A Comparative Analysis

Social acceptance of robots between the West and Japan

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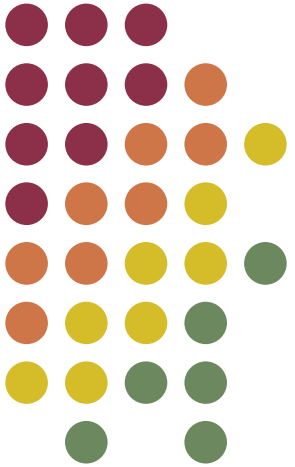

Target

1. Modernization and Technology in society

2. The humankind V.S. Robot?
    1. The philosophical background of the Western Roboethics.

3. An analysis of Japanese acceptance of Robot technology
    1. History – modernization and westernization
    2. Subculture and Social events
    3. The sense of the world – Japanese ontological reality
    4. Robot technology as the new national industroy

4. A consideration of Japanese Roboethics

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The beginning of “Roboethics”

- Symposium:The 1st International Symposium on Roboethics
  - 2004 at Sanremo by la Scuola di Robotica, Genova
- Workshop: HUMANOIDS - A Techno-Onthological Approach
  - 2001 at Tokyo by Scuola Superiore Sant'Anna, Pisa and Waseda University, Tokyo
- Workshop: The Man and the Robot: Italian and Japanese approaches
  - 2005 at Tokyo by Scuola Superiore Sant'Anna, Pisa and Waseda University, Tokyo
- Discussions, articles, Internet BBS, about the Ethics and Robotics

The social interest to robot

The future Society

with Robots alongside

human beings

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Robots alongside human beings

- Humanoids

- Home Robots

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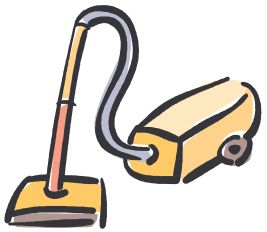
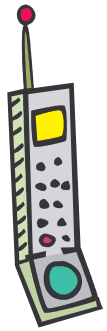
Modernization and Technology

- Characteristics of modernization (by Max Weber)
  - Rational pursuit, Capitalism, Efficiency, More effective, more speedy, more accurate

Automatization in the societies

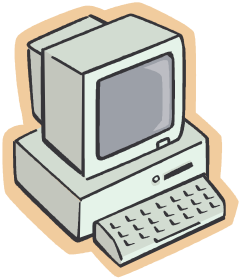
DOMESTIC
Laundry
Vacuuming machine
Dish washer





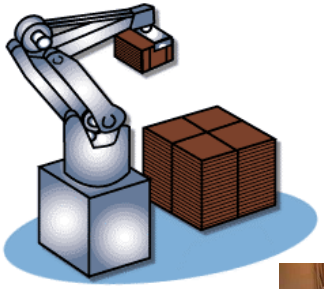
HUMAN COMMUNICATION
Media devices
Transportations

WORKING OFFICE
Computer
Internet

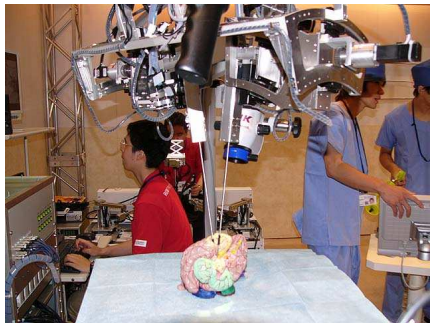


Robotization in Societies

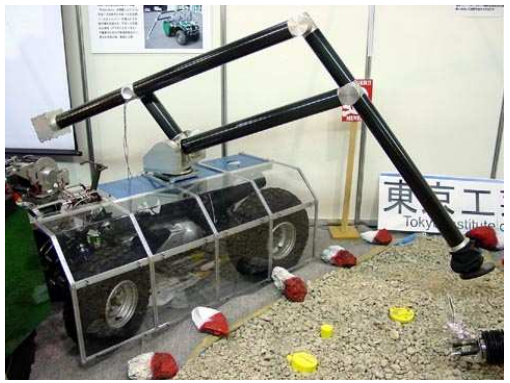
- Industrial Robot
  - Factory



- Robot in medical field
  - i.e. Surgical Robot



- Robot for hazardous environments
  - Demining, Rescue, Nuclear Plants



Expectation to apply Humanoid robots

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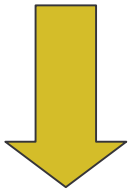
The Current Humanoid R&D

