

Privacy



What it is
How we're losing it in the digital age
How it can be protected

- privacy** (15c) (from *private*) The state or quality of being *private*.
- 1 a. The state or condition of being withdrawn from the society of others, or from public interest; seclusion.
b. The state or condition of being alone, undisturbed, or free from public attention, as a matter of choice or right; freedom from interference or intrusion. Also attrib., designating that which affords a privacy of this kind.
 2. a. pl. Private or retired places; private apartments; places of retreat. Now rare.
b. A secret place, a place of concealment. (*Obsolete*)
 3. **a. Absence or avoidance of publicity or display; a condition approaching to secrecy or concealment. a synonym for secrecy**
b. Keeping of a secret, reticence. (*Obsolete*)
 4. a. A private matter, a secret; pl. private or personal matters or relations. Now rare.
b. pl. The private parts. (*Obsolete*)
 5. Intimacy, confidential relations. (*Obsolete*)
 6. The state of being privy to some act; = privity. rare.

Privacy is Not a New Concept

- **1 b.** The state or condition of being alone, undisturbed, or free from public attention, as a matter of choice or right; freedom from interference or intrusion. Also attrib., designating that which affords a privacy of this kind. <one's right to *privacy*>
 - **1814** J. Campbell *Rep. Cases King's Bench* III. 81 Though the defendant might not object to a small window looking into his yard, a larger one might be very inconvenient to him, by disturbing his privacy, and enabling people to come through to trespass upon his property.
 - **1890** Warren & Brandeis in *Harvard Law Rev.* IV. 193 (*title*) The right to privacy.

What's Changed?

- Exponential growth in storage, processing speed, communication speed
 - ▶ sensitive data about everyone in UK can fit on a laptop (or 2 DVDs!)
- Exponential growth in number of sensors everywhere
- Exponentially increasing amounts of usable data stored in corporate and government databases
- Data exchange mechanisms (networks) and standards
- Technology to correlate data (put pieces together) to get a larger picture from otherwise meaningless fragments (e.g., search engines)

Data, Data, and More Data

- Lots and lots of data is **collected** and **retained** and **analyzed**
- Mobile phone companies know
 - numbers you call, numbers who called you
 - where your phone has been
- Credit card companies know
 - where you spent your money
 - what you spent it on
- Your bank keeps
 - electronic records of your transactions not only to keep your balance right, but because it has to tell the government if you make huge withdrawals
- There may be records of the clothes you wear, the soaps you wash with, the streets you walk, the cars you drive and where you drive them....

Saturday, 3 December 2011

cameras are just the tip of the iceberg

far from the most pervasive of today's tracking technologies.

search engines to piece the bits together, to find the needles in the haystacks. Wherever we go, we leave digital footprints, while computers of staggering capacity reconstruct our movements from the tracks. Computers re-assemble the clues to form a comprehensive image of who we are, what we do, where we are doing it, and whom we are discussing it with.

Where does this data come from?

Big Brother is Watching You!

- **Government, Law Enforcement**

- ▶ Census data, electoral role, campaign contributions, real estate transactions, motor vehicle registration ...
- ▶ Digital/electronic surveillance, eavesdropping

- **Corporate databases**

- ▶ Records of business transactions (banking, shopping, bill pay, ...)
- ▶ Subscription to services (e.g., Library Elf, Love Film, Sky TV, ...)

