

24.10.24

Thursday.

→ Progression & partial order planning
for blockworld

→ Total order planning = full sequence

→ partial order planning = partial sequence

→ forward progression planning & regression



Disadvantages: Exponential space complexity
& time complexity.

Graph planning :-

"Have a cake and Eat it too"

Init : Have (cake)

Goal : Have (cake) \wedge Eaten (cake)

Action 1: Bake (cake)

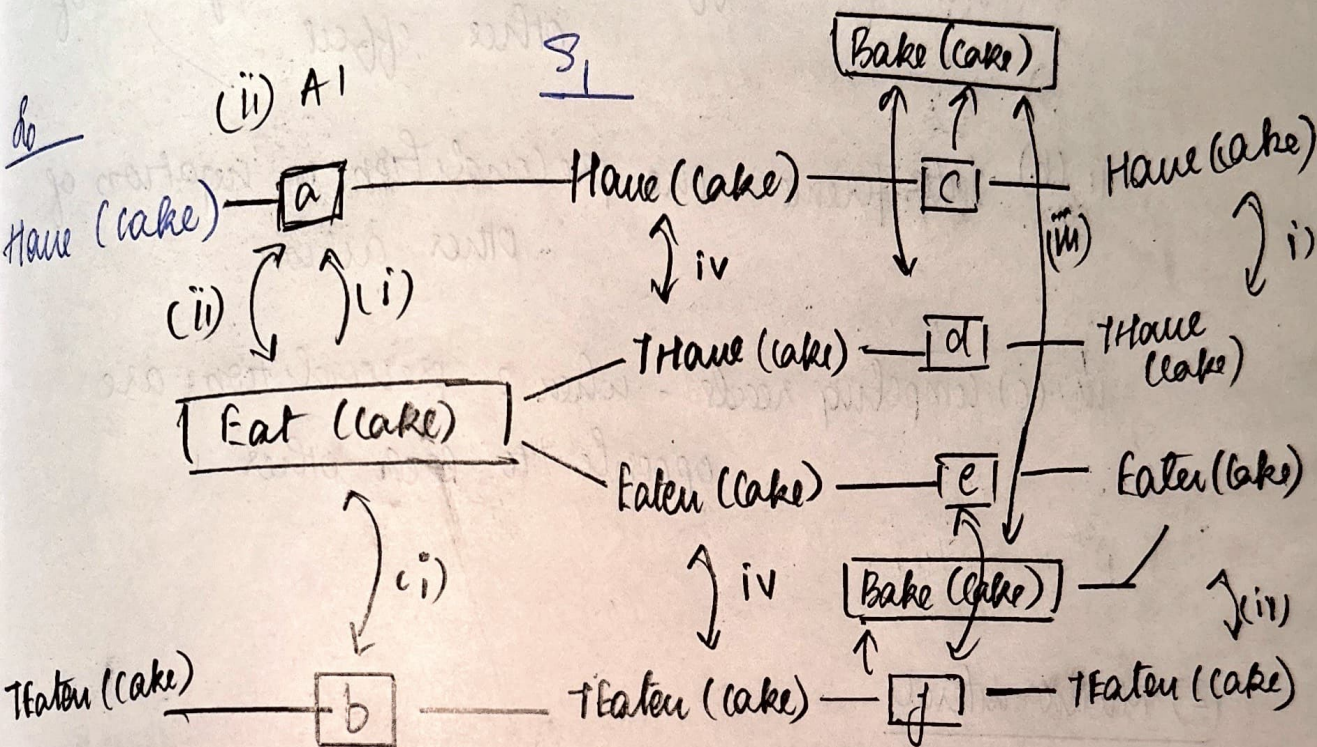
Precondition : \neg Have (cake)

Effect : Have (cake)

Action 2 : Eat (cake)

Precondition: Have (cake)

effect : 1 Have (cake) 1 Eaten (cake)



Terms :-

(i) persistent action - the state remains same

eg: Have (cake) — ☐ — Have (cake)
So Si

Actions - Eat (cake) , Bake (cake)

a, b, c, d, e, f

literals - Have (cake), 7Have (cake), Eaten (cake)
7Eaten (cake)

States - s_0, s_1, s_2 .

