What is Privacy?

Colin Potts

Georgia Tech

NCSU

Contents

- *Slipperiness of privacy*
- *Metaphor theory and representation*
- *Privacy metaphors*
- *Hidden assumptions and mixed metaphors*
- *Prospects*

Privacy and Security

- *Security =*
    - *Confidentiality*
    - *Integrity*
    - *Authentication*

- *Privacy = Confidentiality*

    - Plus anonymity, etc. as means to this end

Privacy and Freedom

- *Privacy = "The right to be let alone"*

- *Privacy = Freedom from intrusion*

    - This includes being certain kinds of being told what to do

Privacy and Ownership

- *Privacy = Being in control over whatever is about you*

- *Privacy = Your informational property*

Slipperiness of concepts

- *Perhaps we mean too many different things?*

- *Perhaps we cannot formalize (and therefore enforce through code) unless we restrict application?*

- *Perhaps we need to understand what it is to represent the abstract?*

Why I care

- ***Alignment of privacy policy, IS performance, & values***

    – NSF project with A. Anton, J. Earp

- ***Domestic surveillance***

    – GVU project with G. Abowd, A. Jacobs, et al.

- ***Agent-based software engineering & the "servant problem"***

    – U. Palermo: M. Cossentino

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Elements of <u>cognitive</u> linguistics (Karen van Hoek)

- *Meaning is in the head*
- *Meaning is encyclopaedic, not dictionary knowledge*
- *Concepts are prototypical, radial, resemblance-based*
- *Graded grammaticality/aptness*
- *Language not separate from general cognition*

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The Naturalistic Turn

- *Language is intentional*
    - Mental spaces, not possible worlds (Fauconnier)

- *Language does not convey meaning*
    - Language affords meaning (Turner)

- *Language is social*
    - Meaning enacts rather than represents (Vygotsky)

- *Meaning is grounded in behavior*
    - Grounded metaphor (Lakoff)

Some grounded metaphors
(Lakoff & Johnson)

- *important = big*
- *difficulty = burden*
- *more = up*
- *type of = inside*
- *similar = near*
- *degree = position*
- *arch. = phys. struct.*
- *help = support*
- *time = motion*
- *change = motion*

- *state = place*
- *action = self-propulsion*
- *purpose = destination*
- *purpose = desired thing*
- *cause = force*
- *relationship = enclosure*
- *control = be above*
- *know = see*
- *understand = grasp*
- *see = touch*
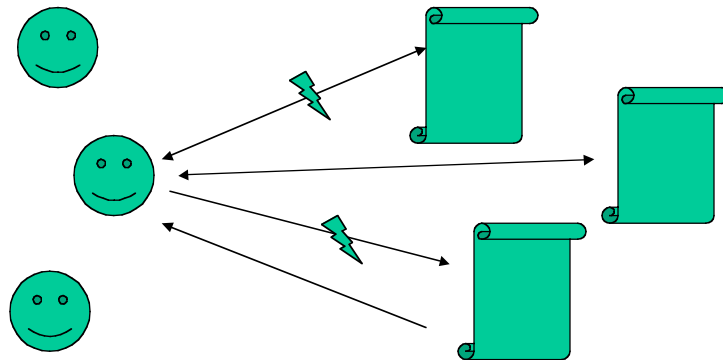
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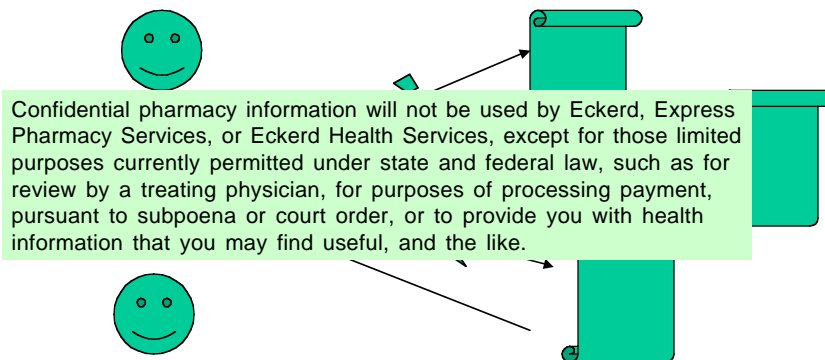
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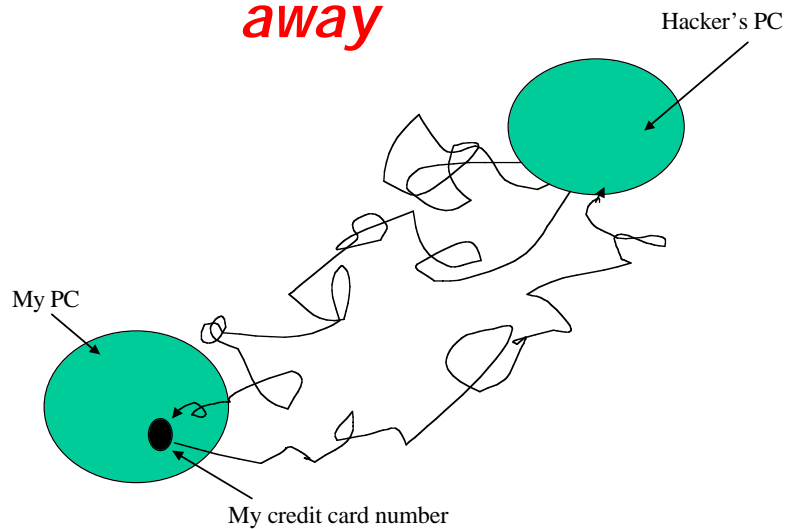NCSU Oct 2001

