data-ppf.github.io mar 26, 2020

lecture 9 of 14: big data, old school

chris wiggins + matt jones, Columbia

logistics/housecleaning/changes in grading

- p/f

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- Paper: The central work of the term will remain your final paper or project. Please schedule remote time (zoom, etc.) with your TAs once spring break is over to work through your ideas. The professors will also have some office hours.

student reactions

```
14 privacy
9 consent
4 moral
7 Igo
7 Akimel O'odham / Pima
4 Bode (author of Vice piece)
4 Asimov (mentioned in Igo)
4 COVID
3 Radin
2 "invisibility of the watchers" (from Igo)
```

student reactions: privacy:

I think this is a particularly sensitive topic, given that people likely assume that data collection for disease tracking purposes is a good reason to give up a bit of privacy for the sake of the larger good, and may assume that those collecting the data also have good ethical/moral intentions.

When reading "Assault on Privacy," I noticed this attempt to use data to understand humans and human dynamics is now the shift to shaping them too.

It has become apparent that total privacy in this day and age is impossible unless you are completely disconnected from technology and the internet. So the questions becomes, where do we draw the line?

student reactions: connections:

While reading the Vice article about how to go about tracking for COVID-19, it raises the problems of irreversibility that Igo discusses.

While Bode's Vice piece is in direct response to privacy concerns amid COVID-19, his piece shares Radin's sense of urgency.

Igo highlights on page 234 of her book the fact that the same data that can be used to save someone's life can also destroy it. This concept is also relevant to the article about COVID-19's potential use of cell phone location data to prevent outbreaks

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- inconvenient truths this week: big data (still) means *labor*:
  - hidden, gendered (cf. Poon), "otherized" (cf. Radin) and repeatedly: devalued

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- Scientific and mathematical development

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- how did new capabilities rearrange power? (who can now do what, from what, to whom?) (rights, harms, justice)

historical & social context

postwar rise of digital, personal data

- computation accelerates the information deluge

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- computation, data, and control: 'cybernetics' (in Miller, esp.)

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- computation, data, and control: 'cybernetics' (in Miller, esp.)
  - recall the root of cyber is control $\kappa\nu\beta\epsilon\rho\nu'\eta\tau\eta\varsigma$ / kubernetes

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- information deluge+information retrieval (IR)

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- information deluge+information retrieval (IR)
  - Google's original mission+origin (stay tuned)

what are the new capabilities this week?

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leading to

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- prediction (Poon/Radin/Bode) + control (Bode/Poon)

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  - press
- people power

power, reminder

- indirect edges among the 3

  privacy was, as Francis Sargent, the governor of Massachusetts, put it, "good politics." (and bipartisan!) (Igo)

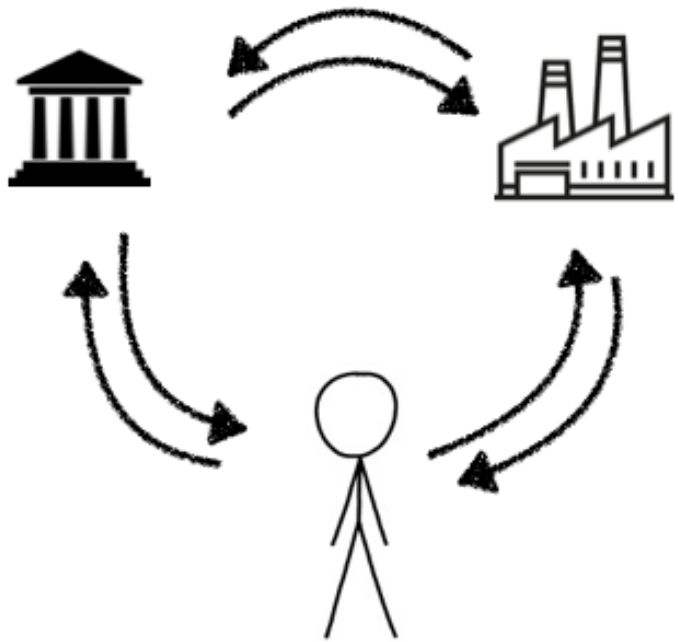

Figure 1: power meme

readings: Igo; Luhn (58); Radin; Bode
(optional: Miller (71); Poon)

Igo

Igo: Woke was in

- Feb 23, 1974

But until the day comes when science finds a way of installing a conscience in every computer, we must develop human, personal safeguards that prevent computers from becoming huge, mechanical, impersonal robots that deprive us of our essential liberties.

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- Feb 23, 1974
- Pres. Richard Nixon "Radio Address About the American Right of Privacy."

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Balancing of privacy clear

Privacy must be weighed today against the value gained from the collection and availability of information at central points or data banks . . . How much personal information is worth the convenience of a credit card?

- testimony in United States Congress Senate Committee on Government Operations Ad Hoc Subcommittee on Privacy and Information, Privacy. 1:651, June 18, 19, and 20, 1974.

1974-5: Woke bill guidelines

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4. There must be a record of every significant access to any personal data in the system, including the identity of all persons and organizations to whom access has been given.
5. There must be a way for an individual to prevent information about him collected for one purpose from being used for other purposes, without his consent.

Business pushes back

Modern technology permits credit grantors to respond to consumers efficiently and rapidly partially by virtue of accessing credit information through on-line terminal facilities or alternatively by telephone Inquiries. If the free flow of information is impeded by law, the resulting inefficiencies will necessarily be translated into higher costs to industry and consumer.

- Statement Of The National Bank Americard, United States Congress Senate Committee on Government Operations Ad Hoc Subcommittee on Privacy and Information, I: 606

Privacy bill limited to Fed Gov

- the US Federal Government affirmed *no general principle* of the protection of personal data.