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- Much of this data was already being collected, but required a trip to the Hall of Records, or other agency
- Now at your fingertips....
- More places to be concerned about privacy:
 - ▶ Library Awareness Program (FBI)
 - counterintelligence effort providing information to FBI including the names and reading habits of library users
 - ▶ Corporate database reuse
 - ▶ Digital/electronic surveillance, eavesdropping

Cameras, cameras everywhere

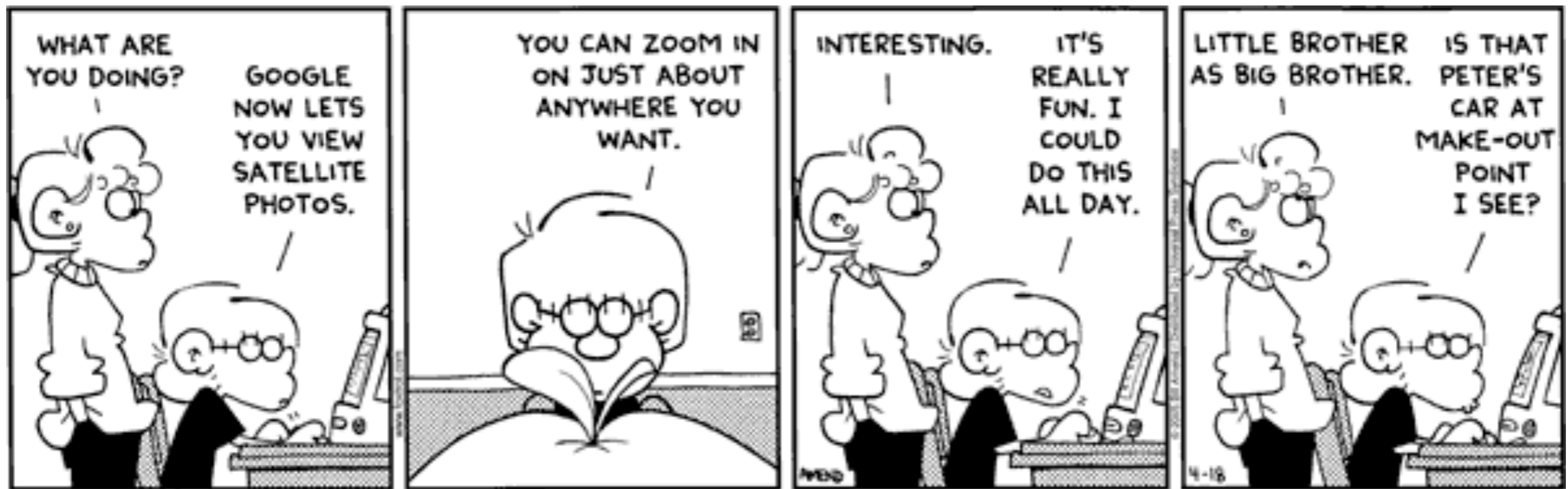
- > 500,000 cameras in London
- across the UK, one surveillance camera for every dozen people



(Blown to Bits, p.20)

Where does this data come from?

Little Brother is Watching You!



We use technology “to check up on our children, our spouses, our neighbors, our colleagues, our neighbours, enemies, and our friends. More than half of all adult Internet users have done exactly that.” *(B2B, p.21)*

And don't forget these....



Digital Finger and footprints

- **Exchangeable Image File Format (EXIF)**
 - ▶ digital cameras encode meta-data with image
 - camera settings (shutter speed, aperture, compression, make, model, orientation), date and time, make, model, and serial number
- **Global Positioning System (GPS)**
 - ▶ can locate you anywhere on earth (if you have a GPS device)
- **Cell phone towers can be used to locate you**
- **Radio Frequency Identification (RFID) tag**
 - ▶ unique serial number for every tag
 - ▶ transmitted by radio waves (not light) so does not need to be visible

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And photos are just one form of being watched

GPS and mobile phones can record where you are and everywhere you go

Can put RFID tags on anything.

