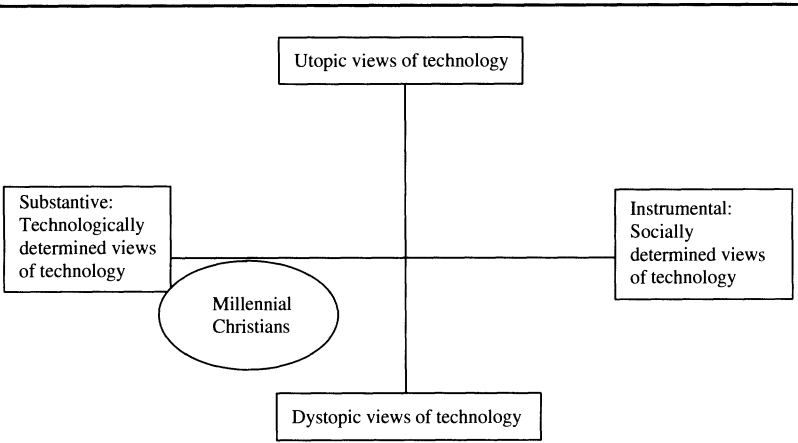


Figure 2. Locating the Millennial Christian Subculture along the two polarized views of technology.

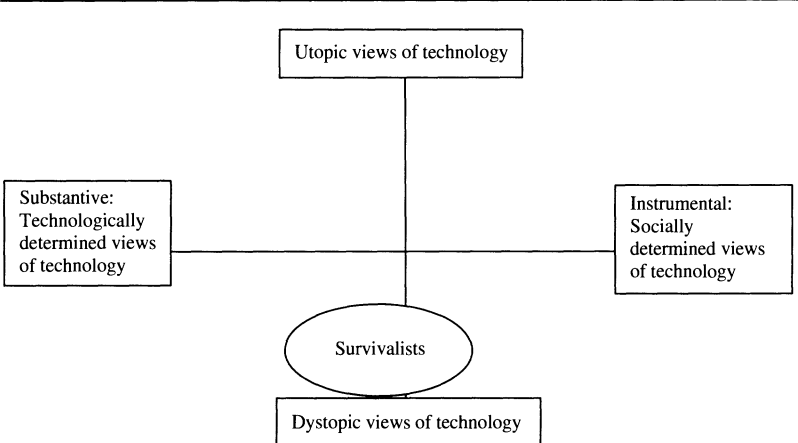


Figure 3. Locating the Survivalist Subculture along the two polarized views of technology.

subculture was the most intensely instrumental–socially determined in their beliefs. This subculture also felt the most clearly and strongly that technology was a force for good; thus, they can be located closer to the utopian end of the axis (see Figure 4). Technology was framed both as inherently good and as being purely a neutral tool that could be used to any end.

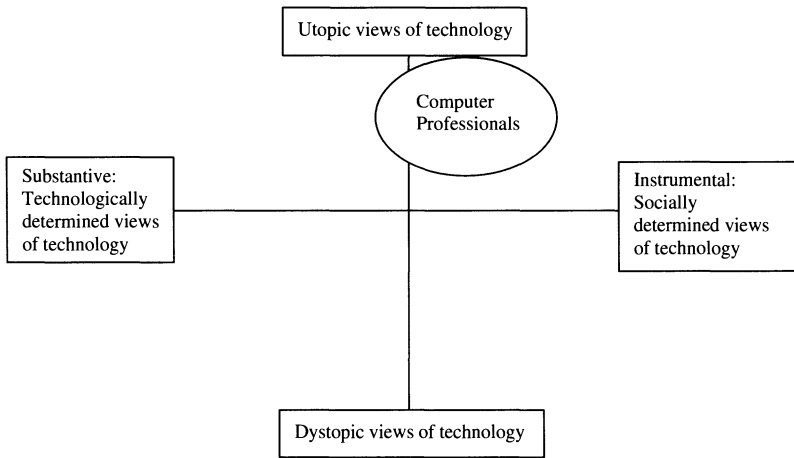


Figure 4. Locating the Computer Professional Subculture along the two polarized views of technology.

Each subculture developed a subcultural filter of Y2K. This subcultural filter was composed of the subcultures' ideologies and several elements that were drawn from the wider culture. The use of cultural elements provides an explanation for why both the millennial Christian and militia-patriot survivalists framed Y2K in similar ways, even though their internal ideologies were different. Cultural elements allow for radically different subcultures to use similar elements, to incorporate them into their subcultural filters, and to see a cultural object similarly in some ways. Most important, these cultural elements helped to color each subculture's perception, not only of Y2K but also of the world in general.

