732A66 Decision Theory

Assignment 3

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Prerequisites and facts:

- You will travel from City A to Airport B for catching a flight on a specific day
- You need to be at Airport B at latest 9:30 a.m. to not miss the flight
- You can choose between taking the train or going by car (no other means of conveyance)
- The train journey takes 3 hours according to the schedule. It departs from City A at 6 a.m. (and arrives at Airport B at 9 a.m. if on schedule)
- Going by car takes approximately 2 hours (assume it to be exactly 2 hours for simplicity), but you need to add 15 minutes for parking your car. The car is available from 6 a.m.
- The train ticket costs 50 €
- The total cost for using the car (parking included) is 70 €

Potential obstacles and costs; assumptions and assigned prior probabilities:

- The probability that the train is delayed by x minutes is (45 – x) 0.001
- It can be assumed that the train will not derail or break down
- The additional cost from missing your flight is 300 €
- The probability of encountering an unexpected traffic incident/jam that delays your journey by y minutes is (90 – y) 0.0002 conditional on that the car is not involved in an accident
- It can be assumed that the car will not break down
- The probability of the car (and you) being involved in an accident is 0.01
- If the car is involved in an accident you will not catch your flight