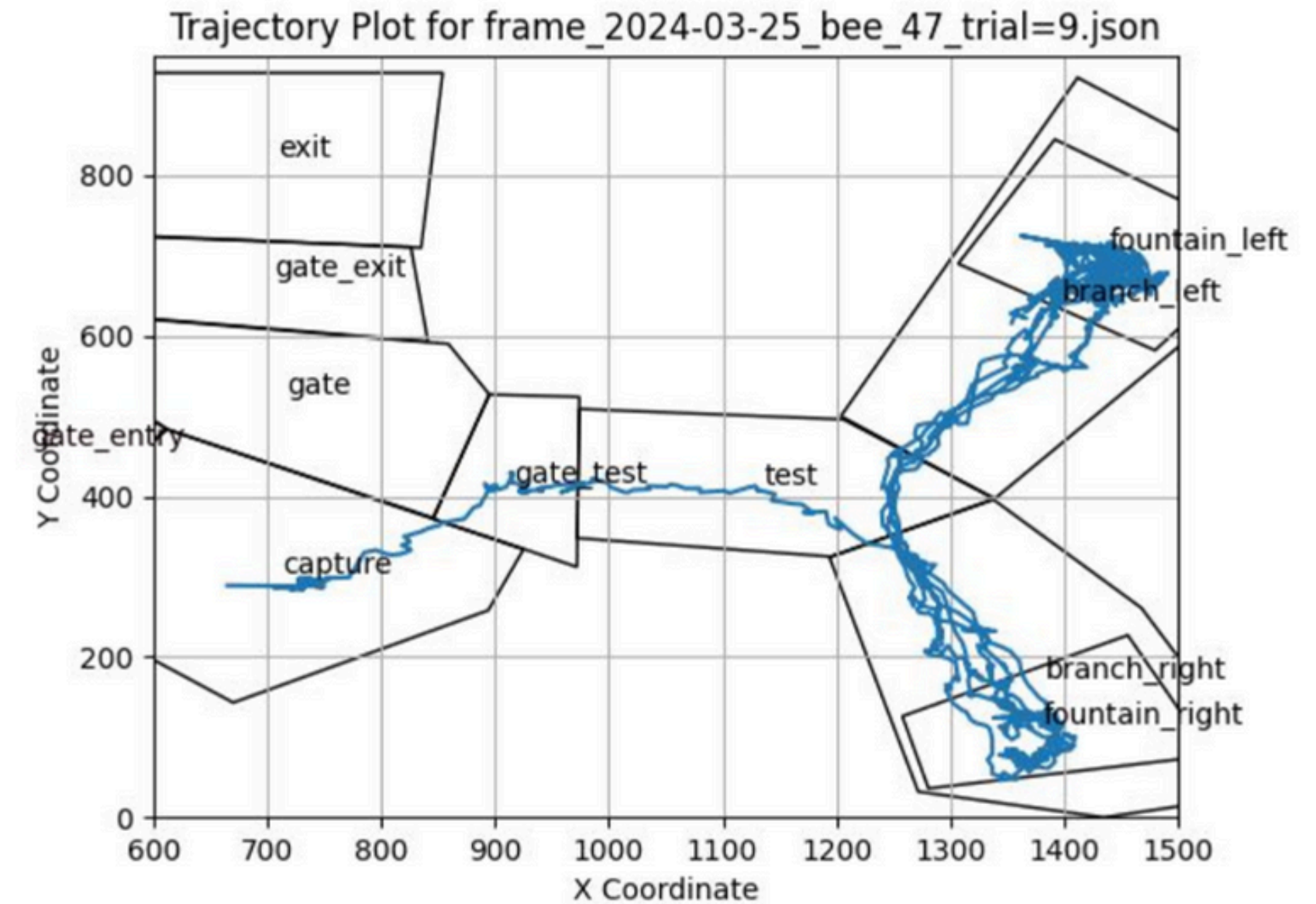


Presentation of raw data materials

t.f	x.px	y.px	comp	coul.renforcee	cote.renforce	id.bourdon	essai
1	569	296	capture	yellow	right	1	5
2	645	268	capture	yellow	right	1	5
3	653	292	capture	yellow	right	1	5
4	650	292	capture	yellow	right	1	5
5	651	292	capture	yellow	right	1	5
6	660	272	capture	yellow	right	1	5
7	652	292	capture	yellow	right	1	5
8	652	294	capture	yellow	right	1	5
9	655	292	capture	yellow	right	1	5
10	655	292	capture	yellow	right	1	5
11	664	276	capture	yellow	right	1	5
12	663	288	capture	yellow	right	1	5
13	660	289	capture	yellow	right	1	5
14	629	290	capture	yellow	right	1	5
15	629	290	capture	yellow	right	1	5
16	629	290	capture	yellow	right	1	5