Privacy bill limited to Fed Gov

- the US Federal Government affirmed *no general principle* of the protection of personal data.
- provided no generalized form of *accounting* for the collection, exchange, and sale of that data.

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  - large-scale government surveillance using business data

Igo: state as reformer

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  - Drivers Privacy Protection Act of 1994

Igo: principle of *transparency* (in addition to privacy)

FERPA

- then: parent access to student records to correct errors

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- now: non disclosure of student records to non-parents

Luhn

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Luhn

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Luhn

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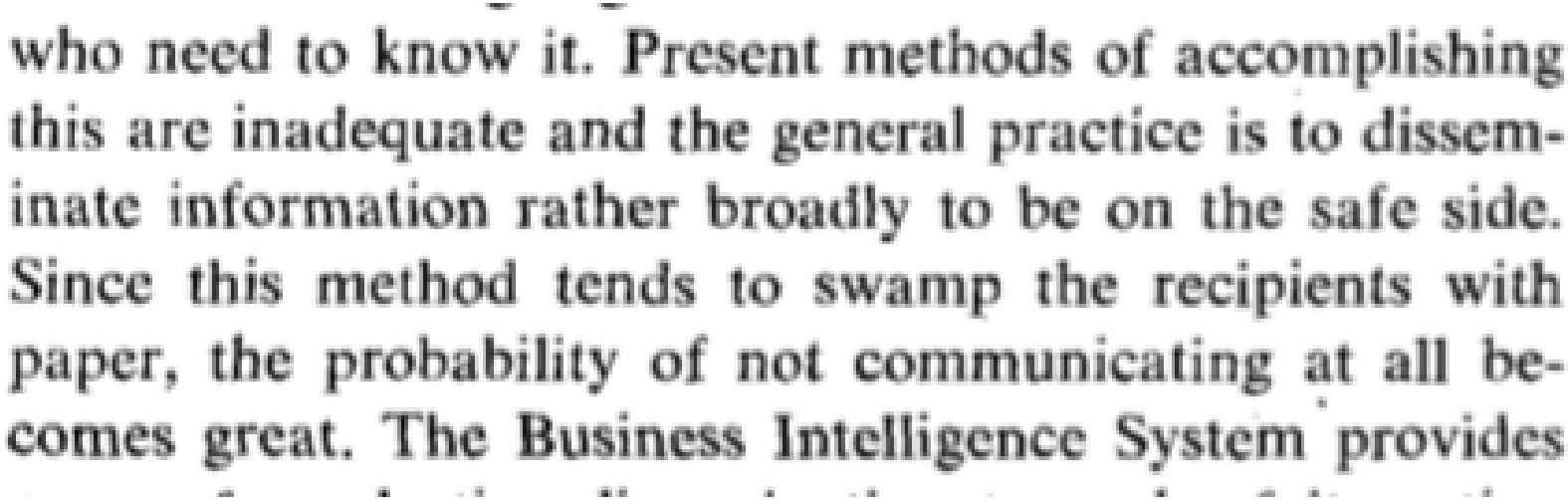
- impact: promoting BI to a function, centralizable, a skill

before Luhn, the deluge



who need to know it. Present methods of accomplishing this are inadequate and the general practice is to disseminate information rather broadly to be on the safe side. Since this method tends to swamp the recipients with paper, the probability of not communicating at all becomes great. The Business Intelligence System provides

