IL: DF-Feasibility

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- DP flexibility

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- Can do by approximating both
  - Real costs
  - Capacity
  - Real costs in knapsack
    - Real or integer costs
  - Stability relation to add parameter M, where if M
    - In integers, approximation becomes optimal

- Recall:
  - f(1) = C′ = \sum_{i \in M} c_i
  - f(2) = C′′ = \sum_{i \in M} c_i
  - M′ = \{i | c_i > M\}
  - Reduction

- S will always fit in knapsack, but may not
  - Knapsack too small
  - Remove could be added in
  - Take too long
  - Original insert in reduction

- Recall, insert may not be in reduction

- Bader approximation sizes were small

- Why dependence on C is good to know!

- Initialize, one string \( A \) on string \( X \):
  - \( A[0,0] = 0 \)
  - for \( i = 1 \) to \( |V| \):
    - for \( w \in V \):
      - Add with wrong string, optimal
        - if \( A[x,i-1] + w \cdot x < A[x,i] \):
          - \( A[x,i] = A[x,i-1] + w \cdot x \)

Example:
- \( w = \{w[1], w[2], w[3]\} \)
- \( \text{(Amortized Analysis)} \): 
  - \( R \) time, \( O(M) \)
  - \( M = O(n^2) \)
  - "Sparse Graph"