I Choose You: Powerpoint Outline

How do you choose a Team:

* Kevin and Rob Speak:
* If you factor only teams of unique Pokémon with unique move-sets, we have (719 choose 6) \* (74 choose 4)
  + Taken from a Kotaku Post mentioned in the comment
* The problem we are trying to solve is, how do you know that the team you have selected is strong enough to win battles
  + Can we predict if a team will win, based off of other winning teams?
* How do we rate a good team?
  + A team is good if they successfully win a battle
  + This can be viewed, Yes or No
    - Thus Supervised Learning (mentioned on next slide)

How we Did It

* I don’t know what to say here!!! Kevin!!!!

Two Main Databases:

Rob Speak:

We obtained our Pokémon data from two sources. Serebii.net and Smogon.com

* Serebii is a very popular source of Pokémon information, containing a massive database of all Pokémon, attacks, abilities and items
  + We were able to scrape through Serebii to gather all the staticall data that we needed for our battle simulator.
* Smogon is one of the leaders in competitive Pokémon battling. The people at Smogon have created an online battler where people can easily battle each other and save records of their battles. They frequently hold tournaments and are very active contributors to the “meta” of Player VS Player Pokémon.
  + Smogon sets the Pokémon Battle Tiers
    - Battle tiers are updated every 3 months based off of usage statistics
      * We used battles form the OU tier, which is the most popular tier
    - This means that the tiers actively evolve as the meta grows.
      * Our data spans a time of 1 year (Jan 2014 – April 2015)
  + We took over 300 battles from three different Smogon tournaments and divided parsed the data to find things such as:
    - moves actually used in battle
    - Status effects used
    - Weather changes
    - Items used
    - Entry Hazards
    - Pokémon Transformations used
  + We then divided these sets into our training and test sets for our classifiers.

Results:

Kevin:

* Our approach ended up resulting in a large number of False Positives
  + A potential reason for this is the sparseness of our features
  + OR having too many features
  + Caused Over fitting to the curve
* Low number of False Negatives:
  + This suggests that weaker teams probably won through strategy
  + Begs that a “human” (not necessarily living) element be brought in to better predict the results
    - Maybe a strategy index? Ideas could be mentioned.
* Based off the Mean values of our 9 different outcomes:

Recall: 0.756

Precision: 0.559

Accuracy: 0.596

F1 Score: 0.643

Avg The Trials

23.2 tp: 32 + 23 + 26 + 22 + 11 + 16 + 29 + 28 + 22

7.5 fn: 7 + 1 + 8 + 8 + 18 + 11 + 5 + 4 + 6

18.3 fp: 20 + 35 + 21 + 16 + 11 + 12 + 8 + 19 + 23

14.8 tn: 5 + 5 + 9 + 18 + 24 + 25 + 22 + 13 + 13

Final Thoughts:

Summary: Rob

* With a move complete Dataset we may have been able to predict with more accuracy, whether a team would or wouldn’t win
* Strategy plays an unquantifiable role in Pokémon, that can sway the battle in the favor to teams that may be statically weaker. We fell that, this lack of strategy measure accounts for some of the False Positives.

Difficulties: Kevin

* Sparseness in the Data Set
  + When battling in Pokémon, there are many times when you don’t learn everything about the opposing team
    - You KO the opponent before you can see all their moves
      * We overcame this by randomly assigning moves to vacant spots
    - The opponent wins without showing you all of their Pokémon
    - Abilities that have passive effects
    - Attacks can have passive effects
* Having too many Sparse features can cause the battles to drastically over fit
  + Dramatic increase to False Positives.