Figure 2: Human problems

infosec as afterthought

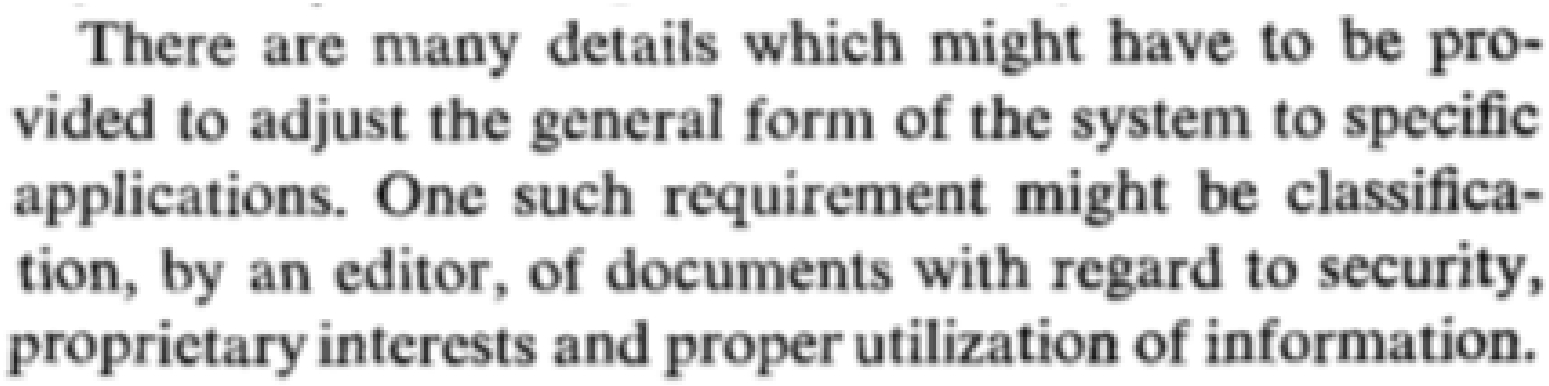
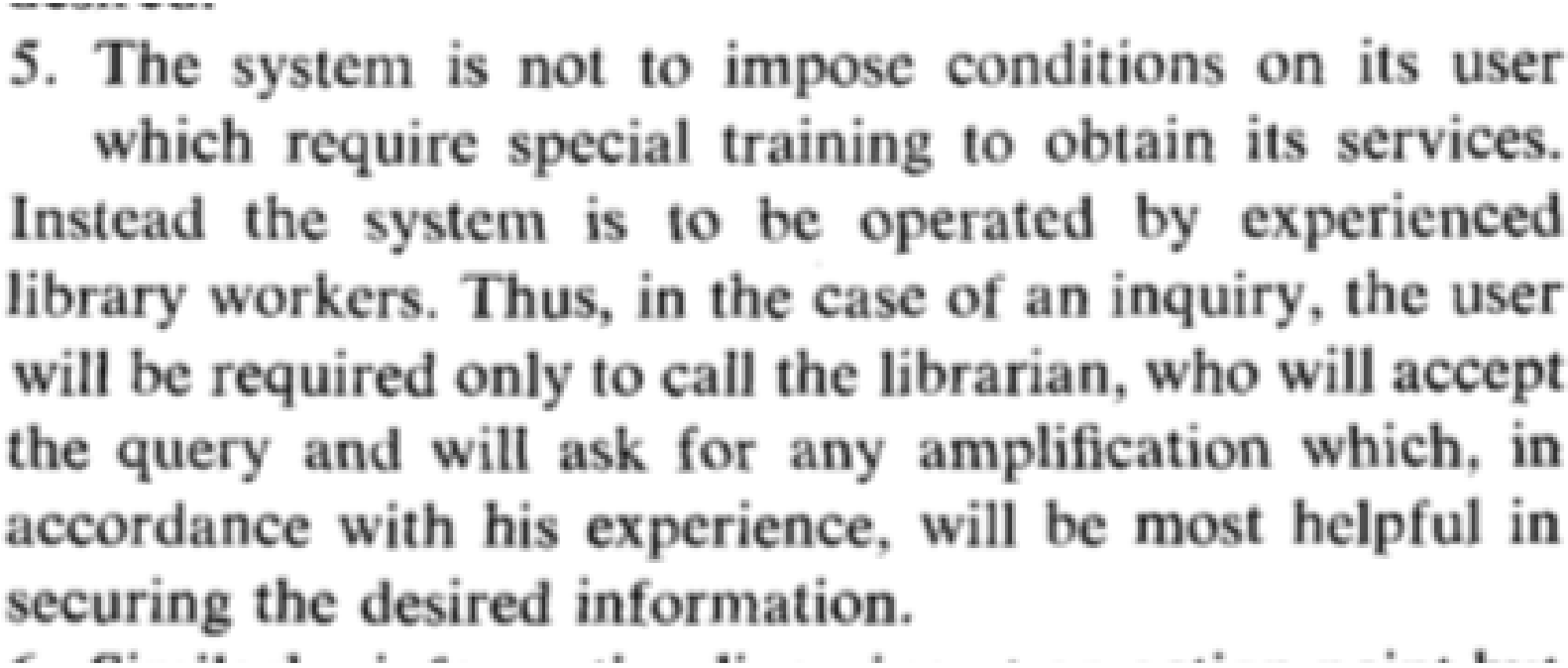

There are many details which might have to be provided to adjust the general form of the system to specific applications. One such requirement might be classification, by an editor, of documents with regard to security, proprietary interests and proper utilization of information.

Figure 3: move fast, break things

partial democratization



5. The system is not to impose conditions on its user which require special training to obtain its services.

Instead the system is to be operated by experienced library workers. Thus, in the case of an inquiry, the user will be required only to call the librarian, who will accept the query and will ask for any amplification which, in accordance with his experience, will be most helpful in securing the desired information.

Figure 4: “librarian” but “not to impose. . . special training”

Luhn the inventor + tinkerer

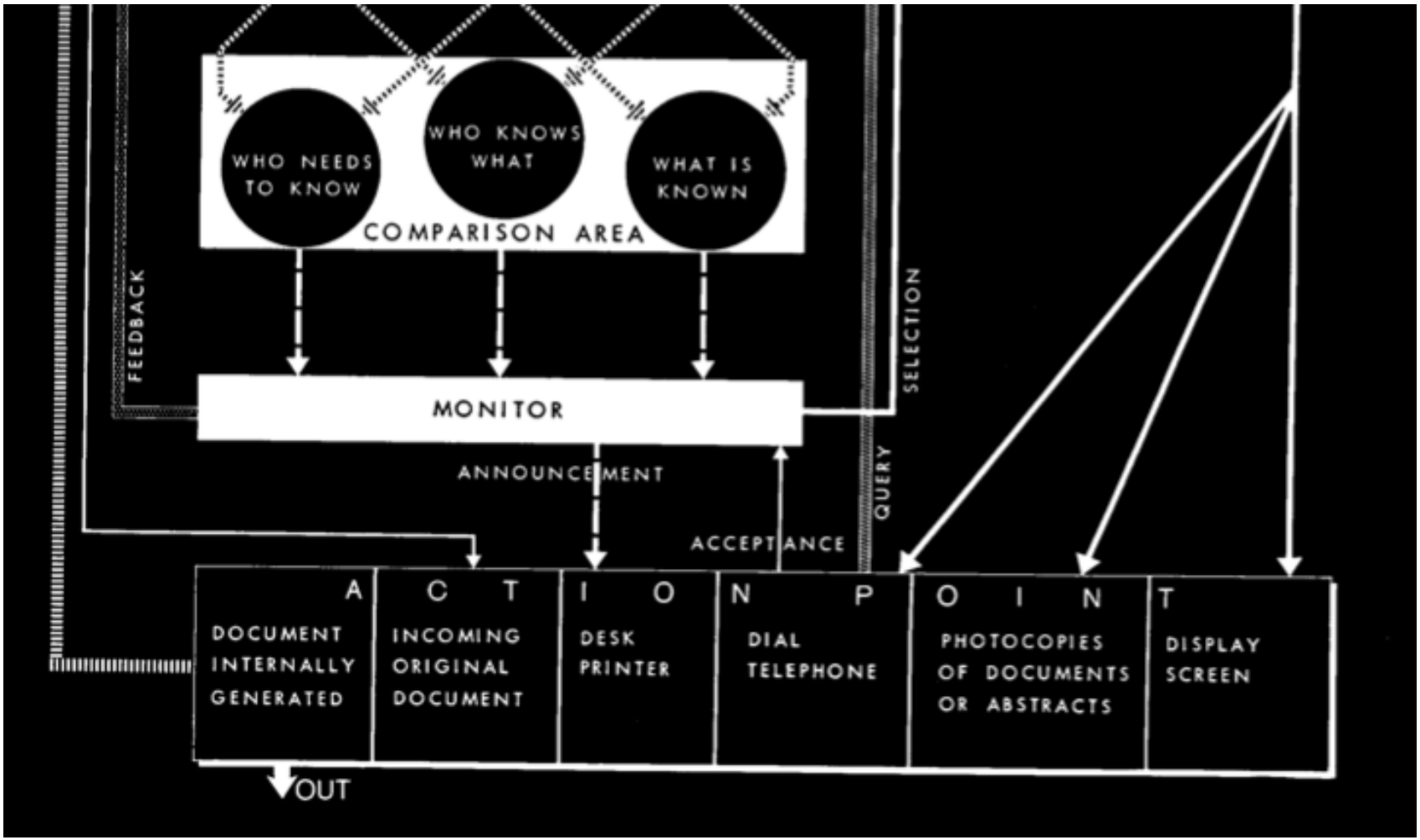


Figure 5: people are part of the information machine

Radin

- "invisible labor" of big data, hidden even the word 'data'!

  researchers who donated the data were primarily concerned with attribution — making certain that their work and funders were credited properly — not about compensating patients, whose data had been made anonymous and was therefore regarded as protected.

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  - dumpster fire in ch 1,2,3,4
  - law in ch 5,6

Miller 1971 Optional reading

- opens with Lamport poem
- please take note structure of TOC
  - dumpster fire in ch 1,2,3,4
  - law in ch 5,6
  - solutions in ch 7

ACTIVITY

- what does “private” describe?

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  - legally
  - as something to build practicable enforceable systems with

Miller Ch 2 what is privacy anyway?

- independence?

  Privacy is a special kind of independence, which can be understood as an attempt to secure autonomy in at least a few personal and spiritual concerns, if necessary in defiance of all the pressures of modern society. . [I]t seeks to erect an unbreachable wall of dignity and reserve against the entire world. The free man is the private man, the man who still keeps some of his thoughts and judgments entirely to himself, who feels no over-riding compulsion to share everything of value with others, not even those he loves and trusts.

Miller on Ch 2: is it that?

lawyers and social scientists have been reaching the conclusion that the basic attribute of an effective right of privacy is the individual's ability to control the circulation of information relating to him—-a power that often is essential to maintaining social relationships and personal freedom.

Helen Nissenbaum: the alternative "contextual integrity" 2004

Proposals to improve and fortify notice-and-consent, such as clearer privacy policies and fairer information practices, will not overcome a fundamental flaw in the model, namely, its assumption that individuals can understand all facts relevant to true choice at the moment of pair-wise contracting between individuals and data gatherers. Instead, we must articulate a backdrop of context-specific substantive norms that constrain what information websites can collect, with whom they can share it, and under what con- ditions it can be shared. In developing this approach, the paper warns that the current bias in conceiving of the Net as a predominantly commercial enterprise seriously limits the privacy agenda.

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- In your group

Miller (and Igo)

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- ‘dossier’ implies criminal

