

oueees-201706

Part 3:

Negligence of people

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27-JUN-2017

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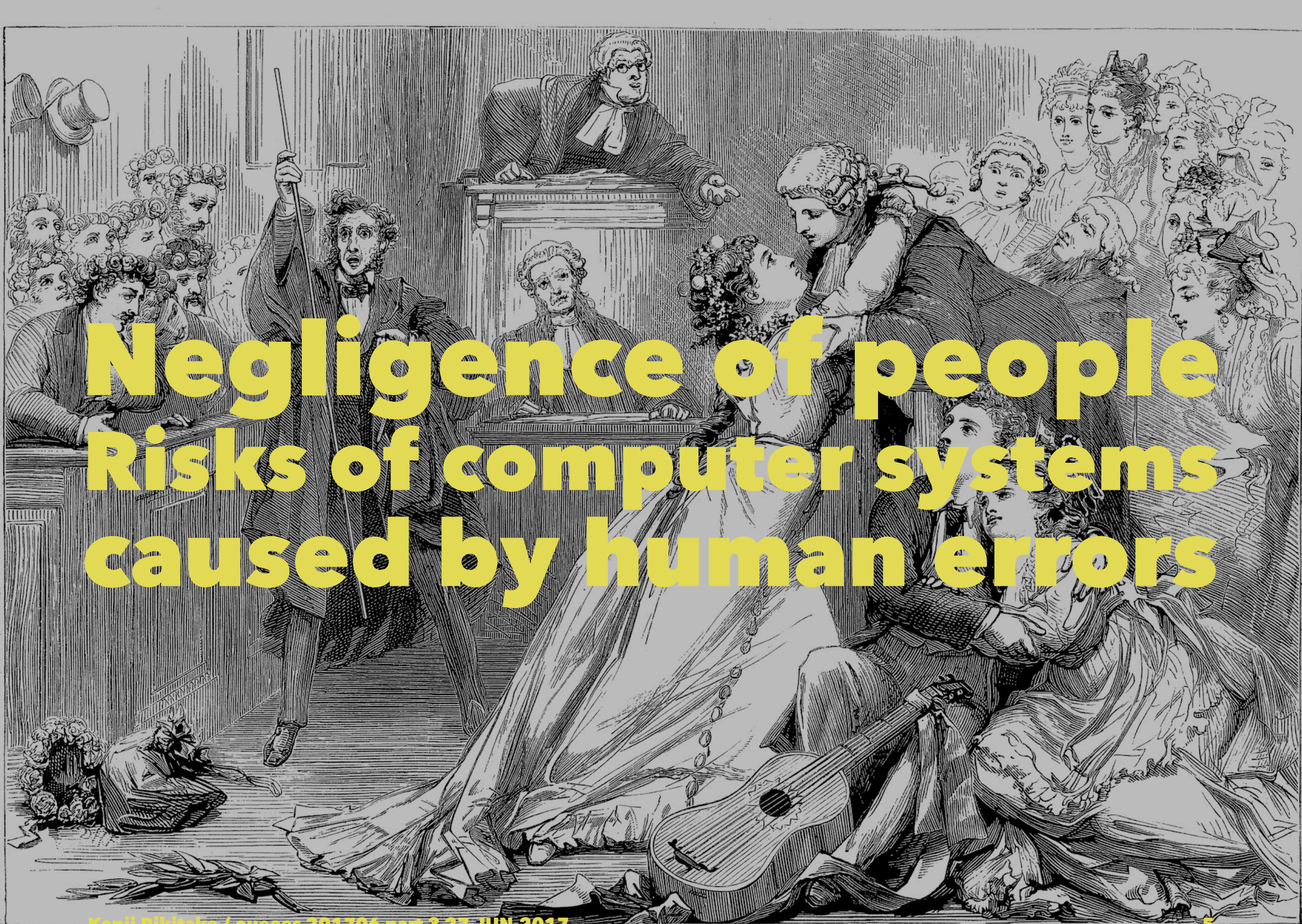
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Lecture notes on GitHub


- <https://github.com/jj1bdx/oueees-201706-public/>
- Don't forget to *check out the issues!*

Some thoughts on Part 2 report answers

- Internet and DNS: eventually consistent
- Concurrency = asynchronicity
- Eventual = allowing timeframe variance
- Redundancy: more availability