It is important to note the contradictions observed within each of these subcultures. In all three subcultures, it was possible to see technology and computers as both neutral and worthy of worship and fear at the same moment in time. It was also observed that the subcultures framed technology as solving and creating problems for human beings at the same time. One can argue that these contradictions are problematic for analysis. Conversely, I find that these contradictions are actually the meat of subcultural complexity and nuance. None of these subcultures can be framed as purely deterministic or utopian, yet their beliefs can be located on a continuum in which the mixture of both polar ends can be graphically understood.

Post-Y2K Follow-up Interviews: January 2000

In January 2000, the participants were contacted for a second time. Leon Festinger (1956), in his work *When Prophecy Fails*, stated that when an individual holds a strong conviction and that individual is faced with unequivocal and undeniable evidence that his or her belief was wrong, “the individual will frequently emerge, not only unshaken, but even more convinced of the truth of his beliefs than ever before. Indeed, he may even show a new fervor about convincing and converting other people to his view” (p. 3). Dissonance causes discomfort, and the believer wants to reduce the dissonance in one of three ways.

The person may try to change one or more of the beliefs, opinions, or behaviors involved in the dissonance; to acquire new information or beliefs that will increase the existing consonance and thus cause total dissonance to be reduced; or to forget or reduce the importance of those cognitions that are in a dissonant relationship. (P. 26)

What Has the Outcome of Y2K Been So Far?

All three subcultures stated that not much had happened because of Y2K. However, the computer professionals were different because they did not make significant predictions about Y2K. Therefore, unlike the other two subcultures, the majority of the computer professionals did not experience a cognitive dissonance between what they predicted and what actually came to pass. They felt vindicated that their predictions had, for the most part, been correct.

Most of the millennial Christian participants did not clearly state that nothing had happened. They stated that there had been some or minimal problems. The fact that there were a few problems helped them to reduce their dissonance by not feeling completely wrong. One participant agreed that not much had occurred due to Y2K, but he was cautious. He believed that there may be more problems in the future. One participant made the point that not much happened on New Year’s Eve because God took care of them. His church celebrated because they had strong faith that nothing would happen. Another participant reduced her dissonance by stating that she has gained or learned from the experience; thus it was not a mistake at all.

Several militia-patriot survivalist participants reduced their dissonance by forcing the outcome of Y2K to fit into an earlier held conspiratorial belief. These participants strongly believed that Y2K was part of an international

conspiracy in 1999. In 2000, they believed the same thing; they just changed the possible governmental motivations for their conspiratorial action around Y2K. One participant believed that there had been both serious and minor problems caused by Y2K but that this information was being kept from the American people.

How Does This Outcome Differ from What You Expected?

Most of the millennial Christian participants experienced significant dissonance. Most of the participants noticed significant differences between what they expected and what actually happened. In several cases, they said that they did not expect much to happen. Yet when I compared their answers in January 2000 with their answers from the summer of 1999, they were remarkably different. One participant expected a little more to happen but more importantly expressed a sense of vindication and self-satisfaction. He told me in his initial interview that he had heard the voice of God telling him not to prepare. This sense of vindication completely eliminated any sense of dissonance he may have held and made him feel superior to those who were experiencing strong dissonance.

The militia-patriot survivalists suffered the strongest amount of cognitive dissonance of all three subcultures. They predicted the most severe outcome for Y2K and seemed the most surprised and disappointed by its actual outcome. Nearly all of the participants stated that the results of Y2K were not what they expected. Many of these also were surprised that the government did not take advantage of an opportunity to seize power. Another theme that was found in these responses was the belief in a conspiracy behind the outcome. They insinuated that perhaps the government and the media were behind the outcome of Y2K. This demonstrates the remarkable consistency and flexibility of the ideologies held by this subculture. Although what they had predicted did not come to pass, they still saw the outcome of Y2K as part of the governmental plan.

Festinger (1956) stated that some millennialists who have suffered severe cognitive dissonance, who cannot reduce it in any other means, come out of their failed prophesy with renewed conviction that their beliefs were initially correct. Only in this subculture did I find any evidence for this. Among the militia-patriot survivalists, although Y2K did not turn out as they expected, they resolved that it was indeed part of a conspiracy. They were as paranoid and suspicious as before Y2K, perhaps more so in some cases.