miller on McCarthyism

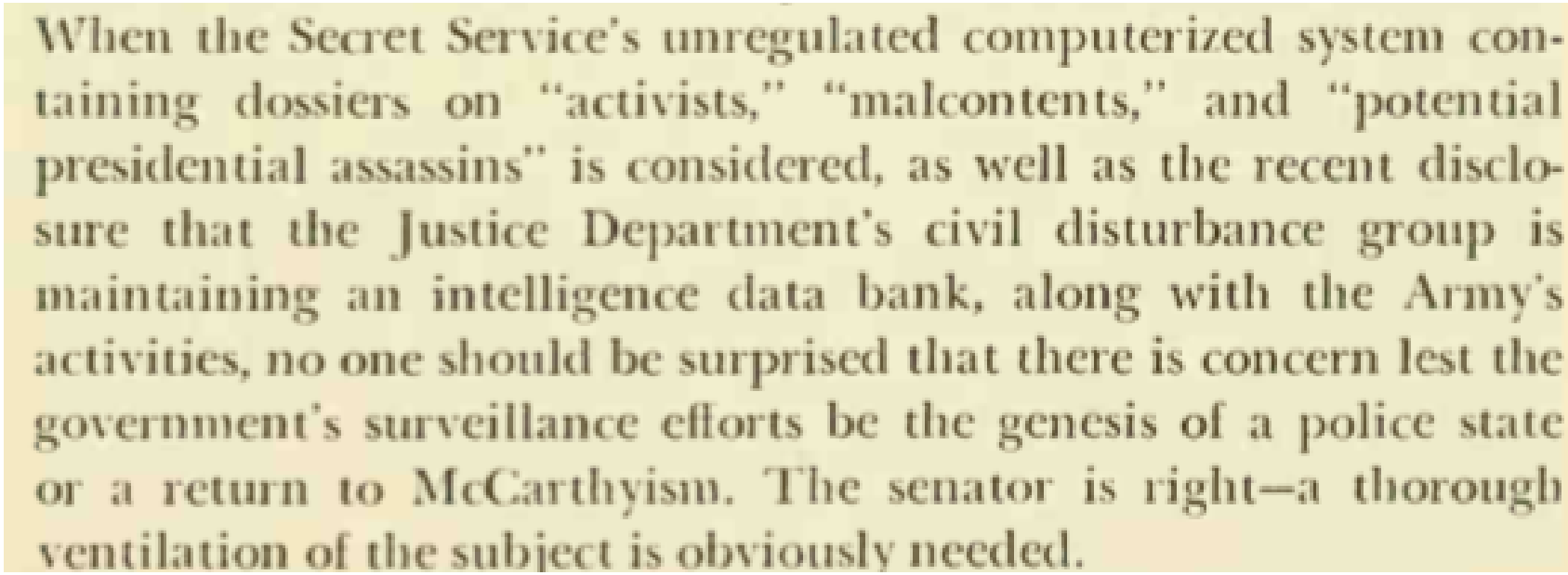

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Figure 6: Dossier. . . McCarthyism. . . senatorial investigation "is needed"

elaboration by Igo

ties during the McCarthy years, the word "dossier" conjured up a suspect citizen who had through his own activities earned the attention of authorities. Merely having a dossier implied having something to hide; indeed, possessing "a record" was one feature distinguishing the bad citizen, or the noncitizen, from the good. For this reason, keeping tabs on law-abiding Americans, no matter that it was a routine practice of credit card companies and the IRS alike, could generate considerable unease. The headline of one negative report on the National Data Center, "There's a Dossier on You," tapped into just this sense of disquiet.[23]

Figure 7: Recording implied you did something wrong

Miller (and Igo)

- ‘dossier’ implies criminal

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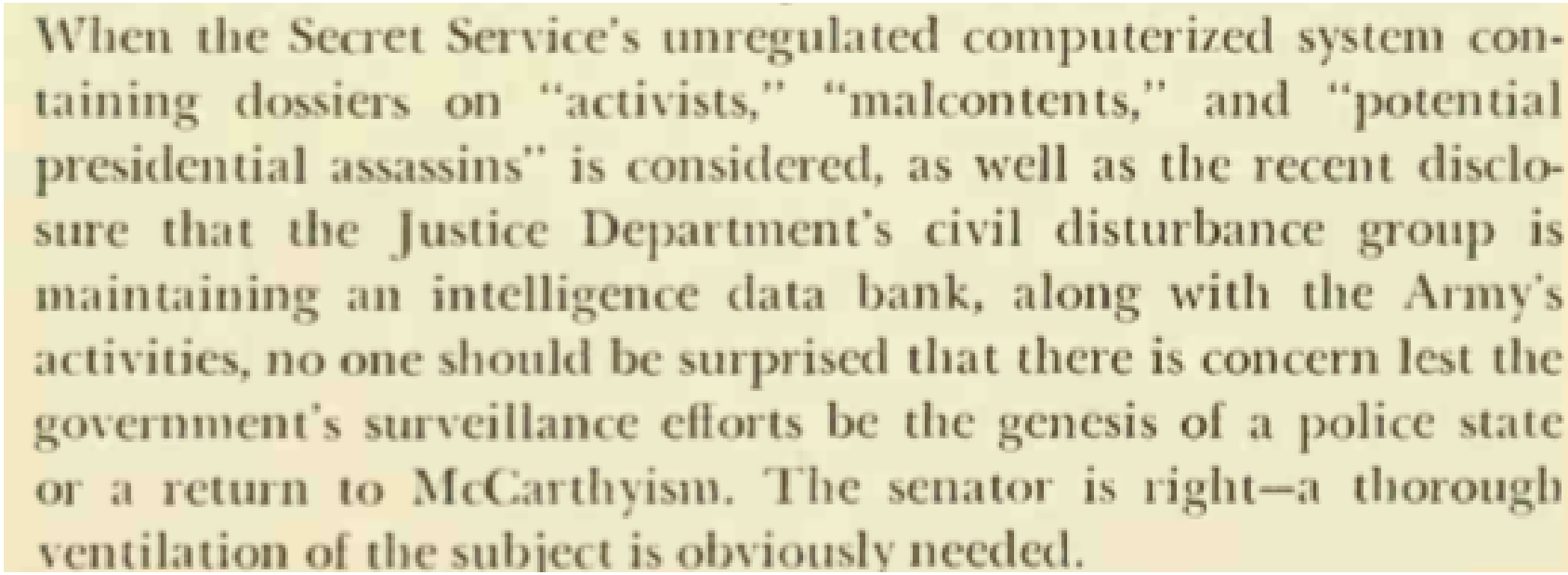