Cows have RFIDs implanted so they can each be tracked

Tag pets so they can't get lost

Example: RFID Tags for Inventory Control

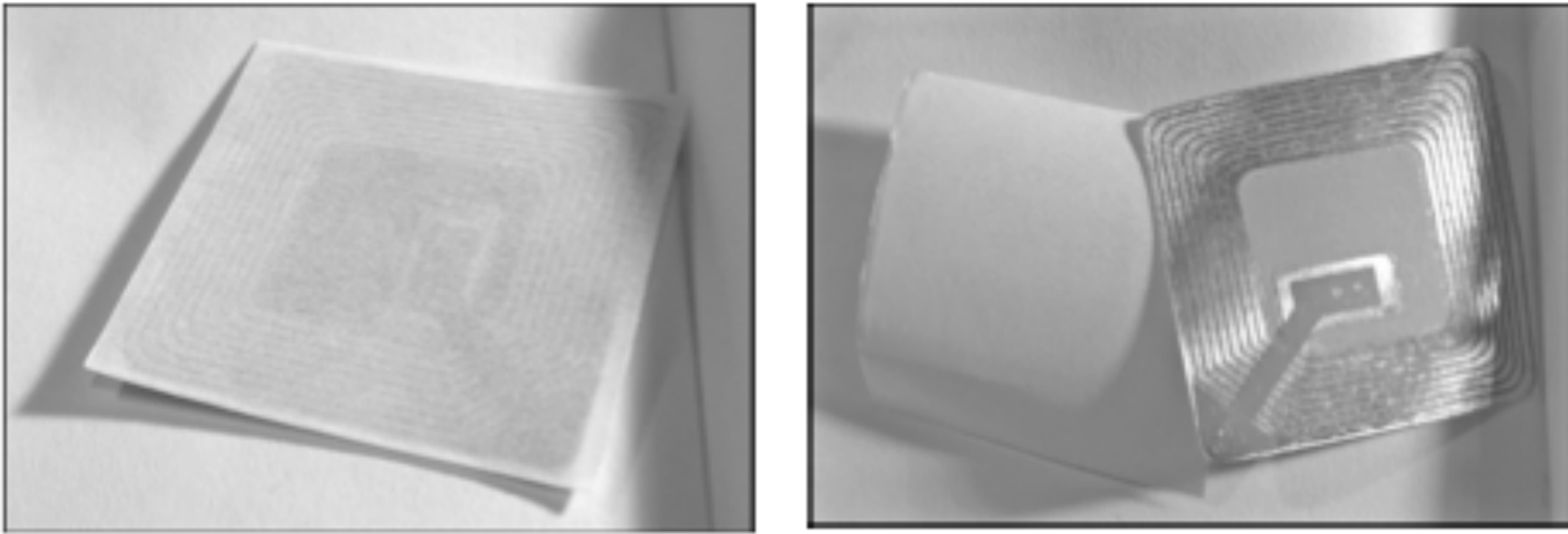


FIGURE 2.1 An RFID found between the pages of a book. A bookstore receiving a box of RFID-tagged books can check the incoming shipment against the order without opening the carton. If the books and shelves are scanned during stocking, the cash register can identify the section of the store from which each purchased copy was sold.

(B2B, p.26)

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Radio Frequency Identification like a more elaborate version of bar codes that identify products.

Bar codes identify what kind of thing an item is—the make and model.

RFID tags have the capacity for much larger numbers, they can provide a unique serial number for each item: not just “Coke, 12 oz. can” but “Coke can #12345123514002.”

RFIDs are silicon chips, typically embedded in plastic. They’re small, passive devices that need no batteries.

**How could RFID tags be
used to invade your privacy?**

Cameras everywhere

- **Benefits:**

- ▶ catch terrorists (as in London bombing)
- ▶ send pictures to friends, family, anywhere, anytime, etc

- **Risks:**

- ▶ you can't control who's taking your picture
- ▶ you may not always want people to know where you are
- ▶ may be subject to investigation even if you've done nothing wrong
- ▶ vigilante justice
- ▶ will a compromising picture of you taken at a college party cost you a job? holding public office?

