Winner Determination

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Research Challenges

• How do we model exchanges instead of auctions

• How do we deal with high-low vs. low-high allocations and payments?
  • Run two MIPs
  • Can use results from one to improve the other?

• What properties of the domain lend themselves to which features of CPLEX?
The A Plan

• Get CPLEX running, preferably with some sort of machine independence

• Write the MIP generator(s) (one for each domain?)
  • Map valuations onto constraints
  • Differentiate sellers and buyers?
  • Build sanity-check constraints (no overlapping allocations, supply $\geq$ demand, etc)

• Tune CPLEX
Implementation Questions

• How do we handle special players (e.g., FCC, international flights)

• Or are these details accounted for by the domains/proxies and corrected before we get bids?

• How do we know what to maximize (efficiency or revenue)? Will the domain tell us?
Open Questions

• What’s the deal with bundles and bundle sets?
  • On what objects are values placed?
  • How do we “know about” the good and bundle?
• Will there be structure in the bidding language that we can exploit in our MIP?
  • How are we “sparsifying” the bundle space?
• How do we know the initial allocation?