Preliminary Remarks

• The memory mechanism may use a technology different from that of a CPU ("active organs")

• Processes in the nervous system may change their character from digital to analog, and back to digital, repeatedly

• The genes belong to the "digital" part of the system, yet they trigger "analog" chemical processes
Codes

• A system of logical instructions that an “automaton” can carry out and which causes the “automaton” to perform some organized task is called a code. More generally: Anything that induces a system to function in a reproducible, purposive manner.

• A complete code defines completely a specific behavior of the system

• Systems of instructions which make one machine imitate the behavior of another are known as short codes (Turing, 1937).
Arithmetic vs. Logic in The Brain

- Must the nervous system have an arithmetical as well as a logical part?
- If so, what’s the precision of the arithmetical part?
- Intensities are translated into frequencies in the brain; the message system is of statistical character
- The nervous system manages to do its work on a rather low level of precision, but the level of reliability is high
- “Certain (statistical) relationships between such trains of pulses should also transmit information”
The Language of The Brain

• The language of the brain is not the language of mathematics
• The language of mathematics and the natural languages are secondary languages (“short codes”) built on top of the primary nervous system language
• The primary language differs considerably from that of mathematics