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What is a draft?

In grade school, the sadistic gym teacher chooses two captains. They then choose teams according to who is good, popular and friends. They alternate turns until no one is left.

Example: Draft

**Captain A:** Arnold $\succ$ Bill $\succ$ Chris $\succ$ David $\succ$ Jeff $\succ$ Todd  
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Sincere and sophisticated solutions

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Examples

Drafts

Queues/Contests

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An allocation $A$ is **item-by-item Pareto optimal** if there is no different allocation $A'$ such that every team that receives a different allocation in $A'$:

1. can match a new player it gets in $A'$ to a different old player it gets in $A$ and
2. for each such match, weakly prefers the new player in $A'$ and
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Brams & King [2001] shows that all sincere choices are item-by-item Pareto optimal.

Note the two allocations compared must each have the same number of players for each team.

Thus, teams would not want to trade single players.
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Sophisticated result is not necessarily item-by-item Pareto Optimal.

Example: Brams and Straffin [1979] (sequence: ABCABC)

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<tbody>
<tr>
<td>B: 5 ≻ 6 ≻ 2 ≻ 1 ≻ 4 ≻ 3</td>
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Sophisticated yields (31,25,64)
Notice that (12,56,34) makes EVERYONE better off.
Problems with Drafts

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Sophisticated choices may not be monotonic in position. Non-Monotonicity: When somebody moves up in order it may hurt them or when they move down in order it may help them.
Does ex-post trading help?

What about simple ex-post trading?

Example (sequence: ABAB)

A: 1 2 3 4
B: 2 3 4 1

- Sincere play is A1, B2, A3, B4 yielding (13,24)
- Sophisticated play is A2, B3, A1, B4 yielding (12,34)
- If A chooses 2, then
  - If B doesn't choose 1, A will get 1.
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Implementing the Sincere Outcome

Take any example of two teams.

Rules:

1. Each team can choose an object still available.
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Intuition of Strategy

Either player can guarantee himself an outcome at least as good as the sincere outcome.

- Is there an object free that the other player prefers to what he has chosen? If no, choose your most preferred object.
- If yes, let $x$ be the other player’s most preferred object free. Let $y$ be your most preferred that the other player has and prefers $x$ to it.
- If you prefer a free object to $y$, then chose the free object.
- If you prefer $y$ to any free object, choose $x \succ y$. (choose $x$ and offer to trade it for $y$).
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- If you prefer $y$ to any free object, choose $x > y$. (choose $x$ and offer to trade it for $y$).
Intuition of Strategy

Either player can guarantee himself an outcome at least as good as the sincere outcome.

- Is there an object free that the other player prefers to what he has chosen? If no, choose your most preferred object.
- If yes, let $x$ be the other player’s most preferred object free. Let $y$ be your most preferred that the other player has and prefers $x$ to it.
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Advantages for system

- Rules are simple.
- (simplest) Equilibrium is just like draft.
- Only complications are off simplest equilibrium.
- One only needs to know their ordinal ranking of players to play the equilibrium strategy.
- Allocation reflects selection order: fair.
- Any item-by-item Pareto Optimal allocation is a sincere outcome of some order of play and vice versa.
- Trading draft positions or trading players after the draft (both occur in sports) will arrive at bundle Pareto Optimality where each team is at least as well off as sincere.

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Three team procedure.
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