17	629	290	capture	yellow	right	1	5
18	629	290	capture	yellow	right	1	5

Example of 1 of 187 raw data .csv files



2D representation of trajectory of a bumblebee

List of analysis tasks in this project

Task 01: analysis of reinforced gate and fountain side
Task 02: analysis of reinforced gate and colour and fountain side



Determine the proportion of the bee that learned successful throughout first 15 trials

Task 03: Latency analysis between gate_test and fountain
Task 04: Latency analysis between gate_test and fountain side with reinforced side



Determine the latency from trials 1, 5, 10 and 15

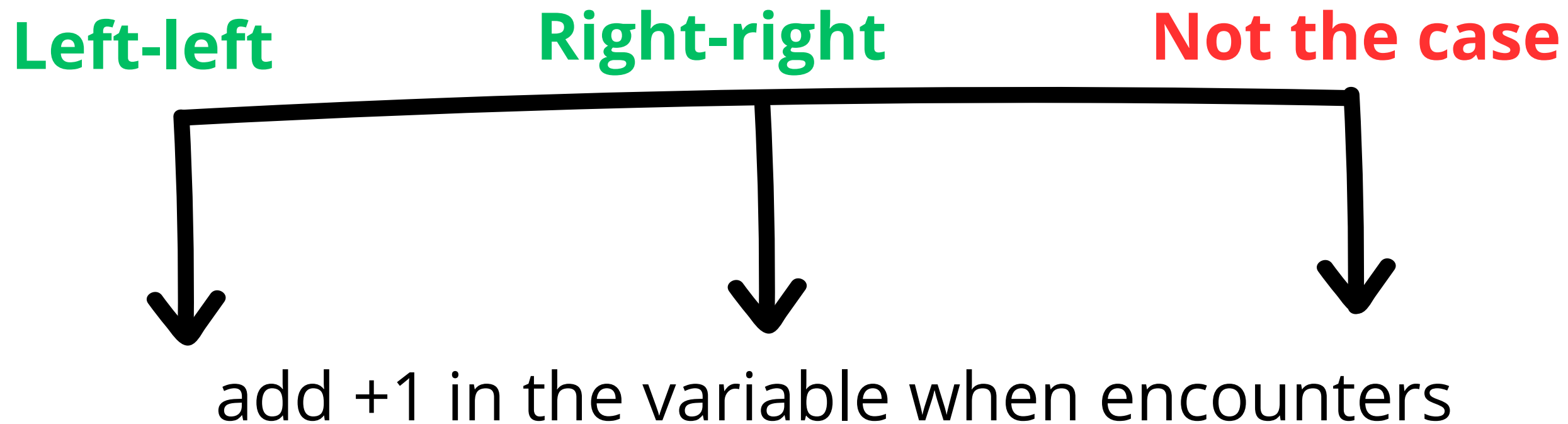
Task 05: Average speed from gate_test to fountain