Rights and obligations are magnitudes

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Rights and obligations are magnitudes

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Disclosure is movement away

Hacker's PC

My PC

My credit card number

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Disclosure is movement away

Other parties

In addition, we may ask you if you would like to receive information about health care issues or other products and services. If you indicate that you would, we may also use your personal identifying information to: ... or (2) create customer lists or other data summaries which may be shared with the companies within the J.C. Penney family of companies.
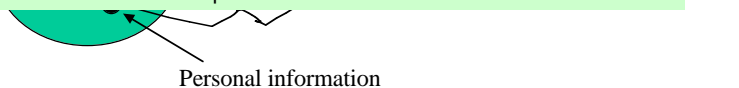
Personal information
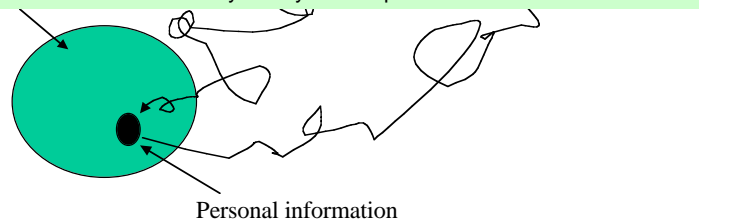
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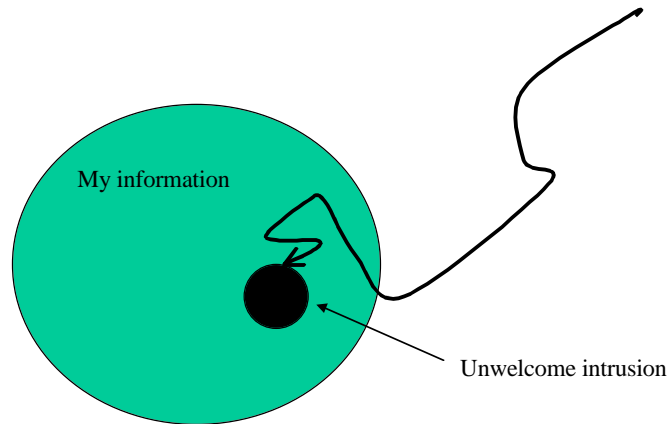# *Retraction is movement back*

Other parties

You may remove your personal identifying information from our records. If you have submitted personal identifying information to Eckerd, and you wish to have it removed from our records, please tell us by sending an e-mail to us at the following address:…

In addition, if you have given consent for Eckerd or other members of the J.C. Penney family of companies to contact you, and you decide that you do not wish to be contacted any further, please e-mail us to let us know. Your request will be processed with all reasonable speed. You will be notified when the removal has been completed.
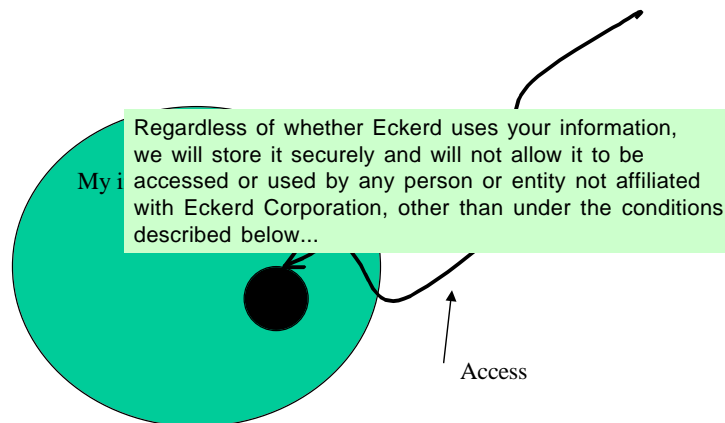
Personal information

