Using examples to illustrate your answer, explain how an agent’s behaviour is affected by its intentions and the attitudes you can expect an agent to have towards its intentions. The examples you use can be about human agents or artificial agents.

Agent: Air traffic

What I would like to mention as an exemplification is the agents as the air traffic controllers in the mature multi-agent air traffic system.

We can assume a scenario. At a certain time in the evening, three Boeing 737 airplanes A1, A2 and A3 are ready to take off and manage to land on the runway of the airport. Their paths are the same and their agents and the airport agents are ready to make the plans.

The Beliefs are the environmental information received by various sensing devices like radio and radar at all times, including wind speed, weather, air speed, runway conditions, the path, altitude, latitude and longtitude of the aircrafts and etc.

What the agents desire are arriving at the destination as quickly as possible after take-off, such as advancing at maximum speed and shortest distance, and we should quickly landing all aircrafts on the airport runway.

Actually desires are not all realistic. For instance, there is a regulated take-off and landing time, there are intervals between landing and take-off, there must be no path collisions, and there is also some noise and route control at the airport.

So the initial intentions the agents make can be planning to take off and land at different times according to the performance of the aircraft and the prescribed time, and land and fly safely.

According to the intention of each aircraft and airport agent, the corresponding plans will be generated, such as setting the take-off sequences and time, setting the aircraft speed, setting the flight route, and changing the airport personnel and equipment scheduling.

In the process, some unexpected situations may occur, such as delays. In order to meet the intentions, the agent would adopt other plans such as adjusting its airspeed, cruise route, and airport dispatch with correlations. If the initial intention has not changed, then the aircraft and airport agents will think of various ways to accomplish this intention.

Agent: air traffic controllers and aircraft agents.

Scenario: at a certain time in the evening, three Boeing 737 airplanes are ready to take off and manage to land on the runway of the airport whose paths are the same.

Beliefs: the environmental information received by various sensing devices, including wind speed, weather, airspeed, runway conditions, the route, altitude, latitude and longitude of the aircraft and etc.

Desires: arriving at the destination as quickly as possible after take-off, and we should quickly land all aircraft on the airport runway. But desires are not all realistic. For instance, there are some regulated take-off and landing times, there are intervals in landing and take-off, there must be no air collisions, and there are also some noise and route controls at the airport.

Intentions: the aircraft can be planned to take off and land at different times according to the performance of the aircraft and the prescribed time, the most important are landing and flying safely.

Plans: according to the intention of each aircraft and air traffic agent, the corresponding plans will be generated, such as setting the take-off sequences and time, setting the aircraft speed, setting the flight routes, and changing the airport personnel and equipment scheduling.

In the process, some unexpected situations may occur, such as delays. In order to meet the intentions, the agents would adopt other plans such as adjusting its airspeed, cruise route, and airport dispatch. If the initial intention has not changed, then the aircraft and airport agents will think of various ways to accomplish this intention.

