

# Queries vs. Questions in Informational Search Tasks

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## Keywords or Questions?

- Search engines optimize for keywords; Queries can also be written as questions
- Research questions:
  - How common are questions and question-answering (QA) intentions in Web search?
  - What is benefit from formulating queries using keywords vs questions?

## Question Prevalence and Characteristics

**3.18%** of Web queries are natural language (NL) questions **7.39** words (vs. 3.80 in keyword queries with similar intent)

### Search Intent

- Developed intent taxonomy
- Sampled 1k queries + full session
- QA intent is informational directed:
  - Closed** (unambiguous answer)
  - Open** (open ended)

**10.3%** of Web queries have QA intent

**30.0%** of QA intent expressed as NL

Query Category	% Queries
Navigational	54.4
Informational	31.8
<b>Directed</b>	<b>10.3</b>
<b>Closed</b>	<b>5.3</b>
<b>Open</b>	<b>5.0</b>
Undirected	14.3
Other	7.2
Resource	6.9
Virtual	4.8
Physical	2.1
Pornography	2.7
Error/Other	4.2

### Result Relevance

- Created 103 QA tasks (one per query), e.g.,

**Query:** [rule of standard form]

**Task:** "You are reviewing some linear algebra materials and encounter the rule of standard form. Find out its meaning."

- Crowdworkers created questions:
  - Question<sub>Engine</sub>** Target = search engine
  - Question<sub>Any</sub>** Target = general

Result relevance (engines A and B (NDCG@3))

Engine	Query	Question <sub>Engine</sub>	Question <sub>Any</sub>
A	0.471	0.465	0.462
B	0.493	0.487	0.497

- Query-question differences indistinguishable (p=0.762). Same on both engines.

### Conclusions

- NL queries common for informational intent
- Relevance same for queries / questions
- For efficiency, people should use keywords
- Other reasons for using NL, e.g., spoken dialog, seeking results from QA sites
- NEXT:** Predict whether query or question is best on a per query basis

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