Asking too much?

*The rhetorical role of **questions** in political discourse*

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Cornell University
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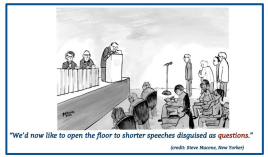
Questions?

Questions?

Who is the Prime Minister of the United Kingdom?

EMNLP Session 5b, September 10, 2017



Questions?

Why didn't you cite my paper?

Questions serve many rhetorical roles.

Questions serve many rhetorical roles.

Questions serve many rhetorical roles.

https://ichef.bbci.co.uk/news/660/cpsprodpb/1593F/production/_87238388_pmqs.jpg

Questions serve many rhetorical roles.

https://www.youtube.com/watch?v=7lg2CE2g3Os&feature=youtu.be&t=13m31s

"The Prime Minister is rightly shocked by the revelations that many food products contain 100% horse. Does he share my concern that, if tested, many of his answers may contain 100% bull?"

Our goal: structuring the space of questions

Our goal: structuring the space of questions

Will you update us on Afghanistan?

Will you apologise for leading us into the Iraq disaster?

How can you justify this tax grab on pensioners?

Our goal: structuring the space of questions

Will you update us on Afghanistan?

Will you apologise for leading us into the Iraq disaster?

How can you justify this tax grab on pensioners?

Rhetorical role:

Seeking information

Our goal: structuring the space of questions

Will you update us on Afghanistan?

Will you apologise for leading us into the Iraq disaster?

How can you justify this tax grab on pensioners?

Rhetorical role:

Seeking information

Accusatory

Our goal: structuring the space of questions

Will you update us on Afghanistan?

Will you apologise for leading us into the Iraq disaster?

How can you justify this tax grab on pensioners?

Rhetorical role:

~~**Seeking information**~~

~~**Accusatory**~~

Challenge: no labels.

Main insight: use the answers

Main insight: use the answers

Will you update us on Afghanistan?

Will you apologise for leading us into the Iraq disaster?

How can you justify this tax grab on pensioners?

We need to consider force protection...

Main insight: use the answers

Will you update us on Afghanistan?

We need to consider force protection...

Will you apologise for leading us into the Iraq disaster?

I am afraid that I won't, because I believe it is right to support the people in Iraq.

How can you justify this tax grab on pensioners?

Main insight: use the answers

Will you update us on Afghanistan?

We need to consider force protection...

Will you apologise for leading us into the Iraq disaster?

I am afraid that I won't, because I believe it is right to support the people in Iraq.

How can you justify this tax grab on pensioners?

I am afraid that I won't accept any lectures on economics from you.

Main insight: use the answers

We need to consider…

I am afraid that I won’t, because…

I am afraid that I won’t accept…

Main insight: use the answers

Will you update us on Afghanistan?

We need to consider…

Will you apologise for leading us into the Iraq disaster?

I am afraid that I won't, because…

How can you justify this tax grab on pensioners?

I am afraid that I won't accept…

Motifs of questions and answers

Will you update us on Afghanistan?

Will you apologise for leading us into the Iraq disaster?

How can you justify this tax grab on pensioners?

We need to consider force protection...

I am afraid that I won't, because I believe it is right to support the people in Iraq.

I am afraid that I won't accept any lectures on economics from you.

Motifs of questions and answers

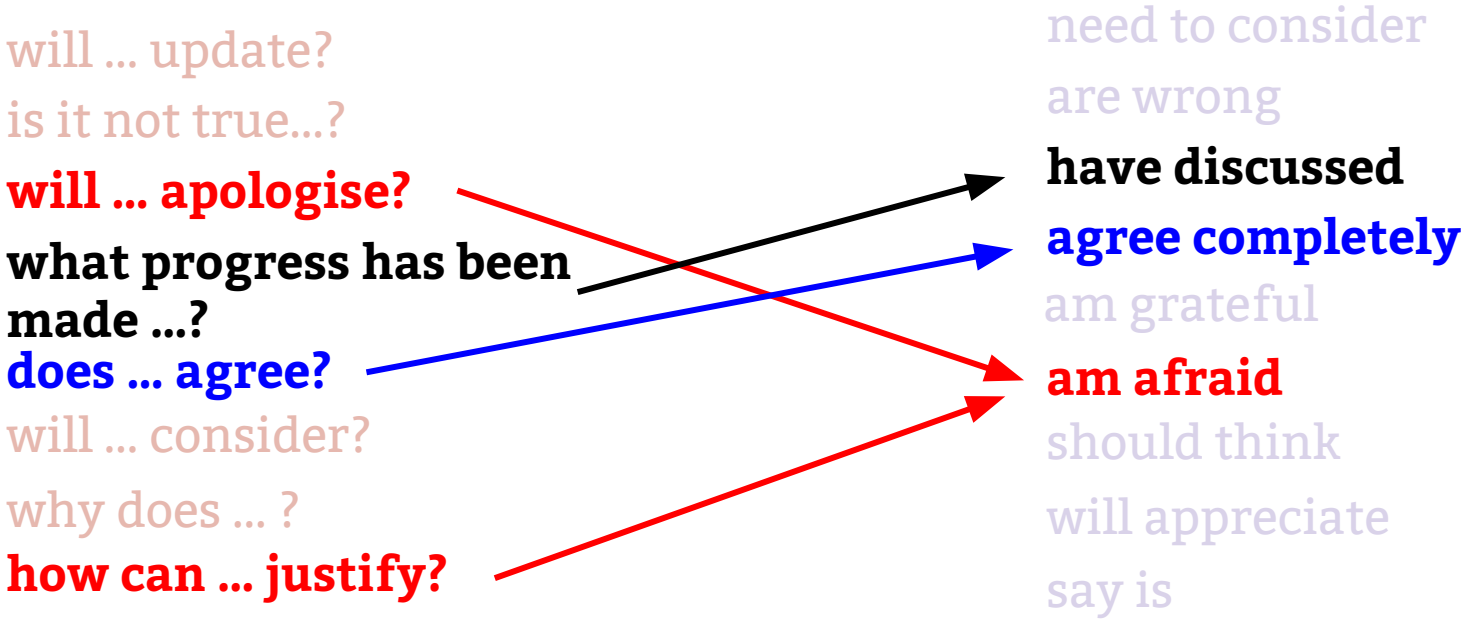
~2000 automatically extracted question motifs:

will ... update?
is it not true...?
will ... apologise?
what progress has been made ...?
does ... agree?
will ... consider?
why does ... ?
how can ... justify?

~3000 automatically extracted answer motifs:

need to consider
are wrong
have discussed
agree completely
am grateful
am afraid
should think
will appreciate
say is

Questions with similar rhetorical functions will map to similar answers



Questions with similar rhetorical functions will map to ***similar answers***

Structuring the space of answers

need to consider
are wrong
have discussed
agree completely
am grateful
am afraid
should think
will appreciate
say is

Questions with similar rhetorical functions will map to ***similar answers***

Structuring the space of answers

I am afraid that you are wrong ...

I agree completely...

are wrong

met ... discuss

say is

need to consider

am afraid

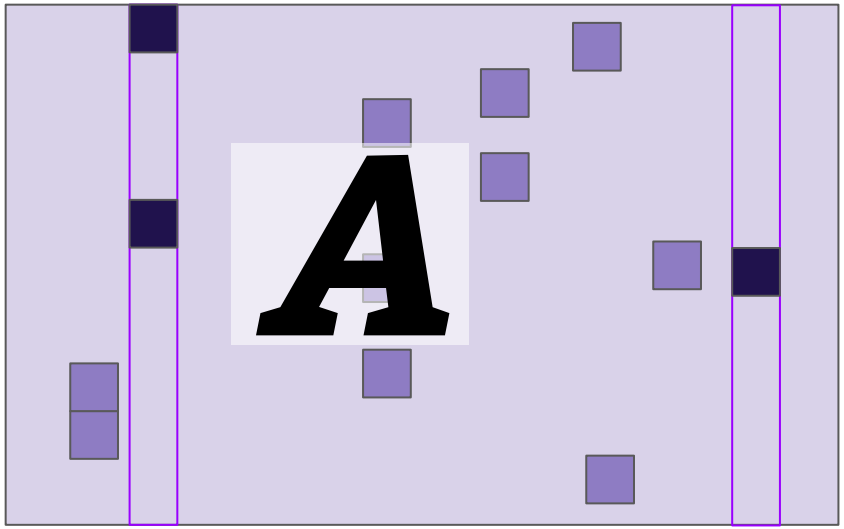
agree completely

will appreciate

am grateful

have discussed

should ... think



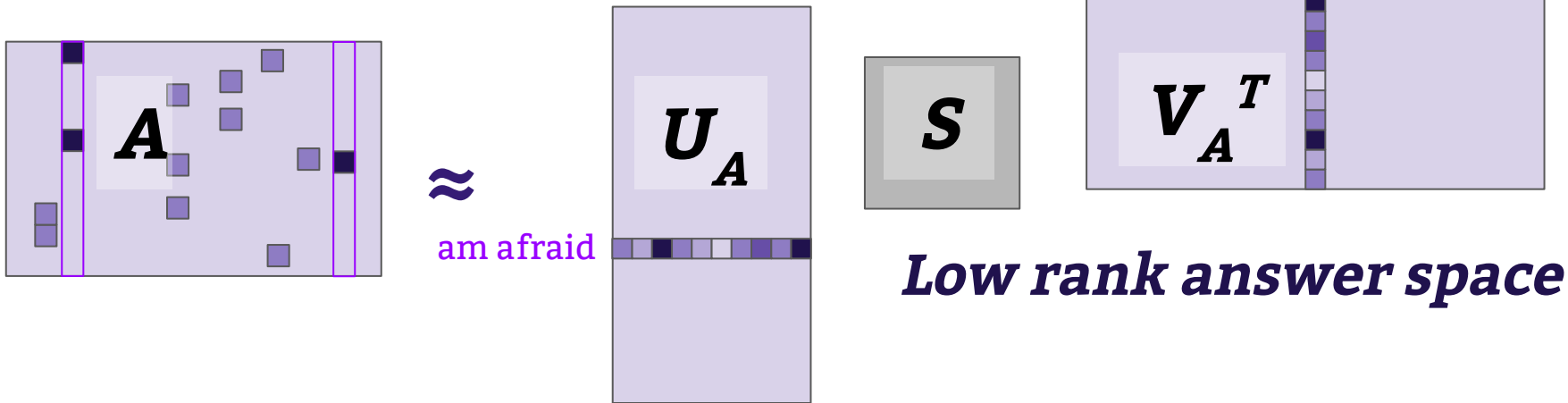
Documents: answers

Terms: answer motifs

Questions with similar rhetorical functions will map to ***similar answers***

Structuring the space of answers

SVD: $A \approx U_A S V_A^T$



Low rank answer space

Questions with similar rhetorical functions will map to ***similar answers***

need to consider
are wrong
have discussed
agree completely
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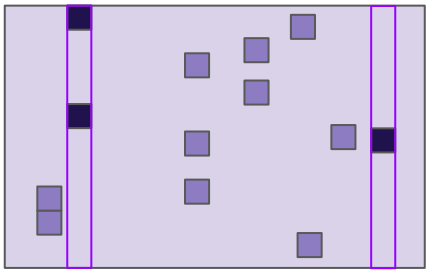
say is