Negligence of people Risks of computer systems caused by human errors

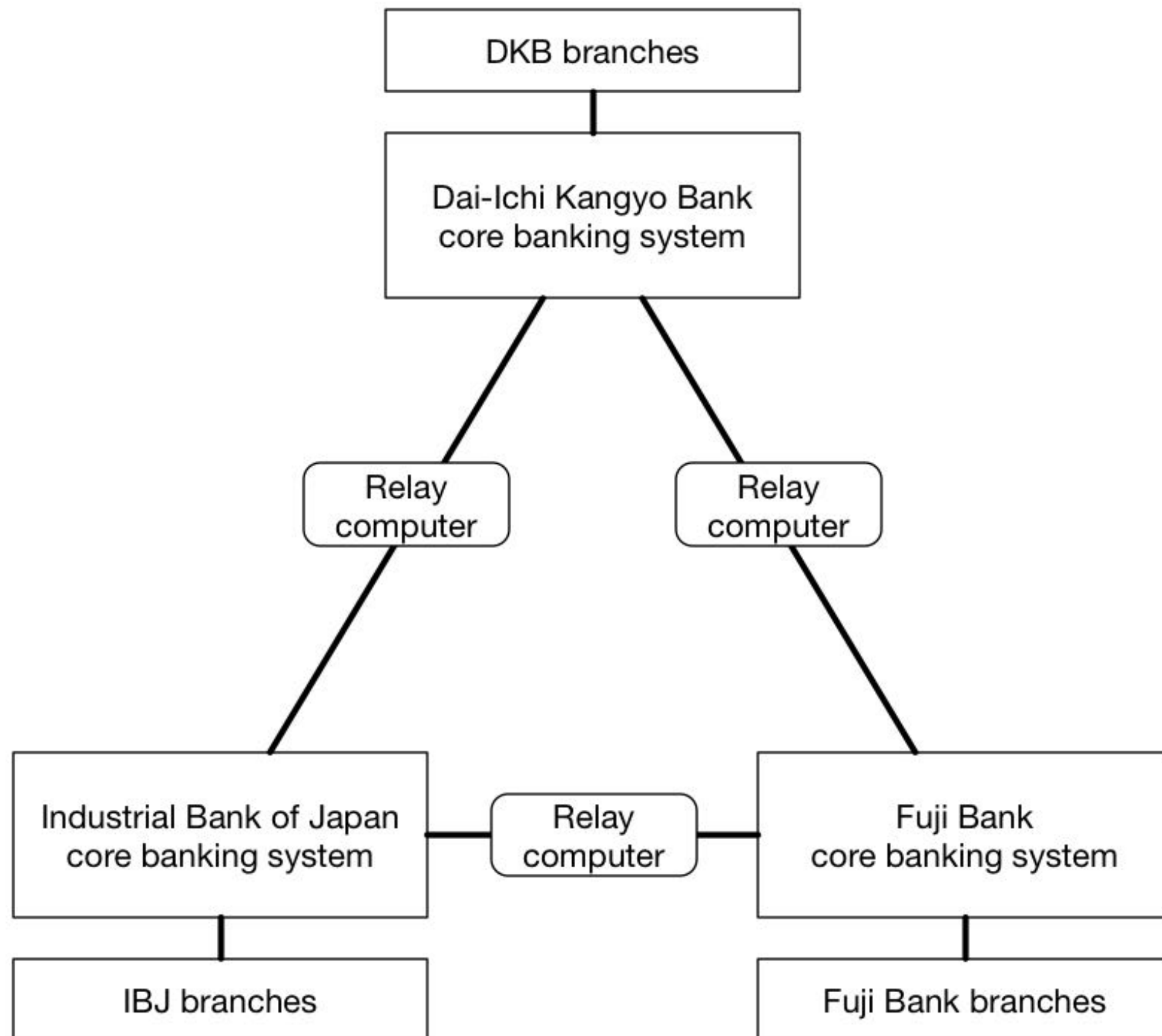


Illusion of *distributed* systems: how large systems fail

Case study: Mizuho Bank on April 2002 (1/4)¹

- **Failed transactions** on merging 3 banks
- Duplicated transactions also observed
- **Planned since December 1999**,
implementation details changed many times
- Single point of failure at the *Relay Computer*

¹ 失敗知識データベース: みずほファイナンシャルグループ大規模システム障害



Source: 中尾政之、みずほフィナンシャルグループ大規模システム障害【2002年4月1日～5月初旬、みずほ銀行】、失敗知識データベース 失敗百選 (PDF)、<http://www.sozogaku.com/fkd/hf/HA0000623.pdf>

