Actor-Role Analysis: Ideology, Point of View, and the News

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Abstract: A representation of ideological point of view is articulated and a method for detecting the point(s) of view expressed in a news story is described. A version of the method, actor-role analysis, is encoded in a computer program, SpinDoctor, which can automatically detect the point(s) of view represented in some news stories. Results obtained by testing SpinDoctor on a corpus of news stories are reported and the actor-role analysis method is compared to other methods of ideological analysis in the fields of linguistics, literary theory, and science studies.

This paper describes a computational technique for text analysis, specifically, for the analysis of news texts. It improves upon existing work in artificial intelligence (AI) natural language processing (NLP) and challenges existing models of ideology (e.g., Fredric Jameson's use of Greimasian semiotics to represent ideological limits.) Previous work in AI news 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 (MUC)). The Message Understanding Conferences are sponsored by the Defense Advanced Research Projects Agency (DARPA) to test leading artificial intelligence natural language processing programs against one another. In this paper some of the MUC3 (1991) test corpus will be examined.

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 the story is told, is not of interest; and, (3) the source of a story should not influence its analysis. These assumptions are obviously unrealistic. By making these simplifying assumptions most existing story understanding systems function as gullible "readers." [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).] Everyone knows that one should not believe everything in the news. To build a l*ess gullible* news story analyzer it will be necessary to encode in it a means to recognize point of view.

By point of view I mean ideological point of view as opposed to, for example, psychological point of view. Ideological point of view characterizes the political slant of an entire story while psychological point of view (e.g., as it is used by Wiebe, 1994) characterizes the source of a given sentence or statement contained within a story.

This paper describes SpinDoctor, a computer program designed to detect ideological point of view in news stories. To detect point of view, SpinDoctor implements a critical reading strategy called actor-role analysis (Sack, 1994b). Actor-role analysis can be compared to a variety of semiotic-based methods for analyzing conflicts and ideological difference (e.g., Bruno Latour's actor-network analyses of science texts; Latour, 1987). Actor-role analysis was developed around the following observation: one means of detecting point of view is to examine how certain people, who appear again and again in the news (i.e., news actors), are described or portrayed (i.e., are assigned roles). Thus, for example, if one is given a news story which mentions Oliver North – (in)famous for his role in the Iran-Contra affair and recent senatorial campaign – and the story assigns North the role of patriot (via the use of certain adjectives and verbs), one can be quite certain that the point of view expressed in the story is significantly to the right (in the spectrum of US politics) than that expressed by another news story which assigns North the role of villain or criminal.

Two aspects of actor-role analysis, as it is implemented in the SpinDoctor system, might be of especial interest to researchers concerned with computational textual analysis:

(1) A representation for ideological point of view: Although practically all, contemporary, AI systems for NLP are capable of finding actors and roles in texts to fill in scripts, frames, or templates (e.g., Jacobs and Rau, 1993), none of these systems assign any political significance to the pairing of certain actors with certain roles (e.g., North as patriot versus North as criminal). By contrast, we maintain that sets of actor-role pairs are an interesting and implementable representation for differing ideological points of view. The proposed actor-role representation of ideological point of

view accords with some recent work by Lakoff (1991) and generalizes and improves upon previous AI work on representation of ideology (e.g., Abelson and Carroll, 1966; Carbonell, 1978).

(2) An algorithm for anaphoric resolution: Actor-role analysis incorporates a new anaphoric resolution algorithm. It is shown how careful attention to actor-role pairings assists in the resolution of anaphoric reference. By noting, for example, that an instance of the pronoun "he" is cast in the role of victim and that, earlier in the same story, "Lieut. Rodriguez" is also cast in the role of victim, SpinDoctor postulates the resolution of the instance of the pronoun "he" to the proper name "Lieut. Rodriguez."

This paper describes the data structures and processes implemented in the SpinDoctor system and examines how the implemented actor-role analysis method compares to related work in ideological analysis explored in literary theory (e.g., Jameson, 1987); linguistics (e.g., Lakoff, 1991); and science studies (e.g., Latour, 1987).

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