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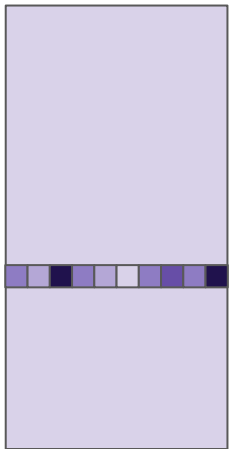

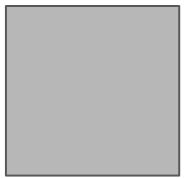

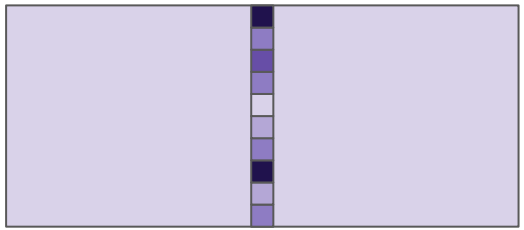

Low rank answer space

Questions with similar rhetorical functions will map to similar answers

will ... update?
is it not true...?
will ... apologise?
what progress has been made ...?
does ... agree?
will ... consider?
why does ... ?
how can ... justify?

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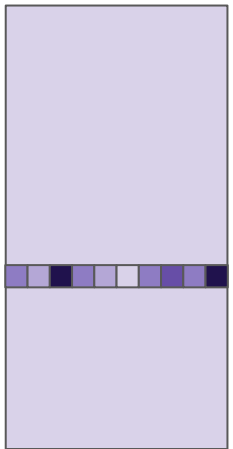

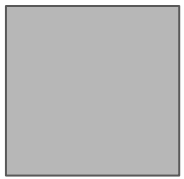

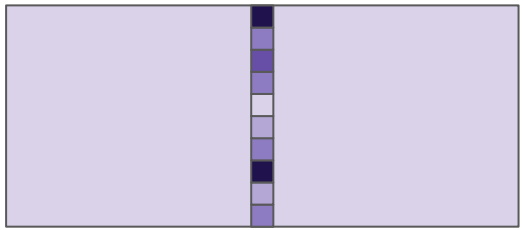

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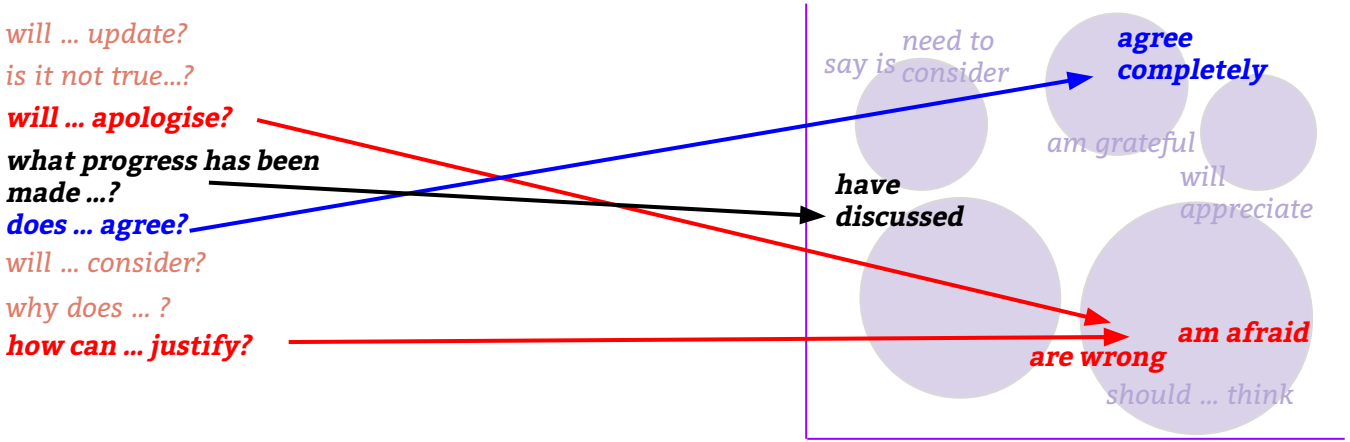

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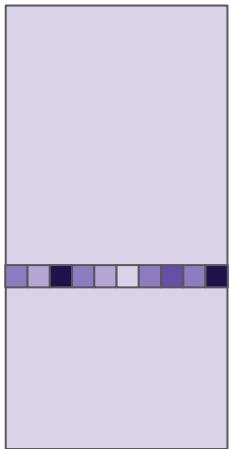
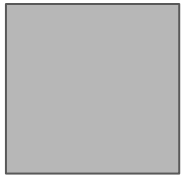
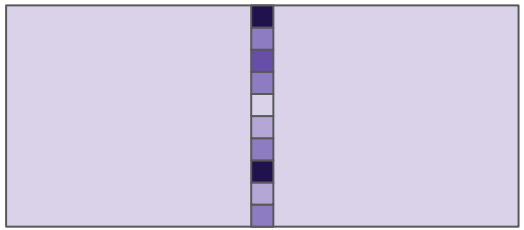


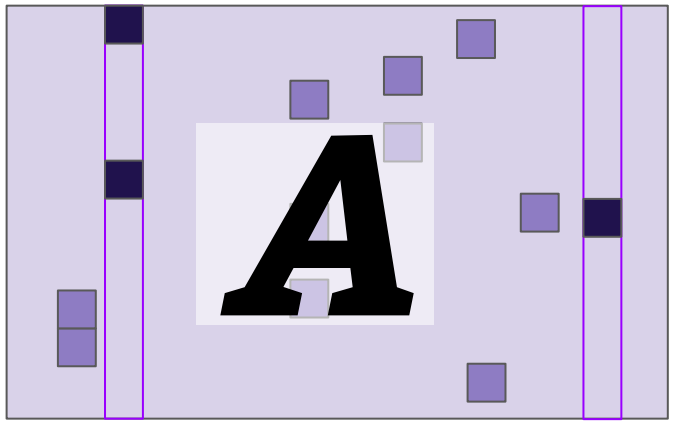




Low rank answer space

I am afraid that you are wrong …

I agree completely…



Documents: answers

Terms: answer motifs

Q: Will you apologise for the disaster?
A: I am afraid that you are wrong ...

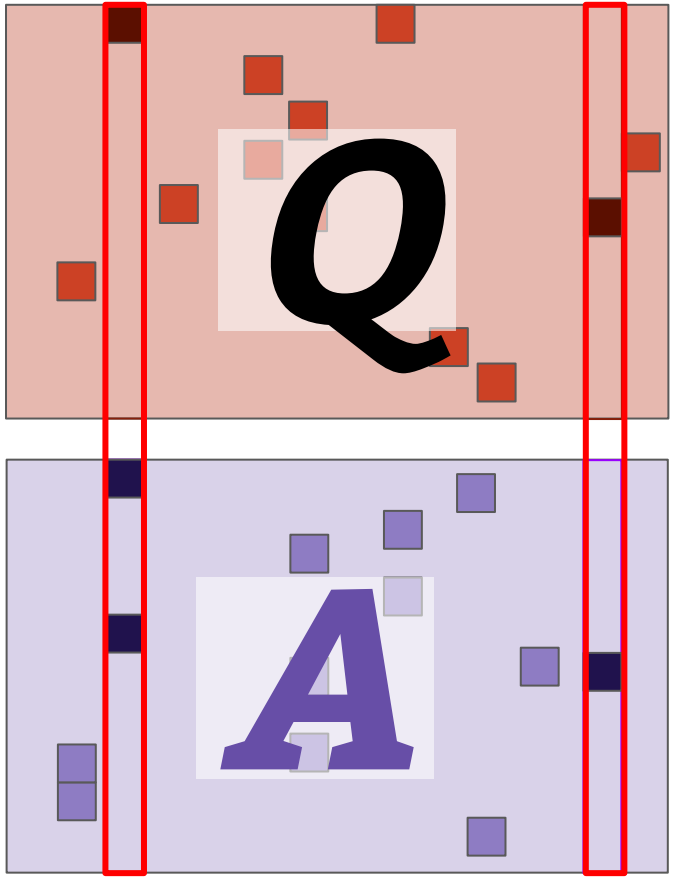
Q: Do you agree with the policy?
A: I agree completely...

will...apologise?

will ...update?
can...ensure?
what...made?
can...confirm?

does...agree?

how can...justify?
why does...?
is it not true?
will ... come clean?



