A Two-Stage Model for Blog Feed Search

Task

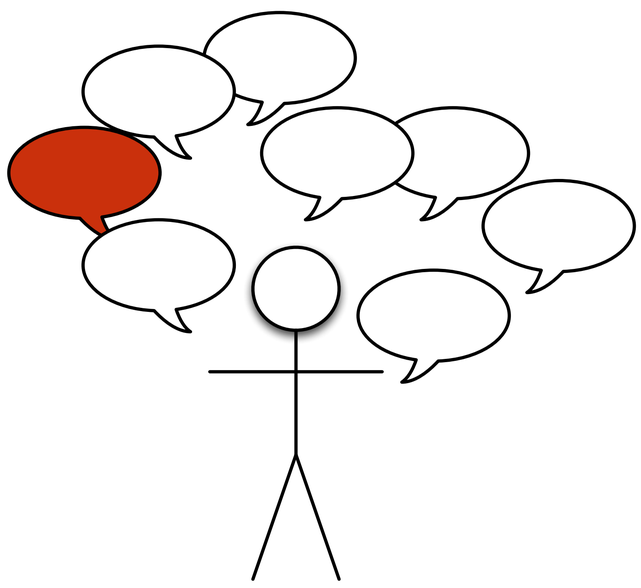
Identify blogs that show a recurring interest in a topic

Approach

Blogs as complex information objects
Two-stage approach to identifying these objects

Stage 1

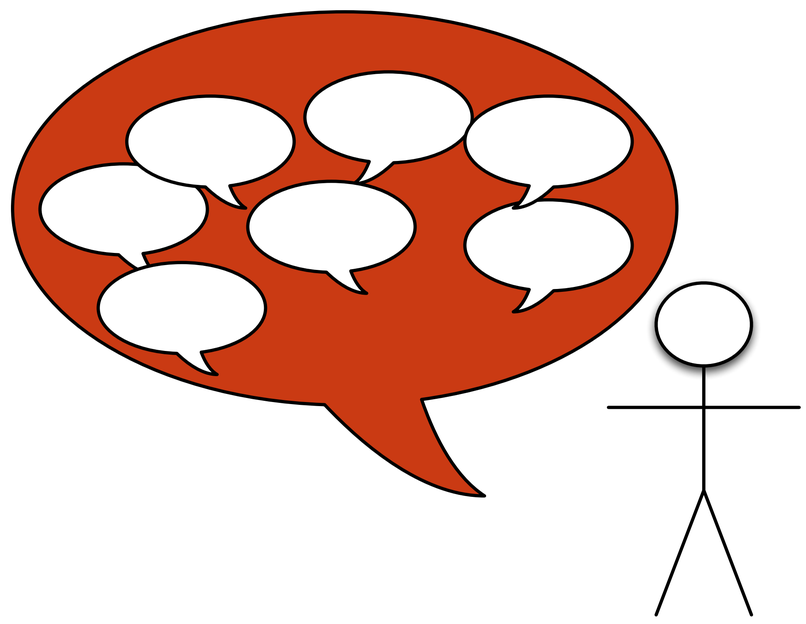
Exploratory search by salient features
➔ select set of blogs $\mathcal{B}$ from interesting posts



$$\mathcal{B} = \{blog| \sum_{post \in N} P(Q|\theta_{post})P(post|blog) > 0\}$$

Stage 2

In-depth examination of objects
➔ use all posts to determine topical centrality of blog, *P(Q|blog)*



$$P(Q|blog) \propto \prod_{t \in Q} P(t|\theta_{blog})^{n(t,Q)}$$

Experiments

In stage 1: prune list of blog posts (*N*), dependent and independent of topic, and use alternative document representations.

Test on TREC Blog 2007 and 2008 topics.

Results

2007 topics		MAP	P@5	MRR
Blog-based model		0.3260	0.5422	0.7193
Two-stage model				
Representation	Pruning			
full content	1,700	0.3348▲	0.5422	0.7213
full content	topic-dep.	0.3611▲	0.5689△	0.7243
title-only	-	0.3549△	0.6444▲	0.8476▲
title-only	7,000	0.3577▲	0.6622▲	0.8587▲
title-only	topic-dep.	**0.3813**▲	**0.6889**▲	**0.8604**▲
2008 topics				
Blog-based model		0.2521	0.4880	0.7447
Two-stage model				
Representation	Pruning			
full content	1,700	0.2551	0.4960	0.7483
full content	topic-dep.	**0.2747**▲	**0.5080**	0.7504
title-only	-	0.2363	0.4880	0.7524
title-only	7,000	0.2368	0.4840	0.7524
title-only	topic-dep.	0.2571	**0.5080**	**0.7591**

Conclusions

Two-stage model improves over blog-based model. Topic-dependent pruning and lean document representation improve early precision and efficiency.

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