Graphsearch

```
OPEN ← { start }
CLOSED ← { }
while OPEN ≠ { }
    s ← first(OPEN)
    OPEN ← rest(OPEN)
    CLOSED ← CLOSED + { s }
    if goal(s), exit
    for each r ∈ ApplicableRules(s)
        s' ← ApplyRule(r,s)
        if s' ∉ { OPEN ∪ CLOSED }
            parent(s') ← s
            depth(s') ← depth(s) + 1
            OPEN ← Insert(s',OPEN)
        else if s' ∈ OPEN
            parent(s') ← arg min { depth(s), depth(parent(s')) }
            depth(s') ← depth(parent(s')) + 1
        else if s' ∈ CLOSED
            parent(s') ← arg min { depth(s), depth(parent(s')) }
            for each d ∈ descendants(s')
                depth(d) ← depth(parent(d)) + 1
```

if goal(*s*),

path is { $s \rightarrow \text{parent}(s) \rightarrow \text{parent}(\text{parent}(s)) \rightarrow \ldots \rightarrow start$ }