

Ethics in Technology
Teaching Materials
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Arguments and Fallacies

1. "Joe recommended choosing bootstrap for this project and he's a computer science major, so we should use that" is an example of an *Ad Hominem* fallacy. (F)
2. A valid argument is one whose conclusion follows necessarily from its premises, if they are assumed to be true. (T)
3. The only way to show an argument is invalid is by counter example. (F)
4. Arguments try to establish the truth of one claim (the conclusion) on the basis of at least two other claims. (F)
5. You can show an argument is invalid by showing that one of the claims it is based on is false. (F)
6. Inductive arguments show their conclusion is probably rather than necessarily true. (T)
7. Examining reasoning forms can provide objective criteria for evaluating if someone has made a good argument, rather than having only an intuition of whether they're right or wrong. (T)
8. Invalid arguments can be stronger than valid arguments. (T)
9. You should evaluate whether the premises of an argument are true before deciding

whether it is valid. (F)

10. "Many torrent files enable the downloading of copyrighted material, so torrent files should not be returned in web searches" is an example of a fallacy of composition. (T)

Discussion Question

Read each of the three short news articles addressing the downloading of copyrighted material below.

<http://www.nytimes.com/2012/02/05/opinion/sunday/perpetual-war-digital-pirates-and-creators.html>

<http://entertainment.time.com/2013/03/21/illegal-music-downloads-not-hurting-industry-study-claims/>

http://www.nytimes.com/2012/08/05/sunday-review/internet-pirates-will-always-win.html?_r=0

Choose one article to address in your discussion. First, outline the argument the author makes or presents in the standard format. If you believe the author has presented more than one distinct argument, choose one and present it completely. As a reminder, the standard format is a list of premises and conclusions, where each premise is numbered and each conclusion (including intermediate conclusions) is labeled with the premises used to support it. An example would look like:

(1) Text of premise 1

(2) Text of premise 2

(3) Conclusion: text of conclusion 3 (1, 2)

(4) Text of premise 4

(5) Conclusion: text of conclusion 5 combining conclusion 3 and premise 4 (3, 4)

Also, remember that implied assumptions (ie assumptions that the author clearly makes but doesn't write explicitly) should be made explicit in the argument outline as premises.

Then evaluate the strength of the argument. Is it valid or invalid? Sound or unsound? Inductive or fallacious? Inductive with all true or some false premises? Fallacious with a mixture of true and false premises? Some other combination? Note there are guidelines for determining whether premises are sound or unsound in Appendix G online (the link is

included in the textbook). And if you find examples of common fallacies in the argument, please highlight those.

Finally, briefly address whether you agree or disagree with the final conclusions, and what elements of the argument either convinced you or you found most problematic.

Privacy and cyberspace

1. The decisional view of privacy defines privacy as freedom from interference in one's choices and decisions. (T)
2. The distinction between naturally and normatively private situation between situations when one has privacy and one has a right to privacy. (T)
3. Nissenbaum argues privacy frameworks should consider whether the processes used in gathering and disseminating information are appropriate to a particular context and comply with norms that govern the flow of personal information in a given context. (T)
4. Both Nissenbaum and Moor's theories argue that the context in which information is exchanged, not the nature of the information itself, is most important in determining whether normative privacy protection is necessary. (T)
5. There is a well-established consensus that privacy is an intrinsic value. (F)
6. The sale and exchange of personal data is a large and growing business. (T)
7. Accessibility privacy defines privacy as control over the flow of one's personal information, including the transfer and exchange of that information. (F)
8. Some argue that computer matching (merging information from two or more unrelated databases to produce matching records) is a contextual violation of personal information and is incompatible with individual privacy. (T)
9. Data mining often produces new information (facts, relationships or associations) derived from implicit patterns in data and current laws offer virtually no protection to individuals as to how information about them acquired through data mining may be used. (T)
10. Public personal information (PPI) is information about a particular person determined only from municipal public records that are now available online. (F)

Discussion Question

At the beginning of Chapter 5, Tavani suggests that concerns about loss of privacy may have a generational dimension (that is, that younger people may be less concerned about privacy loss than older people). He briefly mentions that a similar difference may exist between people who live in different countries. In your essay, discuss either (a) generational or (b) cultural differences in privacy concerns.

To do so, conduct a series of informal interviews with individuals that represent three generations: Millennials, Gen X/Y, and Baby Boomers (as defined below) or individuals coming from three different countries.

