

## Depth First search for the Farmers Wolf Goat Cabbage



SWI-Prolog -- e:/college\_y3/Intro\_to\_AI/Labs/assignment/finalPart/fwgc.pl

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For online help and background, visit <http://www.swi-prolog.org>  
For built-in help, use `?- help(Topic).` or `?- apropos(Word).`

`?- start(X).`

**ERROR: Undefined procedure: start/1 (DWIM could not correct goal)**

`?- state(X).`

**ERROR: Undefined procedure: state/1 (DWIM could not correct goal)**

`?- goal(X).`

`X = state(e, e, e, e).`

`?- go.`

Goal is at depth: 7

FWGC	~~~~~~	
	~~~~~~	
W C	~~~~~~	FG
	~~~~~~	
FW C	~~~~~~	G
	~~~~~~	
C	~~~~~~	FWG
	~~~~~~	
F GC	~~~~~~	W
	~~~~~~	
G	~~~~~~	FWC
	~~~~~~	
F G	~~~~~~	WC
	~~~~~~	
	~~~~~~	FWGC
	~~~~~~	

**true.**

`?-`

## Eight Piece Puzzle Depth First Search



SWI-Prolog -- e:/college\_y3/Intro\_to\_AI/Labs/assignment/finalPart/eightPiece.pl

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`?- goal(X).`

`X = [(2, 2), (1, 1), (2, 1), (3, 1), (3, 2), (3, 3), (2, 3), (1, 3), (...)].`

`?- start(7,Y).`

`Y = [(1, 2), (1, 3), (1, 1), (3, 1), (3, 2), (3, 3), (2, 2), (2, 3), (...)].`

`?- go.`

What number to start at: 4, 5, 6, 7, 8, 18

|: 18.

Goal is at depth: 18

```
2 1 6
4   8
7 5 3
```

```
---
2   6
4 1 8
7 5 3
```


```
---
2 6
4 1 8
7 5 3
```

```
---
4 2 6
1 8
7 5 3
```

```
---
4 2 6
1 8
7 5 3
```

```
---
4 2 6
1 8
7 5 3
```

```
---
```

 SWI-Prolog -- e:/college\_y3/Intro\_to\_AI/Labs/assignment/finalPart/eightPiece.pl

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---  
4 2  
1 8 6  
7 5 3

---  
4 2  
1 8 6  
7 5 3

---  
4 2  
1 8 6  
7 5 3

---  
1 4 2  
8 6  
7 5 3

---  
1 4 2  
8 6  
7 5 3

---  
1 4 2  
8 6  
7 5 3

---  
1 4 2  
8 6 3  
7 5

---  
1 4 2  
8 6 3  
7 5

---  
1 4 2  
8 6 3  
7 6 5

---  
1 2  
8 4 3



SWI-Prolog -- e:/college\_y3/Intro\_to\_AI/Labs/assignment/finalPart/eightPiece.pl

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7 5 3

---

1 4 2

8 6

7 5 3

---

1 4 2

8 6 3

7 5

---

1 4 2

8 6 3

7 5

---

1 4 2

8 3

7 6 5

---

1 2

8 4 3

7 6 5

---

1 2

8 4 3

7 6 5

---

1 2 3

8 4

7 6 5

---

1 2 3

8 4

7 6 5

---

**true.**

?-