

Temporally Dynamic Web Search Snippets

Krysta M. Svore
Microsoft Research
ksvore@microsoft.com

Jaime Teevan
Microsoft Research
teevan@microsoft.com

Susan T. Dumais
Microsoft Research
sdumais@microsoft.com

Anagha Kulkarni
Carnegie Mellon
anaghak@cs.cmu.edu

Key Finding: Including temporal information in snippets is valuable for trending queries.

Search result snippets help users make relevance decisions about the underlying page.

Previous research: Query-biased snippets

Current research: Time-sensitive snippets

Example: *tom bosley*

Tom Bosley: [Biography from Answers.com](#)

Tom Bosley won a Tony Award in 1958 for his lead role as New York mayor Fiorello LaGuardia in the Broadway musical Fiorello!. But **Tom Bosley** is better remembered for his role on the long-running TV show Happy Days (1974-1984).

www.answers.com/topic/tom-bosley

Baseline Snippet

Tom Bosley: [Biography from Answers.com](#)

Bosley died at 4:00 a.m. of heart failure on October 19, 2010, at a hospital near his home in Palm Springs, California. His agent, Sheryl Abrams, said **Bosley** had been battling lung cancer.

www.answers.com/topic/tom-bosley

Temporal Snippet (with new content)

Snippet Generation

For each sentence in a webpage, determine

- Position in the current version of the page
- Number of unique query terms it contains
- Change (using Dice coefficient) from cached version of page

Select 2 (short) or 4 (long) key sentences

- **Baseline Snippets:** Sentences with most unique query terms
- **Temporal Snippets:** Sentences that changed the most

Show sentences in original position order for readability

Baseline Snippets

Short: Two earliest sentences with most unique query terms

Tom Bosley won a Tony Award in 1958 for his lead role as New York mayor Fiorello LaGuardia in the Broadway musical Fiorello!. But **Tom Bosley** is better remembered for his role on the long-running TV show Happy Days (1974-1984).

Long: Four earliest sentences with most unique query terms

Tom Bosley won a Tony Award in 1958 for his lead role as New York mayor Fiorello LaGuardia in the Broadway musical Fiorello!. But **Tom Bosley** is better remembered for his role on the long-running TV show Happy Days (1974-1984). **Tom Bosley** was also an experienced voice actor, known mostly for his parts in the cartoons Wait Till Your Father Gets Home and David the Gnome. Thomas Edward "**Tom**" **Bosley** (October 1, 1927 October 19, 2010) was an American actor, best known for portraying Howard Cunningham on the long-running ABC sitcom Happy Days.

Temporal Snippets

Short: Two most changed (temporal) sentences

Bosley died at 4:00 a.m. of heart failure on October 19, 2010, at a hospital near his home in Palm Springs, California. His agent, Sheryl Abrams, said **Bosley** had been battling lung cancer.

Short Blend: Top one baseline and temporal sentences

Tom Bosley won a Tony Award in 1958 for his lead role as New York mayor Fiorello LaGuardia in the Broadway musical Fiorello!. **Bosley** died at 4:00 a.m. of heart failure on October 19, 2010, at a hospital near his home in Palm Springs, California.

Long Blend: Top two baseline and temporal sentences

Tom Bosley won a Tony Award in 1958 for his lead role as New York mayor Fiorello LaGuardia in the Broadway musical Fiorello!. But **Tom Bosley** is better remembered for his role on the long-running TV show Happy Days (1974-1984). **Bosley** died at 4:00 a.m. of heart failure on October 19, 2010, at a hospital near his home in Palm Springs, California. His agent, Sheryl Abrams, said **Bosley** had been battling lung cancer.

User Study

Participants

66 Microsoft employees (50 male, 16 female)

Methodology

1. Selected a query from a list of candidate queries, drawn from
 - General Queries (frequency-weighted sample)
 - Trending Queries (queries that spiked the prior day)
2. Shown two snippets and selected preferred snippet
 - For each query, judged snippets for 5 distinct URLs
 - For each query-URL pair, compared 3 cases
 - Baseline (Short) vs. Temporal (Short)
 - Baseline (Short) vs. Temporal (Short Blend)
 - Baseline (Long) vs. Temporal (Long Blend)

Results

Snippet Comparison		General or Trending Queries					
Snippet Length	Temporal Content	General Queries			Trending Queries		
		Temp.	Base.	None	Temp.	Base.	None
Short	Temporal	17%	23%	60%	18%	20%	62%
Short	Blend	17%	18%	65%	23%	16%	61%
Long	Blend	11%	14%	75%	12%	12%	76%

General Queries: **Baseline Snippets** preferred

Trending Queries: **Blended Snippets** preferred

Snippet Comparison		Fresh or Old Cached Page					
Snippet Length	Temporal Content	Fresh Cache			Old Cache		
		Temp.	Base.	None	Temp.	Base.	None
Short	New Only	14%	21%	65%	20%	19%	61%
Short	Blend	19%	22%	59%	24%	13%	63%
Long	Blend	10%	14%	76%	13%	10%	77%

Fresh Cached Page: **Baseline Snippets** preferred

Old Cached Page: **Temporal & Blended Snippets** preferred