

Multimedia Database System for TV Newscasts and Newspapers

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Abstract. It is important to use pattern information (e.g. TV newscasts) and textual information (e.g. newspapers) together. For this purpose, we describe a method for aligning articles in TV newscasts and newspapers. Also, we describe a method for extracting a newspaper article and its follow-ups. In order to align articles, the alignment system uses words extracted from telops in TV newscasts. The recall and the precision of the alignment process are 97% and 89%, respectively. On the other hand, in order to obtain a newspaper and its follow-ups, the system uses typical expressions which give signs of subsequent articles. The recall and precision are 80% and 85%, respectively. Using the results of these processes, we develop a browsing and retrieval system for articles in TV newscasts and newspapers.

1 Introduction

It is important to use TV newscasts and newspapers together. It is because TV newscasts and newspapers can complement and reinforce each other to enable more effective communication than can either medium alone. To put it another way, in a TV newscast, events are reported clearly and intuitively with speech and image information. On the other hand, in a newspaper, the same events are reported by text information more precisely than in the corresponding TV newscast. Figure 1 and Figure 2 are examples of articles in TV newscasts and newspapers, respectively, and report the same accident, that is, the airplane crash in which the Commerce Secretary was killed. However, it is difficult to use newspapers and TV newscasts together without aligning articles in the newspapers with those in the TV newscasts. To solve this problem, we propose a method for aligning articles in newspapers and TV newscasts. Also, we propose a method for extracting a newspaper articles and its follow-ups. Using the results of these processes, we develop a multiple media database system for newspapers and TV newscasts. The important points for this system are as follows:

- TV news articles and newspaper articles are cross-referenced,
- articles and their follow-ups in newspapers and TV newscasts are cross-referenced,



Telops in these TV news images

- top left: All the passengers, including Commerce Secy Brown, were killed
- top right: crush point, the forth day
- middle left: [Croatian Minister of Domestic Affairs] “All passengers were killed”
- middle right: [Pentagon] The plane was off course. “accident under bad weather condition”.
- bottom left: Commerce Secy Brown, Tuzla, the third day
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Fig. 1. An example of TV news articles (NHK evening TV newscasts; April, 4, 1996)

- the content based retrieval for TV newscasts is available by means of full text retrieval for newspaper articles which are aligned with the TV news articles, and
- A user can consult articles in TV newscasts and newspapers by using WWW browser.