Questionnaire on Programming in Aseba / VPL

Dear student/pupil,

We are doing research on the effectiveness of the Thymio-II robot and the Aseba / VPL software for learning robotics and computer science.

We would very much appreciate your help in this research. Please answer the following multiple-choice questions to the best of your ability. Start from the beginning and answer as many questions as you can in the time available. For every question, please circle the right answer.

You are not required to do this and we will only use the results for our research. We are not asking for your name and the results will not be given to your teachers or parents.

Thank you for your time and effort,

Dr. Stéphane Magnenat, Dr. Jiwon Shin, Prof. Moti Ben-Ari

Please provide the following information about your background:

1. I am ....years old.

2. I have experience programming: yes / no.
   If yes, I have been programming for ....years.

3. I have experience building or using robots: yes / no.
   If yes, I have been using them for ....years.

Recall the meaning of the ground and horizontal distance sensors:

Horizontal distance sensor

- **White square**: an event will occur if there is **nothing nearby**;
- **Red square**: an event will occur if there is **something nearby**.

Ground sensor

- **White square**: an event will occur if **there is no ground** or if **little light is reflected** from the ground (for example, if it is black);
- **Red square**: an event will occur if **there is a ground** and **a lot of light is reflected** from the ground (for example, if it is white).

1. For each block, tell whether it is an **Event block** or an **Action block**:
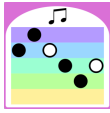
    Event block   Action block
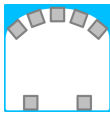
    Event block   Action block

    Event block   Action block

    Event block   Action block

    Event block   Action block

2. For each event-action pair, tell whether it is **Correct** (valid) or **Wrong** (not valid):

    Correct   Wrong
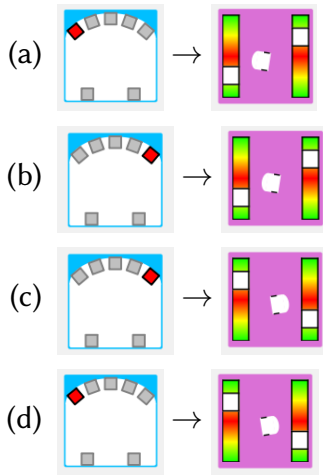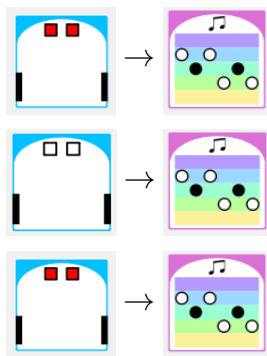
    Correct   Wrong

    Correct   Wrong

    Correct   Wrong

3. Which one of these event-action pairs causes the robot to **turn right** when the **left sensor** detects an object?
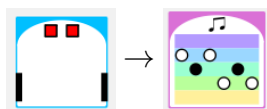
(a) →

(b) →

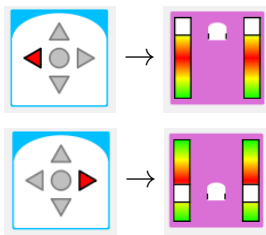(c) →

(d) →

4. Is something **wrong** with this program?

(a) Yes, you **can't have** two event-action pairs with exactly the **same event**.

(b) Yes, you **can't have** two event-action pairs with exactly the **same action**.

(c) Yes, you **can't have** two event-action pairs that are **exactly the same**.

(d) No, **Nothing is wrong** with the program.

5. What does this event-action pair **do**?

(a) **Play** music if **both** ground sensors are over a **black** ground.

(b) **Stop playing** music if **both** ground sensors are over a **white** ground.

(c) **Play** music when the **program starts** to run.

(d) **Play** music if **one** sensor is over a **white** ground and **one** is over a **black** ground.

(e) **Play** music if **both** ground sensors are over a **white** ground.

6. In the following program:

What happens if you touch the **left button**, then touch the **left button again** and then touch the **right button**?

(a) You **can't touch** a button **twice** in a row.

(b) The robot moves **forwards** because you touched the **left** button **more times** than you touched the **right** button.

(c) The robot moves **backwards** because it **ignores** the **first two touches** and only **does** the action of the **last** event-action **pair**.

(d) The robot moves **forwards** and **then** it moves **backwards**.
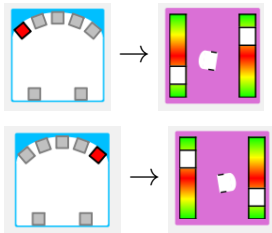
7. Running the action block causes the two **motors** to:

(a) Run at the **same speed**.

(b) Run at different speeds: the **left** motor runs **faster**.

(c) Run at different speeds: the **right** motor runs **faster**.

Running the action block causes the **robot** to:
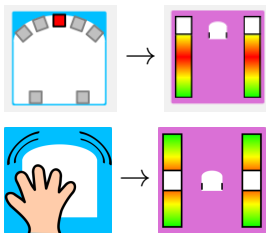
(a) Go **straight**.

(b) Turn **right**.

(c) Turn **left**.

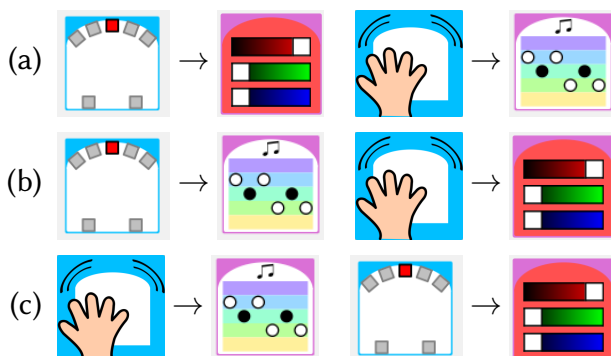8. What happens if you run the following program and place an **obstacle** in **front** of the **leftmost sensor**?

    (a) The robot **turns left** until the **right sensor** detects the **obstacle** and then **turns right**. This goes on **indefinitely**.

    (b) The robot **turns right** until the **right sensor** detects the **obstacle** and then **turns left**. This goes on **indefinitely**.

    (c) The robot **turns right** until the **right sensor** detects the **obstacle** and then **stops**.

    (d) The robot **turns left** until the **right sensor** detects the **obstacle** and then **stops**.

    (e) The robot **doesn't move** because it will only move when both the left and right sensors detect an obstacle at the same time.

9. The following program lets the robot **approach a wall** and **stop when** the robot **hits** the wall:

Which two event-action pairs must be **added** to the program so that the robot turns the **top light red** when it **detects the wall** and **plays** music when it **hits the wall**?

    (d) Either (a) or (c)

    (e) Either (a) or (b)

    (f) Either (b) or (c)