

Meta-Information in Conversational Search

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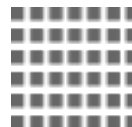
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¹



²

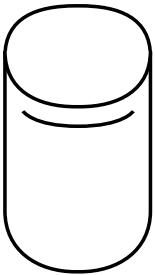
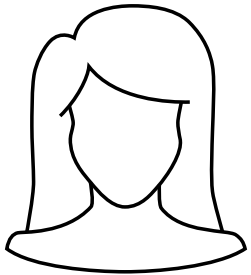


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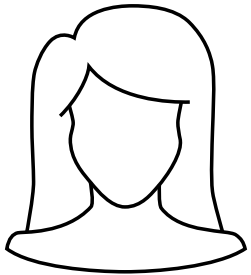
Conversational Search

Should we introduce a universal basic income?

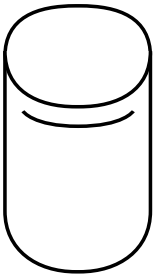


Conversational Search

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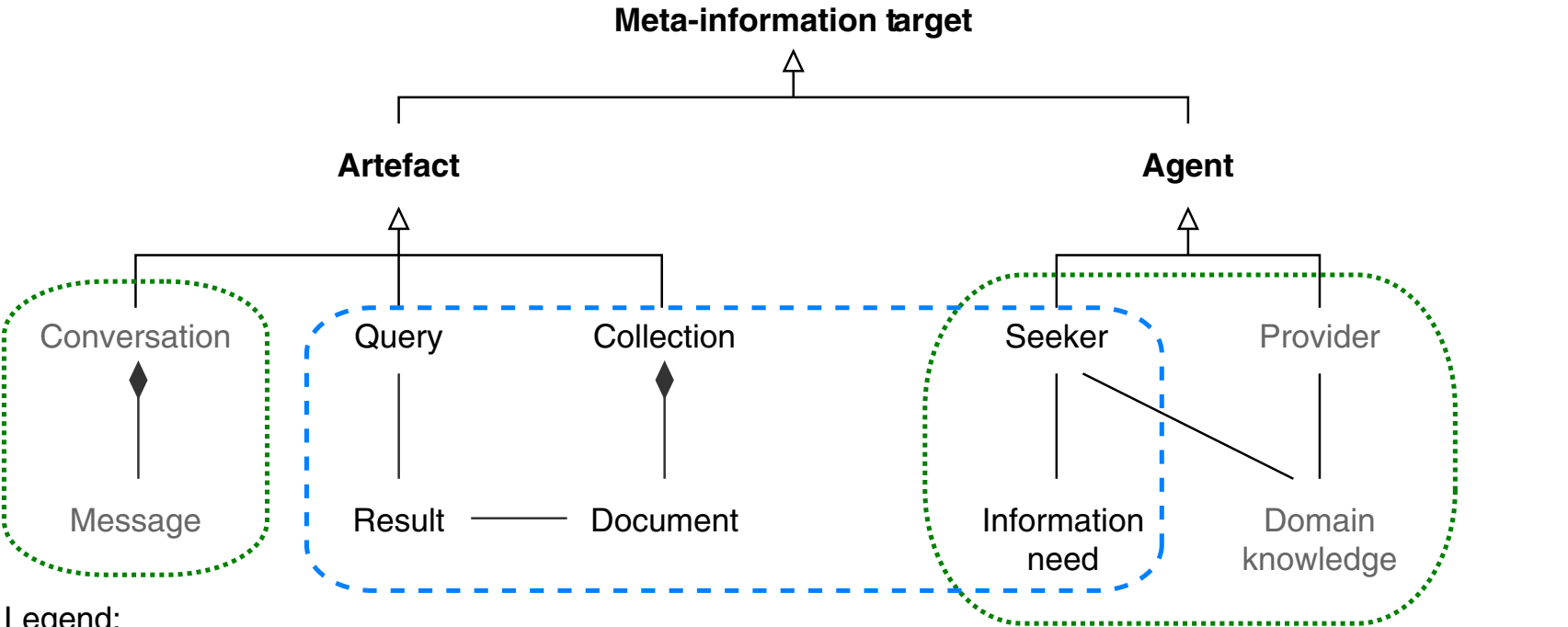


Yes

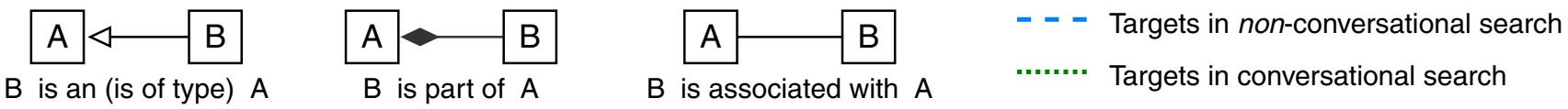


Meta-Information in Conversational Search

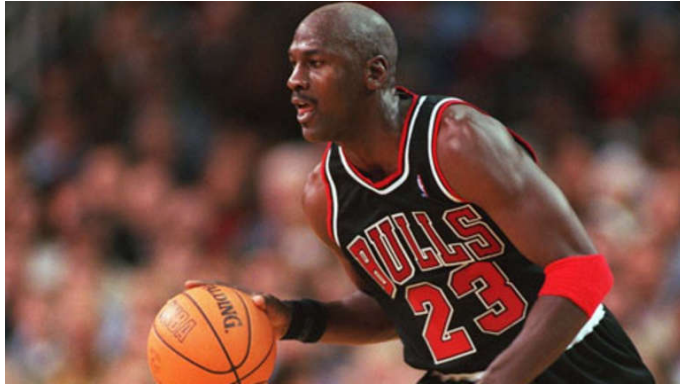
What can meta-information in search be about?