In your interviews, ask people how much they value privacy, how much privacy they are willing to trade for the convenience of cybertechnology. Include some examples of relevant technologies for your interviewee to consider.

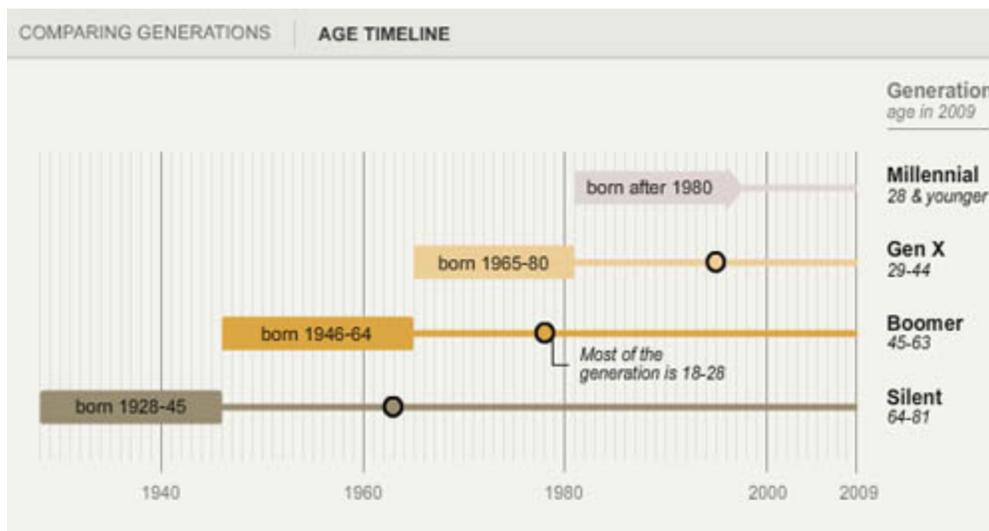
Then compare the answers you get from the three groups. Did you have a hypothesis going in to your interviews (ie. did you think Tavani was correct)? Do the results agree with what you expected? Were there any surprises? Did the people you talked to change their minds during your discussion? Highlight any other factors that you think distinguish the people you interviewed and their views.

For consistency, please use the definition of the three generations mentioned (Millennials, Gen X, and Baby Boomers) as defined by Pew Research [here](#)

Baby Boomer: born 1946-1964

Gen X: born 1965-1980

Millennial: born 1980-2004



Security in cyberspace

1. Network security concerns vulnerabilities to unauthorized access to data. (F)
2. Simpson states a hacker is anyone who accesses a computer system or network without authorization from the owner. (T)
3. Most intentional cybersecurity violations are illegal and often criminal, but not every crime in cyberspace involves a violation of cybersecurity. (T)
4. The hacker code of ethics as described by Levy includes the principle that hackers should not make money from their exploits because information should be free. (F)
5. Manion and Goodrum's evaluation of whether an act of hacktivism qualifies as electronic civil disobedience includes the condition that the hacktivism is not for personal profit. (T)
6. Physical infrastructures like power grids sometimes depend on the security of cyberspace. (T)
7. Cyberterrorism is politically motivated hacking operations intended to cause grave harm, either in loss of life, severe economic loss or both. (T)
8. Information warfare is distinguished from cyberterrorism because IW involves cyberattacks launched by sovereign nations or nation states. (T)
9. Privacy and security concerns involving cybertechnology differ because while privacy concerns often involve a loss of control over personal information that is accessed by organizations who may have some *legitimate* need for that information, security concerns involve information accessed by unauthorized organizations or individuals. (T)
10. According to Pieters and van Cleeff, deperimeterization is a problem in IT security because the distinction between data and networks has become unclear. (F)

Discussion Question

Read the following three articles:

<http://www.nytimes.com/2014/03/03/technology/when-start-ups-dont-lock-the-doors.html>

<http://www.cbc.ca/news/technology/smartphones-becoming-prime-target-for-criminal-hackers-1.2561126>

<http://www.informationweek.com/big-data/big-data-analytics/wearable-computing-equals-new->

[security-risks/d/d-id/1113411](#)

Select **one** article and discuss how your chosen example relates to technology security. Is it a distinctly security related issue? Is there any overlap with issues of privacy or computer crime?

Then in evaluating your example in terms of ethical concerns, address how you believe the example you chose either successfully or unsuccessfully balances the need to secure computer systems adequately and the need to assure the autonomy and privacy of computer users. If you argue it is unsuccessful, how do you think such a balance might be achieved.