Constraints in actions

→ Mutex links (mutually exclusive links)

(1) Mutex actions

i (a) Inconsistent effect - one effect is negation of other effect

ii (b) Interference - one precondition is negation of other action.

iii (c) competing reads - when 2 preconditions are opposite to each other.

(2) Mutex literals

iv (d) At the same level, one literal is negation of the other

v (e) Inconsistent Support - Two of actions are mutually exclusive. Their effects are also mutually exclusive.

* Eat & Bake \rightarrow Not mutually exclusive actions

* Bake (cake) & e \rightarrow "

▷ from goal \rightarrow go back to action & see which are not mutually exclusive.

▷ No mutex line \rightarrow plan is obtained.

▷ This search follows: iterative Deepening

▷ spare the problem \Rightarrow TB

note:
Gupta Videos
for graph
planning!

* Mutex links: none - l^2 (no. of literals)

actions also almost l^2

$O((a+l)^2)$ = Time & space complexity.

#NLP - syntax, semantics

"cat eats a fish"
Noun verb \downarrow noun
determinant

System

(1) Morphology

for eats - eating, ate, eat

↑
root word

(2) Part of speech (POS)

noun, verb, determiner, preposition, adjective, adverb

eg: cat eats a fish | eats fish a cat

How will machine learning differentiate b/w
these 2 & which one is right?

(3) chunking / phrases

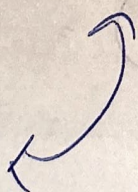
verb

↑

NP, VP, PP → prepositional phrase

↓
noun

(4) parse tree



CFG

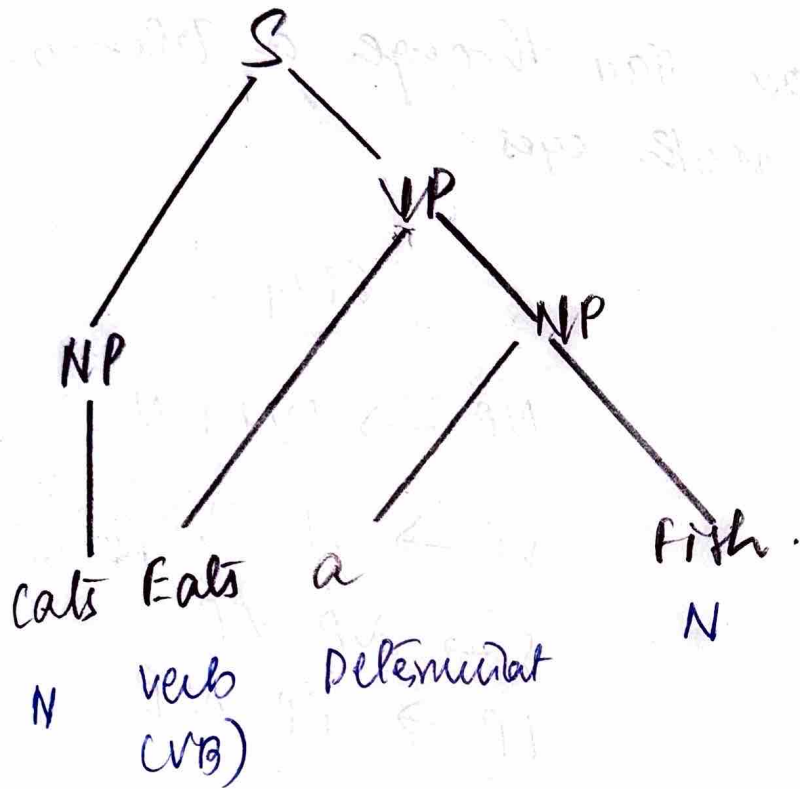
grammar

[content phrase grammar]

Passing 8 - 1 subject verb object

1) Top down approach

2) Bottom up approach.