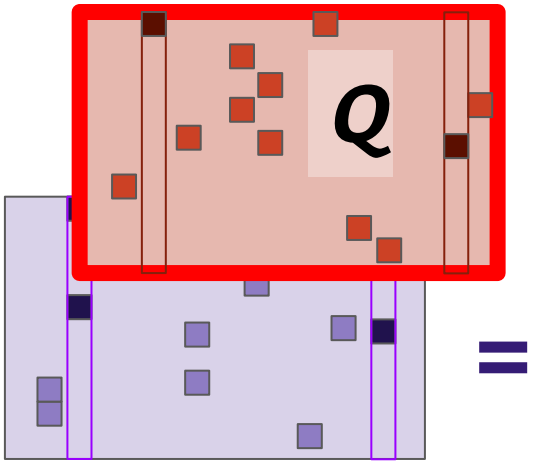
Documents:
question-answer pairs

Terms: **question motifs**

Questions with similar rhetorical functions will **map** to similar answers

Mapping questions into answer space

$$Q = \hat{Q} S V_A^T$$



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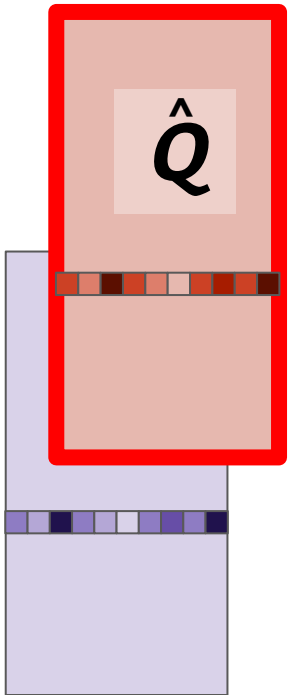
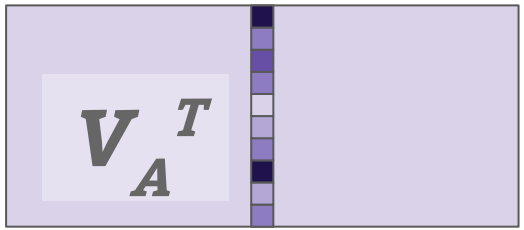


Q: Will you apologise for the disaster?
A: I am afraid that you're wrong ...