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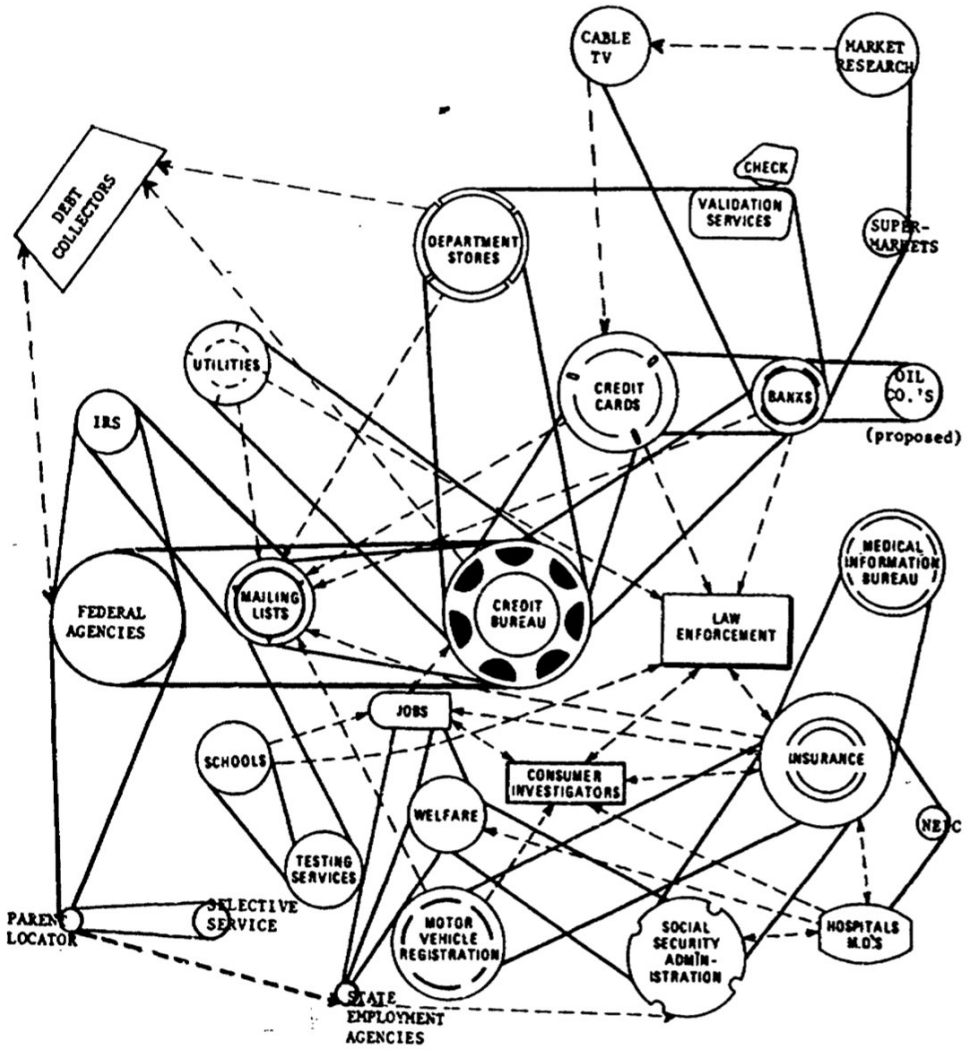
Figure 9: Recording implied you did something wrong

1984 hearings on "CIVIL LIBERTIES AND THE NATIONAL SECURITY STATE"

Chart 4



Against Privacy

Privacy not a norm

"You have zero privacy anyway. Get over it." - Scott McNealy, the CEO of Sun Microsystems

Privacy not a norm

Privacy no longer a social norm, says Facebook founder

Bobbie Johnson, *Las Vegas*

Mon 11 Jan 2010 01.58 GMT

▲ People have become more comfortable sharing private information online, says Facebook founder Mark Zuckerberg. Photograph: Eric Risberg/AP

The rise of social networking online means that people no longer have an expectation of privacy, according to Facebook founder Mark Zuckerberg.

Talking at the Crunchie awards in San Francisco this weekend, the 25-year-old chief executive of the world's most popular social network said that privacy was no longer a "social norm".

Figure 11: zuck

Eric Schmidt (Google)

If you have something that you don't want anyone to know, maybe you shouldn't be doing it in the first place.

('Nothing to hide argument')

It is possible that [Google's] information could be made available to the authorities."

much greater transparency and no anonymity. . . true anonymity is too dangerous.

Miller (and Igo)

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  - e.g., “arrest”

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  - “understand” vs “control conduct”

quote (miller)

To some degree, the widescale use of computers to determine consumer appetites and voter attitudes adds new dimensions to the study of human dynamics. Unfortunately, the name of the game is not necessarily to give the citizenry what it wants; often these surveys are intended to divine a method of making palatable what industry or government already has decided to offer the public. One New Jersey firm is developing a data bank on doctors in order to enable drug companies to promote their products in a way that is suited to the habits and personality of individual doctors.[32] As this illustrates, the line between the use of cybernetics to understand an individual and its use to control or affect his conduct and beliefs is shadowy at best and one that is likely to be transgressed with some frequency.

Figure 12: "understand an individual" vs "control..conduct and beliefs"

