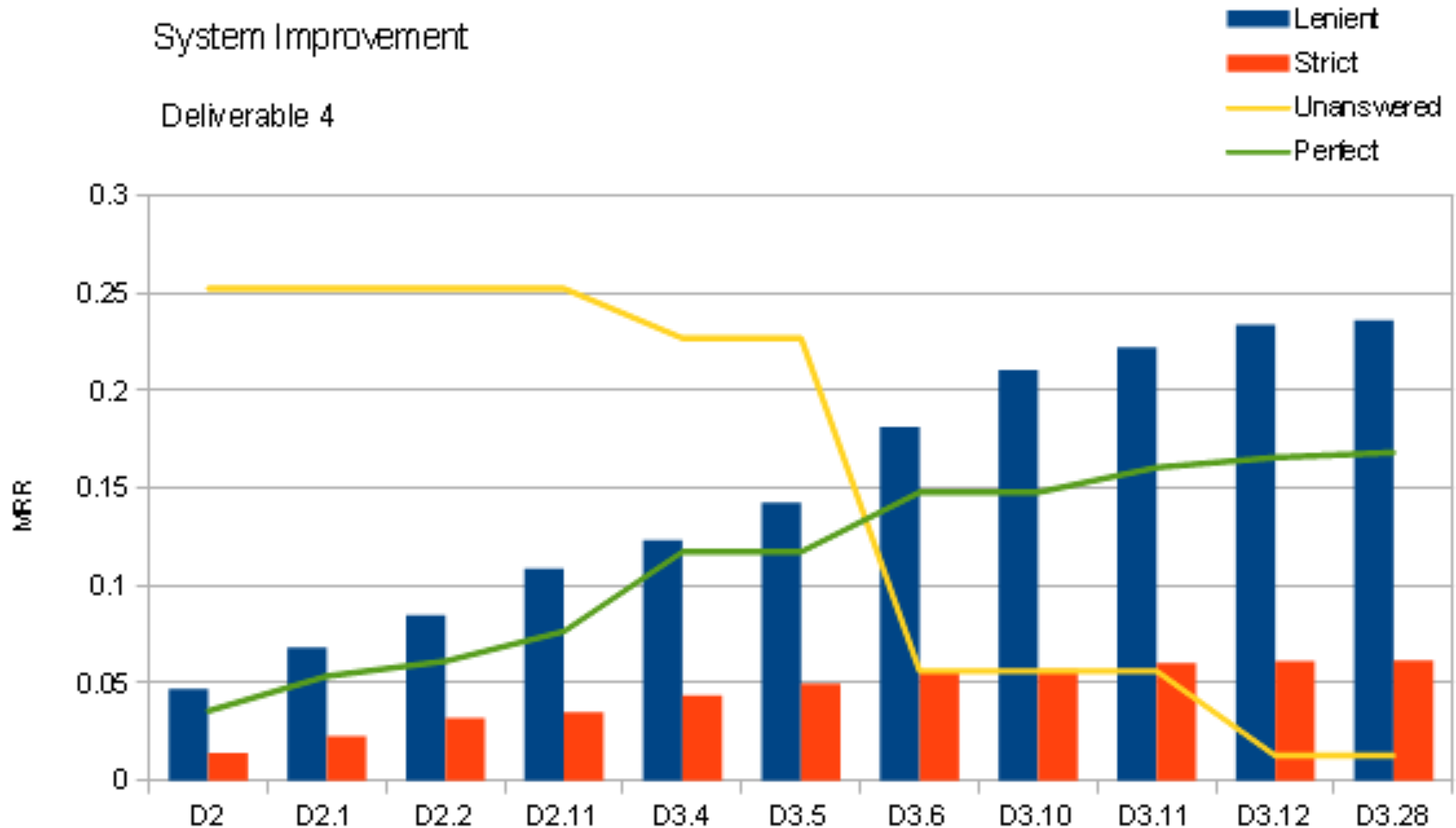# Deliverable 3

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Results!