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Many devices got cheaper, better, and smaller. Once they became useful consumer goods, we stopped worrying about their uses as surveillance devices. For example, if the police were the only ones who had cameras in their cell phones, we would be alarmed. But as long as we have them too, so we can send our friends funny pictures from parties, we don't mind so much that others are taking pictures of us.

vigilante justice: massive dissemination of cheap cameras coupled with universal access to the Web also enables a kind of vigilante justice. We can all be detectives!

Why we give away our data

- We accept loss of privacy in exchange for
 - ▶ efficiency: e.g., E-Z Pass (automatic payment for use of toll roads)
 - ▶ convenience: e.g., on-line shopping, Library Elf
 - ▶ small price discounts: e.g., loyalty cards
 - ▶ social networking
 - 55% of teenagers and 20% of adults have profiles on social networking web sites.
 - 33% of teens and 50% adults with profiles place no restrictions on who can see them
- **“60% of Internet users say they are not worried about how much information is available about them online.”** (B2B, p.20)

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There are benefits and risks to all of these technologies and databases

Example: Loyalty Cards

- Benefits?
- Risks?
- What is the cost of “opting out”?

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Benefits:

cheaper prices (don't pay the “privacy tax”)
points towards money off vouchers
personalized coupons, recommendations

Connecting the Dots

- Putting data from several databases together
- The whole is more than the sum of the parts
- Re-identifying the De-identified
 - ▶ Group Insurance Corporation (B2B, p.32-5)

Be careful what you search for

How to kill your wife 23 Mar, 22:09
wife killer 23 Mar, 22:11
poop 23 Mar, 22:12
dead people 23 Mar, 22:13
pictures of dead people 23 Mar, 22:15
killed people 23 Mar, 22:16
dead pictures 23 Mar, 22:17
murder photo 23 Mar, 22:20
steak and cheese 23 Mar, 22:22
photo of death 23 Mar, 22:30
death 23 Mar, 22:33
dead people photos 23 Mar, 22:33
photo of dead people 23 Mar, 22:35
www.murderdpeople.com 23 Mar, 22:37
decapitated photos 23 Mar, 22:39
car crashes3 23 Mar, 22:40
car crash photo 23 Mar, 22:41

**Is this AOL user a
potential criminal?**

What can you do?

- Opting out is not really an option for most of us
- Encrypt your documents, email, before sending over the internet
- Or use secure email services such as Hushmail
 - ▶ free web-based email service that incorporates Pretty Good Privacy (PGP)-based encryption
- Check your privacy and security settings of all social networking sites (e.g., Facebook)
- Read the fine print!

Safeway Loyalty Card Agreement

Safeway may use personal information to provide you with newsletters, articles, product or service alerts, new product or service announcements, saving awards, event invitations, personally tailored coupons, program and promotional information and offers, and other information, which may be provided to Safeway by other companies. ... We may provide personal information to our partners and suppliers for customer support services and processing of personal information on behalf of Safeway. We may also share personal information with our affiliate companies, or in the course of an actual or potential sale, re-organization, consolidation, merger, or amalgamation of our business or businesses.

Harvard's email Policy

Employees must have no expectation or right of privacy in anything they create, store, send, or receive on Harvard's computers, networks, or telecommunications systems. Electronic files, e-mail, data files, images, software, and voice mail may be accessed at any time by management or by other authorized personnel for any business purpose. Access may be requested and arranged through the system(s) user, however, this is not required.

Westin “Privacy and Freedom” 1967

- “Privacy is the claim of individuals, groups or institutions to determine for themselves when, how, and to what extent information about them is communicated to others”
- Each individual is continually engaged in a personal adjustment process in which he balances the desire for privacy with the desire for disclosure and communication....

Now, Two Views of privacy

- Privacy as limited access to self
 - ▶ the extent to which we are known to others and the extent to which others have physical access to us
- Privacy as **control over information**
 - ▶ not simply *limiting* what others know about you, but controlling it
 - ▶ assumes individual autonomy, that you can control information in a meaningful way