The computer professional participants stated that they expected nothing to happen, and nothing did happen. Again, this created a situation in which the majority of the computer professionals did not experience cognitive dissonance.

How Do You Feel about How Y2K Turned Out?

Two militia-patriot survivalist participants stated directly that they were disappointed by the outcome of Y2K. These two participants suffered the strongest amount of dissonance, and I saw no means for them to reduce their suffering anytime soon after their interviews. They were hoping for major social change, and when that did not happen, they were saddened. Todd, a fifty-four-year-old member of law enforcement, stated,

Kinda bad. Disappointed. I was hoping for chaos. It was a little bit of a disappointment. Have you ever seen *Mad Max*? I'd like to have seen a total collapse of the U.S. government. I'd like to see the government break up into small tribal units. The one with the most firepower would rule.

Several survivalist participants relieved their dissonance by noting that the effects of Y2K were not over yet. They may not have actually been wrong. They suspected that there was a conspiracy behind the results. Greg, a fifty-four-year-old financial analyst, mentioned, "I'm glad that the people predicting doom and gloom were wrong. But it makes me wonder why the government was downplaying the effects of Y2K."

Most computer professional participants felt happy with the outcome of Y2K. They also expressed a sense of relief. One participant suggested that the successful outcome to Y2K was mostly due to the hard work of programmers like himself. All three subcultures framed themselves as heroes. Only one subculture, the computer professionals, could actually make a valid claim after Y2K that they had been instrumental in solving the Y2K problem.

Has the Outcome of Y2K Changed Your Opinion about Technology?

Most millennial Christian participants felt that their opinions concerning technology had not changed due to Y2K. However, Mark, a fifty-two-year-old minister, said,

I've become very impressed with the power of the Internet. I fight our faith in money and goods and technology. Our affluence has become our god. Why would we have to have faith in God when we have good homes, HMOs, and police?

All but two of the militia-patriot survivalist participants stated that they felt the same way about technology as they did in the first interview. Y2K had not changed their opinions at all. Two participants had opposing opinions. Ron, a sixty-five-year-old small business owner, stated, "I wish every damn computer would just blow up. It's just another way for you to get tracked by the federal government."

The computer professionals felt vindicated and smug with their reliance and worship of technology and computers.

Overall, in the follow-up interviews the millennial Christian and survivalist participants were faced with a state of cognitive dissonance as their predictions concerning Y2K did not come true. They reduced their dissonance through several processes such as believing that Y2K was not over yet, thus they had not yet been truly proven wrong; by stating that although they were wrong they learned something; or by stating that they had never really believed that any change would happen. All participants felt that there had not been many damaging effects of Y2K.

This subculture demonstrated remarkable interpretive resources rooted in their worldviews that helped them to reinterpret and rework their understandings of the results of Y2K. For example, they used their Christian beliefs both to frame their anticipated results of Y2K and to frame the actual results afterward. When Y2K did not turn out as anticipated, several participants understood that to mean that they should learn from that experience as a Christian, spend more effort on ministry, and look for continued signs of the end times in the world. Their worldviews expanded to encompass the results of Y2K as easily as they had encompassed the anticipation of it.

Conclusions

This work was also informed by and has added to the field of the sociology of technology. Most of the work in this field during the twentieth century looked at technology in an instrumental or substantive light. In the past twenty years, technology has been examined culturally. This work added to the body of knowledge in the area of the cultural framing of technology. In this work, technology and computers were framed by each subculture

through each of their respective ideologies. Technology and computers are cultural objects in their own right and were framed and interpreted differently by each subculture. This view of technology was then used in the framing of Y2K by each subculture.

The Y2K computer problem was a boundary or cultural object that was framed and analyzed by each of three subcultures. The subcultures acted as social agents and social analysts as they received, comprehended, and explained the cultural object of Y2K. For the sociology of culture, this work has filled several gaps. First and foremost, it has added to the work done by Griswold and Star in their formulations of the concepts of cultural and boundary objects. It provides an example of these objects and an empirical study of three subcultures' interactions with it. It has been a first in the study of how multiple subcultures interpret and frame a single cultural object. This work also contributes to the study of how subcultures operate. I argue that the three subcultures studied in this work have created subcultural filters to examine Y2K. These subcultural filters used previously held subcultural ideologies, which they combined with a set of cultural elements, or "tools" from the wider culture, attitudes toward technology, to fine-tune their interpretations of Y2K.