Cyber crimes

1. According to Forester and Morrison's definition of cybercrime, filing fraudulent tax returns electronically would be considered a computer crime. (T)
2. Wall distinguishes between malicious and non-malicious forms of hacking by using the expressions "white flag" and "black flag" hackers. (F)
3. Cybervandalism is the use of cybertechnology to unleash one or more programs that either disrupt the transmission of electronic information across computer networks or damage data on computers, computer system resources or both. (T)
4. Cybercrimes are only those crimes which are specific to cybertechnology, but other categories of cyber-related crimes (like cyber-assisted and cyber-exacerbated crimes also exist). (T)
5. Cyberstalking is a cyberspecific crime. (F)
6. Civil liberties issues often lie at the heart of controversies surrounding the use of cybertechnology by law enforcement agencies to track down criminals. (T)
7. Packet sniffing and keystroke monitoring are two technologies used by both law enforcement and malicious hackers. (T)
8. The Patriot Act works with and expands on two related acts, the Davis-Bacon act and the Antiterrorism and Effective Death Penalty Act of 1996. (F)
9. Because cyberspace has no physical boundaries, and laws are based on "territorial sovereignty," enforcement of cybercrimes can be difficult. (T)
10. Online media sources have an obvious role and are well integrated within the traditional journalistic enterprise, which makes evaluating when they qualify for legal protections straightforward. (F)

Discussion Question

Find an article that presents a recent case or demonstrates an example of a cybercrime or cyber-related crime. For example, an article in the Guardian from 2010 outlined how simple cyberstalking can be using Foursquare and other locational apps:

<http://www.theguardian.com/technology/2010/jul/23/foursquare>

Using the example from your chosen article, answer the following questions:

Is your example a case of cybercrime or cyber-related crime, and why? If it is a case of cybercrime, identify whether it best fits into the category of cyberpiracy, cybertrespass or cybervandalism. Does this categorization capture your example well? If you argue it is a cyber-related crime rather than a cyber-specific crime, identify whether it is cyber-exacerbated or cyber-assisted and explain why.

Then address whether there are any tools, technologies or best practices developed to prevent or deter the kind of cyber- or cyber-related crime you selected. Are there any government interventions designed to combat this kind of crime? If such interventions exist, are they justifiable and/or appropriate?

Finally, to what extent are jurisdictional questions relevant for your example? Where would the crime you chose to discuss be prosecuted? Consider the role of states/provinces within nations and enforcement issues that arise when multiple nations are involved.

Intellectual Property

1. One major difference between intellectual objects and tangible objects is that intellectual objects are nonexclusionary. (T)
2. In Europe, individual labor, social utility and expressions of personality of the creator are all justifications used for granting intellectual property rights. (F)
3. Initially, software was not considered a distinct commodity because it tended to be bundled together with hardware offerings in a single package. (T)
4. The historical distinction between human readable and machine readable forms based on player piano technology has important implications for copyright protection for software. (T)
5. The *first sale* principle establishes that whoever makes the first sale of a new technology is the entity that may claim copyright protections. (F)
6. The *fair use* principle allows for engineering practices such as “reverse engineering.” (T)
7. According to the NET Act, merely viewing a copyrighted work posted on the internet can be interpreted as a criminal violation of copyright. (T)
8. The Free Software Foundation movement differs from the Open Source Software movement because it does not argue that all software *should* be free, but only that the open source model provides a good alternative software development methodology. (F)
9. The information commons is a body of knowledge and information available to anyone to use without the need to ask permission, provided any conditions placed on its use are respected. (T)
10. The Creative Commons works to remove all restrictions from the licensing of creative work. (F)

Discussion Question

Read the following three articles and select **one** to write about in your response:

<http://www.theguardian.com/technology/2014/mar/21/rise-plagiarism-internet-shia-labeouf>

http://www.nytimes.com/2012/10/08/technology/patent-wars-among-tech-giants-can-stifle-competition.html?_r=0

<http://www.economist.com/blogs/schumpeter/2014/03/intellectual-property?zid=317&ah=8a47fc455a44945580198768fad0fa41>

If you want, after reading the three examples, instead of choosing one to discuss, you may find another example of intellectual property disputes in cyber technology. There are some fun examples out there (for example, Chinese firms turning the table and suing US firms for patent infringement

http://www.washingtonpost.com/business/economy/chinese-firms-put-intellectual-property-law-suits-to-work/2012/08/30/12d9a418-f1c3-11e1-adc6-87dfa8eff430_story.html and claims about food photos infringing on chefs' rights

<http://www.theguardian.com/media-network/media-network-blog/2014/mar/04/food-porn-selfies-damaging-chefs-restaurants>, among others).