Determine the speed from trials 1, 5, 10 and 15

Task 1: analysis of reinforced gate and fountain side

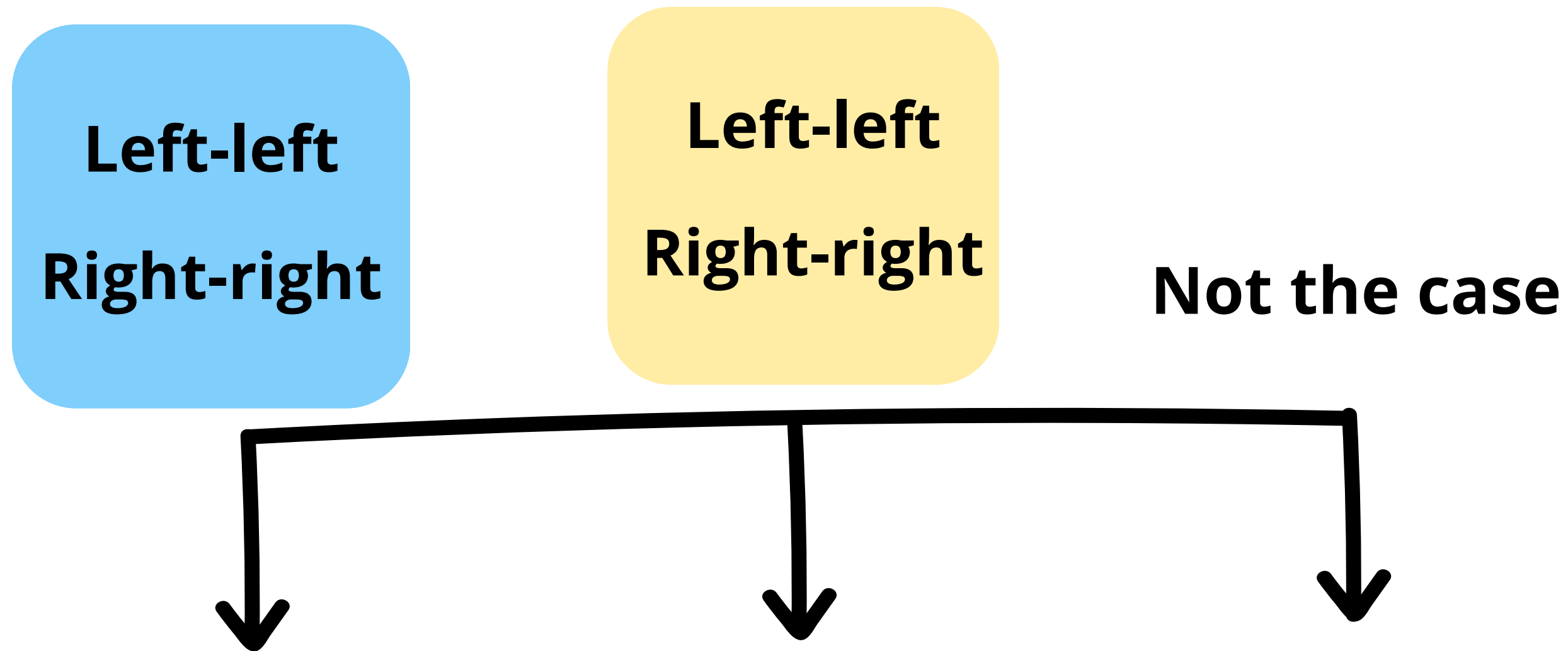
Used information: fountain_left, fountain_right and reinforced side



Calculate fraction (**congruent** vs **non-congruent**) + SEM

Task 2: analysis of reinforced gate and colour and fountain side

Used informations: same from task 1 + reinforced color



add +1 in the variable when encounters

Calculate fraction (**blue** vs **yellow**) + SEM

Task 03: Latency analysis between gate_test and fountain

Create 4 trial variables for trials 1, 5, 10, 15

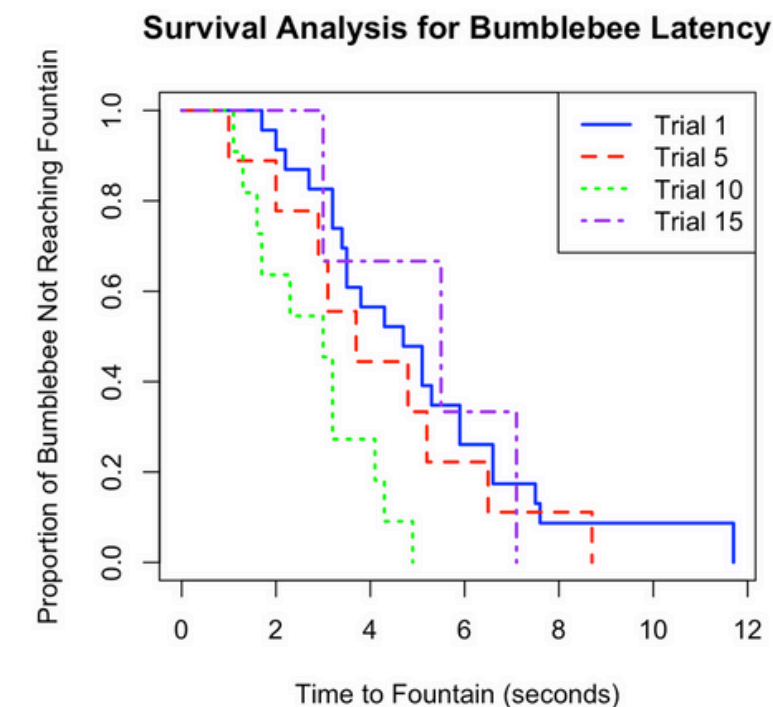
Loop: trials < 16 and take only trials 1, 5, 10, 15

