DETERMINISM AND ALTERNATIVES

7/9/11

Approaches to Technology

Course Logistics

- Class starts at 10:10, Berkeley Time
- Check the website regularly:
  - http://blogs.ischool.berkeley.edu/i103su11/
- Course Reader
  - available from Copy Central, 2560 Bancroft Way
  - required readings for Monday (and rest of the course) only available in reader – so get it today
  - no other books required
- Some readings available online through the Berkeley Library, see 'getting to the readings' on the website

Assignments & Grading (1/2)

- Reading responses, first one due Monday 7/11, 15%
  - Regularly respond to a set of readings in 200-300 words (double-spaced), prompts will be posted on the website
  - Posted under Course Info, Reading responses, Response #1
- Short Paper, due Monday 7/18, 15%
  - Instructions available online, will discuss in class Wed. 7/13
  - 3 pages double-spaced, proper citations (see website for help with citations and writing)
- Quizzes and Exams, 45% combined
  - Regular quizzes
  - Midterm (7/22), Final (8/12)

Assignments & Grading (2/2)

- Presentations, 15%
  - Sign up on the website: choose a date and briefly state your interests
  - Try to choose a date on the syllabus based on your interests, feel free to come up with related or other topics
  - We will assign groups based on your responses on Monday
  - Please **sign up before Sunday midnight 7/10 - 11:59pm**
- Participation, 10%
  - Read the materials, come to class, participate in class discussions

Make sure…

- …you sign up for the presentations
- …you are on the class mailing list: i103@ischool.berkeley.edu
- …understand the assignment submission process

Questions?

- You can also come to Office Hours:
  - Wednesdays, 1-2pm, South Hall Atrium
- Or by appointment:
  - alexbraunstein@ischool.berkeley.edu
  - arthur@ischool.berkeley.edu
- Please read the Berkeley campus and Summer Sessions policies (links available on the website)

Theoretical perspectives for technological development and change

- Technological Determinism
- Symptomatic Approach
- Social Constructivism

Agent, Reaction, Reflection?

- What role does technology play in human culture / society / history?

Technological Determinism

Determinism, Redux

- Tech drives change

Determinism

- Change comes from outside society as part of autonomous scientific development
- Technology 'imprints' on us certain aspects that are key to the tech itself
  - May be a 'cultural lag' while society reorders itself around new technology

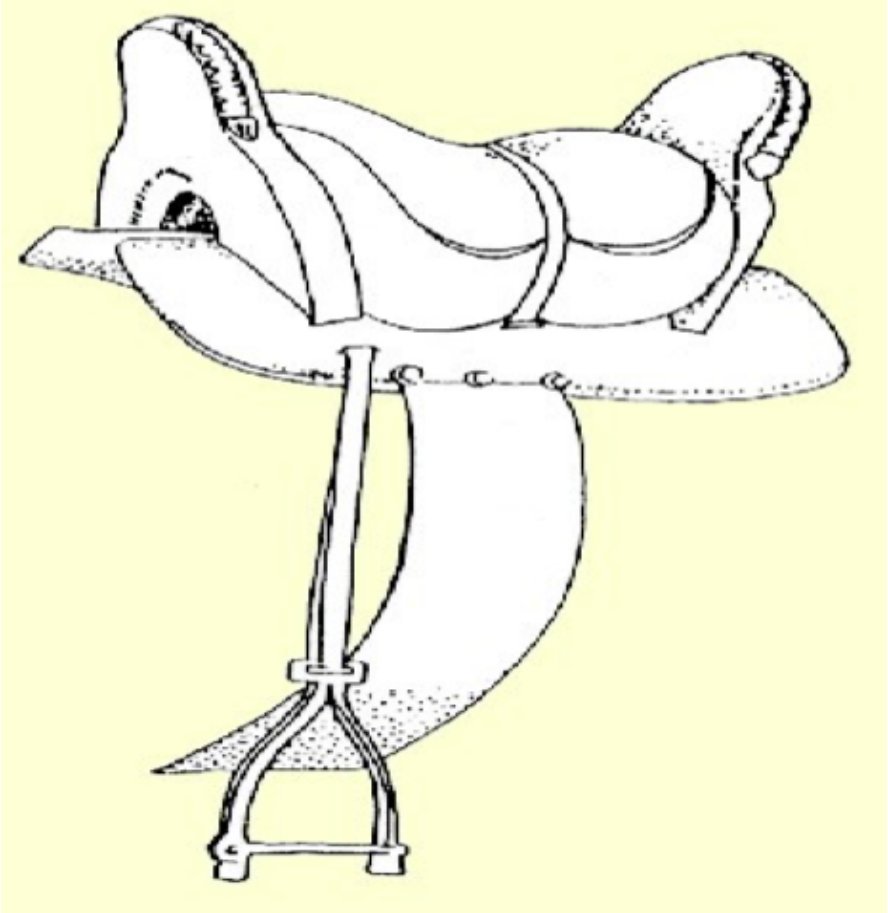
Determinism

- Technologies have their own inertia, totally separate from influences of people
  - At extreme, tech *causes* social change

