

# Set-Based Design

## A Family Story

Norbert and Grace Doerry

September 26-27, 2017

ASNE Design Sciences Series:

Set-Based Design

Washington DC

# Background

- Fall 2016
- Grace Doerry, age 20
- Junior, Wentworth Institute of Technology, Boston, MA
- Construction Management Major
  - Coursework in Fall 2016
  - COOP in Spring 2017
  - Coursework in Summer 2017
  - COOP in Fall 2017
  - Coursework in Spring and Summer 2018
  - Graduate in August 2018
- Boyfriend in Seneca Falls, NY

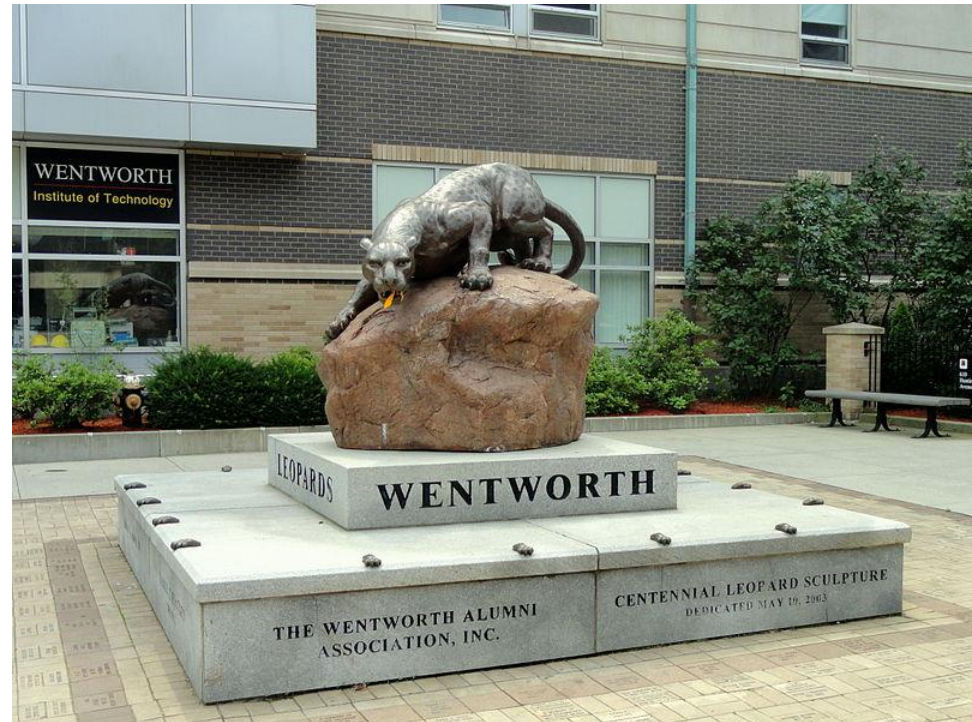


Photo by Daderot:  
[https://commons.wikimedia.org/wiki/File:Leopard\\_sculpture\\_-\\_Wentworth\\_Institutue\\_of\\_Technology\\_-\\_DSC09920.JPG](https://commons.wikimedia.org/wiki/File:Leopard_sculpture_-_Wentworth_Institutue_of_Technology_-_DSC09920.JPG)

# Problem Statement

- Early December 2016
- The Phone Call
- I'm Pregnant
- What do I do?

DAD: How about  
Set-Based Design?



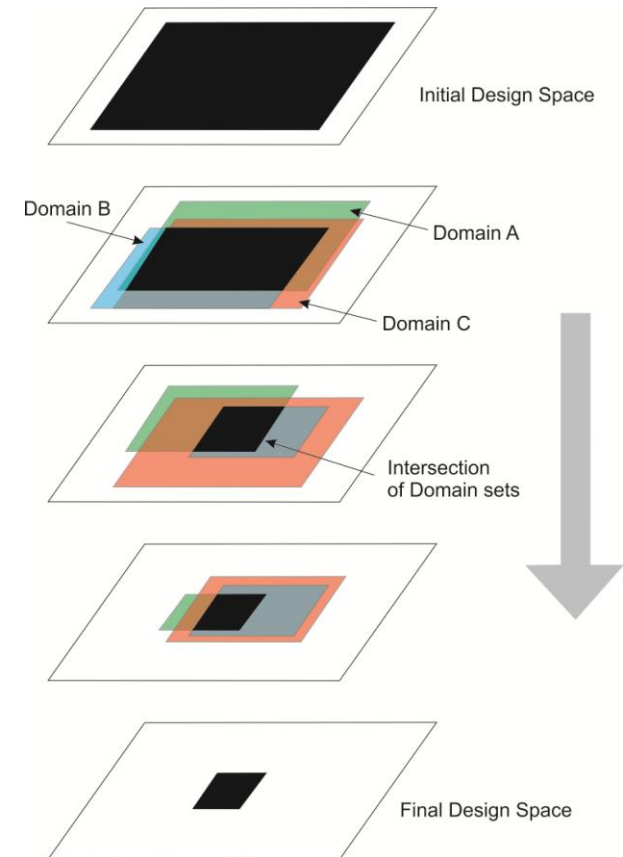
# Design Variables

- Stay at WIT or go to another college?
- Where to do the Fall 2017 Coop?
  - Boston
  - Upstate New York
  - Washington DC
- Would Boyfriend move to be with Grace and child before Grace graduated?
  - Washington DC
  - Boston
  - Stay in New York
- When would Boyfriend move?
  - Fall 2017
  - Spring 2018
  - Post graduation



# Set Reduction Process

- Grace challenged to create 50 different alternate paths: created 30.
  - Forced to consider many varied possibilities.
  - Feasibility was not considered an obstacle at this point.
- Eliminated about half based on an initial assessment of feasibility.
- Researched alternatives
  - Different schools
  - Spoke with Department Head and Dean of Students to determine what was necessary to graduate on time
- Based on research reduced set to 11.
- Performed cost estimates on 11 alternatives.
- Reduced to 5 based on
  - Cost
  - Personal Preference
  - Ease
  - Decision to stay at Wentworth (with guarantee to graduate on time)
  - 2 based on 2<sup>nd</sup> Coop in New York, 3 based on 2<sup>nd</sup> Coop in DC.
- Reduced to 3 when unable to secure Coop in New York and offered Coop in DC.
- Reduced to 2 when Boyfriend chose to stay in New York during 2<sup>nd</sup> Coop to keep job and earn money.
- Remaining decision was whether Boyfriend would move to Boston or not for the Spring and Summer terms.





# Outcome

- Aria born in June 2017
- Grace's Feedback on SBD
  - Empowering: put her in control of her life and the situation
  - Confidence in solution: had a complete understanding of the “design space”
    - Chose Option 1
    - Avoided second-guessing choice
    - Really understood Option 1



