

Design Theory

Jordan Zink

Carnegie Mellon University

jzink@andrew.cmu.edu

98-186: Spring 2015

Outline

- Coaster Polls - How to see what coasters are the best
 - Golden Ticket
 - Mitch Hawker
- Sequencing - A way of abstractly viewing a design
 - Different Types
 - Limitations
- Miscellaneous Other Considerations
 - Presenting the Ride to Riders
 - Use of Environment

Coaster Polls

Coaster Polls

- A way of seeing what people consider the best
- Polls can stress different areas and interests
 - Industry-centric
 - Enthusiast-centric
- Important to understand pros and cons of different polls
- We'll look at the two biggest ones currently
 - Golden Ticket
 - Mitch Hawker

Golden Ticket



- Award given by Amusement Today, the amusement industry trade magazine
- Has been running for 16 years
- Well established, formal, and industry-centric

Golden Ticket

- Voters must meet requirements
 - Must have been to 40 parks
 - Need to have been to a certain amount of parks that year
 - Preference to those who have traveled overseas
- Voters cast single vote for parks per category and top 10 for coasters
- Simple tally of votes determines winners
- Awards given to parks and rides as well as just coasters

Golden Ticket - Common Park Winners

- Cedar Point - Best Park (15 years)
 - Dethroned last year by Europa Park in Germany
- Busch Gardens Williamsburg - Best Landscaping (15 years)
- Knoebels - Best Food (14 years)
- Holiday World - Cleanest and Friendliest Park (13 years)
- Kings Island - Best Kid's Area (12 years)
- Notice a trend? All but Europa Park in the US...

Golden Ticket - Best Park (2014)

1. Europa Park (Germany)
2. Cedar Point
3. Dollywood
4. Knoebels tied with Disneyland
5. Universal Islands of Adventure
6. Magic Kingdom tied with Tokyo DisneySea (Japan)
7. Busch Gardens Williamsburg
8. Holiday World

Golden Ticket - Steel

Top stop always taken by Millennium Force at CP (current #1) or Bizarro at SFNE



Golden Ticket - Wood

Top four tend to be some ordering of El Toro at SFGAd, Voyage at HW, Phoenix at Knoebels, and Boulder Dash at Lake Compounce (current #1)



Golden Ticket - Wood

Top four tend to be some ordering of El Toro at SFGAd, Voyage at HW, Phoenix at Knoebels, and Boulder Dash at Lake Compounce (current #1)



Golden Ticket - Issues

- The poll is industry-centric, which currently is heavily American biased
 - Really good European or Asian coasters have trouble making the list
- Basically a popularity contest; well-riden coaster win more
 - Millennium Force is a great example
- Nostalgia keeps some old favorites high on the list
 - Magnum XL-200 still ranks high
 - The Beast at KI, while controversial, usually is in the top 10

Mitch Hawker

- An informal but well known coaster poll
 - Been running since 1994
 - Occasionally doesn't happen (like this year)
- A very enthusiast-centric poll
- Seeks to fix the popularity contest issue of Golden Ticket
- I personally prefer this poll
 - And have voted in it!

Mitch Hawker - Mutual Riders

Key idea is using mutual riders (those who have ridden both coasters) to see how coasters compare, esp. less known ones to well known ones



Mitch Hawker

- Mutual riders shows true comparison of two coasters
- Leads to interesting differences between the polls
 - Millennium Force, 1st on Golden Ticket, is only 14th
 - Apollo's Chariot, 4th on Golden Ticket, is only 32nd
 - The Beast, 7th on Golden Ticket, is only 47th
 - Magnum XL-200, 8th on Golden Ticket, is only 80th

Mitch Hawker - Steel

Bizarro at SFNE tends to win, but recently Expedition GeForce at Holiday Park in Germany has won



