Reminder: the RW model

- Input size is $n$
- Two types of queries
  - $\text{Eval}_i(x, y)$ returns $V_i([x, y])$
  - $\text{Cut}_i(x, \alpha)$ returns $y$ such that $V_i([x, y]) = \alpha$
Complexity of proportionality

• The Even-Paz protocol is proportional; its complexity in the RW model is $O(n \log n)$

• Theorem [Edmonds and Pruhs 2006]: Any proportional protocol needs $\Omega(n \log n)$ operations in the RW model

• Proof: