Venkata Krishna Mohan Sunkara
65528957

GLOSSARY 11

1. **Action Schema:** It is defined as a representation of a set of ground actions. It is a lifted representation which lifts the level of reasoning from propositional logic to a restricted subset of First-order logic. [1] page:367

2. **Causal Links:** It is defined as a link between actions which protects the post condition of first action which is required as a precondition for second action. [2] slide:39

3. **Consistent Plan:** It is defined as a plan that has no cycle in the ordering constraints and no conflicts with the causal links. [2] Slide:40

4. **Closed World Assumption:** It is defined as an assumption where anything that is not mentioned in a state is considered false. [1] page:417

5. **Empty Delete List Heuristic:** It is defined as a heuristic used for state space search which removes all the negative effects of actions. [2] Slide:35

6. **Event Calculus:** It is defined as a mechanism for representing planning. In Event calculus, the points of time are considered instead of situations for representing planning. [1] page:446

7. **Levels in a Planning Graph:** It is defined as an indication of time stamps in a planning graph. The state and action nodes are present in alternating levels. [2] Slide:49

8. **Linearization of POP graph:** It is defined as the conversion of a POP graph in to a linear structure or total order plan which provides the sequence of actions that need to be performed to obtain a goal. [2] Slide:38

9. **Markov Decision Process:** It is defined as a mathematical framework for modelling decision making in situations where outcomes are partly random and partly under control of a decision maker. [4]

10. **Mutual Exclusion:** It is defined as a link between conflicting actions and conflicting literals in a planning graph. The mutex link states that the actions or literals cannot exist at the same time. [2] Slide:52

11. **Nearly Decomposable problems:** It is defined as a set of problems where the planner can work on sub-goals independently, but might need some additional work to combine the resulting solutions. [2] Slide:45

12. **Negation as Failure:** It is defined as a proof technique which tries to prove that the negation of a sentence is a failure, which means that the sentence is true. [1] Page: 417

13. **Partially observable MDPs:** It is a generalization of MDP which models an agent decision process in which it is assumed that the system dynamics are determined by an MDP, but the agent cannot directly observe the underlying state. [5]

14. **Persistent Actions:** It is defined as an action where a literal can persist if no action negates it. [1] Page:380

15. **Progression Planning:** It is defined as a type of planning where the planning starts from an initial state and moved forward. [2] Slide:24

16. **Open pre-condition:** It is defined as the set of conditions that needs to be met in planning. Sub-goals may be added during the planning process as pre-conditions. [2] Slide: 39

17. **Open World Assumption:** It is defined as an assumption where both positive and negative fluents are considered. If a fluent is not mentioned then its value is considered unknown. [1] Page: 417
18. **Ordering Constraints:** It is defined as a set of constraints which specifies the order in which different states must occur in a planning. [2] Slide: 41
19. **Qualification Problem:** It is defined as problem which defines the circumstances under which an action is guaranteed to work. [2] Slide: 11
20. **Ramification Problem:** It is defined as a problem which defines the proliferation of implicit consequences of actions. It defines the implicit changes which might be caused due to an action. [2] Slide:11
21. **Reasoning about action and change:** The area of using logic for planning is informally called as 'Reasoning about action and change'. [2] Slide:10
22. **Regression Planning:** It is defined as a type of planning where the planning starts from the goal state and moved backward. [2] Slide:24
23. **Serial Planning Graph:** It is defined as a planning graph which consists of only one action per level. [2] Slide:56
24. **Situation Calculus:** It is defined as a type of representation where each time step is called a situation and allows to represent plans and reason about actions and change. [2] Slide:5
25. **State Constraints:** It is defined as the formulas that should be true in all states. [6]
26. **STRIPS:** It is an acronym for Stanford Research Institute Problem Solver. It is the first major planning system which illustrates the interaction of influences and was designed as the planning component of the shakey robot project at SRI. [1] Page: 393
27. **Sub goal independence assumption:** It is defined as a heuristic for state space search which uses the divide and conquer strategy. The cost of solving a conjunction of sub goals is the sum of costs of solving each sub goal independently. [2] Slide: 32

Reference:
[1] Artificial Intelligence, A Modern Approach (AIMA), Third Edition, by Russell & Norvig.
[2] Handouts by Prof. Berthe Choueiry
[3] Class Notes
[4] https://en.wikipedia.org/wiki/Markov_decision_process
[5] https://en.wikipedia.org/wiki/Partially_observable_Markov_decision_process
[6] http://www.dtic.upf.edu/~hgeffner/Jonathan-PlanRob-2015.pdf