

# Cell Tower Scheduling

Input:

Output:

•

•

# Reduction

## Cell Tower Problem

$n$  towers

$P \rightarrow$

$D \rightarrow$

$\rightarrow T$

1. What should input/output conversion functions be?

I.C. (P, D)

• Return  $(G = (V, E), w)$

O.C. (S)

• Return  $T$

Multiple groups of customers based on how alg treats groups differently

2. Ethical Matrix (Stakeholders, Well-Being, Autonomy, Justice)

3. Runtime of conversions in terms of  $n$ ?

# Ethical Matrix (O'Neil + Gunn)

Cell Tower

Harm?  
Benefit?



Choice to use?  
Are users informed  
enough to understand  
meaningfully take  
responsibility for use?



Unfair treatment  
of different  
groups?

Access to  
Tech/Alg?

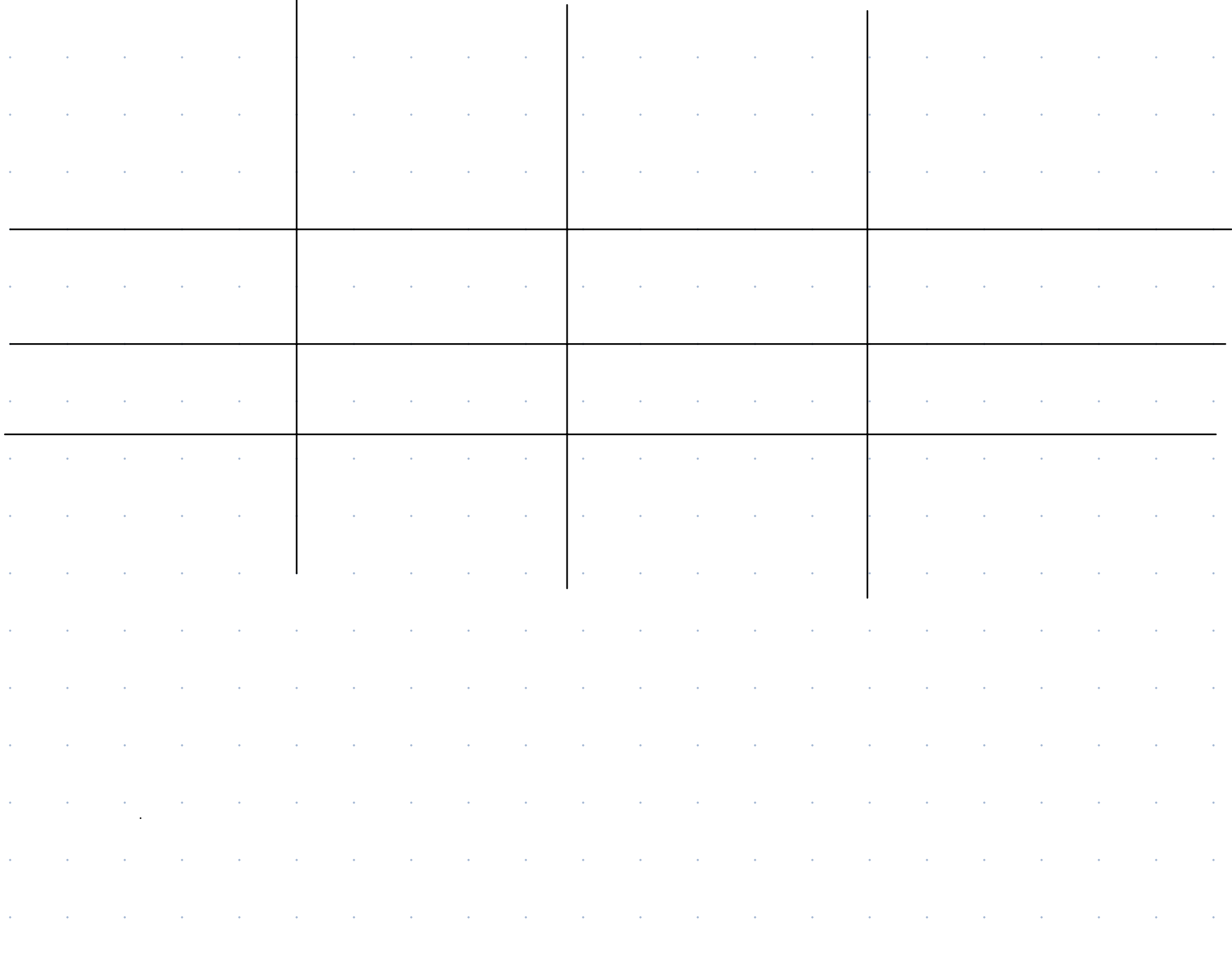
Stakeholders

Well-Being

Autonomy

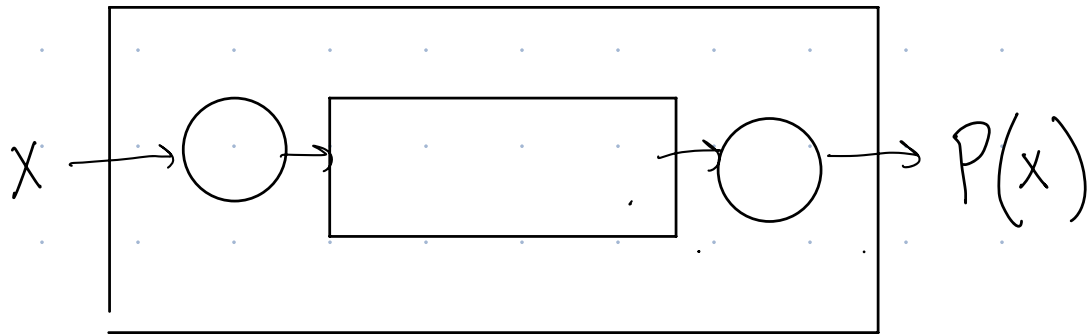
Justice



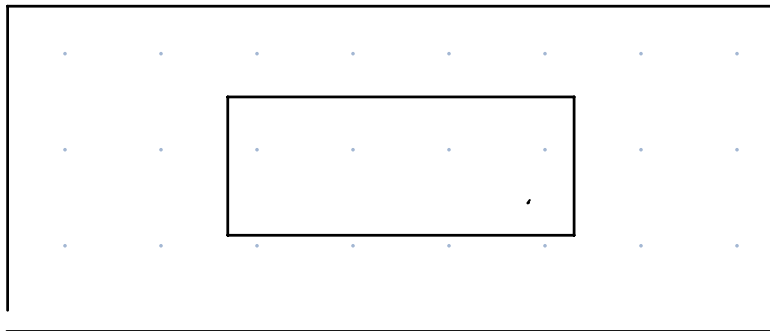


# Polynomial-Time Reduction

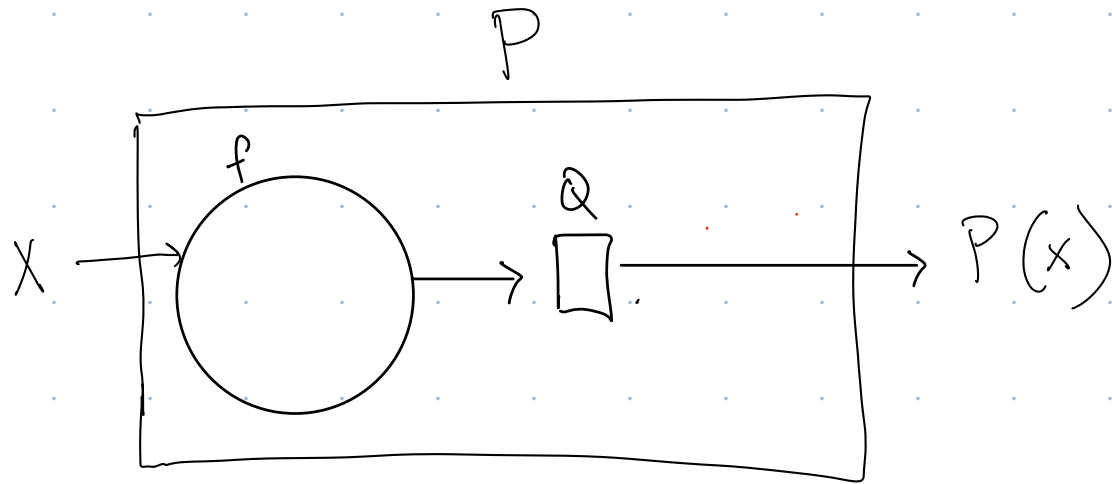
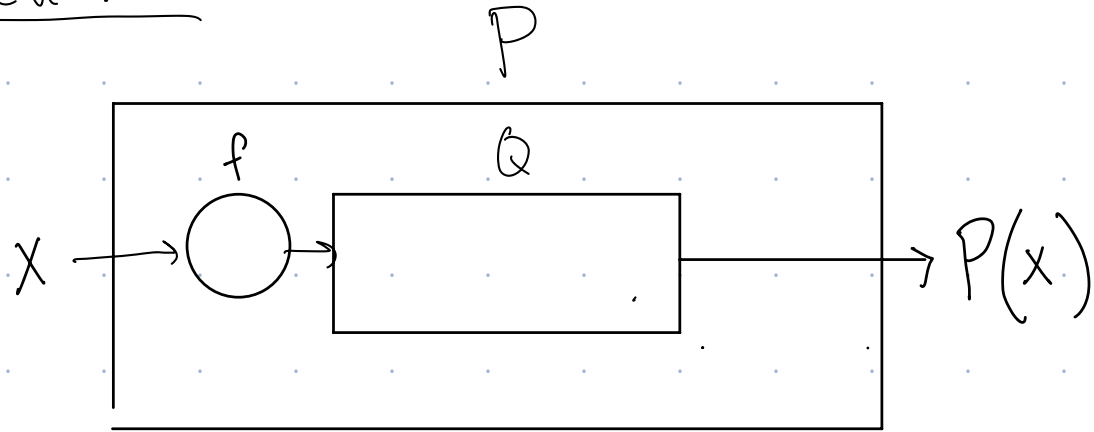
P



def:



# Generic Reduction



# Why think about reductions?

- Practical :
- Conceptual: