**Overview**

**Survey Drones**

*Listening for*: survey\_support, support\_eta

*Can send*: alert\_fire, survey\_support, request\_battery, request\_maintenance, fire\_out

**Maintenance Drones**

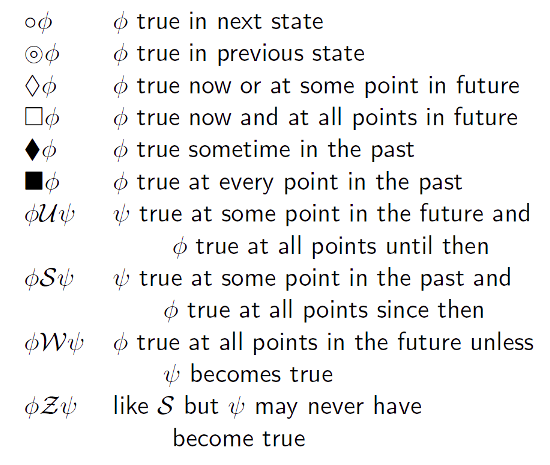
*Listening for*: request\_battery, breakdown\_calls

*Can send*: support\_eta

**Firefighting Drones**

*Listening for:* fire\_alert, backup\_call(from another fire drone), support\_eta

*Can send:* water\_out\_alert(asking for a substitution), need\_backup, fire\_out, request\_battery, breakdown\_alert, alert\_humans



Temporal logic symbols

**Symbols:** ◯ ⌾ ◇ ⯁ ⬛ ⬜ ∀ ∃ ∄ ⌐ 𝓩 Ⲫ 𝓦 Ｓ U ψ →

**Survey Drones**

⌾ ask(survey\_support) → action(move\_in\_requested\_drone\_area)

⌾ fact(fire\_confirmed) → ◇ give(alert\_fire)

⌾ fact(charging<50) → ◇ give(request\_battery)

⌾ fact(breakdown) → ◇ give(request\_maintenance) AND ◇ give(survey\_support)

(fact(fire\_fighting)Ｓ(fire\_confirmed)) AND fact(fire\_ceased) → give(fire\_out)

**Maintenance Drones**

⌾ ask(request\_battery) AND fact(available)→action(deliver\_battery) AND fact(⌐available)

⌾ fact(request\_completed) →fact(available)

⌾ ask(request\_battery) AND fact(⌐available) → fact(wait) W fact(available)

⌾ ask(breakdown\_call) AND fact(available)→ action(deliver\_maintenance) AND fact(⌐available)

⌾ ask(breakdown\_call) AND fact(⌐available)→ fact(wait) W fact(available)

⌾ fact(wait) AND fact(available) → action(deliver\_battery) OR action(deliver\_maintenance)

To be added later:

1. Prioritise the requests received from firefighters over survey
2. Prioritise the maintenance requests over battery request
3. Drone cannot handle battery\_request and maintenance\_requests at the same time unless both are coming from the same drone(done\_id).

**Firefighter Drones**

*Legend: agent\_name (listens\_for) [asks\_for]*

Df (fire\_alert, backup\_call, support\_eta) [water\_out\_alert, need\_backup, fire\_out, request\_battery, breakdown\_alert, alert\_humans]:

⌾ fire\_alert → ◇ reach alert coordinates

⌾ backup\_call → ◇ reach backup coordinates

⌾ fact(charging<50) → ◇ give(request\_battery)

⌾ fact(water\_out) → ◇ give(water\_out\_alert) AND ◇ give(need\_backup)

⌾ fact(breakdown) → ◇ give(request\_maintenance) AND ◇ give(need\_backup)

⌾ fact(code\_red)→ ◇ give(alert\_humans)

(fire\_alert U fact(fire\_ceased)) → ◇ give(fire\_out)