Using an example from your chosen article, answer the following questions:

Does your example deal with software or digital media?

If so, how can current intellectual property laws be applied? And does that application seem reasonable?

Which of the three theories of property do you consider most appropriate for this case?

Does your example deal with information?

Does a common-good approach offer additional insight?

In this case, do you agree that "*information wants to be shared*" can be used as a guiding principle?

Do you think the "information commons" is a relevant framework? How would the information commons affect information policy and rights for this example?

Cyberspace regulation

1. Whether cyberspace *can* be regulated is a descriptive question, while whether it *should* be regulated is a normative question. (T)
2. Those who consider the Internet a new kind of medium draw analogies to growth media (like nutrient broths) used to grow cell cultures or microorganisms to argue that it is a space to culture and grow new technologies. (F)
3. Regulation of the internet focusing on processes covers topics from e-commerce to determining whether to permit mergers like Comcast's with Time Warner Cable. (T)
4. Lessig's *code* constraint or modality involves the ways in which software alone can be used to regulate behaviors in cyberspace. (F)
5. Concerns about DRM arise for some because technological controls embedded in software can limit the ability of users to debate public policy about copyright, producing obstacles to "fair use" and enforcing laws without checks and balances provided by the legal system. (T)
6. U.S. Congress passed legislation that protected individuals who had registered domain names that contained phrases and symbols identical to ones trademarked in physical space (like "Red Sox" or "Amazon"). (F)
7. Providing links to subpages of websites (deep linking) is a controversial practice that has resulted in court cases (for example, between Microsoft and Ticketmaster). (T)
8. Catudal argues that two distinct types of censorship exist, censorship by suppression and censorship by deterrence, where suppression is a less drastic approach that depends on threats of arrest, prosecution, conviction and punishment of those who make objectionable material available or those who acquire it. (T)
9. Hilden argues that applying child pornography laws to cases of sexting may be inappropriate because the photos may be unsolicited by the receiver. (F)
10. Net neutrality proponents argue that, like the electrical grid provides the same power regardless of whether a toaster or iron is being used, Internet services should not distinguish between the kinds of content, devices, or particular sites used. (T)

Discussion Question

Find an article dealing with one of the following three topics from the chapter:

- 1) Controversial technologies and privatization of information and enforcement (including DRM, HTML metatags, deep linking)
- 2) Free speech online (including pornography, hate speech, etc)
- 3) Net neutrality

For every group, consider and answer the following questions in your response:

First, briefly address what example is covered in your article and how it relates to the topic as it was introduced in the chapter. Then consider the broader questions:

- 1) How do you interpret cyberspace? Is it a medium or space? How does that interpretation affect the topic you chose?
- 2) Should cyberspace and/or technologies be regulated in this case? Why or why not?
If yes, which of Lessig's modalities are relevant? Code, norms, laws, market pressures?
Do you think your argument supports or argues against the idea that cyberspace and/or technologies should be regulated in general?
- 3) Consider bringing in other topics from this chapter or previous ones (different conceptions of intellectual property, protections for a free press, equitable distribution of resources, etc) as they are relevant.

Digital Divide

1. To fix the *digital divide* problem, according to Compaine, one needs only to give people access to information tools. (F)
2. Some argue that eliminating the global digital divide will require an increased use of graphics and images that can serve as universal symbols for those who may not be literate. (T)
3. According to Ross' deontological framework, the prima facie obligation to help the poor might require ethical actors to help bridge the digital divide. (T)
4. Fairweather argues that remote work has been a uniformly positive development for disabled workers. (F)
5. Through 2011, some differences in usage patterns between white and African Americans' use of the Internet persist. (T)
6. Many argue that socialization and conceptions of computer science as a male profession have resulted in an underrepresentation of women in computer science jobs. (T)
7. Some critics worry that "personalization filters" used by search engines and social media will increase polarization and decrease citizens' ability to engage in meaningful debate of public issues. (T)
8. Goldman argues that while individual blogs may be inaccurate or biased, the adversarial process that the blogosphere overall encourages may provide a more effective set of checks and balances than the traditional media. (T)
9. Robotics primarily displace unskilled jobs, so Lin and others argue that increased training and education should provide adequate methods for workers to re-enter the workforce. (F)
10. Rationales used to oppose workplace monitoring of employees include increased employee stress, invasion of employee privacy, reduction of employee autonomy and undermining employee trust. (T)

Discussion Question

The arguments made in the book about gender in computer science leave some questions. For a clearer picture of the arguments Tavani makes and how they tie together (particularly

the idea that computer games might play a role), consider reading the following two-page article in *Science* from 1996: <http://www.jstor.org/stable/2889393> .