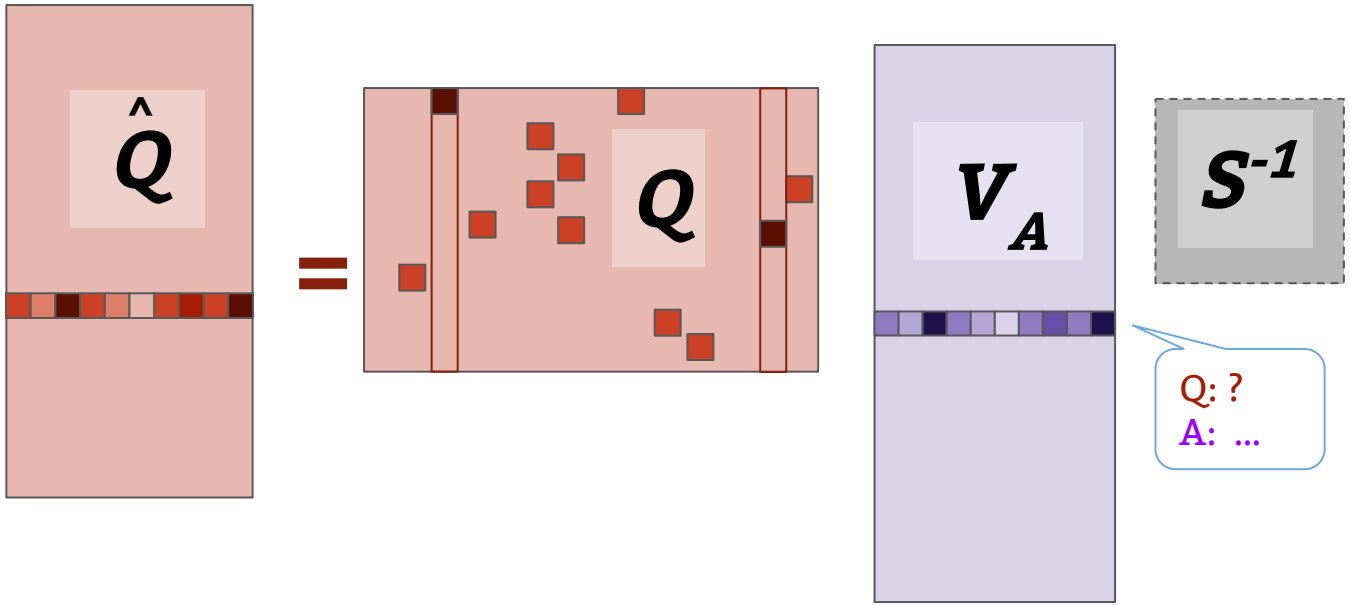


Low rank answer space

Questions with similar rhetorical functions will **map** to similar answers

Mapping questions into answer space

$$\hat{Q} = Q V_A S^{-1}$$

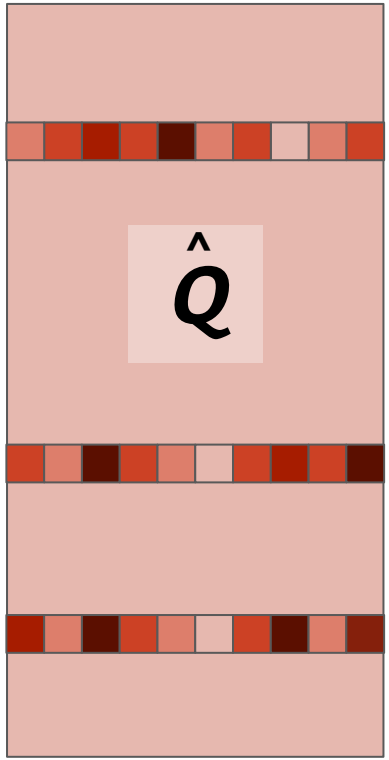


Structuring question space

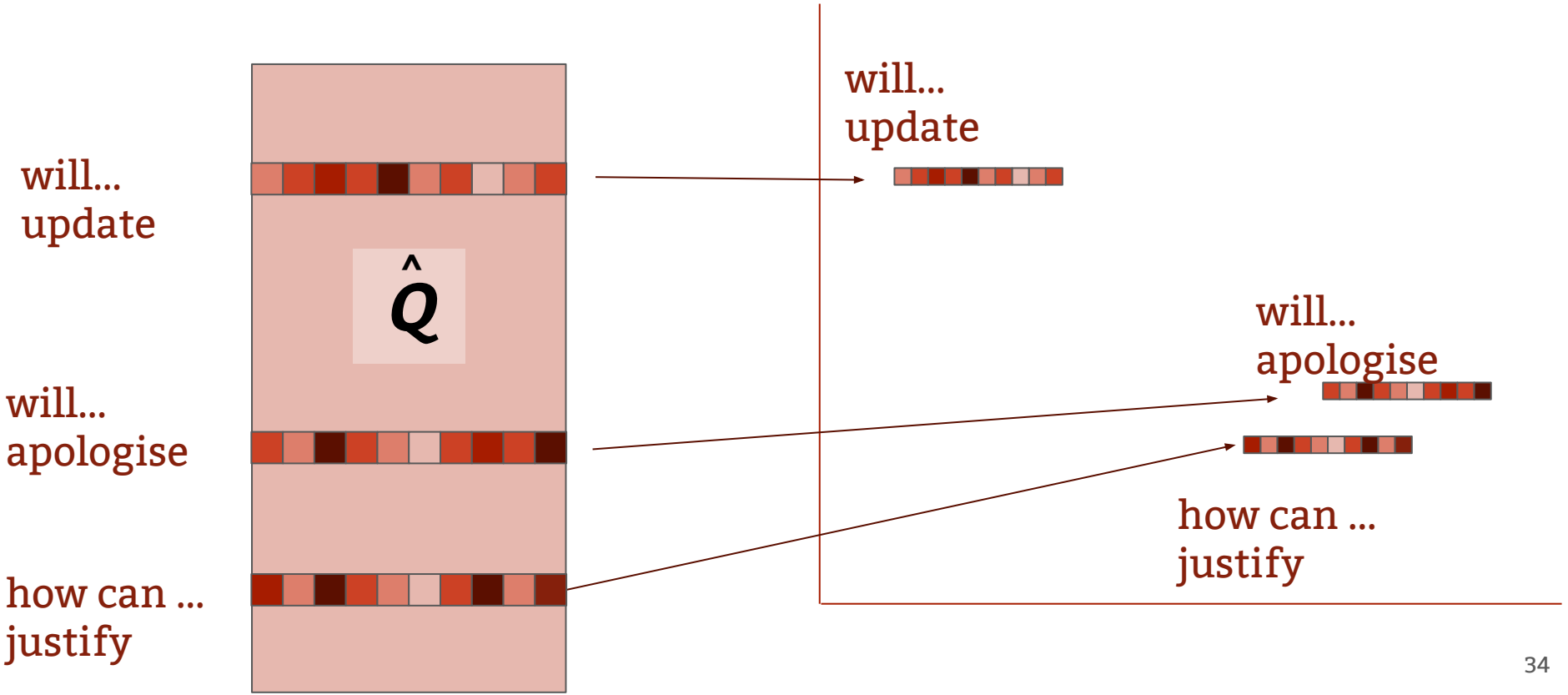
will...
update

will...
apologise

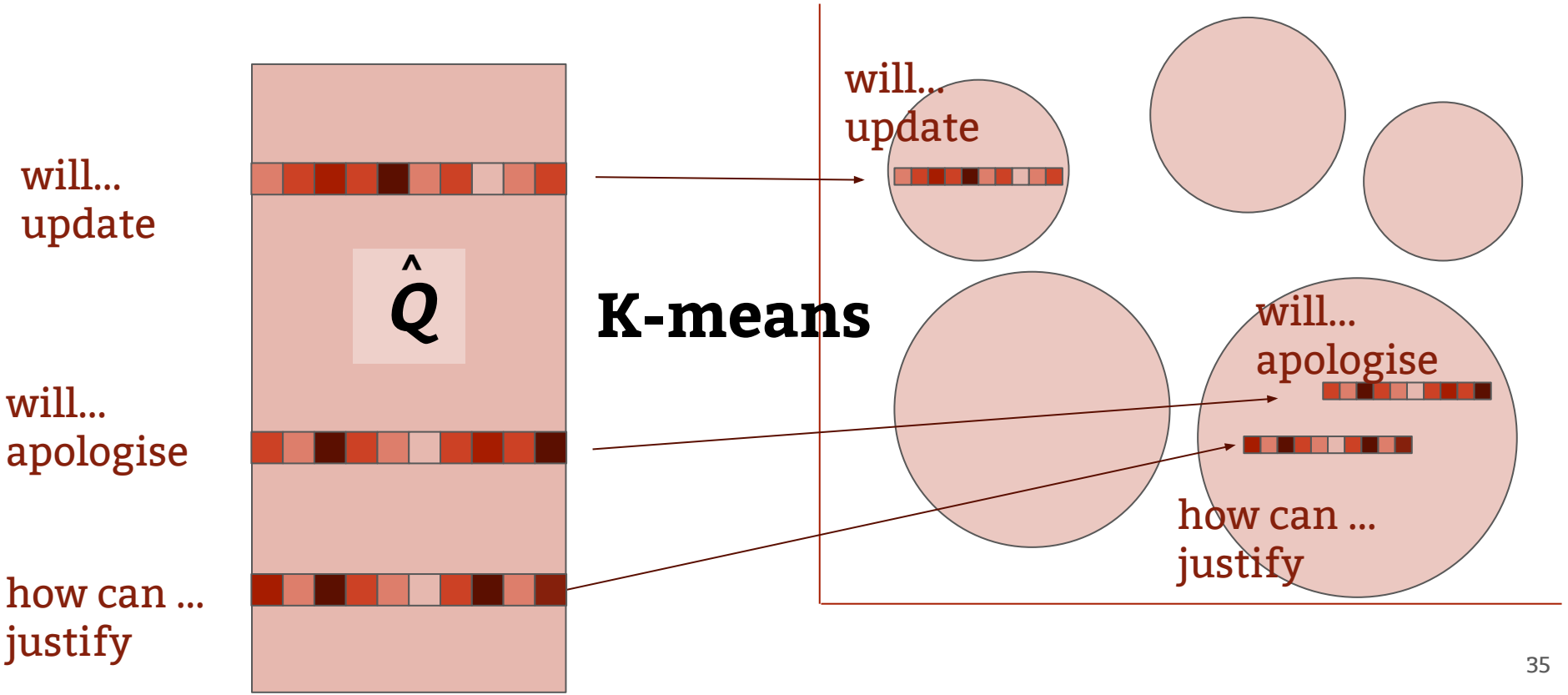
how can ...
justify



Structuring question space



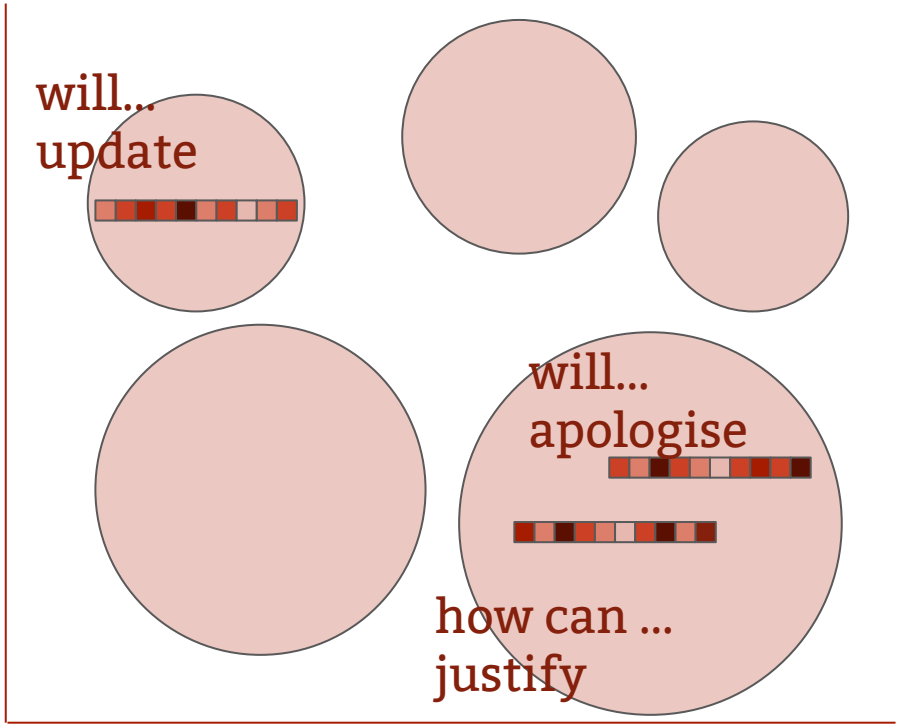
Structuring question space



Structuring question space

Inferring question types:

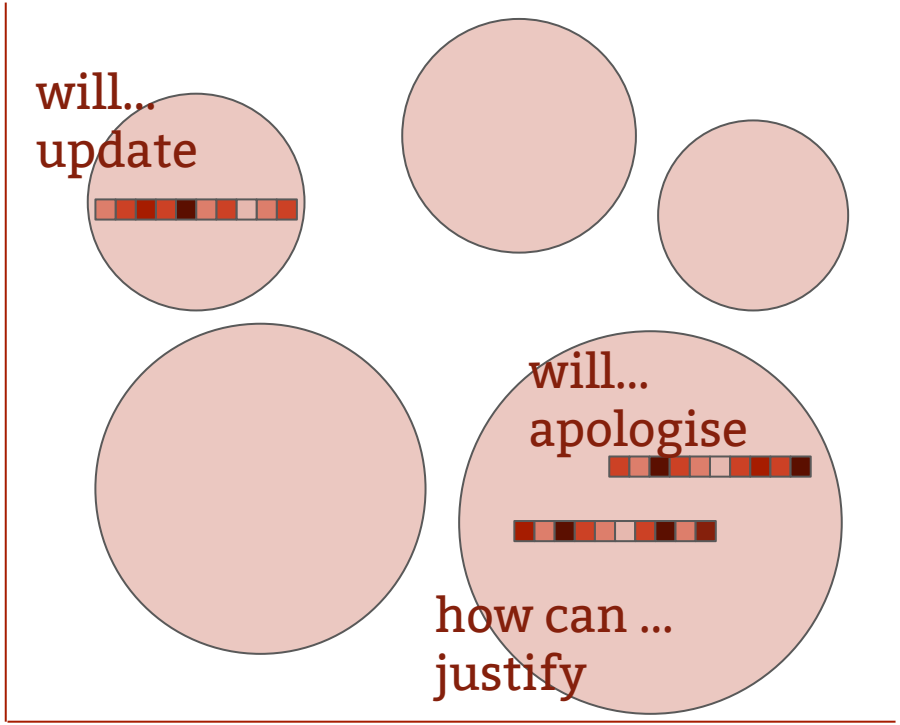
Will you come clean about the scandal?



Structuring question space

Inferring question types:

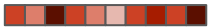
Will you **come clean** about the scandal?

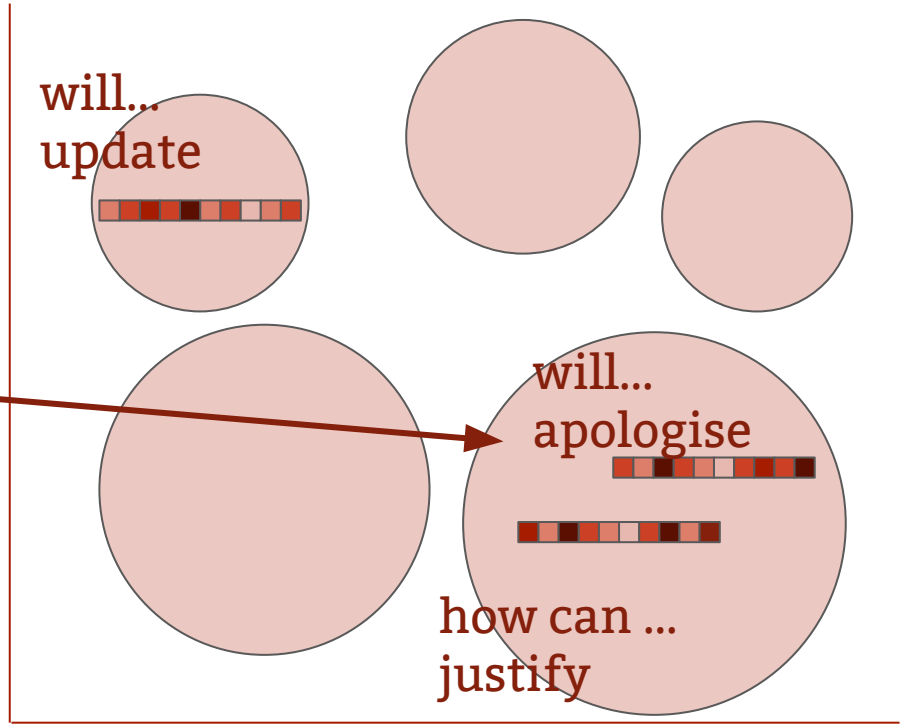


Structuring question space

Inferring question types:

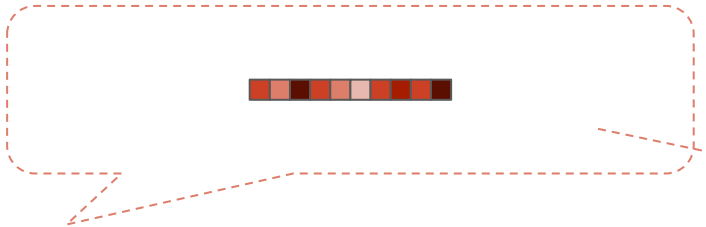
Will you **come clean** about the scandal?