Most important, this work focused on the juxtaposition of two long-standing debates about the nature of technology. On one hand, technology has been framed to be instrumental, or socially determined, a neutral tool. On the other hand, it has been described as substantive, technologically determined. The second debate has been about the nature of technology as a force for good or a force for evil, typically described as the utopian-dystopian debate. I do not propose to provide an answer for these debates in this article, but I do propose that evidence can be found that the seeds of both theoretical extremes in both debates lie within the wider culture. I find that the subcultures examined here have framed technology, through their framing of a technological object, using instrumental and substantive as well as utopian and dystopian language. I find that the subcultures studied framed the technological object of Y2K by drawing from internal ideologies as well as socially available language springing from both of the extreme ends of these two axes. The two-dimensional vector space, the visual depiction of the debates, juxtaposed, allows the reader to see the interplay of ideology and the debates in an empirically substantiated view of a single technological object.

Not for another thousand years will there be a convergence of the end of the century and the end of a calendar millennium. However, as technology has gained a strong, central place in Western society and the world, the threat of technological fallibility will play a strong role in the coming years. As technology continues to claim a larger and more centralized role, not just in

American society but globally, the threat of technological failure must also become central to the study of society. Y2K passed without many social or technological crises; however, the seeds of technological doubt have entered the mainstream culture and will continue to operate at the cultural and subcultural levels into the future.

Appendix

It was my hope, if not intention, to select subcultures that would be similar enough to each other demographically so that the demographic differences would not be a significant variable in the subcultural responses. I believe that this quest for demographic similarity was only partially successful. However, I do not believe that the few demographic differences between the groups can account for the respective subcultures' differential framings of Y2K. Overall, the three subcultures were remarkably similar demographically in three areas. The participants were between two-thirds and three-quarters male. They were nearly all ethnically white. On average, all had fifteen years of formal schooling, that is, some college but no completed degree. They were nearly identical in three major demographic categories: gender, race/ethnicity, and level of education.

The three subcultures differed slightly in other demographic areas, including age, income, religion, and marital status. The millennial Christians and the survivalists were on average twelve to sixteen years older than the computer professionals. It is a common stereotype in the wider population that as one increases in age, one's chances of developing a more conservative political stance are higher. However, all three subcultures were politically conservative, regardless of the age difference. Age may have been a result of the nature of the industries in which members of each subculture found themselves employed. Technology, specifically Internet and computer technology as an industry, is new and requires highly skilled technical people with very recent up-to-date training. By choosing the computer professional subculture, I may have inadvertently chosen a younger subculture due to its type of employment.

The millennial Christians earned \$16,000 to \$20,000 more annually than both the militia-patriot survivalists and the computer professionals. This may also have been a factor associated with age. Since both the millennial Christians and the survivalists were significantly older than the computer professionals, this might account for the income gap. The millennial Christians earned significantly more than the mean household income in New Mexico as well as the national household income. They did not represent the stereotypical low-socioeconomic status Christian fundamentalists. Education levels remained relatively constant across subcultures, so this implies that the millennial Christians had higher paying jobs despite similar education levels than the other two subcultures. Perhaps this implies that the millennial Christians were the most centrally and powerfully located in the wider culture. Perhaps the survivalists and the computer professionals were more marginalized and less mainstream than the millennial Christians.

All three subcultures differed from each other in religion and marital status. The millennial Christians were 100 percent Christian and 93 percent married. The militia-patriot survivalists were only 48 percent Christian and 73 percent married. Only 20 percent of the computer professionals were Christian, and only 47 percent were married. I believe that these differences were a function of the differing subcultural ideologies of the three chosen subcultures as well as differences in age. I specifically chose a particularly fundamentalist Christian group and expected them to be 100 percent Christian. For the other two groups, religion was not a defining factor in their subcultural identities. A central part of millennial Christian belief was the traditional family as the basic social unit. It was predictable that the Christians would be more likely to be married than the other two groups. The other two subcultures may not have possessed the same ideological impetus to marry. Age is also a factor in marriage. As a society, we have raised the average age of marriage significantly over the past half century. The younger the subculture, the lower the percentage of married individuals.

I believe that in three important demographic areas, gender, ethnicity, and education level, the subcultures were remarkably similar. The only demographic category that differed significantly between the subcultures that may have affected the political views, technological attitudes, and likelihood of being married for the participants was age.

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