

Beyond Broadcast: a demo

Kevin Livingston, Mark Dredze, Kristian Hammond, and Larry Birnbaum
Intelligent Information Laboratory, Northwestern University
1890 Maple Ave, Evanston IL 60201 USA
+1 847 491 3500

{livingston, m-dredze}@northwestern.edu
{hammond, birnbaum}@infolab.northwestern.edu

ABSTRACT

This research discusses a method for delivering just-in-time information to television viewers to provide more depth and more breadth to television broadcasts. A novel aspect of this research is that it uses broadcast news as a starting point for gathering information regarding specific stories, as opposed to considering the broadcast version to be the end of the viewer's exploration. This work is implemented in Cronkite, a system that provides viewers with expanded coverage of broadcast news stories.

Categories and Subject Descriptors

H.3.3 [Information Storage and Retrieval]: Information Search and Retrieval. H.3.1 [Information Storage and Retrieval]: Content Analysis and Indexing.

General Terms

Design, Human Factors.

Keywords

Information access, information retrieval, user information needs, broadcast news, proactive system

1. INTRODUCTION

Imagine a viewer is watching a news story about recent job cutbacks at American Airlines. He might want to learn more about the company and the industry in general to find out what prompted this event. To find out more information on this story he presses the 'interest' button on his remote control. Within seconds, Cronkite (see Figure 1) provides, on a nearby display, expanded information related to the story.

The system presents the viewer with the company's current stock quote and chart, links to recent occurrences in the news, as well as a summary of the company written by a business analyst. Cronkite also provides pointers to related stories from sources such as The New York Times and Google News.

2. ARCHITECTURE

The basis for Cronkite's information retrieval system is a model of broadcast news that contains categories of potential viewer questions. We generated this model by looking at the questions several viewers had while watching news broadcasts, and then collapsed them into categories.



Figure 1. A television viewer receives information on a computer (left) after using the remote control to signal interest in the story currently on the television.

As the viewer is watching a story, Cronkite builds a representation of the content of that story by analyzing the closed caption (CC) text broadcast with the audio and video.

As it processes a story, Cronkite classifies it into a hierarchy of topics, such as general news, medical, or business. Attached to each node of this hierarchy are topic specific questions that stem from the categories of the broadcast news model described above, such as "what is the history of this company?", or "what does this drug do?". Each question is in the form of parameterized queries associated with different information repositories. Cronkite uses information from its representation of the story to instantiate these queries and then submit them to their respective repositories. The returned information is organized and formatted using templates based on the category of the question that the information answers.

3. FUTURE WORK

We are working to provide information via different forms of media, as well as integrate the interface with the television itself. We are also developing an overall theory of television viewer interaction and information needs. This would include extending Cronkite to operate on other genres of shows, such as: sitcoms, do-it-yourself programs, or even commercials.