∴ If this is followed, "eats a fish a cat" will be proved wrong.

noun phrase → let followed by noun/nouns

CFG :-

NP → DT N/N

VP → VB NP

S → NP VP

note: Sentence-always have noun phrase followed by verb phrase.

Q. Draw a parse tree for

- 1) Ram saw stars.
- 2) Ram saw stars through a telescope
- 3) Ram saw stars through a telescope with eyes.

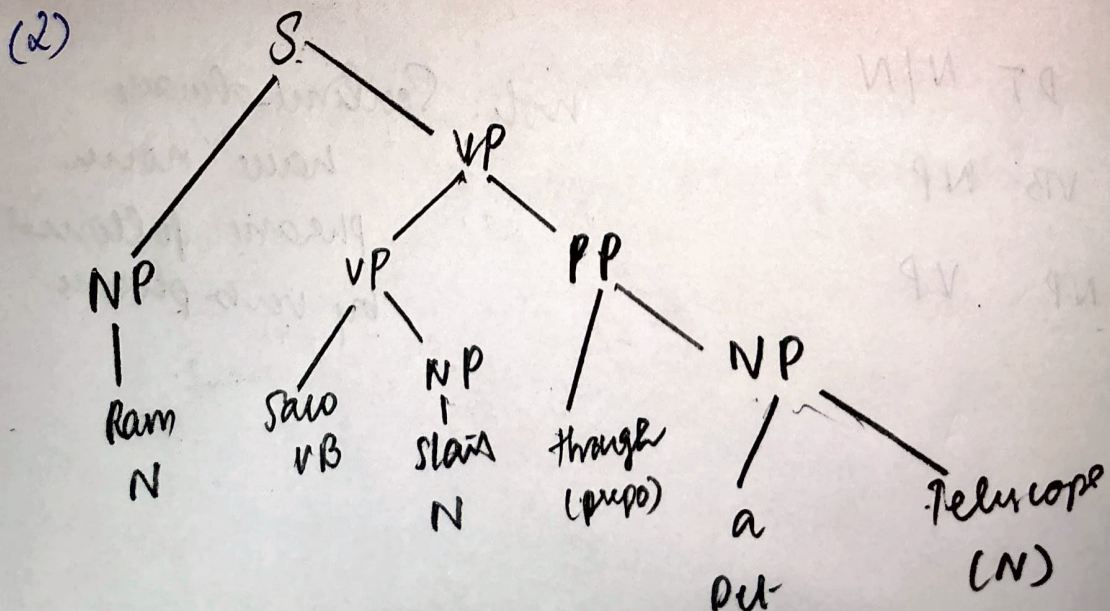
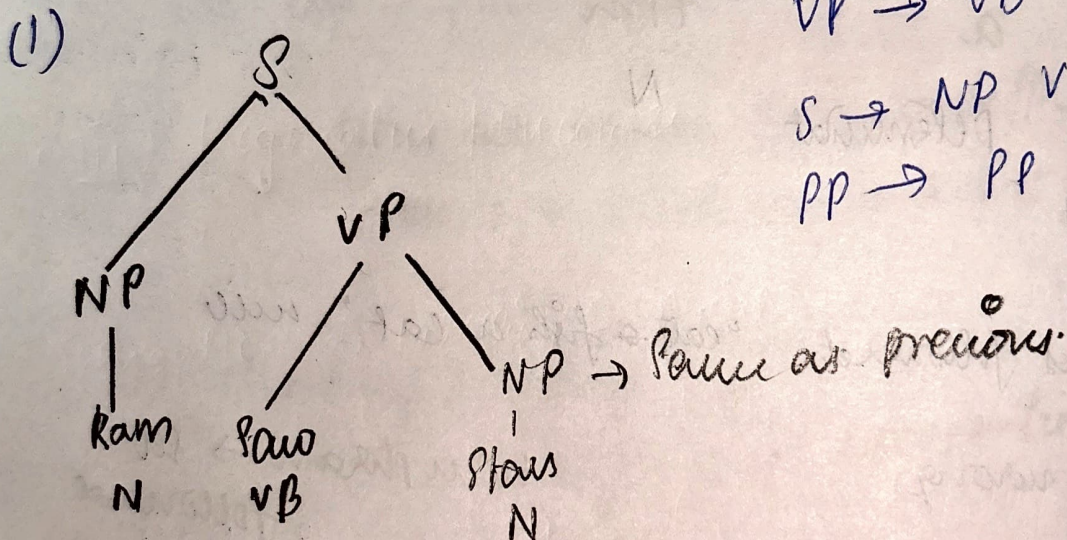
CFG :-