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Intrusion is movement inside

My information

Unwelcome intrusion

Access/Intrusion is movement inside
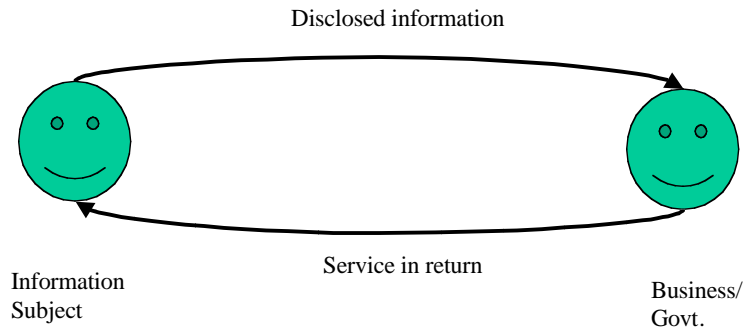
My i

Regardless of whether Eckerd uses your information, we will store it securely and will not allow it to be accessed or used by any person or entity not affiliated with Eckerd Corporation, other than under the conditions described below...

Access

Disclosure is social exchange

Disclosed information

Service in return

Information
Subject

Business/
Govt.

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Disclosure is social exchange

Disclosed information

In addition, we may ask you if you would like to receive information about health care issues or other products and services. If you indicate that you would, we may also use your personal identifying information to: (1) contact you about Eckerd programs and/or to seek additional input from you regarding your experiences with Eckerd;
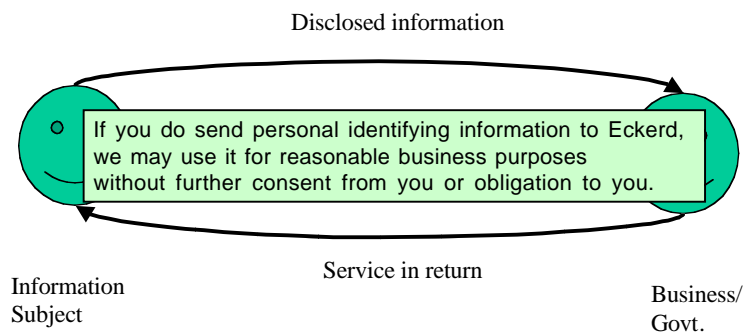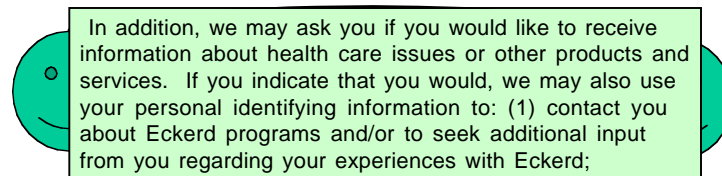
Service in return

Information Subject

Business/ Govt.

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Contents

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What is Privacy?
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What is Privacy?
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What is Privacy?
NCSU Oct 2001