Mitch Hawker - Wood

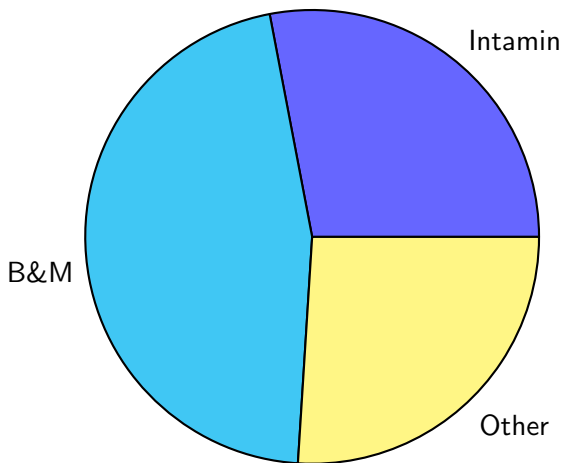
Same names at the top as GT (esp. El Toro at SFGAd), along with T Express and Balder



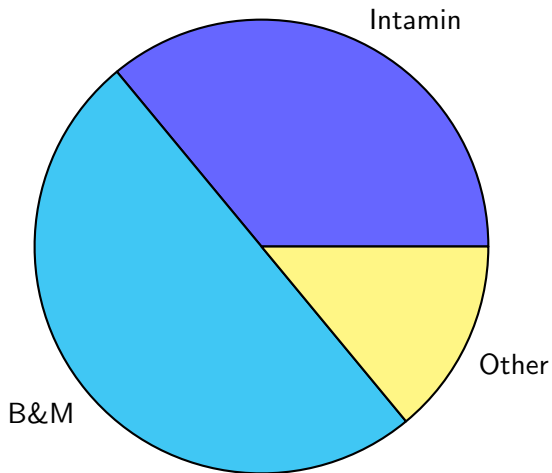
Mitch Hawker - Issues

- Better than Golden Ticket, but still issues
- Anyone can vote; no real requirements
 - People might not be as well-traveled or seen many coasters
 - Also no requirement of recently riding coasters
- International voters lead to non-USA coasters being a bit unfairly biased
 - Leads to international coasters getting higher rankings than US equivalents, e.g. Shambhala at Port Adventura
 - Mostly applies to new rides and dies out over a couple years