- The mechanical study of human physical functions
- Cognitive sciences and A.I.
- Collaborative R&D projects by transnational/cultural laboratories



- The rise of the question “what is a Humanoid?”

The different approaches

- The rise of question “what is a Humanoid?”

In the West

- What is a human being?
- How human beings must be in the new society?

In Japan

- How to define it institutionally?
- What sort of function is the best for human society?

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The main theme of the Western philosophy

- **Classic questions in the West :**
- *"What is a human being?" "What is the boundary of humankind on the earth?"*
  - *In the Greek era, humankinds was high-positioned "natural" hierarchical classification of all living things.*

- **Pursuing "truth" of a human being**
  - *Relationship between the society and human beings*
  - *Understanding of "Subjectivity" and "Individuality"*
  - *"Cogito Ergo Sum" by R. Descartes*

Then how about robot (or a Humanoid) may do to us?

= A threat against humankinds

= May cause the change or position replace of humankind in the world

Robot V.S. Human beings

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The first robot concept in the West

- ***The play by K.Capek in1920, "robota"***
  - Human beings V.S. robots
- ***Asimov and the "Three Laws of Robotics"***
- ***Terminological definition of "Robot"***
  - "a machine (sometimes resembling a human being in appearance) designed to function in place of a living agent". [*Oxford English Dictionary]*
  - "programmable electronics employed in industry, as a substitute for humans in executing automatically and autonomously repetitive" [*La Enciclopedia Italiana]*

The different approaches

- The rise of question “what is a Humanoid?”

In the West

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Robot Technology in Japan

1. Historical Background of “Technology” in Japan
2. Sub-cultural / social acceptance of Robot
3. Philosophical approach: The idea of Ontological Reality
4. Political Strategy for Robot technology

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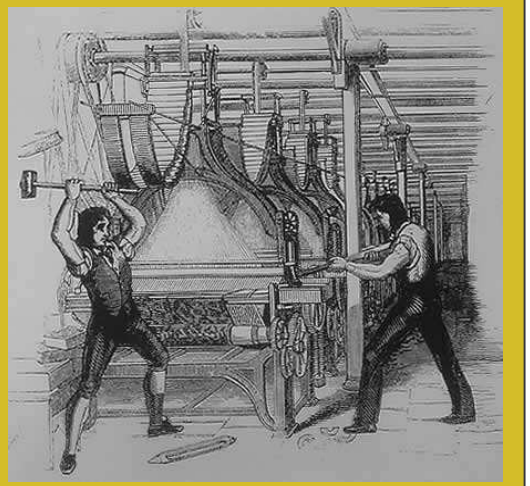
Japanese Isolation Policy

- National isolation policy 1639-1856 by “Tokugawa” regime
  - reducing the contacts to the outside world
  - Remaining very limited trade relations with China, Korea, and the Netherlands
- All foreign books were also banned. 1639-1720

The Luddites in England (1811)



Almost no influence of the new technology, science discoveries, or social ideas made in the Europe

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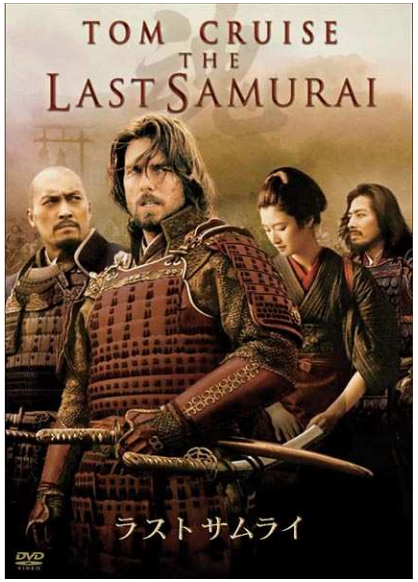
Import of the Western Technology