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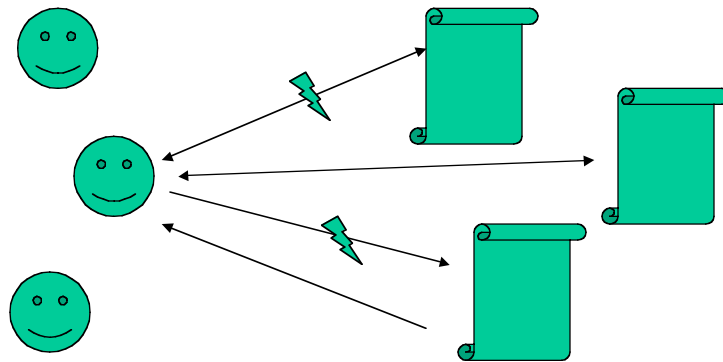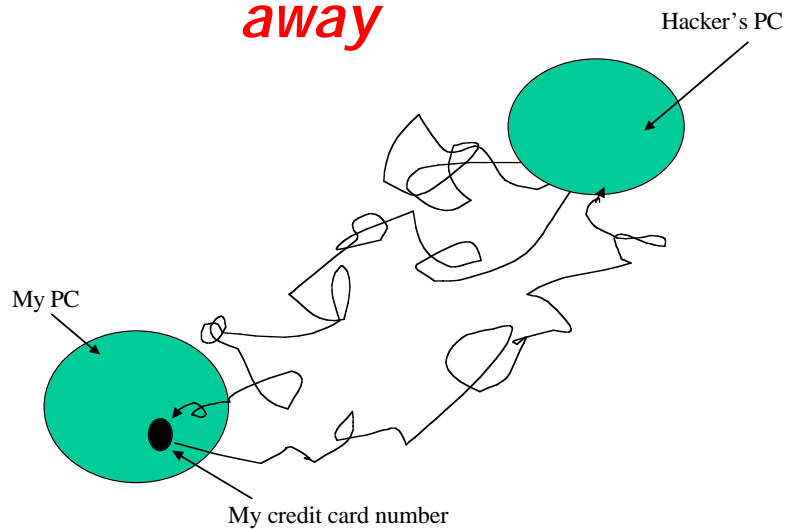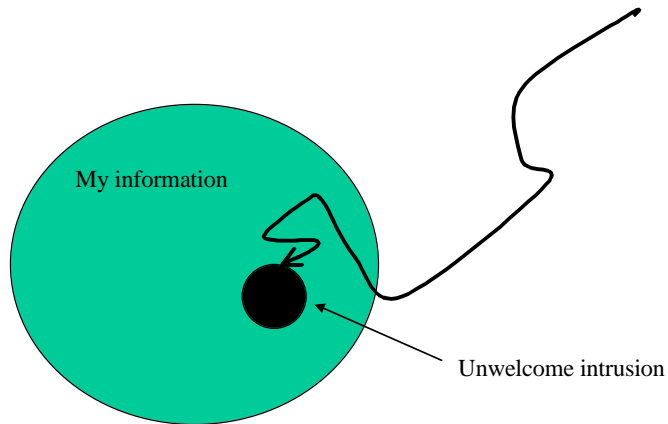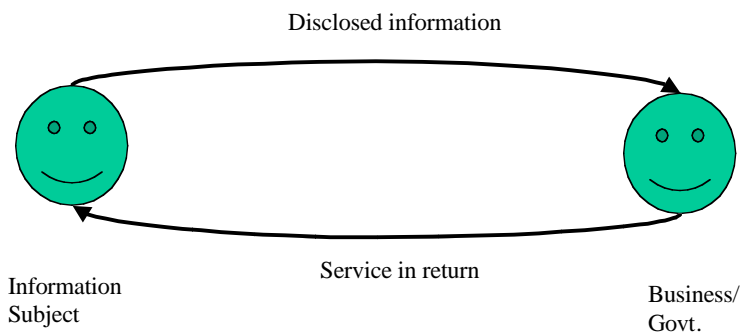
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What is Privacy?
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14

Contents

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Specifying Privacy Policies

- **Metaphor analysis**
  - Agree explicitly on what grounded metaphors are appropriate
  - Clarify background assumptions
- **Grounded representation**
  - Axiomatize using the underlying mathematics
    - **Intervals, topology, exchange theory, etc.**
  - Present in terms of the metaphor
    - **Spatial-motor depiction**

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Aligning Privacy Policies

- *Goal mining*

  - Rational reconstruction/ascription of values from document sources

- *Metaphor analysis*

  - For policies and requirements

- *Comparison*

  - Scenario analysis

    - **Use cases, abuse cases, misuse cases**

  - Model checking on the formal models

So, *What* is privacy?

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# Jackson s Problem Frames as Anthropomorphisms

- *Information display machines*

- *Commanded behavior machines*

- *Work-piece machines*

- *Transformation machines*

- *Connection machines*

- *Question-answering oracles*

- *Operators / Actors*

- *Amanuenses / Scribes*

- *Translators / Compilers*

- *Mediators / Match-makers*

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Natural domain "boundaries"

- Embedded in broader work situation

- "Borders" are unclear

- Many special cases

- Personal "policies"

- Situated action

time management

work

scheduling

trip planning
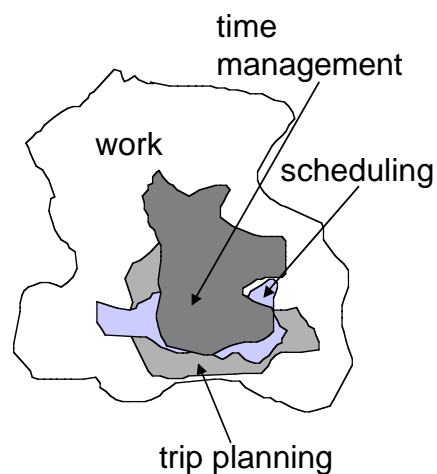
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Teleology: Analysis of Intent

- ***Requirements are statements of intent***

- ***Functions/features are units of intent***

- ***Software is implementation of intent***

- ***Requirements engineering is systematic description of intent***

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