Case study: Mizuho Bank on March 2011 (2/4)²

- **~1.2M unprocessed transactions** on 17-MAR-2011; ATM closed for 3 days to complete the batch during 19~21 MAR-2011³
- **Cascaded failures** by interrupted and duplicated batch operations

² みずほ銀障害の全貌判明、懸案はCIO人事 - 第1回 重なった30の不手際 (ITpro), 第2回 読み誤りや誤削除など人為ミス続発

³ みずほ銀行: 2011年3月のシステムトラブル (Wikipedia)

Case study: Mizuho Bank as of 2016 (3/4) ⁴

- Integration project initiated in 2012
- Scandal of relationship with organized criminals revealed on September 2013⁵
- Integration project deadline delayed from March 2016 to December 2016

⁴ Akio's Log - みずほ銀行次期システム関連のまとめ

⁵ みずほ銀行暴力団融資事件

Case study: Mizuho Bank as of 2017 (4/4)

- Still recruiting software engineers (May 2017)⁶
- Project completion by Summer 2017 announced; testing and implementation will take 1 to 1.5 years⁷

⁶ ジョブダイレクト: みずほ情報総研株式会社の求人(2017年5月掲載)

⁷ みずほ銀行の次期システムが今夏にも完成との報道、稼働は18年度以降(ITpro 2017/05/08)

Why failed?

No corporate governance
No software engineering skills
No project management skills
Pervasive complacency
Indifference and ignorance

Question

**Can Mizuho Bank
successfully complete the
project this time?**



Fallacies of teamwork ... and other social issues



Groupthink

=

「空気読め」

Groupthink (n.)

The practice of thinking or making decisions as a **group** in a way that **discourages creativity or individual responsibility** ⁸

[...]occurs when a group makes **faulty decisions** because **group pressures lead to a deterioration of "mental efficiency, reality testing, and moral judgment"** (Irving Janis,

⁸ New Oxford American Dictionary, macOS 10.12.5, emphasis by Kenji Rikitake

⁹ The Psychologists for Social Responsibility, "What is Groupthink?"

*When all think alike,
no one thinks very
much.*

– Walter Lippman ¹⁰

¹⁰ Walter Lippman, "The Stakes of Diplomacy" (1915)

Groupthink symptoms (1/2)⁹

- Illusion of invulnerability
- Collective rationalization
- Belief in inherent morality
- Stereotyped views of out-groups

⁹ The Psychologists for Social Responsibility, "What is Groupthink?"

Groupthink symptoms (2/2)⁹

- Direct pressure on dissenters
- Self-censorship
- Illusion of unanimity
- Self-appointed *mindguards*

⁹ The Psychologists for Social Responsibility, "What is Groupthink?"

Groupthink in news media (1/2)⁹

- Incomplete survey of alternatives
- Incomplete survey of objectives
- Failure to examine risks of preferred choice
- Failure to reappraise initially rejected alternatives

⁹ The Psychologists for Social Responsibility, "What is Groupthink?"

Groupthink in news media (2/2)⁹

- Poor information search
- Selective bias in processing information at hand
- Failure to work out contingency plans
- Low probability of successful outcome

⁹ The Psychologists for Social Responsibility, "What is Groupthink?"

Remedies of groupthink⁹

- Assign critical evaluator role
- Stop stating preferences/expectations
- Check deliberation by external associates
- Invite outside experts to challenge
- Assign devil's advocate
- Survey rivals' scenarios regularly

⁹ The Psychologists for Social Responsibility, "What is Groupthink?"

Filter Bubble: groupthink in internet ¹¹ ¹²

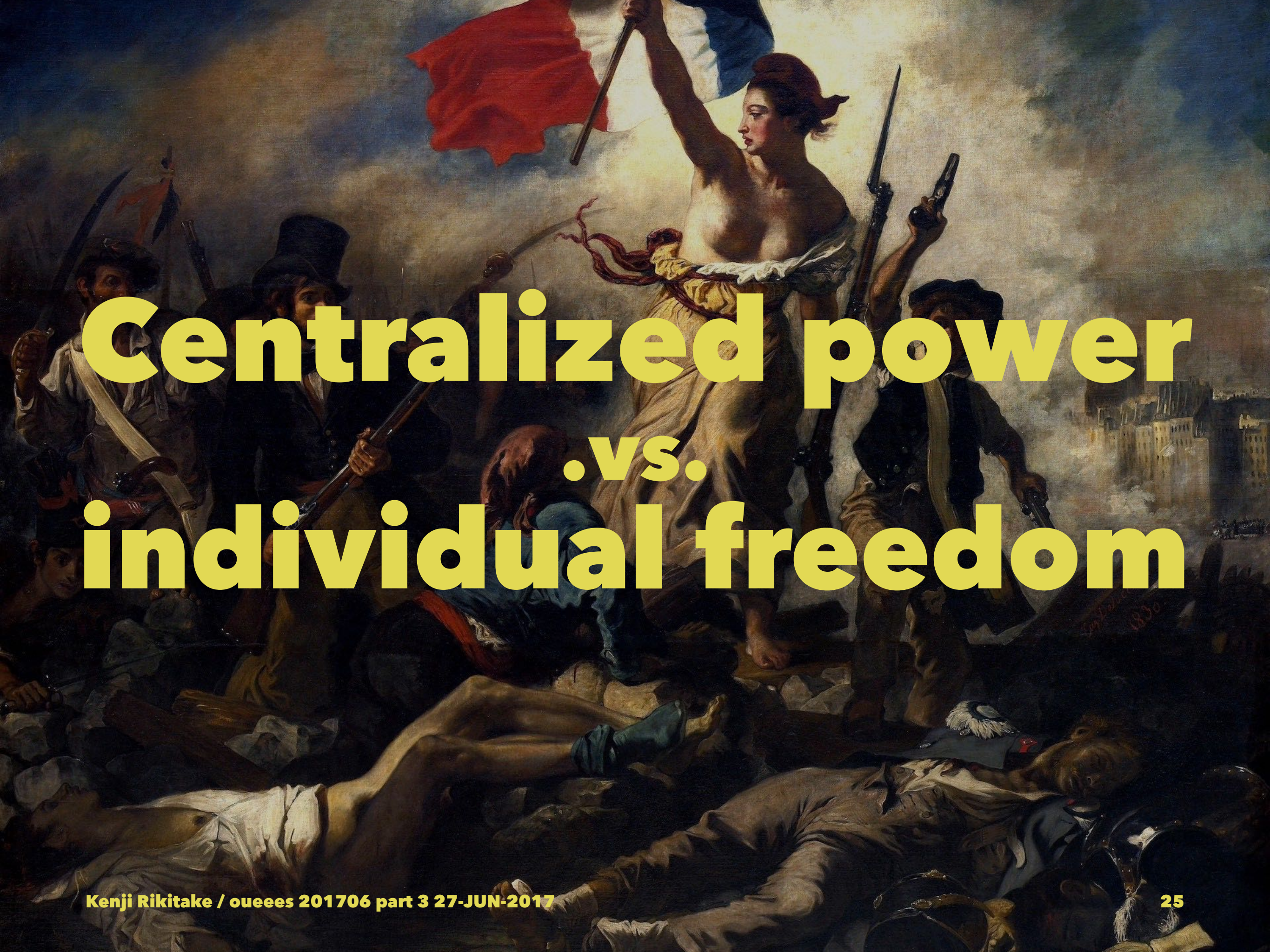
- **Filtering out the people and opinions against one's belief**
- **Less exposure to conflicting viewpoints**
- **Isolated in personal ecosystem enforcing ideological frames by the social network**

¹¹ Pariser, Eli. The Filter Bubble: What the Internet Is Hiding from You, Penguin Press (New York, May 2011) ISBN 978-1-59420-300-8

¹² [Filter Bubble \(Wikipedia\)](#)

A black ceramic mug with a white recycling symbol and Japanese text is centered in the background. Overlaid on the mug is large, bold, yellow text. The text consists of two lines: the top line in English and the bottom line in Japanese.