- The downfall of Tokugawa regim1868 by the Meiji restoration
- New Japan in the new international order of colonial era
  - The serious technology gap
- *Bunmei kaika* & *Fukoku kyohei*
  - National Slogan to reform the New Japan
  - Enlightenment of civilization, namely to Japan, Westernization
  - Rich nation, strong military



MODERNIZATION = CIVILIZATION = WESTERNIZATION

CATCH UP WITH THE WESTERN COUNTRIES

TECHNOLOGY BRINGS RICHNESS

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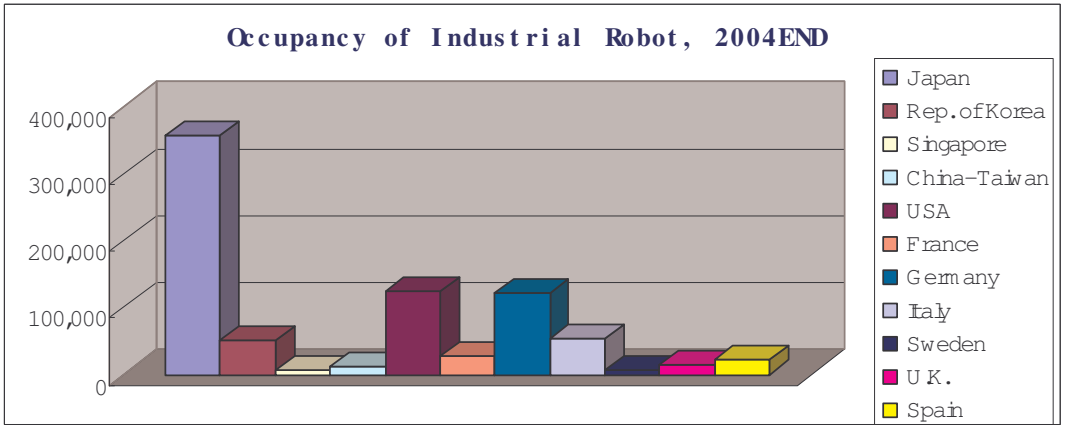
The Japanese postwar period
the grate economic success

- An impressive introduction of industrial robots



- 1970's : Oil Shock – Japanese economy kept growing
- 1980's : Industrial and Office Automation

Historically, the pursuit of advanced technology including robots has been always related to the growth of the national economy in Japan