Consequences

- Macro
  - tech causes social / historical change
- Micro
  - tech affects social / social-psychological processes as individuals use tech and tools

Example 1: The Stirrup



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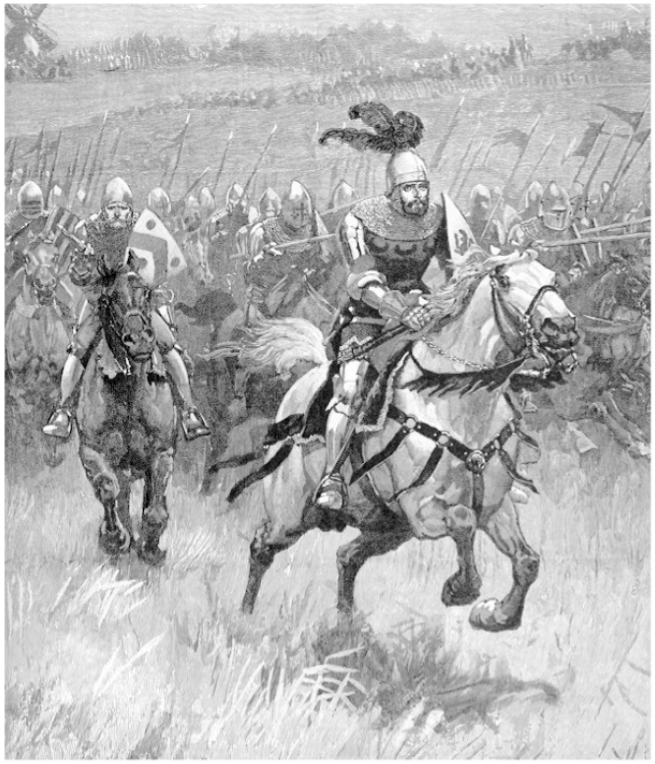
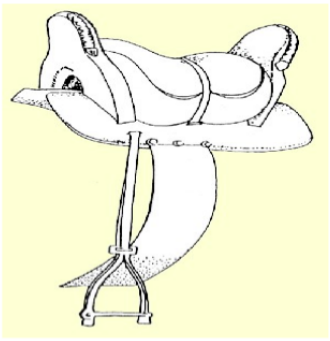




- The invention of the stirrup led to Feudalism

Example 2: The Auto and Suburbia

- The automobile created suburbia

Example 2: Now…

Example 2 : …and Then

Example 3: OLPC

one laptop per child

Example: OLPC

- Deterministic view and assumption of the OLPC project

"Information and communication technology (ICT) is a tool to be passed out, implementations are one-shot, technological effects are direct and immediate, politics are irrelevant, social effects are benign, contexts are simple, knowledge and expertise are easily made explicit and ICT infrastructures are fully supportive."

Warschauer & Ames, 2010

Example 3: OLPC

- Consequence of this assumption

"The poorest countries targeted by OLPC cannot afford laptop computers for all their children and would be better off building schools, training teachers, developing curricula, providing books and subsidizing attendance."

Warschauer & Ames, 2010

Symptomatic Approach

Symptomatic Approach

- Technologies are expressions of culture
- History has a 'grand direction'
- Tech / material goods are manifestations of 'Geist'
  - 'guiding mind'

Symptomatic Approach

- People are tied to new information technologies (mobile phone, email, Twitter) and feel lost / lonely without them
- Train, automobile, motorcycle are part of American expression of freedom / change
- Example: Leo Marx's claim about the railroad as an emblem for social change.
- But what about causality?

Devices vs. Things

- Borgmann – *Technology and the Character of Contemporary Life*
  - Modern technology: 'the typical way in which one in the modern era takes up with reality'
  - Distinguishes modern devices (1700 – now) from largely pre-modern *things*

Things

- Objects whose internal working we understand, and which can 'center and illuminate our lives'
  - Fireplaces
  - Violins
  - National Parks

- GOOD

Devices

- Objects whose internal working are unknown, and that exist merely to provide some basic function for us
  - Central heating
  - Stereos
  - Motor Homes
- BAD

Borgmann, We Have a Problem

- Not everyone knows the internal operation of a violin
- The computer may be a device whose operations are mysterious to some, while to others it may well be a focal thing that provides great sense of satisfaction and/or community
  - And what of the potential disconnect between knowing how something works and how to work something?
    - Do we have to know something inside and out to benefit from it?

