

# “Hilbert’s Problems”

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# Problems to be solved

- How does one define privacy?
- Permission management and control: devise a set of requirements and a system that will adapt to unknown access requirements.
- How should we handle archival data in a privacy responsible manner?
  - Can we automatically classify data according to privacy sensitivity?
- Formulate a theory that will bound what can be computed from data.
- Formulate encoding methods for data that will restrict what functions can be computed.

# Problems

- Digital divide: how can we lower the technical barrier (reduce the complexity of?) for people to manage their privacy?
- Expand the capability to perform computations with encrypted data.
- How do you decide who the stakeholders of the data are?
  - Whose personal information is involved?
  - Whose property rights are involved?
  - Examples: historical TV/movie, sensor data

# Problems

- Devise better technology for audit trails
  - the audit trail itself becomes sensitive.
- How do you prevent negative privacy implications from dirty data?
- Understand and overcome barriers to deployment of existing solutions where appropriate.

# Problems

- Devise technologies that will allow people to manage their incoming communication.
  - Solve the spam problem
  - Solve the telemarketing problem
- How do we prevent identity theft?
- How does an individual find and control commercial and government databases about them?
- How do you track where data goes and what it is used for after it is released?
  - How do you verify that data is used as promised?

Our original goal: provide a set of definitions, goals, and long term problems that can shall form a basis for ongoing research on the problems in privacy.

1. How does one define "privacy"?
2. What are the biggest threats to privacy?
3. How does one quantify privacy?
4. What are the limitations of privacy?
5. What are the consequences of privacy?
6. Who are the beneficiaries of privacy?
7. What are the most likely solutions to privacy?
8. What are the desirable technologies?

# Definition of Privacy?

“Privacy is the power to selectively reveal oneself to the world.”

- Eric Hughes, A Cypherpunk's Manifesto