1. “Classical” AI

Check whether the statements are true or false.

1. In traditional thinking, the brain controls the body – but often, systems cannot be explained in terms of control only, as e.g. in collective behavior.

- (●) true
- ( ) false

2. The architecture of traditional AI programs is essentially sequential, and these programs work on a step-by-step basis.

- (●) true
- ( ) false

3. Using “good” names for variables or symbols in a program helps the computer to understand their meaning.

- (●) true
- ( ) false

4. Systems built according to GOFAI principles process information centrally.

- ( ) true
- (●) false

5. Symbol systems, such as computer programs in which symbols refer to other symbols (e.g., “semantic nets”) are grounded because each symbol can be explained with other symbols.

- ( ) true
- (●) false

6. The “synthetic methodology” states that by replicating the relevant part of a natural phenomenon, we can understand the underlying principles.

- (●) true
- ( ) false

7. The Frame Problem states that agents (robots) have to be mobile in order to survive.

- (●) true
- ( ) false

8. The concept of Stability-Flexibility is fundamentally different from the concept of Exploration-Exploitation.

- ( ) true
- (●) false

9.Systems based on the “classical paradigm” are typically slow when embedded in real robots because they work on the basis of complex models of the environment.

- (●) true
- ( ) false

10. The “Sense-Think-Act” cycle is fundamental to the “classical paradigm” of AI

- ○ true
- ◉ false

2. Expert Systems

Check whether the statements are true or false.

1. Expert systems lack common sense.

- ◉ true
- ○ false

2. Expert systems can't function because they don't really understand the facts in their database.

- ○ true
- ◉ false

3. Human expertise cannot be adequately modeled as a set of rules.

- ◉ true
- ○ false

4.Expert systems are designed to solve the symbol-grounding problem.

- ○ true
- ◉ false

3. Frame of Reference Problem

Check whether the statements are true or false.

1. The frame of reference problem states that an observer should be careful when deducing internal mechanisms from external behavior.

- ◉ true
- ○ false

2. The frame of reference problem states that complex behavior may emerge from simple mechanisms.

- ◉ true
- ○ false

3. The frame of reference problem states that behavior is not only dependent on the internal mechanism but also on the interaction of the agent with the environment.

- ◉ true
- ○ false

4. The "frame problem" is, in essence, about keeping a model in tune with the real world.

- ◉ true
- ○ false

5. The frame of reference problem states that simple behavior may emerge from complex mechanisms.

- (●) true
- ( ) false

4. Braitenberg Vehicles

Check whether the statements are true or false.

1. Infrared sensors are called “active” sensors because the emit a signal (an IR signal) and measure the intensity of the reflected IR signal, whereas standard cameras are passive sensors (the don’t emit anything actively).

- (●) true
- ( ) false

2. Braitenberg vehicles are capable of solving the "symbol grounding" problem.

- (●) true
- ( ) false

3. Because of the way they are constructed IR sensors (and sensors in general) automatically perform some kind of generalization.

- (●) true
- ( ) false

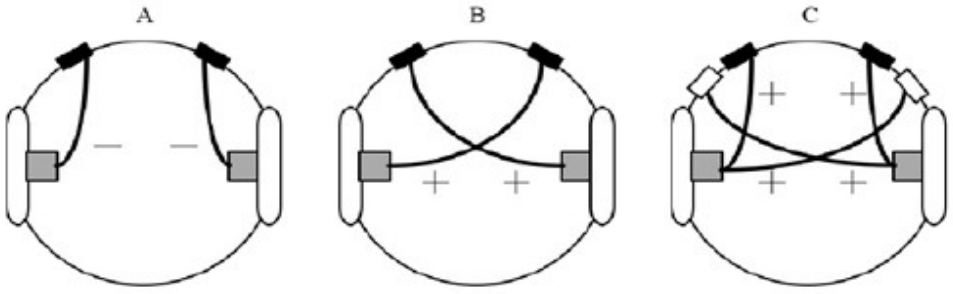
4. Proximity sensors that are often used on Braitenberg vehicles and mobile robots in general can be conveniently implemented using infrared sensors.

- (●) true
- ( ) false

5. Braitenberg vehicles are good illustrations of the “frame of reference” problem because they demonstrate how seemingly complex behavior can emerge from very simple internal control mechanisms.

- (●) true
- ( ) false

6. Here you see three Braitenberg vehicles. Assume the black boxes to be light sensors and the white boxes (C) to be proximity sensors and check whether the following statements are true or false.



6a. C avoids light sensors.

- (●) true
- ( ) false

6b. C learns that obstacles and light sources are the same.

- ( ) true
- (●) false

6c. A and B both turn towards a light source.

- (●) true
- ( ) false

6d. B stops at the light source, while A runs over it.

- ( ) true
- (●) false