Social Construction of Technology

Social Constructivism (SCOT)

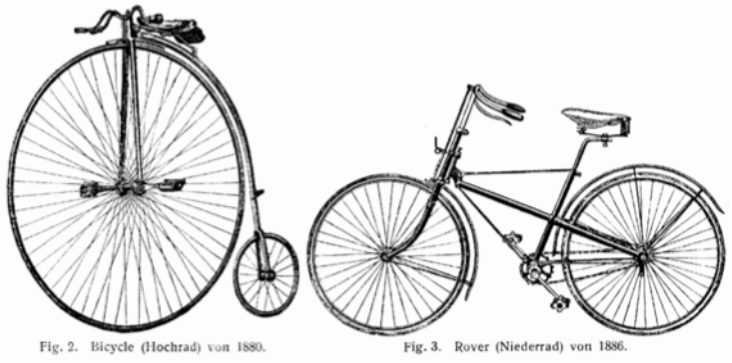
Social Constructivism

- Tech shaped by social interaction
- In some cases, users choose to use technology in ways that produce no significant change in activities
  - 35-minute commute
  - Housecleaning aids
  - Tools for keeping in touch

Social Constructivism

- Both tech and social processes shape tech development
- What we think of as tech is produced by many factors:
  - Individual/group behavior
  - Economy/markets
  - Consumer demand

Bicycle built for who?



Social Constructivism

- Technologies can develop differently
  - Interpretive flexibility
    - An object may be perceived differently by different relevant social groups
  - Stabilization
    - RSGs negotiate and cause technology to converge
  - Closure
    - Social process in which technological artifact reaches its final form

TD's Response to Social Constructivism

- Reality can't be 'discovered' if it's already out there
- Scoping problem: what's the 'society' here?
  - Family, company, nation?
- SCOT assumes equality of groups
  - Fails to recognize power dynamics
- Tends to avoid overarching political pronouncements
- Historical method, but history is tricky
  - You can tell where we've been but not where we're going

Example: OLPC

one laptop per child

Example: OLPC

- What would the Social Constructionist critique of the assumptions made by this project be?

Example: OLPC

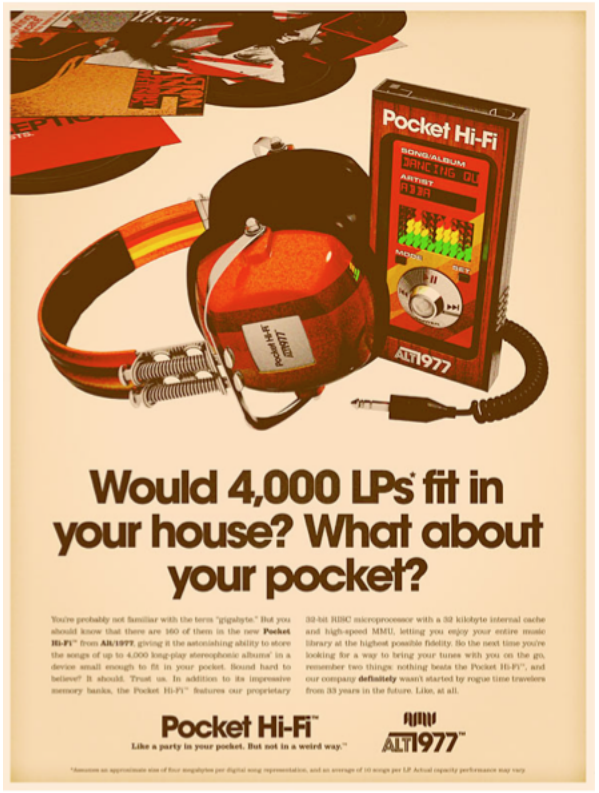
- What would the Social Constructivist critique of the assumptions made by this project be?

"… can only happen if they devote substantial effort and funding to the kinds of infrastructure development, teacher training, curriculum development, assessment reform and formative evaluation necessary for school laptop programs to work."

Warschauer & Ames, 2010

Blast from 'The Past'

- How might a technological determinist react to this?
  - A social constructionist?



Back to the future

- How do past innovations look in hindsight?

What is technology?

Leo Marx

What is technology?

"The chief hazard attributable to the concept of technology, as currently used, is the **mystification, passivity, and fatalism** it helps to engender. Today we invoke the word **as if it were a discrete entity**, and **thus a causative factor**--if not the chief causal factor--in every conceivable **development of modernity**. Although we cannot say exactly what that "it" really is, it **nonetheless serves as a surrogate agent**, as well as a mask, **for the human actors actually responsible** for the developments in question."

-Leo Marx

Next week

- Writing systems and its cultural effects
- Reading: McLuhan and Marshack (only in reader)

- First reading response due on Monday 7/11
  - On the website under 'Course Information' ➔ 'Reading Responses' ➔ 'Reading Response #1'
  - Submit online before class on Monday (10:10am) using the correct filename

- Sign up for the presentation groups, see link on website **before Sunday midnight (7/10 23:59pm)**