Lösen von diskreten CSP

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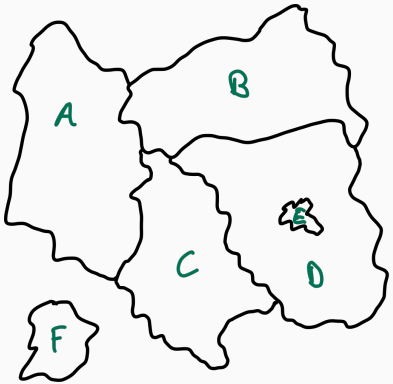
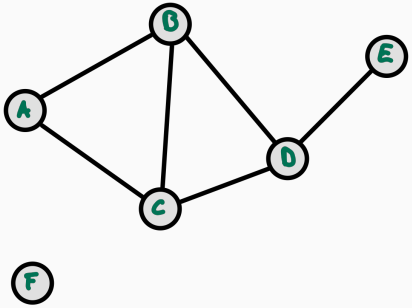
Einfärben von Landkarten als CSP





Tafelbeispiel: Suche nach Lösung

Endliche Domänen: Formulierung als Suchproblem

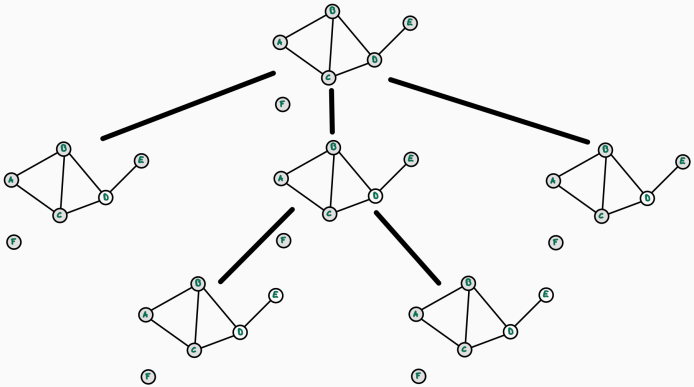
```
def BT_Search(assignment, csp):
    if complete(assignment): return assignment

    var = VARIABLES(csp, assignment)

    for value in VALUES(csp, var):
        if consistent(value, var, assignment, csp):
            assignment += {var = value}

            if INFERENCE(csp, assignment, var) != failure:
                result = BT_Search(assignment, csp)
                if result != failure: return result

            assignment -= {var = value}

    return failure
```

Quelle: Eigener Code basierend auf einer Idee nach (Russell und Norvig 2020, p. 176, fig. 5.5)

BT-Suche für CSP am Beispiel Landkartenfärbeproblem

```
def BT_Search(assignment, csp):
    if complete(assignment): return assignment

    var = VARIABLES(csp, assignment)

    for value in VALUES(csp, var):
        if consistent(value, var, assignment, csp):
            assignment += {var = value}

            if INFERENCE(csp, assignment, var) != failure:
                result = BT_Search(assignment, csp)
                if result != failure: return result

            assignment -= {var = value}

    return failure
```

Quelle: Eigener Code basierend auf einer Idee nach (Russell and Norvig 2020, S. 176, Fig. 5.5)



Wrap-Up

- Lösung von CSP mit endlichen Domänen mit Hilfe der Backtracking-Suche

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