Developer's Choice in the Legal Domain: The Sisyphean Journey with CBR or Down Hill with Rules

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> My lawyer tells me...that there are no less than fifteen cases on point...; the opinions which make for me my lawyer is to cite, and those opinions which look another way are cited by the lawyer employed by my antagonist...[Goldsmith 1762].

> ... the human expert derives knowledge from experience. The basic unit of knowledge is not the rule but the case. Human experts acquire knowledge by assimilating new cases, either first hand or through reports from others...
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> The technology of case-based systems directly addresses problems found in rule-based systems: First, ..[i]t is easier to articulate, examine and evaluate cases than rules. Second...[a] case-based system can remember its own performance and modify its behavior to avoid repeating prior mistakes. Third... [b]y reasoning from analogy with past cases, a case-based system should be able to construct solutions to novel problems [Slade 1991].

The common law lawyers' and judges' use of published appellate court opinions in making arguments and reaching decisions has provided a rich domain for AI researchers interested in case-based reasoning systems [Rissland 1988,1990]. One model uses rules to represent directly the deep structure that inheres within these cases [Smith 1987]. But Smith's work is more an exercise in human intelligence - a gifted legal scholar distills a myriad of complex, and apparently conflicting, case holdings into a coherent jurisprudence. An expert system shell then transforms these rules into a sophisticated legal treatise and an accompanying data base that makes this field of law more understandable and accessible - a remarkable and valuable achievement; but not an exercise in case-based reasoning.

More authentic case-based models employ frame-based structures, transition nets, semantic networks, discrimination trees, connectionist models, etc. [Ashley 1988a, 1988b, 1991; Branting 1989; Gardner 1987; Goldman 1987; Hafner 1981, 1987; Rissland 1987; Rissland & Skalak 1989,1991]. To legal scholars well versed in the subtleties of legal reasoning these particular representations of legal cases, though seminal works of considerable scientific importance, constitute a mere simulacrum of legal thought.

First, the models do not contain choice of law rules to account for those legal cases that implicate the law of more than one jurisdiction. [Berman 1989]. Second, the models do not account for the fact that some precedents are weakened by divided courts [Berman & Hafner 1988, pp. 201-04]. Third, the models do not take into consideration that judicial opinions carry varying precedential values. For example, the most robust model [Rissland 1987; Ashley & Rissland 1988] does not measure the weight that a Federal District Court judge in Northern Illinois would give to a decision rendered by a Delaware state court. Fourth, the models do not account for the fact that the precedential weight may turn on when the case was decided - rules sanctioning racial segregation in the post-reconstructionist period of the 19th century could not stand in the post World War II era marked by a cold war and an emerging Black middle class.

Fifth, the models do not account for sub silentio overruling - the disregard of precedents which have been so often distinguished or ignored that they lack

precedential value. Sixth, except for the work of McCarty [1981] the models lack mechanisms for resolving tensions between conflicting lines of authority. Seventh, the model does not account for judicial decisions motivated by political considerations unarticulated in opinions [Berman & Hafner, p. 209]. Eighth, these models have not provided for the computational representation of legal fictions where the concepts of contracts, easements and notice become spurious easements, quasi contracts, and constructive notice. Ninth, these models do not consider that the precedential value of a case may turn on the prestige of the judge who wrote the opinion. Tenth, and most importantly, the model does not represent accurately the procedural posture of a case so that the resulting arguments fail to distinguish cases in which courts have ruled on matters of law from cases where appellate courts have merely affirmed findings of fact [Berman & Hafner 1991].

Given this unbounded indeterminacy that inheres within the mental processes that control lawyers' use of cases, legal knowledge can only be usefully applied to the solution of real world problems when represented by rules that (1) directly represent well accepted legal doctrine emanating from statutes and regulations [Sergot et. al. 1986]; (2) the deep structure found in cases [Smith 1987]; or (3) the heuristics employed by experienced practitioners [Peterson & Waterman 1985]. Granted, such rules fall far short of fully representing legal knowledge because open texture concepts like "reasonableness" or "business purpose" spawn a myriad of cases that can not be anticipated for entry into the legal knowledge base. And no domain is free from the indeterminacy engendered by open texture [Berman & Hafner 1988; Bench-Capon, T. & Sergot, M. 1985; McCarty 1977]. Therefore, rules derived from cases or from observing skilled practitioners will be "incomplete", "uncertain", "indeterminate", etc.

Our inability to represent accurately the way that lawyers reason about cases may impede, but will not arrest, the development of valuable AI systems for use in the legal domain because lawyers make their decisions on the basis of their judgment as to whether a particular rule will be applied to the facts of a specific case. Even though their formulation of the rule and their assessment of its application to a particular fact pattern may emanate from a process of reasoning from cases which we can not computationally represent with acceptable levels of accuracy we can utilize the talents of skilled lawyers and knowledge engineers computationally to represent rules extracted from cases or rules derived from the careful observation of skilled practitioners. For developers, as contrasted to researchers, the issue is not whether the resulting rule base is "complete" or even "accurate" or "self-modifying" - but whether the rule base is sufficiently complete and accurate to be "useful". At present, in common law jurisdictions, there exist a number of highly useful rule- based systems but few, if any, useful systems based on the CBR paradigm.

I do not suggest jettisoning CBR research. A major goal of pure AI is to represent accurately human intelligence and, therefore, to represent legal thought CBR research in the legal domain must continue [Rissland 1990; Rissland 1988; Slade 1991]. Second, the CBR paradigm may be useful in constructing conceptual retrieval systems that can more efficiently retrieve a valuable subset of relevant cases [Hafner 1981, 1987; Berman & Hafner 1991] even though these systems will not be able to achieve Ashley's goal of isolating the "most on point case" [Ashley 1988a].

Third, CBR may prove useful as electronic trainers to enable fledgling lawyers to improve their basic skills at using cases [Ashley & Aleven 1991]. But like ball machines that can not replicate a talented tennis player's probing of an opponent's weakness, these legal trainers will not prepare lawyers to respond intelligently to the skilled lawyer's exploitation of the indeterminacy that inheres within legal precedents.

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