Structuring question space

Inferring question types:

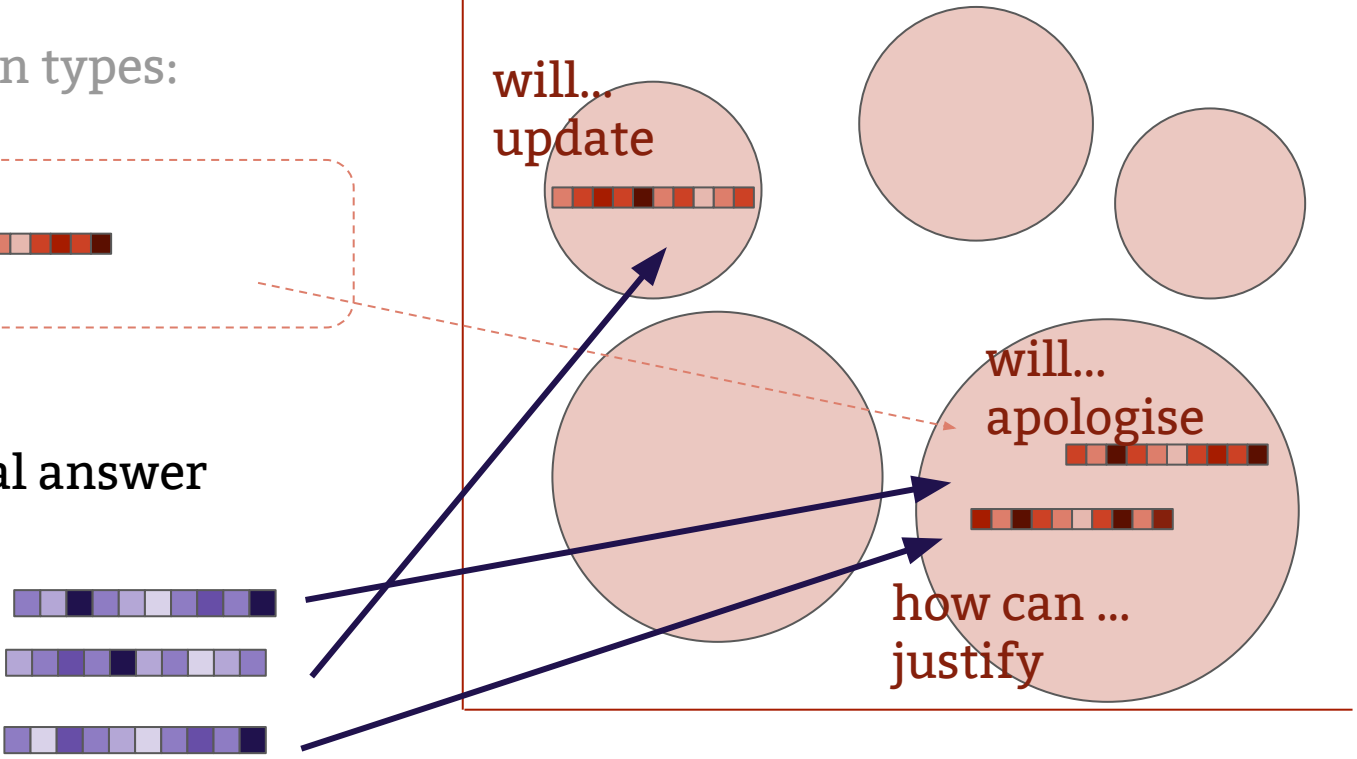


Examining typical answer motifs:

am afraid

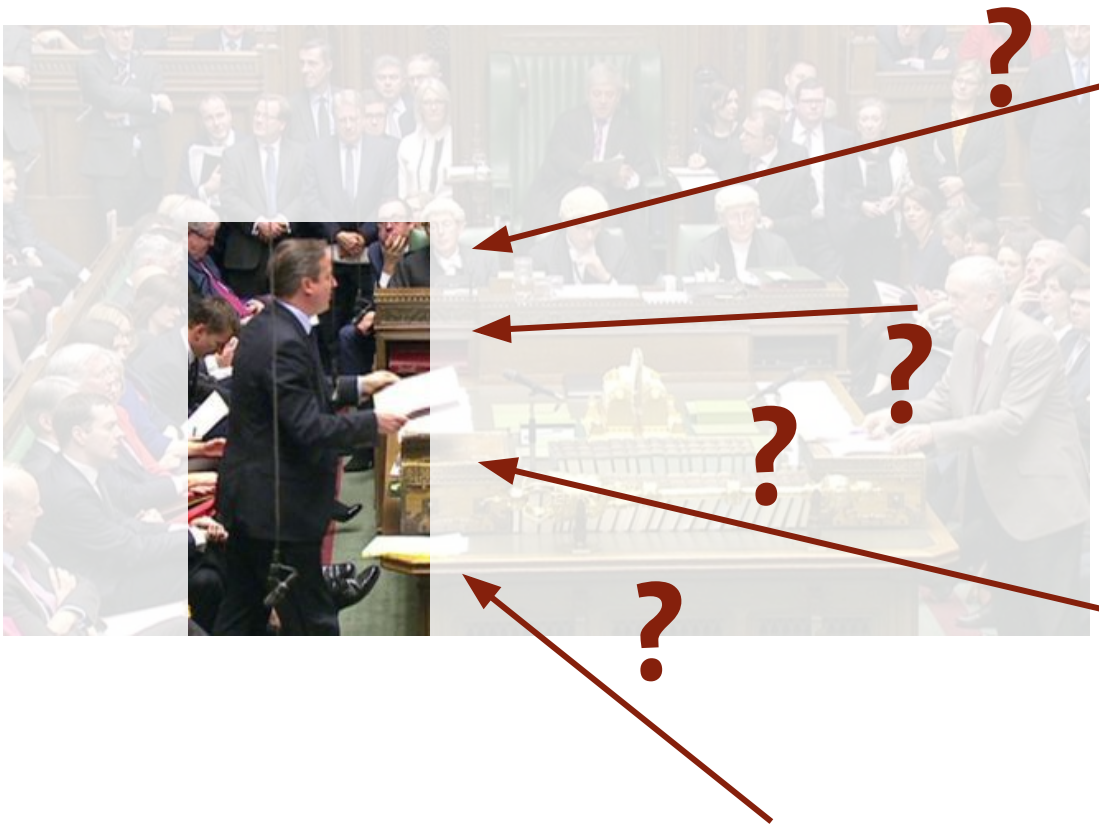
need to consider

is wrong



Parliamentary question periods

Parliamentary question periods



200,000 questions 1979 - 2016

2000 askers,
1000 answerers

Data available!

Question types in Parliament:

0. Issue update
1. Shared concerns
2. Narrow factual
3. Prompt for comment
4. Agreement
5. Self promotion
6. Concede & accept
7. Condemnatory

Question types in Parliament:

0. Issue update

1. Shared concerns

2. Narrow factual

3. Prompt for comment
4. Agreement
5. Self promotion
6. Concede & accept
7. Condemnatory

Will you update us on Afghanistan?

What funding will be given to the College of Dentistry?

Question types in Parliament:

0. Issue update
1. Shared concerns
2. Narrow factual
3. Prompt for comment
4. Agreement
5. Self promotion
6. **Concede & accept**
7. **Condemnatory**

Will you accept that [Brexit] will undermine our security?

Will you apologise for leading us into the Iraq disaster?

Question types in Parliament:

0. Issue update
1. Shared concerns
2. Narrow factual
3. Prompt for comment
4. **Agreement**
5. Self promotion
6. Concede & accept
7. Condemnatory

Do you agree that the Government [should continue] its strong economic policies?

Question types in Parliament:

0. Issue update
1. Shared concerns
2. Narrow factual
3. Prompt for comment
4. Agreement
5. **Self promotion**
6. Concede & accept
7. Condemnatory

Are you aware that my parish church is pleased to receive a grant?

Question types in Parliament:

0. Issue update
1. Shared concerns
2. Narrow factual
3. Prompt for comment
4. Agreement
5. Self promotion
6. Concede & accept
7. Condemnatory

Does our method produce sensible question types?

Sanity check: alignment with existing labels

Helpful

Standard

Unanswerable

Expert annotations from Bates et al., 2014
Also available in data release.

Sanity check: alignment with existing labels

Classifying **unanswerable** vs **standard** questions:

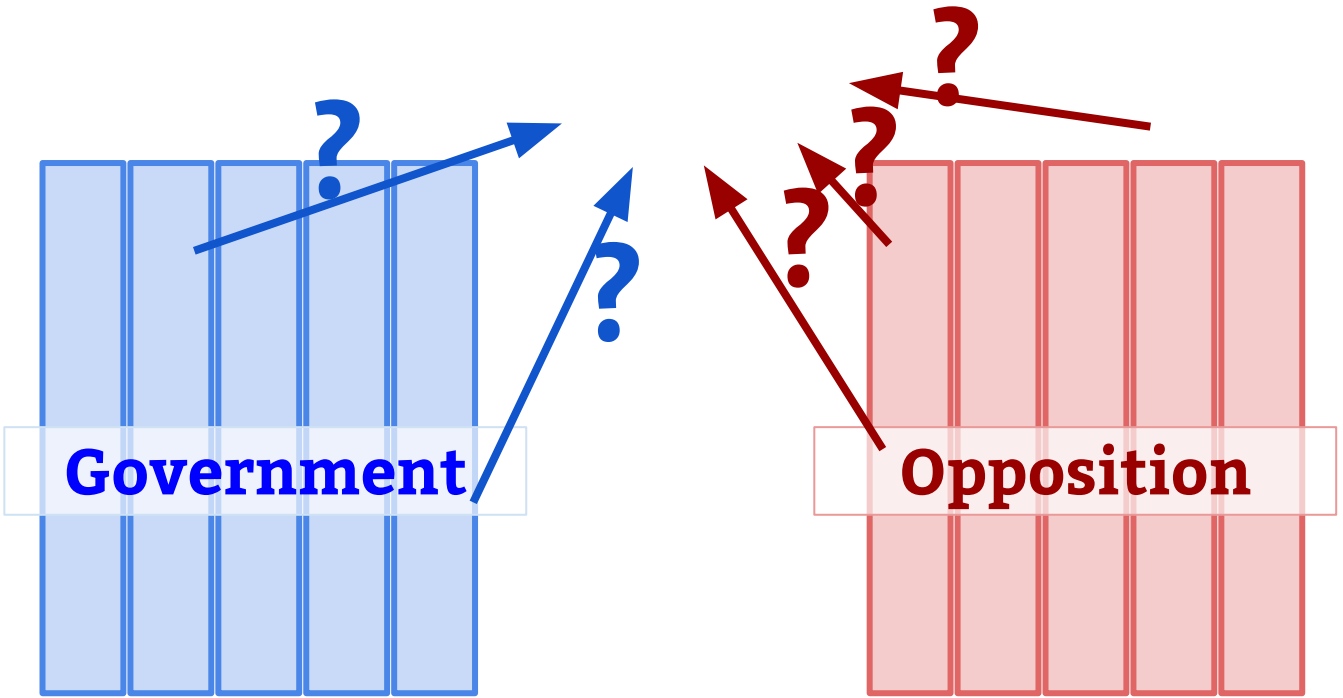
BOW: 55%

Latent question features: **66%**

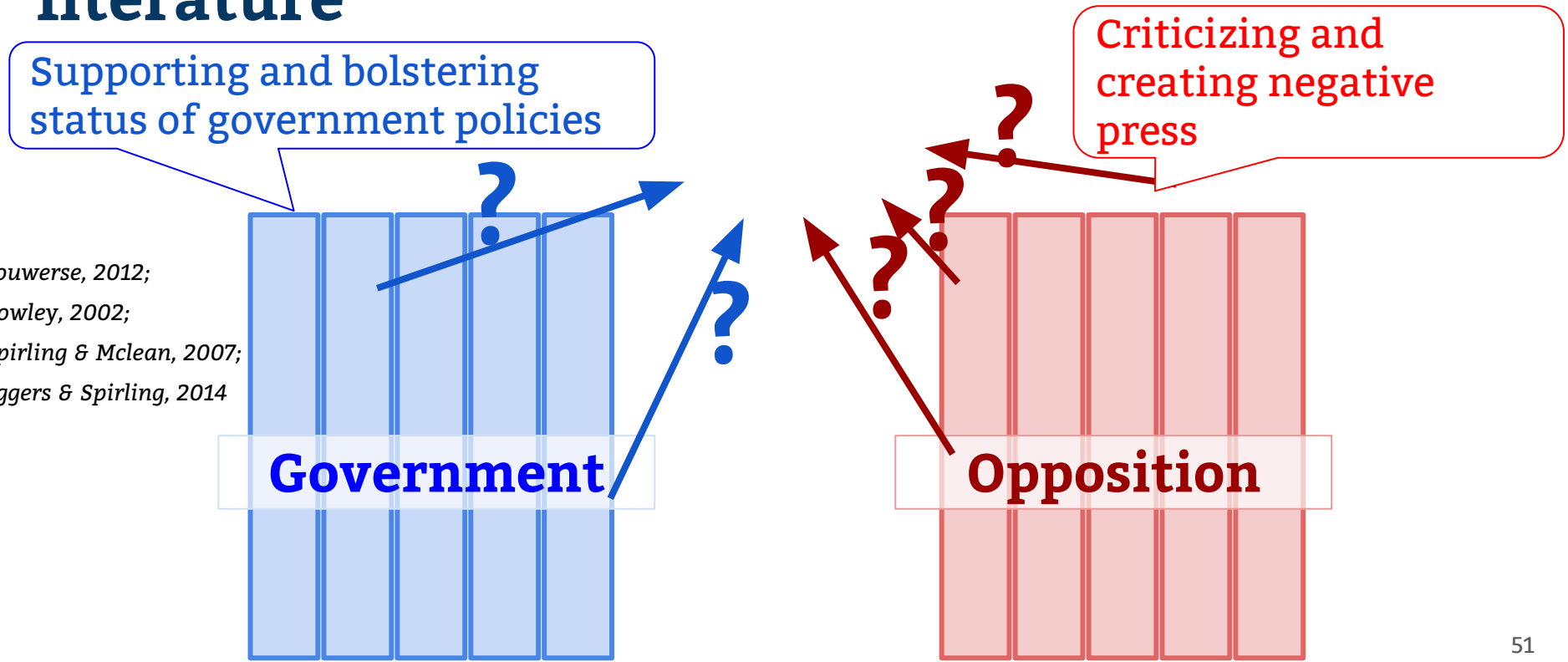
Further details in paper

Expert annotations from Bates et al., 2014
Also available in data release.