Scores

Lenient :
  0.2364

Strict :
  0.0617

Unanswered (392):
5

No Pattern Questions:
  8 of 17

Perfect (score of 1.0):
66

Runtime:
  from 15m - 6.5m

In-Query References

Who did the Prince marry?

What was her name at birth?

1. NP-chunk the focus
   a. Thabo Mbeki elected president of South Africa -> Thabo Mbeki

2. Identify non-specific words to replace
   a. Pronouns
   b. Less Specific Instances of the NP in the focus
      eg. division -> 82nd Air Division

3. Heavy-handed replacement

Query Expansion/Reformulation v2.0

- Ported Perl → Python
  - No per-query subprocesses, increased efficiency
- Handled queries starting in WRB (*wh*-adverb) and WDT (*wh*-determiner)
  - e.g., "Which/WDT apple/NN is/VBZ big/JJ ?/."
  - No response 99 → 89; MRR 0.1657 (l), 0.0490 (s)
- Handled queries starting in IN (prep.), followed by WP (*wh*-pronoun) or WDT
  - e.g., "In/IN which/WDT country/NN is/VBZ Paris/NNP ?/."
  - No response 89 → 22; MRR 0.2106 (l), 0.0569 (s) (included some parameter tuning from Tristan)

Query Expansion/Reformulation v2.0

- Backed off to unaltered, bare query string for queries which yielded no expansions
  - 18 such queries (TREC 2006)
  - Anything is better than nothing (for now; will continue working on expansion heuristics)
  - No response 22 → 5; MRR 0.2342 (l), 0.0614 (s)
  - 17 queries benefitted from backoff, 1 did not
    - 172.6: Unilever purchased Ben & Jerry's in 2000 for what price?
- Remaining four no-response queries
  - 170.2: What John Prine song was a #1 hit for George Strait?
  - 172.4: What is Jerry's last name?

Query Expansion/Reformulation v2.0

- (continued)
  - 172.5: What rock band had a Ben & Jerry's flavor named after them?
  - 215.6: Which film won three awards at the festival?

Question Classification

- Used seven class framework from Solorio et al paper (2003): Date, Measure, Object, Organization, Other, Place or Person.
- Trained with 592 hand annotated cases from TREC 2003 and 2004 question lists.
- Achieved 99.6% training and 82% test accuracy on TREC 2006.
- Date, Measure and Person achieved 90+% accuracies.
- Other was the lowest at 60%, while Place was only 80%.

Question Classification

Classification Results

Confusion Matrix for TREC-2006 Questions

Category	Date	Measure	Organization	Other	Person	Place
Date	68	0	0	7	0	4
Measure	1	89	1	15	0	1
Object	0	0	1	0	0	0
Organization	1	1	6	8	1	3
Other	1	1	6	62	0	5
Person	0	0	0	7	54	0
Place	3	0	0	5	0	52

Same Type Answer Boosting

Variable multiplier to an answer's score if it 'looks right' based on type.

Date:

- Month gazetteer, 'Year' regex

Measure:

- Not a date, number gazetteer, castable to float

Name:

- 'First M Last' regex, is all caps, has any caps

Organization/Place:

- is all caps, has any caps

Answer Re-ranking

"What have I got in my pocket?"

Concordia:
The Hobbit
, Gollum
? Gollum
? " Gollum
" Gollum
Gollum
and Gollum
from Gollum
Bilbo meets the creature
Gollum

Adaptation:
The Hobbit
Bilbo Baggins
a riddle
? " Gollum
pocket ? " he said
riddle
Gollum
Hobbit
bilbo get the ring

Answer Re-ranking

If it was wrong one guess ago...

Devalue answers that contain already guessed words
- More words in common between answers, heavier reduction
  - score *= x ** \sum(words in common)
- Boosts lenient MRR by roughly 1.2
- Good value for x somewhere between .7-.8