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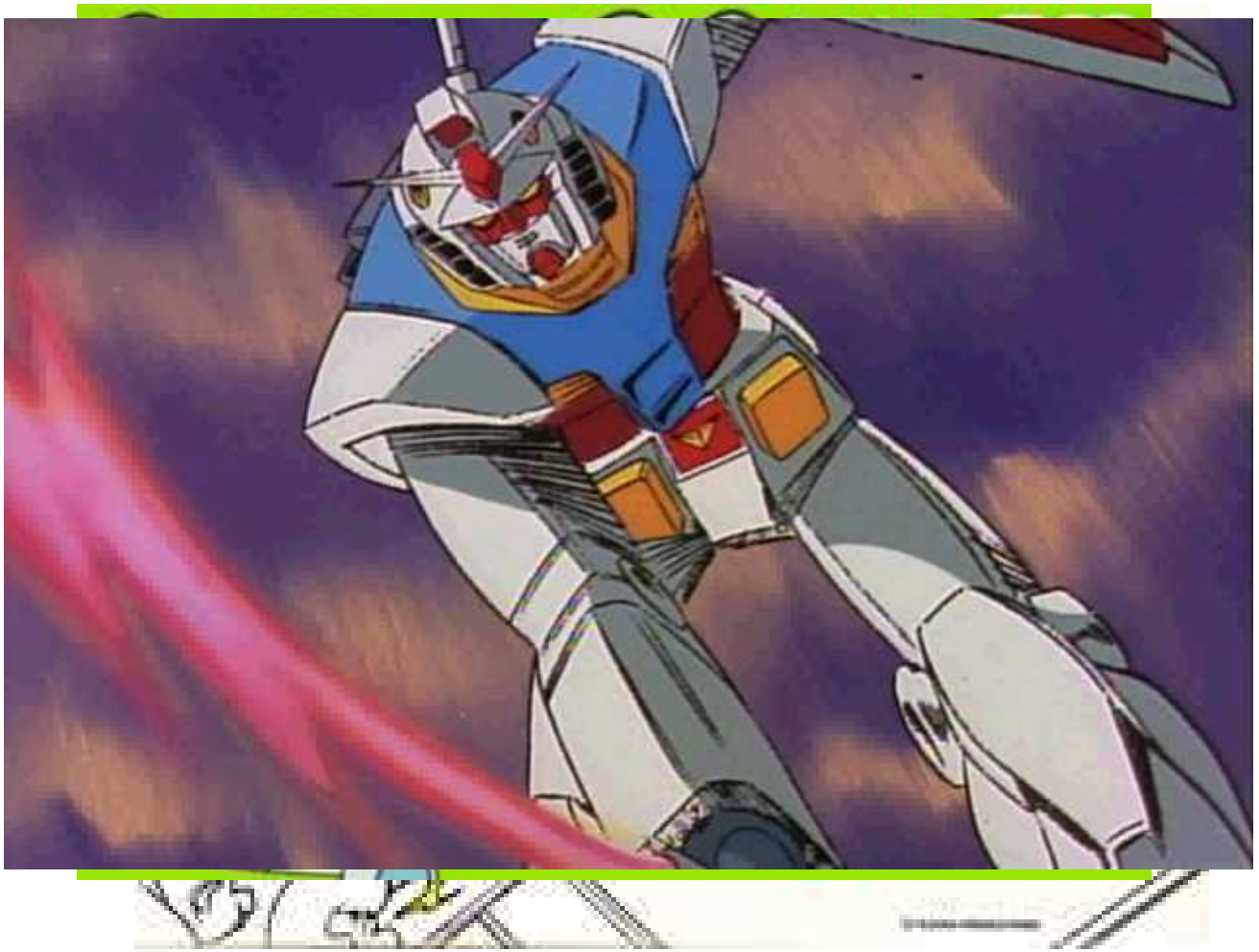
Subculture and Robot Events



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Subculture and Robot Events

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Ontological Reality

- Relations among the semantic discourse
  - i.e. Gods as sort of spirit, likewise from stones, trees, working tools
  - □□ (human being)□= relation (space) between the persons

- Gods in material things

from natural objects

to artificial devices

- The world does not appear as a static classification (like in the Western point of view).
- The sense of the world appears something contingent

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To sense the existence of spirit in the Robot

- Robot are self-evidently machines.
- Robot is always a machine, but never be understood as substitute of human beings (a positive vision)
- But from the rapport created by the user, inside of “the thing”, the existence of spirit can be sensed, likewise in robots.
- Higher tendency to have a closer and more intimate relationship with Robots

Japanese girl brought with her Aibo to the fireworks show for the end of the year, talking to AIBO if it is not too cold outside.

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“The New-generation Robot” Project

- The Ministry of Economy, Trade and Industry [METI]
  The "Strategy for Creating New Industries" in 2004
  - Robot Technology as 1 of the 7 prior industories
  - The growth of Robot Technology Industry (by 2025 \150Biln market)

- The Energy and Industrial Technology Development Organization [NEDO]
  "'Next-generation Robot Practical Development Project“ in 2004
  - the NEDO selected 70 robot development schemes
  - a budget of approximately 3 billion-yen to build prototypes
  - Demonstrated in Aichi EXPO 2005

- An unofficial meeting in the spring of 2005, about the future robot in 2025 by the METI
  - Road map for the New-generation Robot – robots alongside the human beings