Sanity check: alignment with political science literature

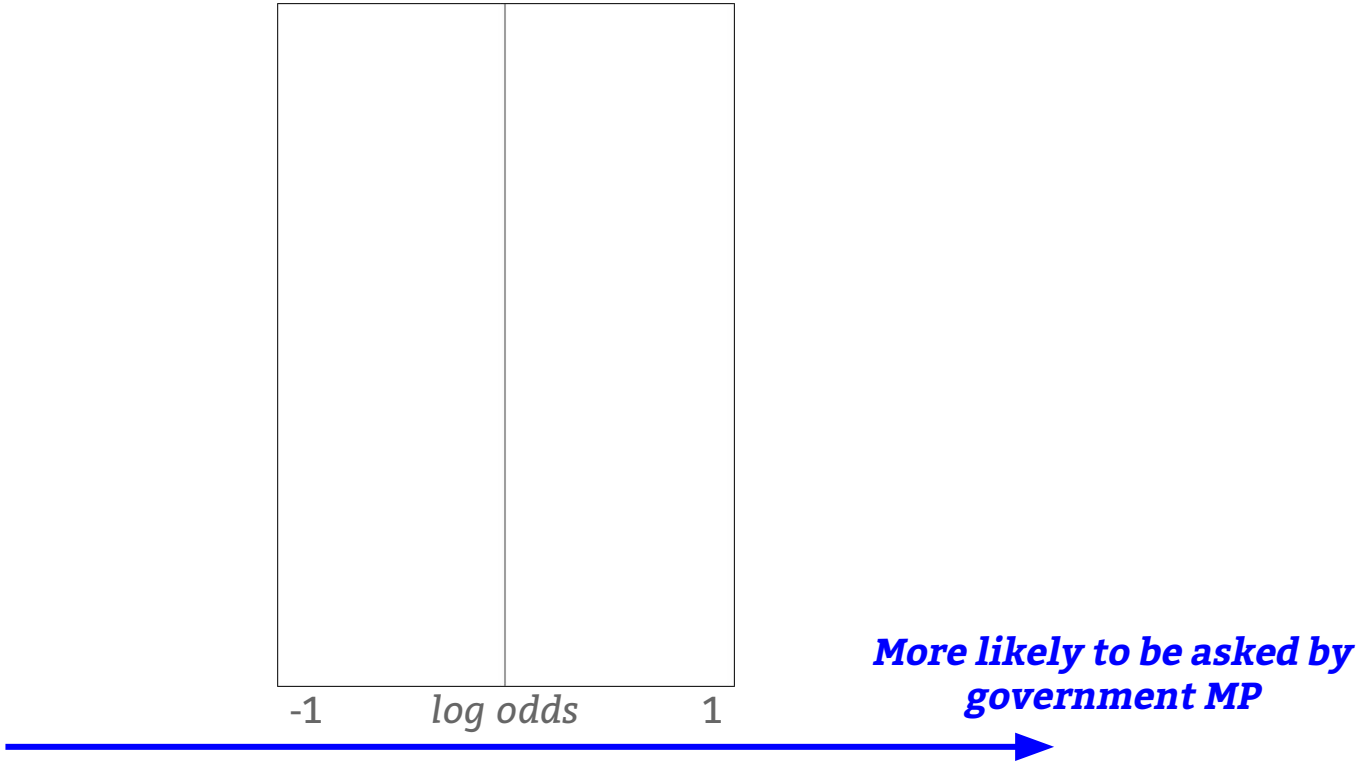


Sanity check: alignment with political science literature

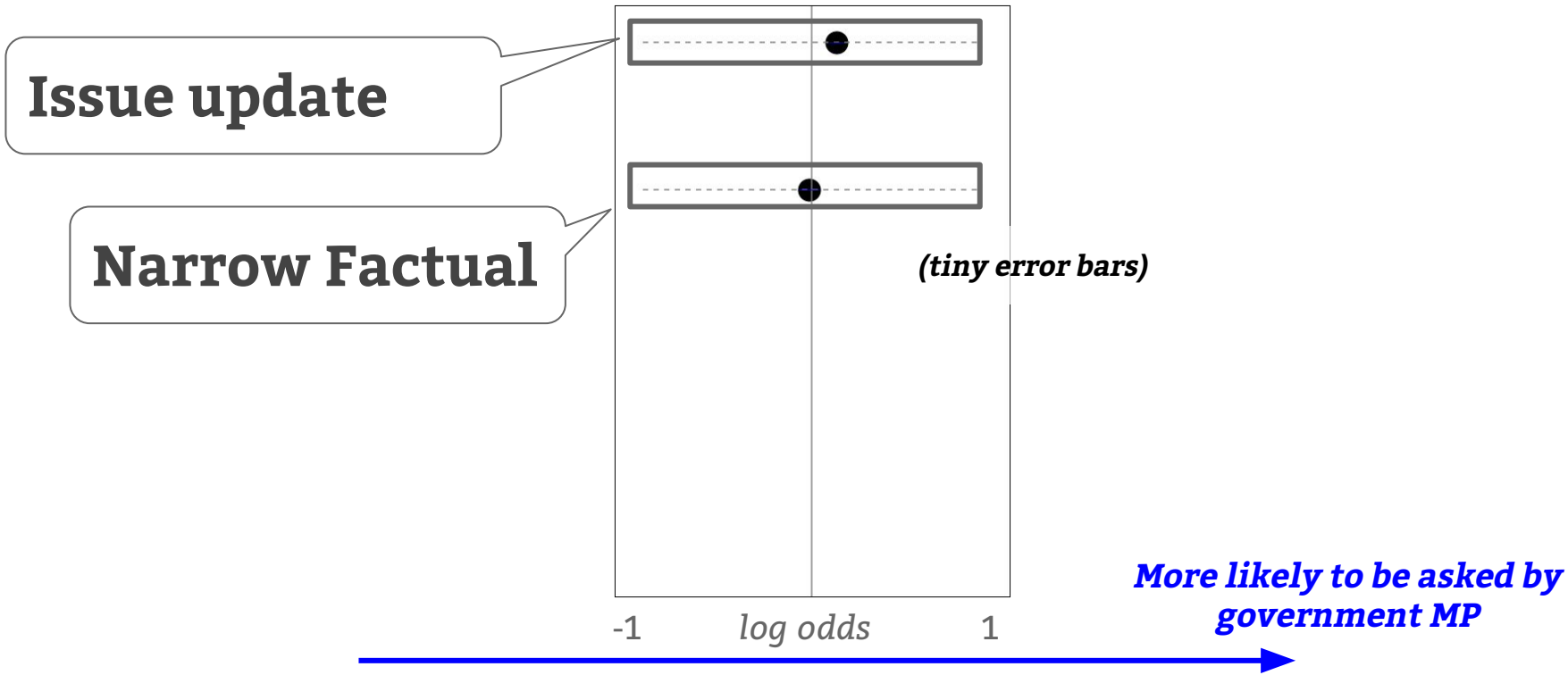


Louwerse, 2012;
Cowley, 2002;
Spirling & Mclean, 2007;
Eggers & Spirling, 2014

Sanity check: alignment with political science literature



Sanity check: alignment with political science literature



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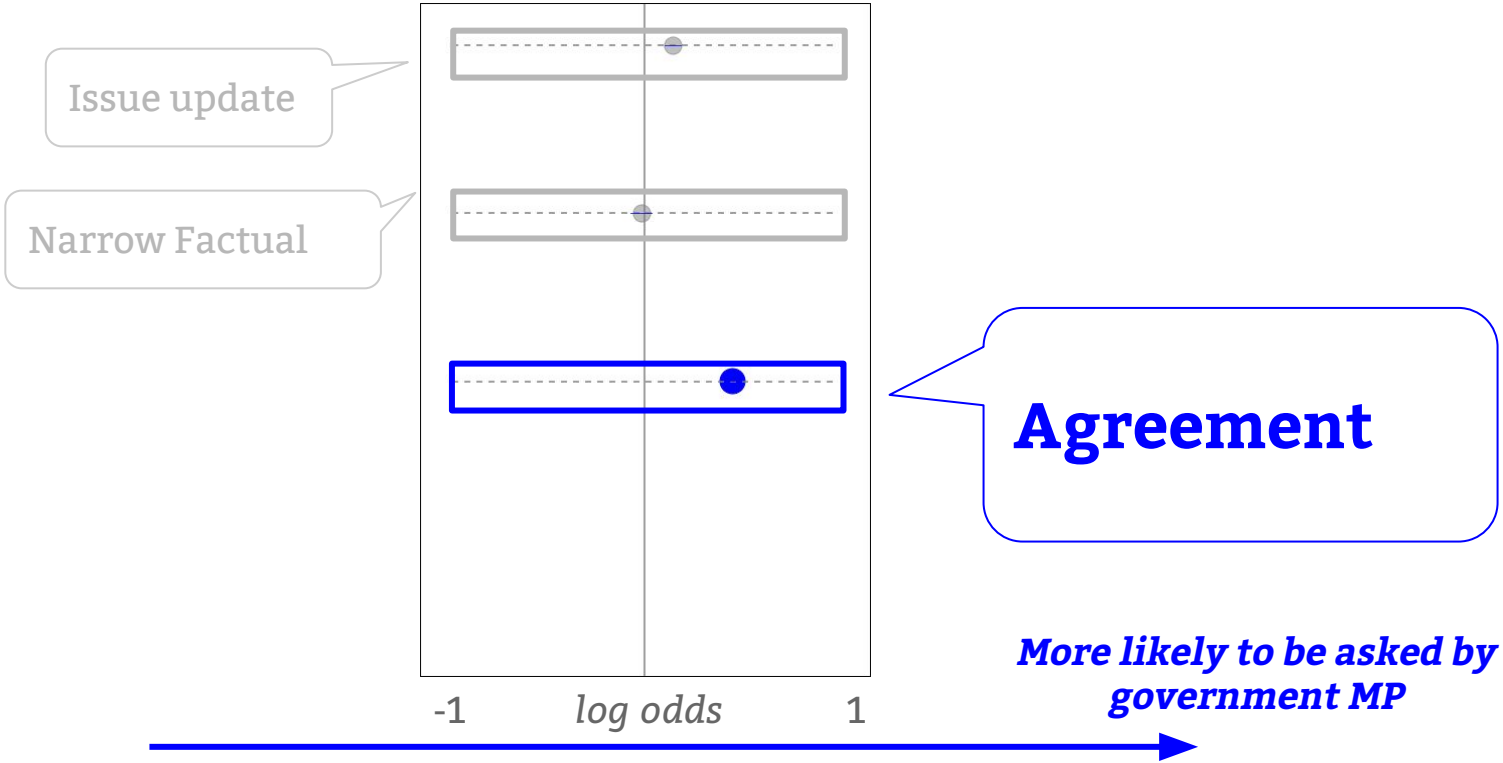
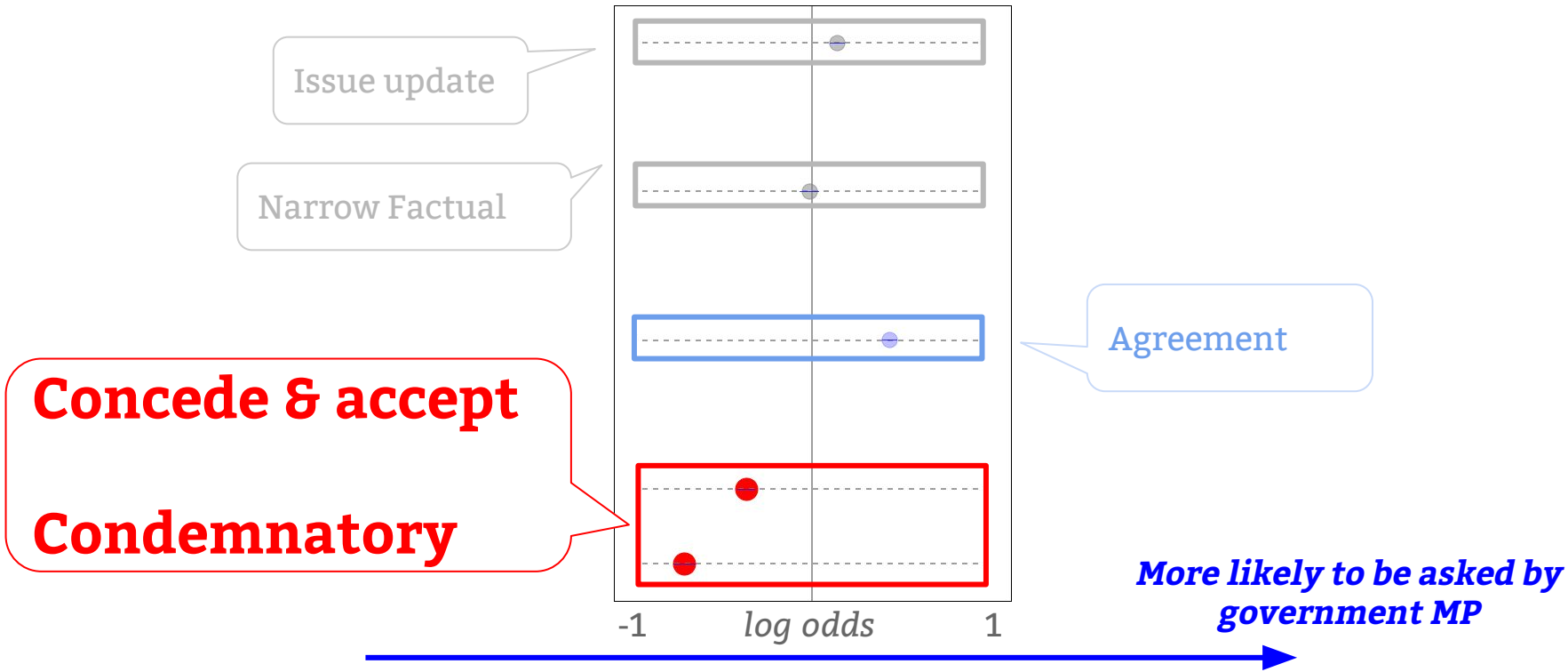


Sanity check: alignment with political science literature



New investigation: how does questioning behaviour vary with tenure?

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New investigation: how does questioning behaviour vary with tenure?

More enthusiastic & vigorously critical?

Hypothesis 1

Catalano, 2009

Kam, 2009

Less enthusiastic?

New investigation: how does questioning behaviour vary with tenure?

More enthusiastic & vigorously critical?

Hypothesis 1

Catalano, 2009

Kam, 2009

Less enthusiastic?

Tempered by stake in future promotion?

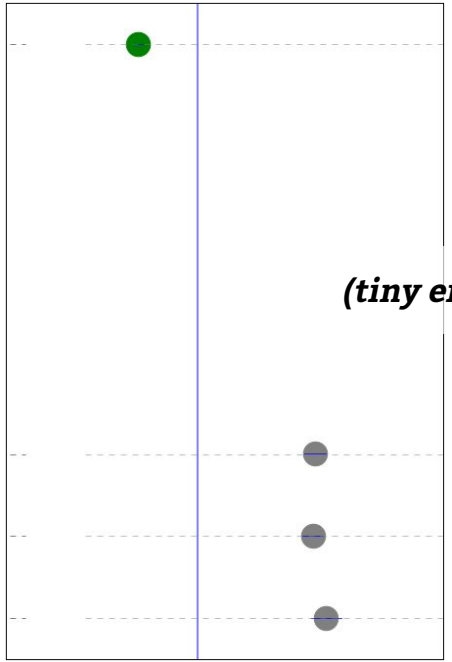
Hypothesis 2

Cowley, 2002

Benedetto & Hix, 2007

Less to lose & more antagonistic?

New investigation: how does questioning behaviour vary with tenure?

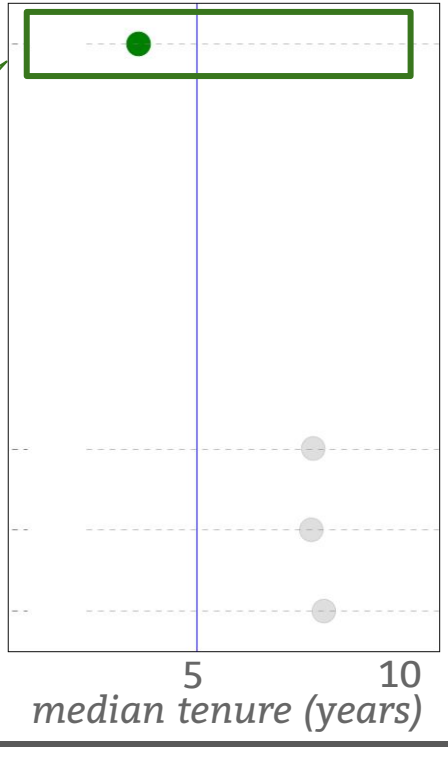


(tiny error bars)

Older median tenure, government MPs

New investigation: how does questioning behaviour vary with tenure?