- Extract subset "fountain" and "gate_test"
- Using column t.f. to extract:
 - a = First time visit the fountain (tmin of subset "fountain")
 - b = Last time at the gate_test (tmax of subset "gate_test")
- Latency = a - b
- Conversion to second
- Add the latency in corresponding trial variable

Calculate the average latency using mean()

Plot survival curve

1. Add libraries: *survival* and *survminer*
2. Create the survival object with *Surv(time, event)*
3. Compute an estimate of a survival curve using *survfit()*
4. Plot (title, axes, colours)



Task 04: Latency analysis between gate_test and fountain side with reinforced side

Create 4 trial variables for trials 1, 5, 10, 15

List: congruent and incongruent

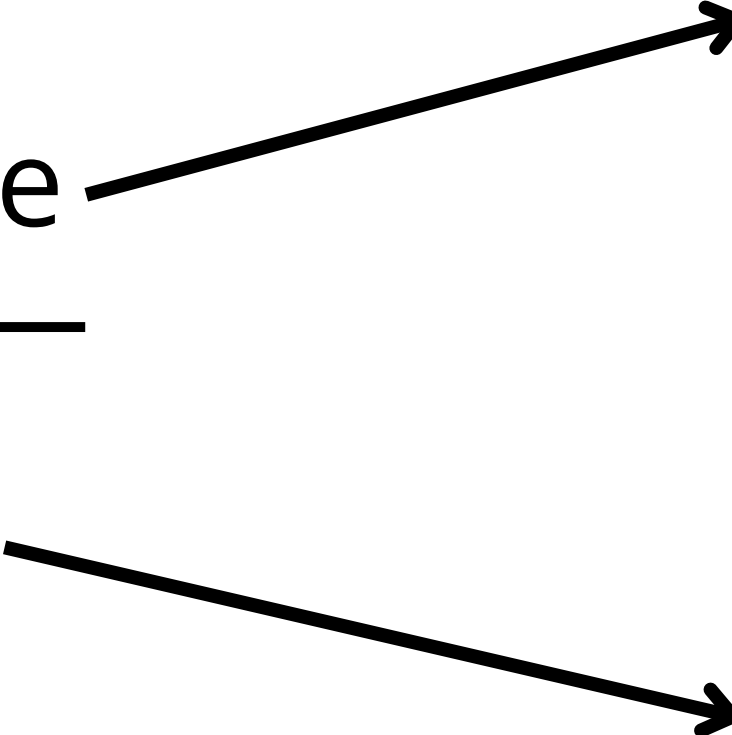
Loop: trials < 16 and take only trials 1, 5, 10, 15

- Using column t.f. to extract:
 - a = First time visit the fountain (tmin of subset "fountain")
 - b = Last time at the gate_test (tmax of subset "gate_test")
- Latency = a - b
- Conversion to second
- Add the latency in corresponding trial variable

Only the congruent latencies

Calculate the average latency using mean()

Task 5: Average speed from gate_test to fountain

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$


Coordinates (x;y) in centimeters

Latency between gate_test and fountain
(left or right) in seconds

The diagram illustrates the components of the speed formula. An arrow points from the 'Distance' term in the numerator to the text 'Coordinates (x;y) in centimeters'. Another arrow points from the 'Time' term in the denominator to the text 'Latency between gate_test and fountain (left or right) in seconds'.