

Exercises 3

1. Fixed point approach to compute the SO:

Initialization:

- Compute a feasible flow x^0 for the given problem
- Compute the travel times $\tau_a^0 := \tau_a(x_a^0)$ for all arcs a

Loop ($i=1, 2, \dots$)

- for every OD-pair k ,
Send the demand d_k along a path with the shortest travel time w.r.t τ_a^{i-1}
- Compute the resulting arc flow x^i and the travel times $\tau_a^i := \tau_a(x_a^i)$

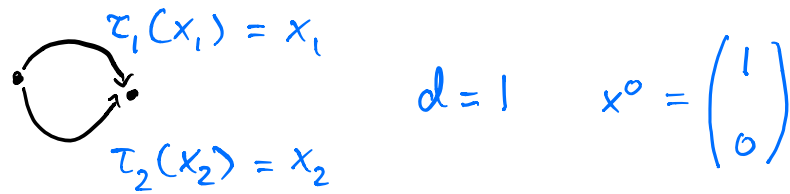
This algorithm hopes for convergence, i.e.

$$x^i \rightarrow x \quad \text{for } i \rightarrow \infty$$

and that x is a SO-flow

Show that this is not the case with

this example:



2. Run the Frank-Wolfe algorithm

a) for the above example

b) for the Braess paradox network

