Discrete Optimization

Assignments: Getting Started

Goals of the Lecture

- How to get started on a new problem
- Different approaches are rewarded equally

Assignment Design

- Emulation of the Real World
  - your boss tells you, *“we need to solve this problem”*
  - doesn’t care how you do it, just wants results!

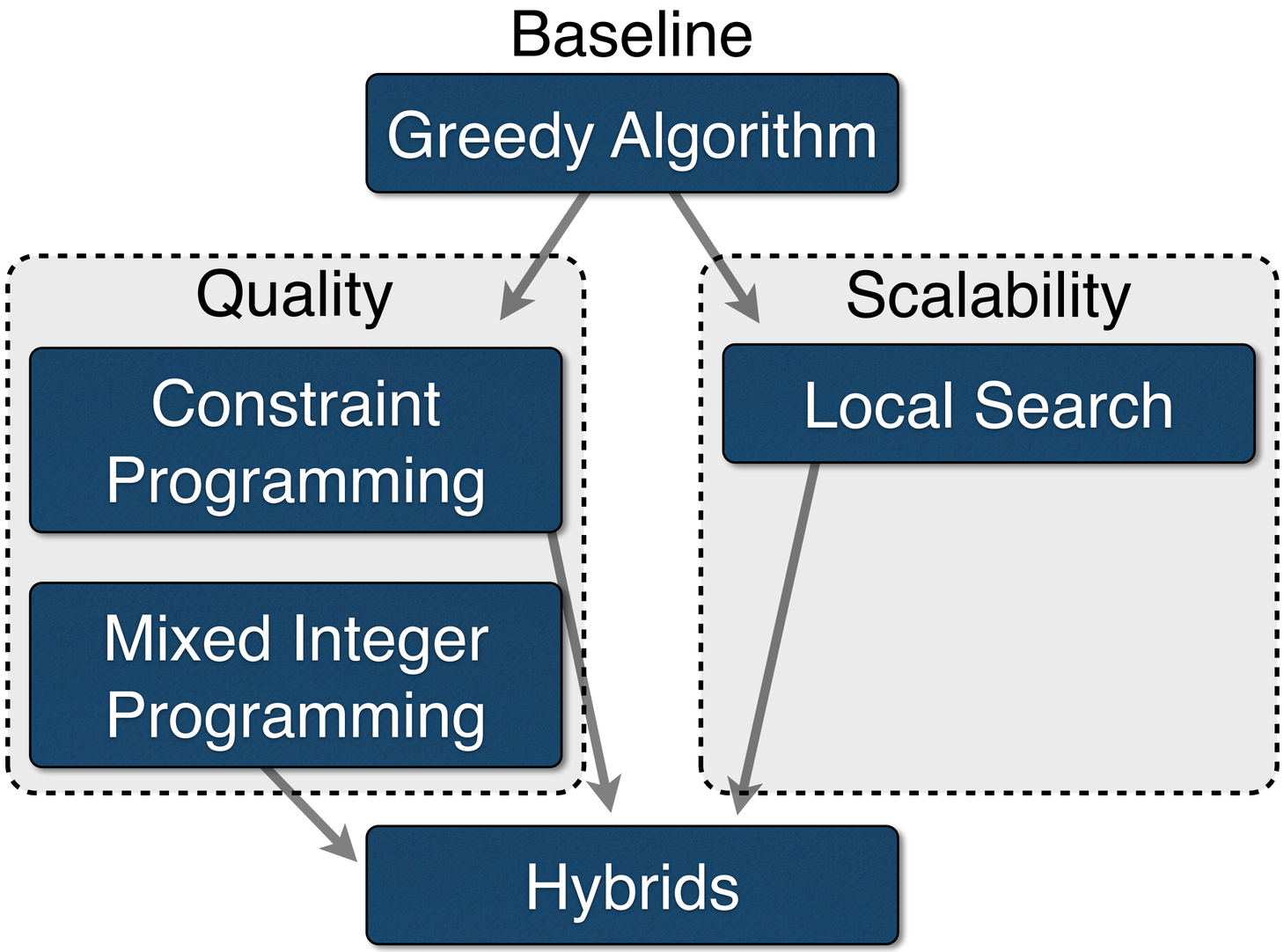
- How can you solve the problem?
  - Use your optimization **hats**!