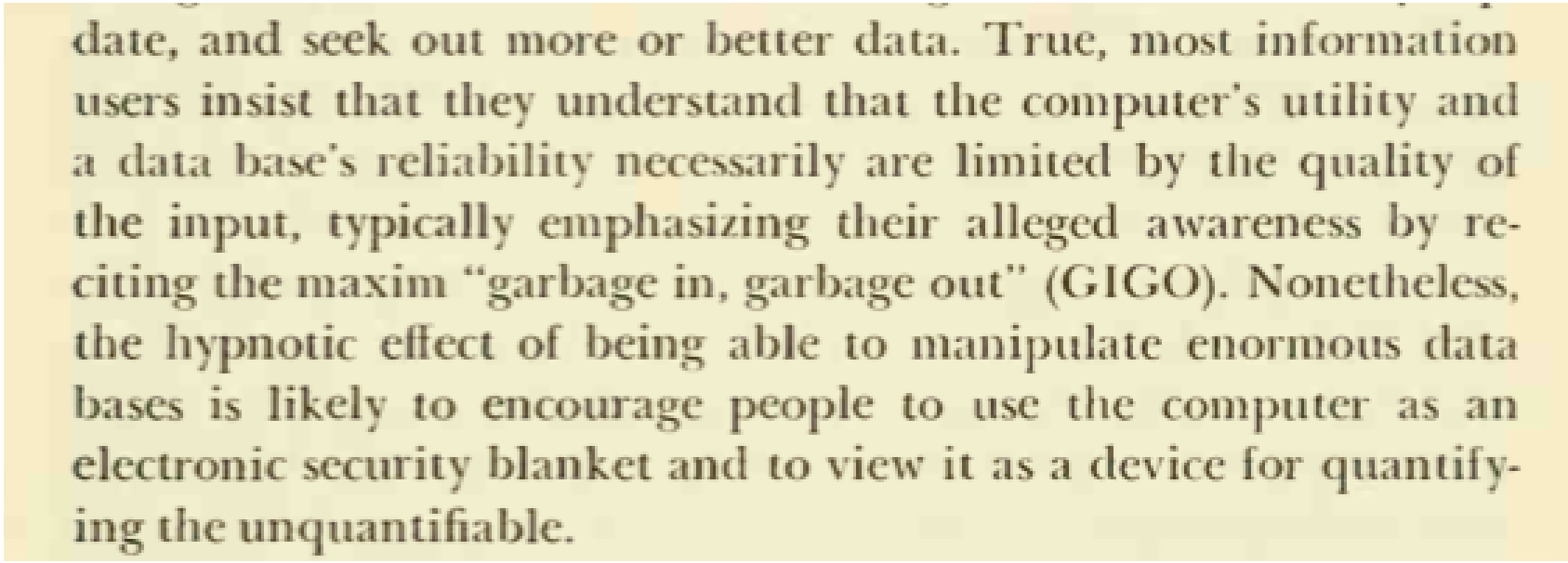
iteration and contestation

imagined the writer, might beget a whole new form of individualism. Basing his discussion on the targeted mailing lists then beginning to make an appearance, Asimov reasoned, "What [the consumer] receives will be so likely to be of interest to him and to be slanted to his particular needs that, even if he does not buy, he will feel that someone has gone to the trouble of knowing what he might want."[77] Indeed, it was perhaps only in a thoroughly computerized world that a person *could* be fully individualized. Until that day, "his wants and needs are unknown to anyone but himself and his immediate associates," making him a "faceless nothing."[78] The known citizen, in his futuristic scenario, was a well-cared-for citizen.

Figure 13: quote, igo

Asimov loves persuasion architectures

Miller on fallibility of data



date, and seek out more or better data. True, most information users insist that they understand that the computer's utility and a data base's reliability necessarily are limited by the quality of the input, typically emphasizing their alleged awareness by reciting the maxim "garbage in, garbage out" (GIGO). Nonetheless, the hypnotic effect of being able to manipulate enormous data bases is likely to encourage people to use the computer as an electronic security blanket and to view it as a device for quantifying the unquantifiable.

Figure 14: Miller on GIGO

Miller on data as authority

Nor should we ignore the real possibility that prejudice to the individual will not end with the decision to seek an indictment. Commenting on this particular computer application, a lawyer observed: "[T]he . . . computer can tell you where the stars are going to be a million years from now. Do you think a jury is not going to believe that it can tell you where a bookie is in the Bronx?"[24]

Figure 15: astronomy ergo predictive policing

Poon on FICO (why saved for last. . .)

- end with FICO because it's a living fossil

Poon on FICO

- credit became statistical (learned coefficients)

> *They compare the USA [and] Russia. . . [where] credit cards are distributed on the basis of subjective evaluations, on social networks and on 'trust' (ie, demonstrable friendships, kinship ties and employment), while in the USA, a mature market, institutions such as credit bureaus make calculative credit scoring practices feasible.*

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Poon on Labor

This was a two-stage process performed by housewives working at piece rates of a few cents per sample application out of their homes. The meticulous work of 'the home- coders' was the backbone of the scorecard since it was their job to interpret the writing on the ledger cards and reliably convert it into the standardized numerical codes demanded by the analytic process. Codes were transferred to paper, reviewed for accuracy by a woman assigned as a 'checker', and subsequently transferred to punch cards so that the data could be read by machine. As one of the women who headed coding described it, a punch card machine is 'like a typewriter, you put your IBM cards in — they're about five by seven — and you have to sort them. If we punched a certain digit that would mean [occupation]: housewife' (Senior coder A).

Poon on Labor, cont.

Because of its repetitive and mechanical nature, coding was considered a mundane task in the company. Yet upon scrutiny it is clear that the work that was done involved its own form of skilled decision-making that was far from obvious. A former coder made clear to me that '[t]here was some interpretation on all of this. You couldn't just copy it. That was the hard part, coding it. [. . .] They didn't just say he's been three times thirty days late in nice English' (Senior coder B). Another drew attention to the fact that, "We had to read these logs of payments and every company didn't do the same thing, and we'd get so confused' (Senior coder C).

The Wells system involved teams of women working with boxes of punch cards and 42 pound Fridan [sic] calculators.

Poon: role of state

> *[if you] wonder why such flawed techniques continue[d] to prevail in the lending industry, the author points to the role of the state in sanctioning these methods,*

- cf., e.g., p-values

Poon: iteration

> *each time statistical practices have been introduced to a problem in a substantive domain, expertise, networks of associations, technical objects and even new interpretations of probability must be formed to accommodate this extension (Desrosiéres, 2000; Gigerenzer et al., 1989; Hacking, 1975; Porter, 1988). If statistical theories change as they travel, and if the places they go must be rebuilt and rearranged to fit to accommodate them in practice, then it is from the details of this mutual refitting that novel calculative effects must emerge.*

- where have we seen this before?

