CMPT 317, Term 2, 2013
Assignment 2
Question 3
Are you satised with Constraint Satisfaction?

Name:	Quinn Neumiiller
NSID:	qjn162
Student #	11065618

February 25, 2013

1 Compiling

Not required for Python

2 Execution

To execute, change the terminal directory to where this PDF file sits. Then in the terminal execute:

```
# For question 3 Part 1
python src/Q3P1.py

# For question 3 Part 2
python src/Q3P2.py

# For question 3 Part 3
python src/Q3P3.py
```

3 Usage

No usage required, script is self automated

4   The War of the Monsters problem as a CSP

D = $\{P, N, B, T\}$
V = $\{G, M, R, MG, K\}$
coastal(N)
coastal(T)
hasMonument(P)
hasMonument(N)
$D_G = \{N, T\}$
$D_K = \{N, P\}$
$D_{MG} = \{P, N, B\}$
$D_M = \{P, N, B, T\}$
$D_R = \{P, N, B, T\}$
$C = \{M \neq R, R \neq M, G \neq K, K \neq G, MG = G \text{ or } MG = M\}$

5   Results

5.1   Basic with no inference

5.1.1   Answer

```
     King Kong lives in Paris
 MechaGodzilla lives in Paris
        Mothra lives in Paris
      Godzilla lives in New York
         Rodan lives in New York
 Nodes searched: 7
 Finished in 0.000116 seconds
```

5.2   MRV

5.2.1   Answer

```
Old Variable Order: ['Godzilla', 'Mothra', 'Rodan', 'MechaGodzilla', 'King Kong']
New Variable Order: ['King Kong', 'Godzilla', 'MechaGodzilla', 'Mothra', 'Rodan']
Old Variable Order: ['Godzilla', 'MechaGodzilla', 'Mothra', 'Rodan']
New Variable Order: ['Godzilla', 'MechaGodzilla', 'Mothra', 'Rodan']
Old Variable Order: ['MechaGodzilla', 'Mothra', 'Rodan']
New Variable Order: ['MechaGodzilla', 'Mothra', 'Rodan']
Old Variable Order: ['Mothra', 'Rodan']
New Variable Order: ['Mothra', 'Rodan']
Old Variable Order: ['Rodan']
New Variable Order: ['Rodan']
        Mothra lives in Paris
         Rodan lives in New York
```

```
        King Kong lives in Paris
         Godzilla lives in New York
   MechaGodzilla lives in Paris
Nodes searched: 7
Finished in 0.000502 seconds
```

5.3 MRV + MCV

5.3.1 Answer

```
Old Variable Order: ['Godzilla', 'Mothra', 'Rodan', 'MechaGodzilla', 'King Kong']
New Variable Order: ['King Kong', 'Godzilla', 'MechaGodzilla', 'Mothra', 'Rodan']
Old Variable Order: ['Godzilla', 'MechaGodzilla', 'Mothra', 'Rodan']
New Variable Order: ['Godzilla', 'MechaGodzilla', 'Mothra', 'Rodan']
Old Variable Order: ['MechaGodzilla', 'Mothra', 'Rodan']
New Variable Order: ['MechaGodzilla', 'Mothra', 'Rodan']
Old Variable Order: ['Mothra', 'Rodan']
New Variable Order: ['Mothra', 'Rodan']
Old Variable Order: ['Rodan']
New Variable Order: ['Rodan']
         Mothra lives in Paris
          Rodan lives in New York
      King Kong lives in Paris
       Godzilla lives in New York
   MechaGodzilla lives in Paris
Nodes searched: 7
Finished in 0.000545 seconds
```