However, this information is still out-of-date. Some of the most recent figures for gender, racial and age distribution of STEM workers can be found in the 2013 Census report: <http://www.census.gov/prod/2013pubs/acs-24.pdf>. For your discussion response, find a recent article dealing with the role of gender in technology -- try to find one published in or after 2010. Address the following questions:

1. What similarities or differences does the author address with respect to gender? Is it a difference in jobs? Gaming practices? Some other technology or computer science related issue? Why are those differences significant (or why not)?
2. Why does the author think this is a problem or should be addressed? I.e. what is the framework they are using for their analysis -- are they arguing that better work will be produced by teams with even distributions of genders (a utilitarian argument) or that an obligation to treat actors equally is not being fulfilled (deontological) or do they have some other basis for their claims? Discuss the extent to which you agree that this is a problem and whether you agree with the author's framework.
3. Does the author make an argument for how this ought to be resolved? Do you agree or disagree? What do you think is the best approach?
4. Address the overall strengths and weaknesses of the argument. Present your conclusions on whether gender differences in technology, particularly computer science, do exist and whether they are problematic and why.
5. Finally, note whether there are any connections to issues of race, disability, or other issues from the textbook, whether covered in this chapter (role of technology in the democratic process, workplace monitoring, displacement by robotics, international differences) or those covered in previous chapters (intellectual property, privacy, etc).

Online communities and identities

1. Arguments to support the claim that online communities have negative effects include that they have increased social polarization and facilitated anonymity and deception. (T)
2. The three senses of virtual outlined in the book are first, something that is not real, second, indicating something that is not actually true but is nearly so (ie. virtually finished), or third the sense that something is “as if” physically present. (T)
3. Brey argues that ethical concerns about virtual environments fall into two categories, one is physical issues affecting how people integrate virtual interactions into physical spaces, and the second is relational issues, addressing how the virtual environments relate internally. (F)
4. Some worry that the kinds of reasoning used to defend virtual murder in games could be extended to defend virtual pedophilia. (T)
5. Brey believes that two distinct kinds of argument can support the claim that it is wrong to perform immoral acts in virtual environments, one argument from moral development and a second from psychological harm. (T)
6. Turkle argues that computers become a medium through which people express their one true identity that is not possible in real life. (F)
7. Bolter argues that humans in the late twentieth century, people began to see themselves in more computer-like ways and to think of themselves in terms of computer metaphors. (T)
8. Searle’s “Chinese room” scenario provides an additional test for artificial intelligence systems that might considered to have human-like intelligence. (T)
9. Floridi has argued that in addition to animals and environmental entities that are now considered moral agents, that some kinds of information objects are also moral agents. (F)
10. Issues of virtual economies can also relate to the digital divide, where some players buy virtual gold in games but can lead to reported cases of sweatshop laborers acquiring such virtual resources. (T)

Discussion Question

Choose two very distinct social websites that you frequent or are familiar with. Keep in mind that the definition of social websites is very broad. These include

- traditional social networks (Facebook, Twitter, Weibo, Renren)
- social news sites (Reddit, Slashdot),
- or any other site with a social component:
 - Online poker
 - Blogs with comments
 - Dating sites
 - Social music sites
 - Forums surrounding particular topics like body-building
 - Online review sites, etc

Using the two sites you choose:

1) Briefly describe their online communities.

What kinds of interaction take place on the site?

What types of identities are created on the site? Are they real identity, pseudonyms, anonymous posts?

How much do users consider the social component of the site to form a community?

And what types of deception (if any) are possible or common on the site?

2) Are there any analogous communities in real life? And if so, how does the virtual version appear similar or different? Consider if and/or how the virtual community interactions are affected by the interface of the website.

2) Do you believe that social polarization takes place on the site as a whole or any subsections of the site? Is there a specific topic covered on the site? Do users tend to have a consistent perspective?

3) Given the two sites you chose, argue for whether these sites have enhanced or decreased community life? How could or should you assess this? What kinds of community do you think are relevant?

4) Finally, identify any additional ethical issues you think are relevant, either those mentioned in the chapter or in previous discussions? For example, consider whether your sites show any issues surrounding free speech, the digital divide, intellectual property, etc.