Legend:



Meta-Information in Conversational Search



“There are many websites that discuss the statistical analyses of Michael Jordan.”

“As written in a blog post of the SLAM Magazine.”

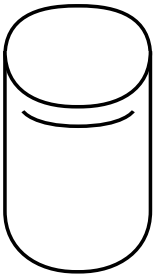
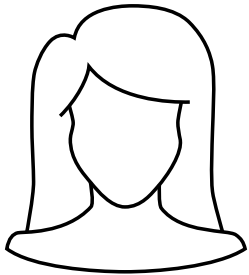
“SLAM is a renowned basketball magazine.”

Central meta-information properties

1. Meta-information is identifiable as such only by its relation to other information.
2. This (aforementioned) relation is dynamic, i.e., it can be established or broken.
3. The meaning of meta-information depends on both the referred information and the recipient.

Meta-Information in Conversational Search

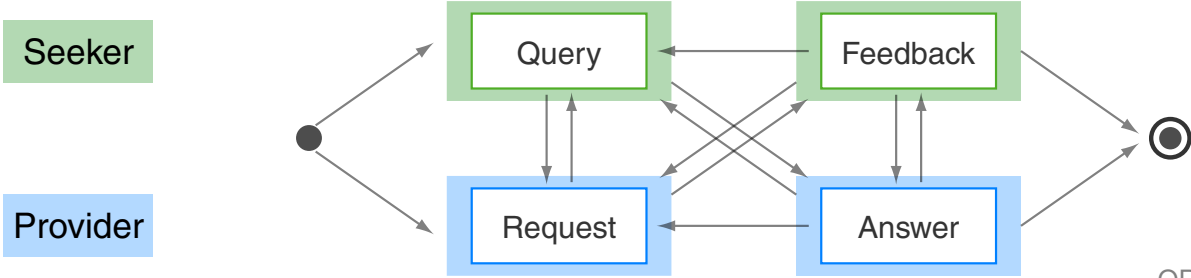
Should we introduce a universal basic income?



Meta-Information in Conversational Search

Turn	Role	Message
1	Seeker	Can you type in, uhm, “effective”... “effectiveness of new security measures at airports”?
2	Provider	Australia, or is it just airports?
3	Seeker	Put, uhm, “international”... “international airports”.
4	Provider	OK, the first one that comes up is [...]

from the Spoken Conversational Search dataset (Trippas et al., 2017)

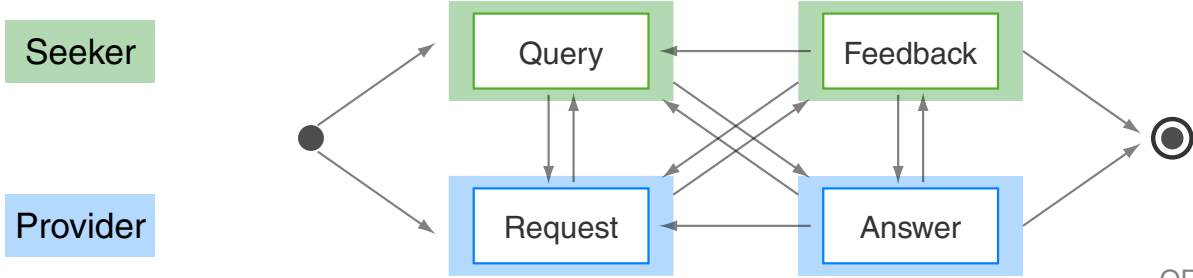


QRFA (Vakulenko et al., 2019)

Meta-Information in Conversational Search

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from the Spoken Conversational Search dataset (Trippas et al., 2017)



QRFA (Vakulenko et al., 2019)

Information

- μ_1 “Effectiveness of new security measures at airports?”
- μ_2 “Australia, or is it just airports?”
- μ_3 “International airports”
- μ_4 “OK, the first one that comes up is [...].”

Formal model

- (1) μ_1 sets conversation state = query
- (2) μ_2 sets conversation state = request
- (3) μ_3 sets conversation state = query
- (4) μ_4 sets conversation state = answer

Meta-Information in Conversational Search

Conclusion

- ❑ In a conversation, much information is exchanged effortlessly and without conscious thought
- ❑ This information relates to each other, making it meta-information
- ❑ These relations then make a directed graph
- ❑ We process this meta-information to understand a conversation
- ❑ Can machines do the same?