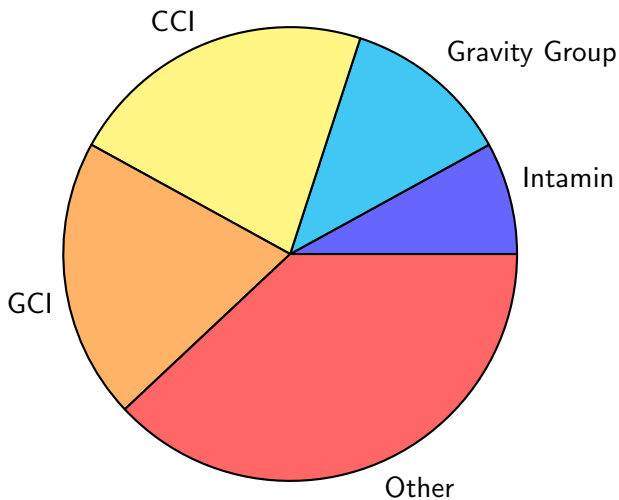
Golden Ticket - Steel



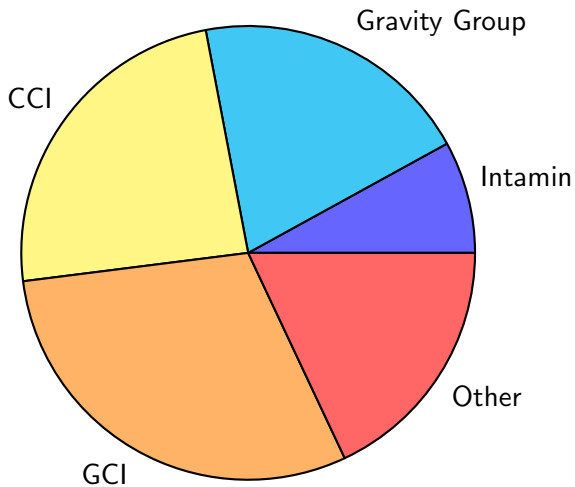
Mitch Hawker - Steel



Golden Ticket - Wood



Mitch Hawker - Wood



Sequencing

Sequencing

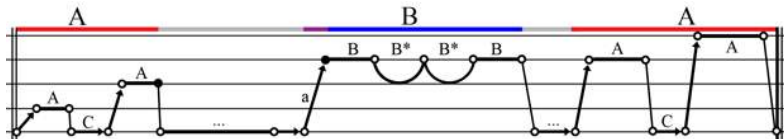
- A way of abstractly viewing coasters
 - Higher level than height and speed statistics, or even single elements
- View coasters as groupings of different patterns and sequences
- Helps explain the psychological energy and excitement of a coaster
- Proposed by coaster enthusiast Jeremy Thompson
 - Disclaimer: This is just one guys idea

Sequencing

High level idea exemplified by the following quote from John Allen of the PTC

“You don’t need a degree in engineering to build roller coasters, you need a degree in psychology, plus courage. A roller coaster is as theatrically designed as a Broadway play.”

Below is one way to visualize sequencing of Thunderbolt at Kennywood



Sequencing - Types

- Progressive
- Maximalist
- Minimalist
- A-B
- Dramatic
- Random

Sequencing - Types

- Progressive - Coaster continues to build up more energy as it goes, with the most excitement at the end
 - e.g. Thunderbolt at Kennywood with its largest drop at the end
 - Very hard to achieve
- Maximalist - Coaster starts with biggest, most exciting element and then continues with lesser elements
 - Easiest to achieve
 - Pretty much all modern large looping coasters (B&M)
 - Big elements up front reduce excitement of later ones

Sequencing - Types



- Minimalist - Take a single concept (e.g. simple hills) and use repetition with variation to make it exciting
 - Great example: Shivering Timbers at Michigan's Adventure
 - Lots of hyper coasters do this
 - Seems quite boring in videos though

Sequencing - Types

- A-B - A coaster with two major design themes which focuses on one at the start and then switches to the other
 - Can follow other patterns like A-B-A (Thunderbolt)
 - The two sections play off of each other by being completely different
 - Can be quite successful (El Toro at SFGAd is A-B)



Sequencing - Types

- Dramatic - Coaster tells a story, both through themeing and also the feel of the coasters elements
 - Even subtle aspects like increased speed or sudden turns add to the story
 - Seen in mine trains and Disney coasters
- Random - Coaster is just a random collection of elements with no real thought to the overall feel
 - Elements can start to work against each other
 - Don't do this... not very effective

Sequencing - Limitations

- Overall an interesting idea on how to think of coasters
 - And easy to find examples of types
- But many coasters are hard to identify
 - Expedition GeForce doesn't really fit a category
 - B&M is usually maximalist, but Raptor at CP has its most powerful elements at the end
- And basically everything is some from of A-B
- Best to leave some uncategorized

Miscellaneous Other Considerations

Presenting the Ride

Sometimes better to hide coaster from park



Presenting the Ride

Better surprise during the ride



Presenting the Ride

Sometimes its better to show it off to build excitement



Presenting the Ride

Hiding it can be exciting, but also can look tacky and make things feel smaller



Use of the Environment

- Environment can make a good coaster great
- Trees and being near the ground makes coasters feel faster
 - And hide upcoming elements
- Compare The Bat at KI and Eagle Fortress at Everland
- But not strictly necessary
 - El Toro at SFGAd doesn't really use the environment



Next Week - Disney World



- All about Disney World
 - Its history
 - The different parks
 - Notable rides and attractions