PHIL256

# 1 Introduction

Cognitive science is the interdisciplinary adj. 各学科间的；跨学科的 study of the human mind and one of its most characteristic properties, intelligence. Intelligence, broadly speaking, is an ability that human beings exercise when they solve challenging problems.

Mainly concerned for intelligence:

1. To **identify the resources** that people deploy when they act intelligently
2. To **understand how the resources are deployed** in this process.

Classic Cognitive Science 认 知 科 学；理 性 科 学 : 1950-1980

1. People employ **symbolic representations** of the information in order to act intelligently
2. People deploy those symbols in thought by **processing those symbols.**

Modern Cognitive Science: after 1980s

-The view of intelligence has been challenged

-studies of the **human brain** have suggested: intelligence does not involve symbols in any significant ways.

- Some philosophers have challenged the claim that **symbol processing** is either necessary for intelligence or sufficient for it.

The aim of this course is to examine Cognitive Science as a way of accounting for human thinking and intelligence.

# 2 Introduction: The Cognitive Paradigm

* The **Central Thesis** of Cognitive Science is that thinking is like computation.

a digital computer computes by taking various **representations of information** and **performing calculations** with them.  The result might be some new information, such as the calculation of a final mark.

Thus, thinking, involved in intelligence, is **analogous** 类似的 to the computations performed by a digital computer. So, in this analogy brain = CPU

However, this analogy **does not imply** that your brain **physically resembles** a digital computer.

the Central Thesis is more like what the philosopher of science Thomas Kuhn called a **paradigm**范例.

**A scientific paradigm fulfills at least the following functions:**

1. it tells researchers what sorts of phenomena to investigate, and what sort to ignore.

2. it tells them what sorts of theories to test, and what sort not to test

3. it tells them how to perform the tests, and how not to.

Central Thesis acts as a paradigm for Cognitive Science:

1. it tells researchers to investigate **intelligent behaviors** (phenomena).

2. it tells them to theorize about **mental representations and procedures** (theories).

3. it tells them to test theories **using computational models, experiments** (How ), etc.

## 2.1 intelligence

What require intelligence?

1.puzzle solving,

2. **Argumentation**, that is, giving strong reasons for holding views, e.g., in science, mathematics, philosophy, etc.

3. **Technological development**, e.g., engineering, computer programming, etc.