- The assignments are about being creative with your hats and having hunches and trying them out

Getting Started

- Imagine yourself in a company
- Implement the simplest thing you can imagine
  - for example, a greedy solution
  - see how well it does, inspect the solution
- Try to understand its shortcomings, and fix them
  - smarter greedy
  - hats you have learned: DP, CP, LS, MIP
- Relax
  - Give quality guarantee

Getting Better



Grading Design

- There is no silver bullet in optimization
  - Just one approach will not work for all the parts of an assignment
  - We reward taking a scalability approach and taking a quality approach.

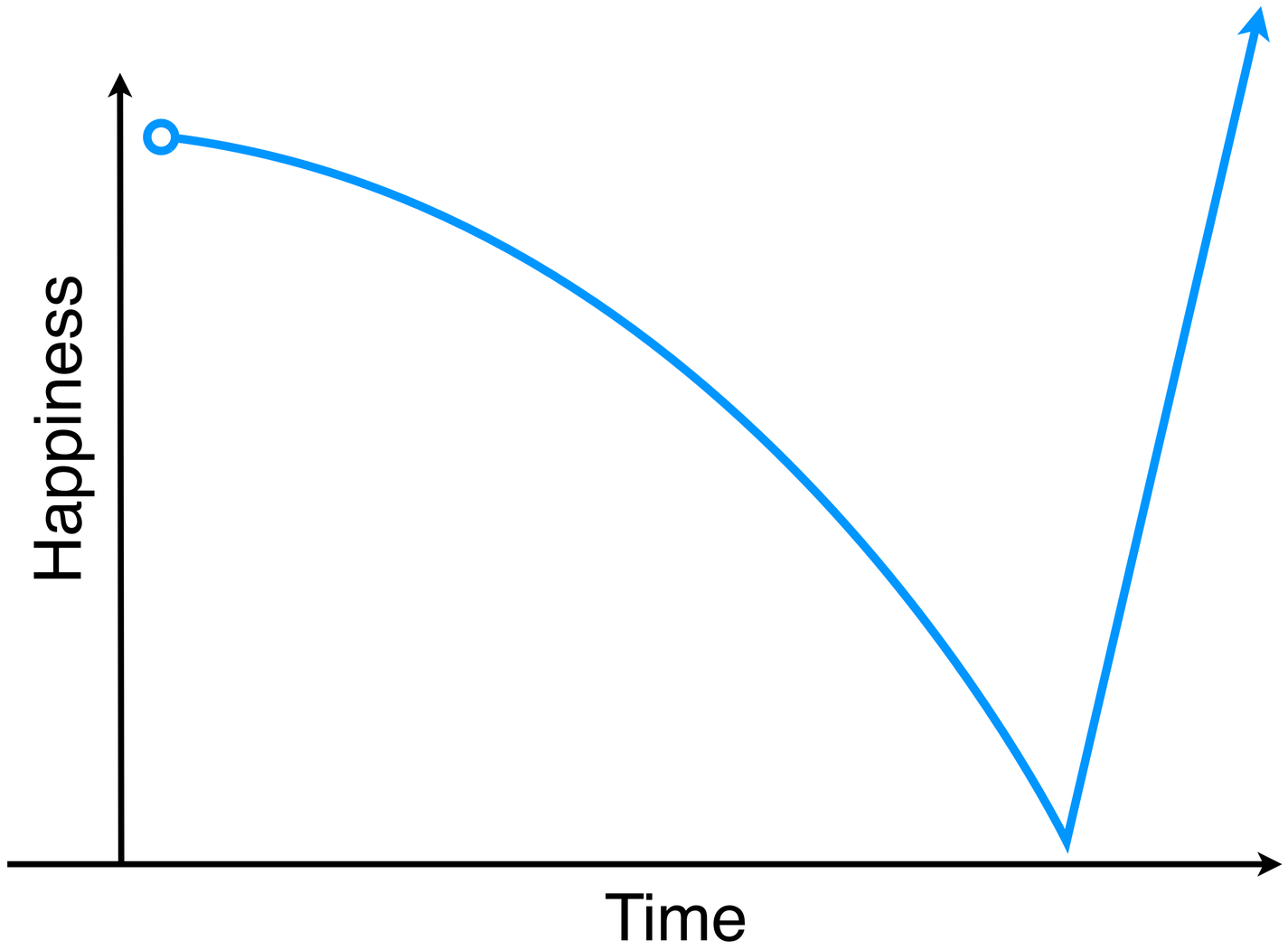
- A little math related to grading, target points for an assignment 7*6 = 42
  - High-quality, less scalable 10*4 + 3*2 = 46
  - Scalable, lower quality solution 7*6 = 42
  - Both are viable approaches!