$NP \rightarrow DN \mid N$

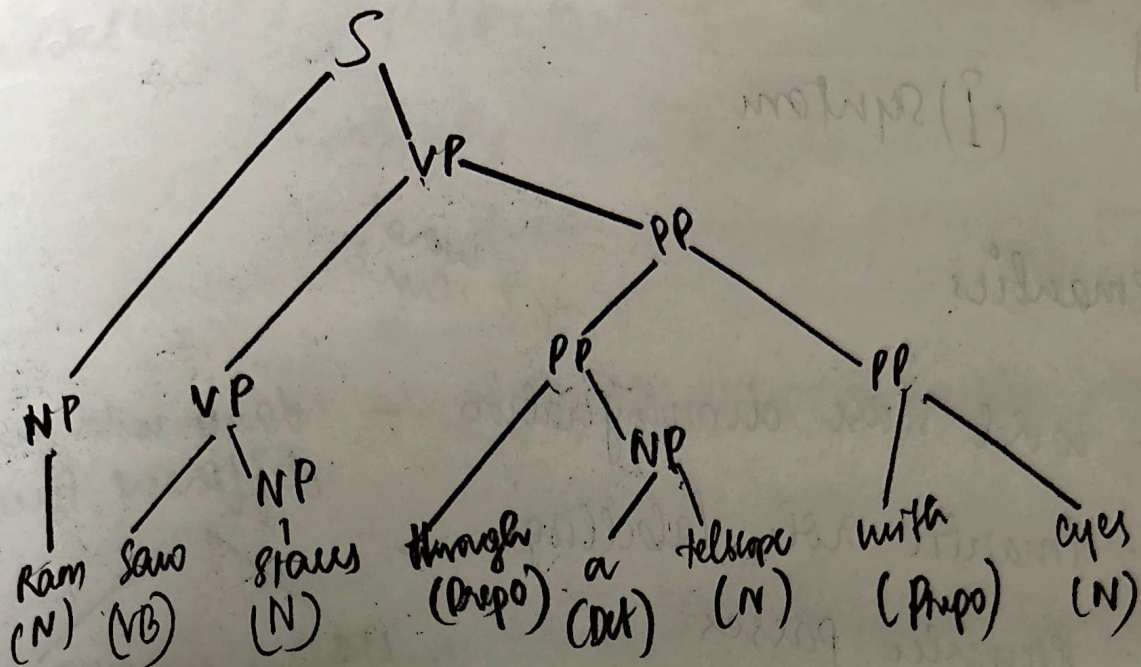
$VP \rightarrow VB \mid NP \mid VP \mid PP$

$S \rightarrow NP \mid VP$

$PP \rightarrow PP \mid NP$



(3)



CFG :-

$NP \rightarrow PTN \mid N$

$VP \rightarrow VB \ NP \mid VP \ PP$

$S \rightarrow NP \ VP$

$PP \rightarrow Pr \ NP \mid PP \ PP$