Poon: subjective design choices

the very distinction between 'good' and 'bad' was flexible. . . . [e.g.,] one missed payment, two missed payments in 12 months, not paying at all for three months. . .) and policies on what was con- sidered an account in default varied between firms.

just how many files, from how narrow and recent a time period in a firm's history were necessary to build a representative model.

present day relevance: COVID-19

data and covid

- insightful infographics abound

data and covid

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  - Our world in data has a gallery

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options differ; opinions surprise

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  I am a privacy activist who has been riding a variety of high horses about the dangers of permanent, ubiquitous data collection since 2012. But warning people about these dangers today is like being concerned about black mold growing in the basement when the house is on fire.

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- et tu, Zoom?: Access Now urges transparency from Zoom on privacy and security (Human rights NGO; Mar 19)

ethics and covid

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- Who Should Be Saved First? Experts Offer Ethical Guidance (Mar 24)

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- E.g., R_0, the "Basic reproduction number ", traces to models of the early 1900s

power and principles

how did this capability rearrange power? who can now do what, from what, to whom?

role of rights, harms, justice?

reminder: themes for today

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  - hidden, gendered (cf. Poon), "otherized" (cf. Radin) and repeatedly: devalued

up next

- what even is

up next

- what even is
  - privacy

up next

- what even is
  - privacy
  - ethics

up next

- what even is
  - privacy
  - ethics
    - how we define

up next

- what even is
  - privacy
  - ethics
    - how we define
    - how we design

up next

- what even is
  - privacy
  - ethics
    - how we define
    - how we design
- what happens when data, intelligence, and money meet?

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- 2020-01-28 : 2 of 14 setting the stakes

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- 2020-02-04 : 3 of 14 risk and social physics
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- 2020-02-18 : 5 of 14 intelligence, causality, and policy
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- 2020-03-24 : 9 of 14 big data, old school (1958-1980)
- 2020-03-31 : 10 of 14 data science, 1962-2017
- 2020-04-07 : 11 of 14 AI2.0
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- 2020-04-21 : 13 of 14 present problems: attention economy+VC=dumpsterfire
- 2020-04-28 : 14 of 14 future solutions

Bonus quotes

quote 2 (miller)

As recently as a decade ago we could smugly treat Huxley's *Brave New World* and Orwell's *1984* as exaggerated science fiction having no relevance to us or to life in this country. But widespread public disclosures during the past few years about the new breed of information practices have stripped away this comforting but self-delusive mantle. It is now common knowledge that whenever a citizen files a tax return, applies for life insurance or a credit card, seeks government benefits, or interviews for a job, a new dossier is opened on him and his informational profile is sketched. Indeed, there are precious few things left in life that will not leave distinctive electronic tracks in the memory of a computer—tracks that can tell a great deal about our activities, habits, and associations.

Figure 16: quote 2, miller

quote 8 (igo)

The very term "dossier," not to mention a "giant dossier bank," as the *New York Times* characterized one of the proposals for centralizing federal record keeping, had already acquired a bad reputation.[22] Linked to those

with a criminal record or who had engaged in subversive political activities during the McCarthy years, the word "dossier" conjured up a suspect citizen who had through his own activities earned the attention of authorities. Merely having a dossier implied having something to hide; indeed, possessing "a record" was one feature distinguishing the bad citizen, or the noncitizen, from the good. For this reason, keeping tabs on law-abiding Americans, no matter that it was a routine practice of credit card companies and the IRS alike, could generate considerable unease. The headline of one negative report on the National Data Center, "There's a

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quote 10 (igo)

78. Isaac Asimov, "The Individualism to Come," *New York Times* advertising supplement, sec. 11, January 7, 1973, pp. 12, 13.

Figure 19: quote 10, igo

quote 11 (igo)

37. "Retail Credit's Day in Court," *Privacy Journal* 1: 2 (December 1974): 1; "Retail Credit Co. on Trial," *Privacy Journal* 1: 11 (September 1975): 4. Intriguingly, Retail Credit attempted to use FCRA against the Federal Trade Commission, arguing that the federal agency should not be privy to its customer files. On the Retail Credit Company, see the exposé "Anything Adverse?" *New Yorker*, April 21, 1975, as well as *Roemer v. Retail Credit Co.* of 1975. The company would soon, as a result of all this bad publicity, rename itself Equifax.

Figure 20: quote 11, igo

quote 12 (igo)

Still, expectations that a computerized world would usher in tremendous benefits were alive and well. The faith that computer systems would help government run better, deliver public services more effectively, and

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The Record Prison

engineer new solutions to social problems animated discussions of expanding electronic networks. The municipal government of New Haven,

Figure 21: quote 12, igo

quote 13 (igo)

8. This last was the Government Accounting Office's blueprint for a center called FEDNET. Helen Nissenbaum, *Privacy in Context: Technology, Policy, and the Integrity of Social Life* (Stanford, CA: Stanford Law Books, 2010), 39. See also Robert Ellis Smith, *Ben Franklin's Website: Privacy and Curiosity from Plymouth Rock to the Internet* (Providence, RI: Privacy Journal, 2000), 309–312. "A detectable trend toward increased public criticism of the plans of organizations and their personal records" was also obvious in Britain, according to Malcolm Warner and David Stone, *The Data Bank Society: Organizations, Computers and Social Freedom* (London: George Allen & Unwin, 1970), 20.

Figure 22: quote 13, igo

quote 14 (igo)

dividual civil and bodily right to privacy. In the very years that French theorist Michel Foucault's writings on classification and distributed discipline were starting to be translated and read in the United States, a homegrown analysis of social surveillance was crystallizing. This analysis called attention to the ways citizens were captured or hemmed in by the many social institutions that "knew" them, whether through a rap sheet, a school dossier, or a credit report. Even if the term itself would have been unfamiliar to many, Foucault's description of "panopticism"—a system of control that worked because individuals never knew when they were being watched—shared much with discussions about an emerging surveillance society in the United States. Foucault had borrowed the concept

Figure 23: quote 14, igo