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The Future Society in 2025

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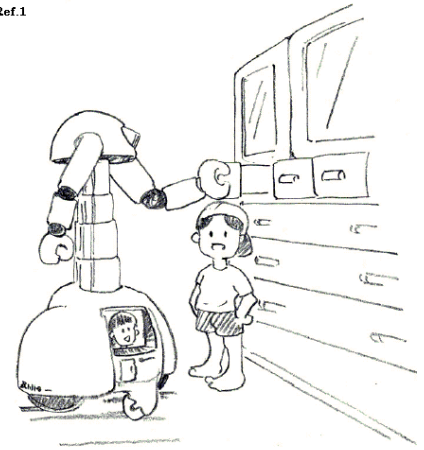

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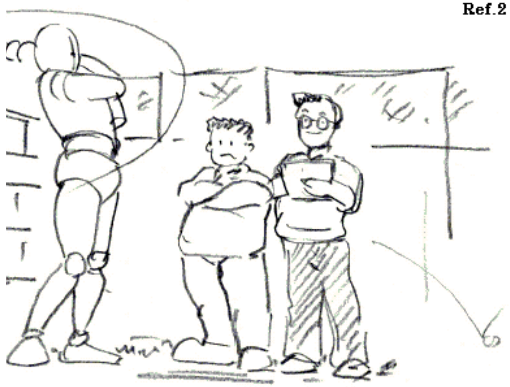

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Conclusion
The rise of Japanese Roboethics

- Participating the International Roboethics discussion actively
- Realization of the gap in the understanding of what a robot is, or how we want it.

- Stimulate to refelect on “the Self” and motivate to consider of “Japanese Roboethics”
- Seek for the answer for “what robot means to human beings” in Japan

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Thank you very much for your attention

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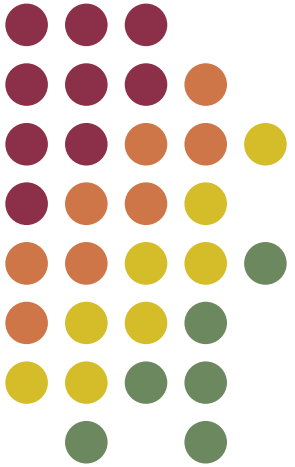


The Discourse of "Japaneseness"

The Japan's success in the rapid industrialization

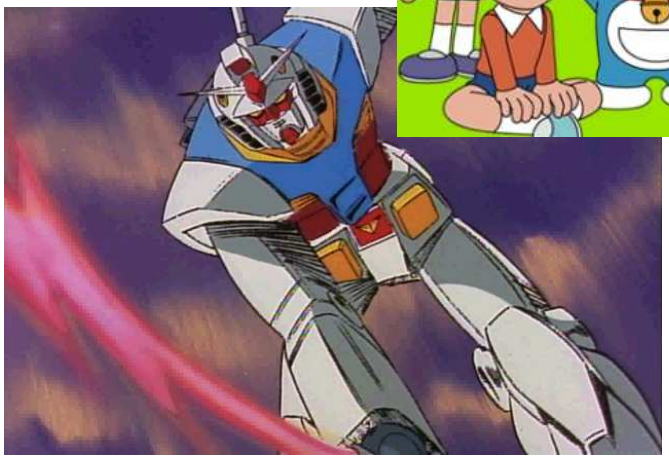
- A high attention from the other countries
- Flourish of the Japanese studies
  - both domestically and internationally
- The discourse to characterize the Japanese uniqueness
  - "Other" to the West
  - By both the Western AND Japanese scholars

Robot and Japanese Society

- Implementation of Robots in daily life
  - Academic: Highly intersted,
  - Political: the New-generatino Robot Project by the METI
  - Economical: Place of high budget
- The Lead of Japan in Humanoid Research, Home robots on sale

The Rise of Ethical Question in Japan? “How far can we go?”
“How should we human beings deal with the technology?”

Subculture and Robot Events



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