Issue update



Older median tenure, government MPs

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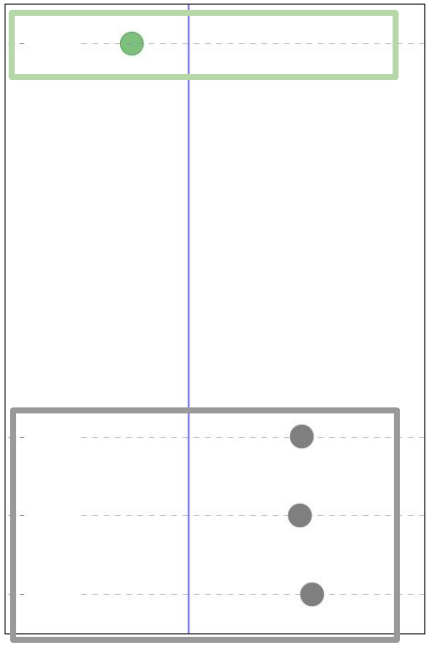

Self-promotion
Concede & accept
Condemnatory

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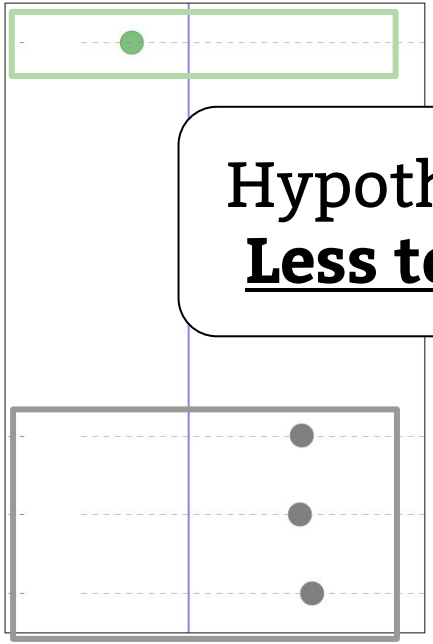

Hypothesis 2:
Less to lose.

Self-promotion
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Older median tenure, government MPs

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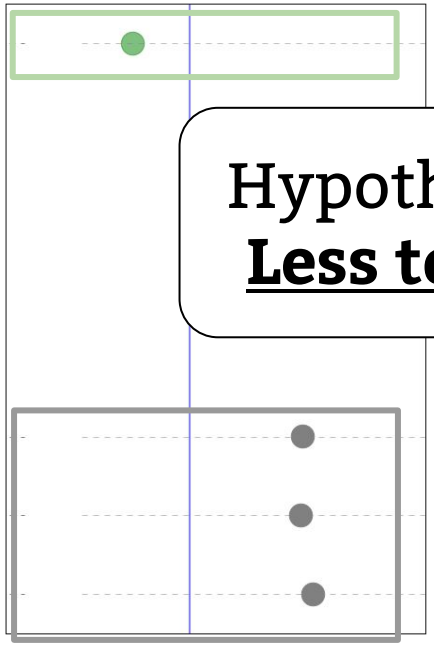
(condemnatory type asked more by **younger opposition** MPs)
Kam, 2009

Hypothesis 2:
Less to lose.



Older median tenure, government MPs

Conclusion

- **Questions** have many rhetorical roles.

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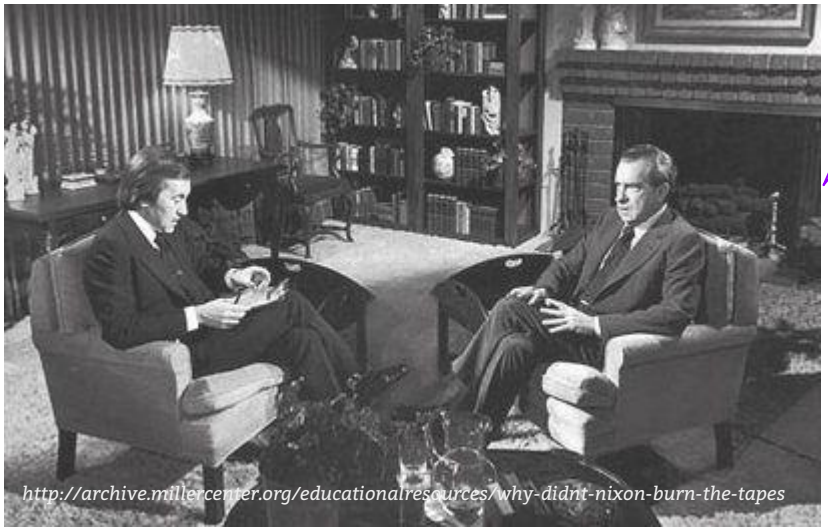
- Questions have many rhetorical roles.
  - We introduce an unsupervised method to infer these roles, using the ***answers***.
- These roles reflect social information in settings such as **parliamentary question periods**, allowing us to discover new insights.

Future work: Investigating parliamentary dynamics and question types

Data and code:
Cornell Conversational Analysis Toolkit
http://convokit.infosci.cornell.edu/

Future work: other settings

Why didn't you burn the tapes?

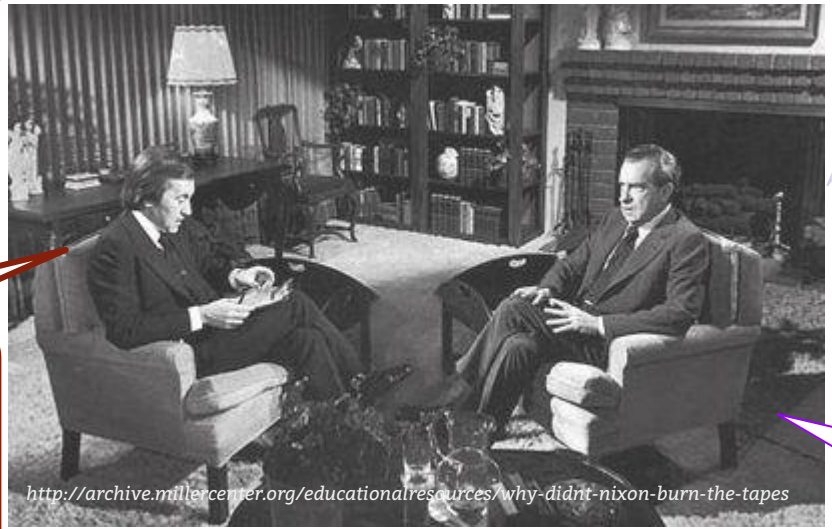


http://archive.millercenter.org/educationalresources/why-didnt-nixon-burn-the-tapes

I didn't believe there was a reason to …

Future work: questions are just the beginning

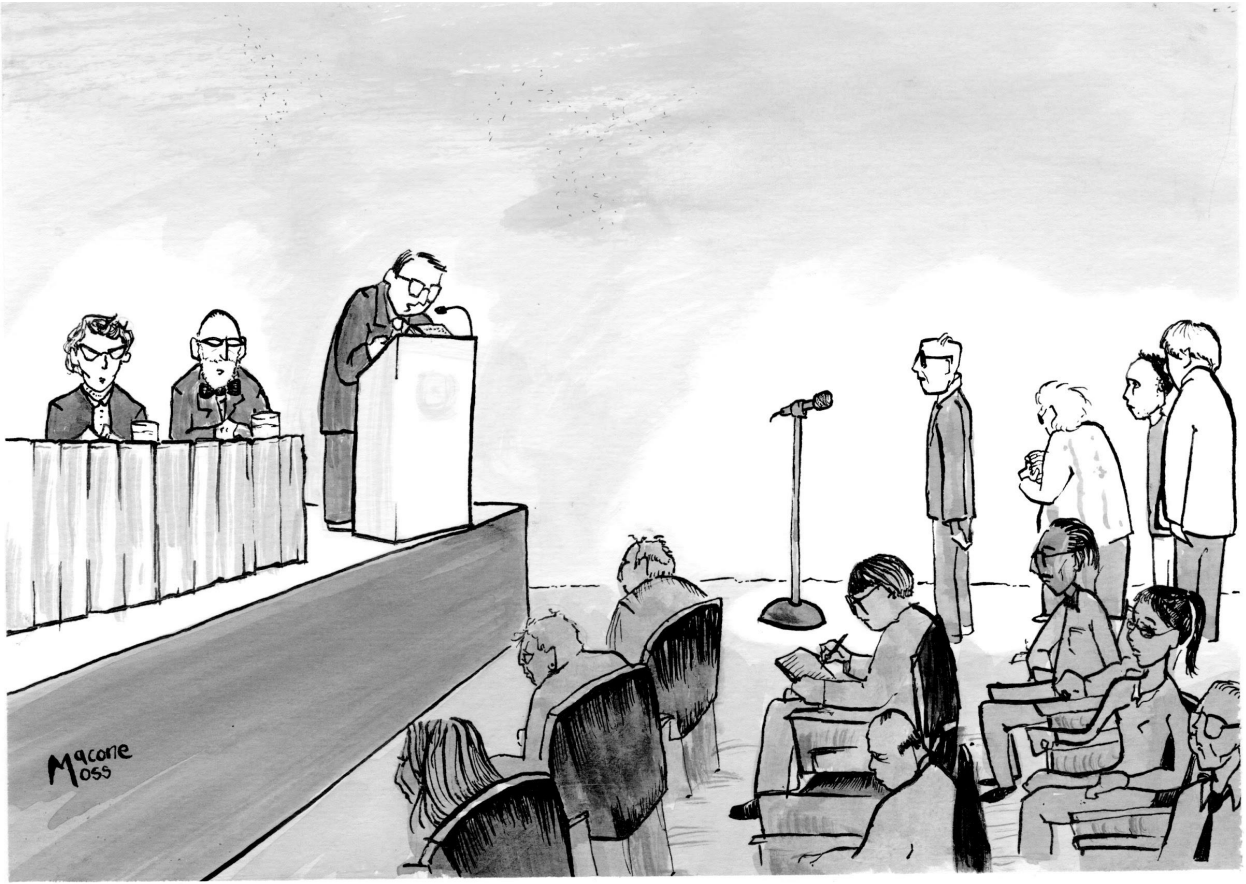
Why didn't you burn the tapes?



I didn't believe there was a reason to …

But looking back on it now, **don't you wish you'd destroyed them?**

• • •



"We'd now like to open the floor to shorter speeches disguised as questions."

(credit: Steve Macone, New Yorker)

Future work: other settings

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Future work: other settings

Was it her game that gave you problems?

Future work: other settings

What did your mother say to you after the game?