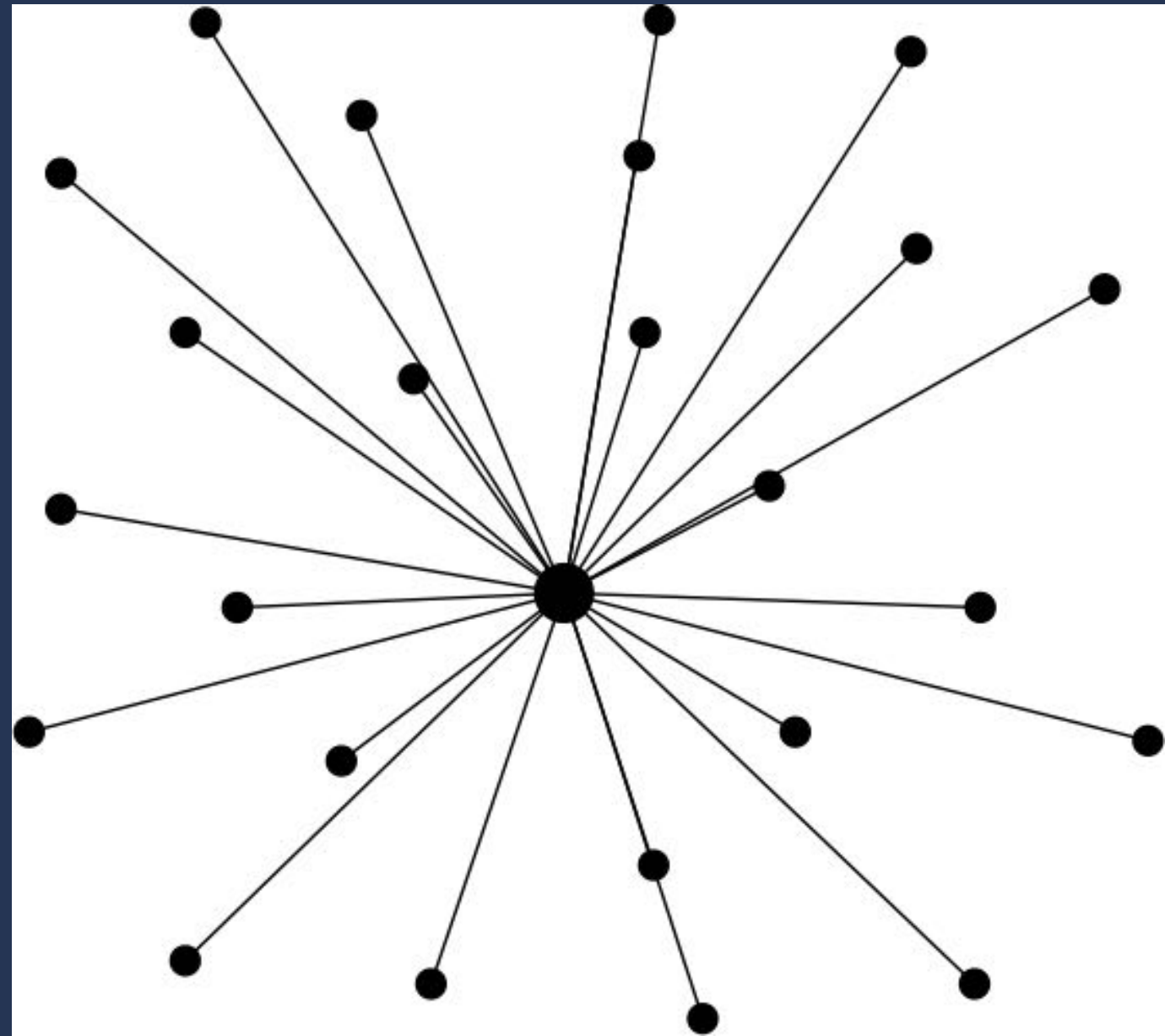
No groupthink
空気は読むな



Centralized power .vs. individual freedom

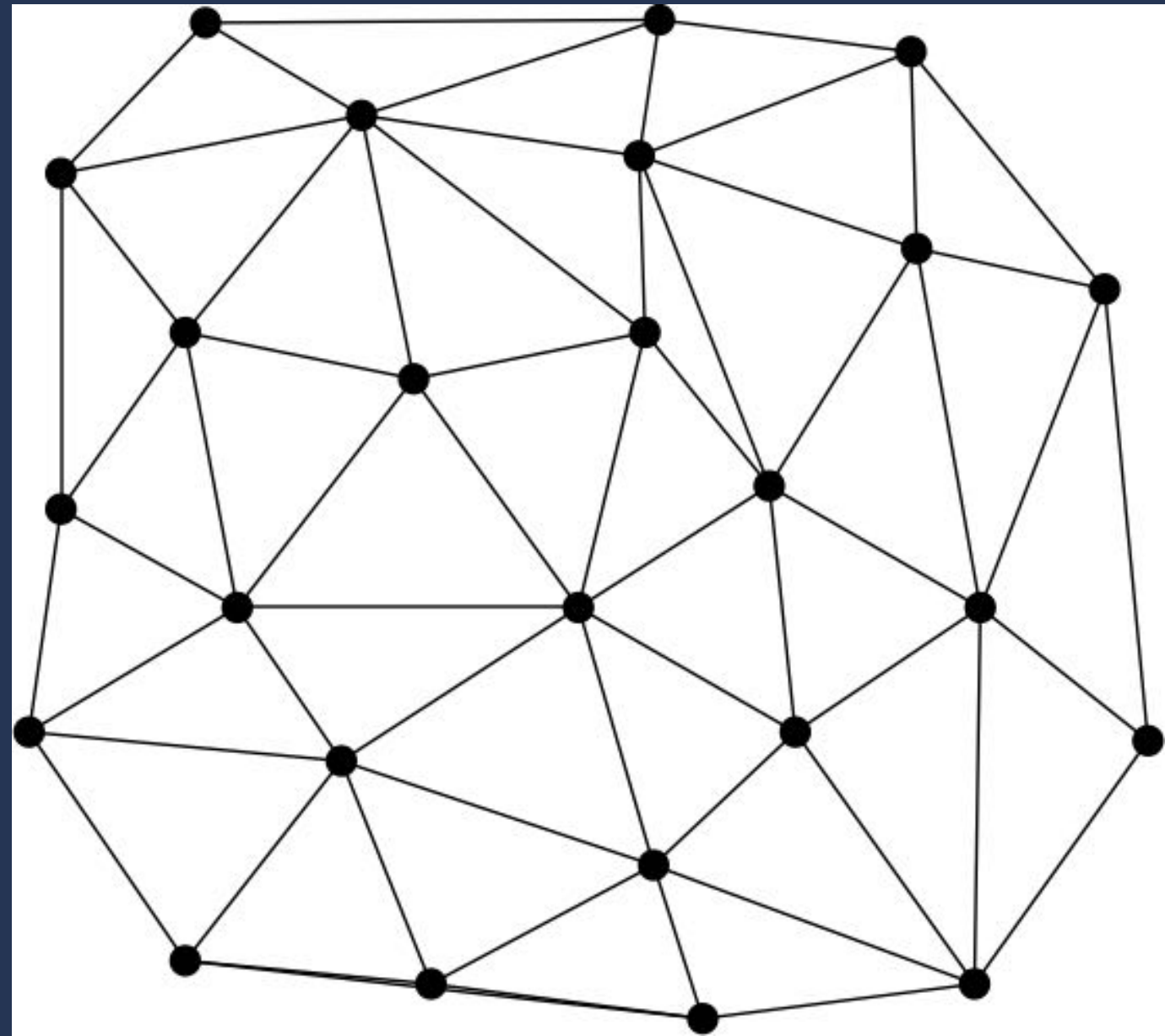
Centralized society

- Efficient
- Power concentrated at the core
- Each node depends on the core
- System fails if the core fails
- Vulnerable to the attacks of the core



Distributed society

- Inefficient = many hops are required to distribute information
- Power given to each node
- Each node should survive on its own
- Resilient to the attacks of each node
- Diversity



Distributed systems: **Resilience** **Diversity** **Autonomy**

But the reality is:
Efficiency
Uniformity
Autocracy

A photograph of a brick wall densely populated with security cameras of various models and colors (black, silver). The cameras are arranged in a grid-like pattern. In the center of the wall is a dark door with a vertical window. At the bottom left, two women are standing, looking up at the cameras. The woman on the left is wearing a black jacket and black pants, while the woman on the right is wearing a brown jacket and dark pants. The overall scene suggests a theme of surveillance and privacy.

Question

**Are we trading our liberty
and freedom for more
efficient and convenient
society?**

Appendix: on choosing your career and professionalism

When I chose my career and professionalism?

- Age 9: discovered computers and English
- Age 10 discovered ham radio and electronics
- Age 14: earned money by writing software
- **Age 23: finally decided to make my living on my computer software professionalism, with my English proficiency**

**If I were at age 22, what I would do
after getting a Bachelor's degree?**

...

Get out of Japan ASAP
Explore the computer skills
Do something unpopular

**What are the most important things
to pursue engineering/scientist career?**

...

Physical strength
Mental strength
Curiosity

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