

ON THE COMPUTATION OF POINT OF VIEW

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Abstract¹

Previous work in AI story understanding has largely been used to build tools which can summarize stories and categorize them according to the events they describe (e.g., the technologies developed for the Message Understanding Conferences). These sorts of technologies are built around the assumptions that (1) events reported as facts in news stories should be "understood" as facts; (2) the style of a story, i.e., the way in which a story is told, is not of interest; and, (3) the source of a story should not influence its analysis. These assumptions are obviously unrealistic. Everyone knows that one should not believe everything in the news. But, by making these simplifying assumptions most existing story understanding systems function as gullible "readers."² The focus of my current research is to build a less gullible story understander by encoding in it a means to recognize *point of view*. The techniques that I am developing will be useful, not only for information retrieval tasks which demand a search for credible stories, but also in future entertainment technologies which will be capable of finding and then assembling together into a unified presentation a set of texts or video clips to tell a story from an ensemble of points of view.

It is often possible, upon reading the first sentence or two of a news story, to determine the storyteller's point of view. For example, consider the following lead sentences from two different news reports about two different events:

1. Clandestine, 30 Mar 89 (Radio Venceremos) -- A report from San Miguel Department states that FMLN antiaircraft units ambushed a Salvadoran Air Force helicopter in Arenales canton at 1700 GMT on 29 March, as it was traveling from Usulután to San Miguel department. Our unit's effective antiaircraft fire hit and damaged the helicopter. [MUC3-0096]
2. San Salvador, 9 Jan 90 (DPA) -- The Salvadoran Army today prevented the occupation of cities in the eastern part of El Salvador, waging strong clashes between midnight and dawn, according to reports by military sources. [MUC3-0006]

One does not need to know about Salvadoran news agencies nor much about the past civil war in El Salvador to notice clues which give away the storytellers' points of view: In story 1 the author notes the actions of the FMLN's antiaircraft units and then refers to the antiaircraft units as "ours." Clearly the use of the possessive shows that the first story is told from the point of view of the FMLN. In story 2 the point of view is less clear, but can

be identified nonetheless. First of all, "military sources" are said to be the main source of the story. Secondly, and more subtly, it was said that the Army "prevented the occupation of cities" instead of, for example, "prevented the liberation." Together, these two clues mark story 2 as one told from the Salvadoran Army's point of view.

SpinDoctor is a system which identifies a news story's point of view using mechanisms which are built on the following observation: News products with significantly different points of view habitually cast the same news actors in different roles (e.g., the American press will cast Hussein as the villain, whereas the Iraqi press will cast Hussein as the hero). The current system has a database of fairy-tale-like roles described by linguist George Lakoff as those employed by American journalists to describe actions and actors in the Gulf War (Lakoff 1991).

Under orders from President Bush, U.S. and allied troops moved into defensive positions, ready to shoot if attacked but otherwise content to let President Saddam Hussein's conquered warriors *slink* [my emphasis] home, leaving their tanks and artillery behind them.

(p. 1, *San Jose Mercury News*, February 28, 1991)

SpinDoctor's analysis process is as follows: (1) it parses the news story; (2) notes which sorts of roles are evoked by various words and phrases (e.g., that "slink home" connotes a serpentine or animal-like activity by comparing the verb phrase to the part of the role definition of serpent which describes typical and unique actions for a serpent); (3) uses a set of heuristics to determine which actors are assigned to which sorts of roles (e.g., that the conquered warriors are being compared, metaphorically, to a snake, via the verb "slink"); (4) resolves various relations of anaphora (e.g., the fact that "President Saddam Hussein's conquered warriors" is a reference to the Iraqi Army) by chaining together actor-role assignments (e.g., if $\text{role}(a1) = r1$, $\text{role}(a2) = r1$, then $a1$ might be equal to $a2$); and, (5) outputs the name of one or more news sources (as the recognized point of view) which use actor-role assignments consistent with the actor-role assignments identified.

Most contemporary story understanding systems are built for data extraction and text categorization tasks and so are designed to answer the standard questions of news reporting: Who? What? When? Where? Why? How? In contrast *SpinDoctor* has been designed to help explore the issues of news *filtering* and *editing*, namely, Whose point of view, whose interests, are represented in the news? *SpinDoctor* is now being scaled up to analyze the corpus of news stories used in the MUC3 competition.

References

Lakoff, G. 1991. Metaphor and War: The Metaphor System Used to Justify the War in the Gulf. *Journal of Urban and Cultural Studies* 2(1): 59-72.

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² There are some early exceptions (e.g., Abelson and Carroll, 1966) and this neglect has not been complete in closely related areas (in dialog and argument understanding, e.g., Allen and Perrault 1980, Birnbaum Flowers and McGuire 1980, Alvarado 1990; intelligent tutoring systems, e.g., Farrell and Bloch 1988; and, in the field of language generation, e.g., Hovy 1988).