Moving On

- Optimize your time
  - As the course continues you will, get smarter, skills will improve, and have better ideas
  - Problems will seem easer
  - If you get stuck, move on, and come back to that problem later

- There is time at the end of the course, just for “touching up” your solutions

Enjoying the Journey



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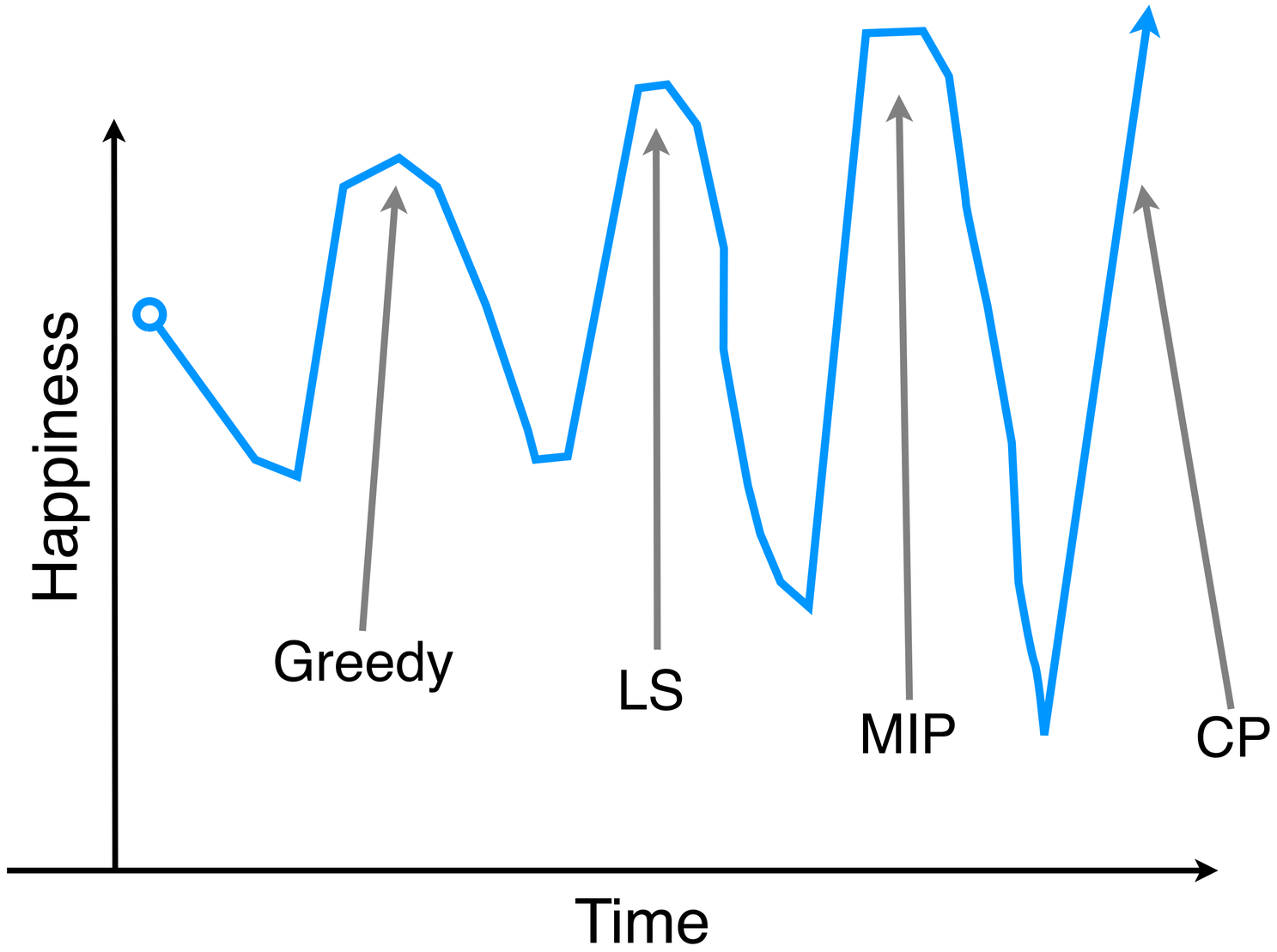

Have Fun!