Annotation and Feature Engineering

Introduction to Data Science Algorithms
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HOUSES, SPOILERS, AND TRIVIA
Humans doing Incremental Classification

- Game called “quiz bowl”
- Two teams play each other
  - Moderator reads a question
  - When a team knows the answer, they signal (“buzz” in)
  - If right, they get points; otherwise, rest of the question is read to the other team
- Hundreds of teams in the US alone
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- Example . . .
Sample Question 1

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Albert Einstein
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- This is **not** Jeopardy
- There are buzzers, but players can only buzz at the end of a question
- Doesn’t discriminate knowledge
- Quiz bowl questions are pyramidal
Research Question: How do we know if a guess is correct?

- Turn (question, guess) into features
- Treat it as a binary classification problem
- What features help us do this well?
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- Subject of HW3
Provided Dataset

- **text**: the clues revealed so far
- **page**: a guess at the answer
- **answer**: the actual answer (closest Wikipedia page)
- **body_score**: IR measure of how good a match the text is
Baseline

- What if we always say that the answer is wrong?
- Performance: 0.54
- Every feature should do better than this (otherwise, it’s useless)
The title of wikipedia pages often have disambiguation in parentheses

1. Paris (mythology)
2. Paris (song)
3. Paris (genus)
4. Paris (band)
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Feature is 1 if the page has disambiguator in the text:

- “This band performed . . .”, Paris (band) → True
- “This band performed . . .”, Paris (mythology) → False

Slight improvement: 0.58
• The more links a Wikipedia page has, the more popular it is
• Popularity is often a sign of a wrong answer
• By itself, doesn’t do so well: 0.56
• But improves if we take the log of the value: 0.61
• We can see how similar the text of a Wikipedia page is
• Higher, the better
• This feature alone gives accuracy of 0.75
Length

- The more text we see, the more confident we should be.
- By itself, doesn’t do so well: 0.56
- But when combined with the IR score, does great: 0.82 (best so far)
• Tournament the question was used in
• The type of thing the answer is
• Try your own, be creative!
• Last year’s feature engineering assignment