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Helping Law Students to Understand US Supreme Court Oral Arguments: A Planned Experiment

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ABSTRACT

The transcripts of oral arguments before the US Supreme Court provide interesting opportunities from the viewpoint of legal education. As the pinnacle of legal argumentation, they illustrate, often in dramatic fashion, a sophisticated process of concept formation and testing driven by skillful posing of hypotheticals. Yet it is not easy to get beginning law students to understand the arguments and the underlying processes of hypothesis formation and testing. We introduce a novel project with the dual aims of developing an AI model of concept formation and testing as well as an intelligent tutoring system for beginning law students We describe a planned experiment in which we will evaluate to what extent law students' study of the Supreme Court oral arguments can be improved by providing detailed and specific self-explanation prompts. It is hypothesized that detailed prompts to explain connections between tests, rationales, dimensions, and hypotheticals will help students to induce adequate mental models of concept formation processes.

1. Introduction

The oral arguments made before the US Supreme Court provide interesting material for legal educators. They are concentrated examples of many conceptual and reasoning tasks that occur in Socratic law school classrooms. As discussed in (Rissland, 1989 and Ashley, 1990) the oral arguments illustrate important processes of concept formation and testing. They illustrate a, sometimes extended, cycle of proposing a hypothesis, justifying it, and responding to challenges. In the process of responding to these challenges the hypothesis may be modified, new justifications may be added, and new challenges may ensue. The oral arguments play a substantial role in the Court's decision making (Johnson, 2004).

In the current project, we are pursuing two conjoined goals: 1) to develop a computational model of legal inference as a process of hypothesis formation and testing and 2) to use it in an intelligent tutoring system (ITS) to guide law students in learning that process. We plan to model hypothesis formation and testing as we find it in a realistic and authentic setting, US Supreme Court oral arguments, where advocates frame hypotheses for deciding a case and Justices challenge them, often by posing hypotheticals (Prettyman, 1984). We plan to follow the same data-driven, empirical approach as in our past work on CATO (Aleven, 2003). There we used a tutoring application to drive the development of a cognitive model of a legal reasoning task. The model in turn facilitated the development of the ITS. We anticipate that this approach will advance the fields of AI & Law and cognitive science. Legal philosophers have developed theoretical models of how legal hypotheses are formulated and tested in light of previous rulings (Brewer, 1996; Sunstein, 1993). The field of AI & Law has developed computational models of some of the fundamental kinds of arguments used to determine whether a proposed rule and decision are consistent with past decisions (Ashley, 1990; Rissland and Skalak, 1991; Branting, 1999; Rissland, et al. 1996; Aleven, 2003). AI and Law researchers have also studied aspects of the process by which Justices pose and use hypothetical examples to test proposed rules for deciding a case (McCarty and Sridharan, 1981; Rissland, 1983, 1989; Rissland and Ashley, 1986; Ashley, 1990). Some AI & Law researchers have begun to address legal inference as theory construction that takes into account the purported values or purposes the rules are intended to promote (Prakken and Sartor, 1998; Bench-Capon and Sartor, 2003). Although largely theory-driven, this last work is increasingly suggestive to the extent that it has begun to focus on realistic legal domains and arguments with comparatively large numbers of cases.

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1. Concept Formation and Testing

In Supreme Court oral arguments, contending attorneys each formulate a hypothesis about how the problem should be decided with respect to a set of issues. They may propose a test and identify key points on which the issue should turn. In so doing, they provide a conceptual interpretation relating the facts at hand to their hypotheses, choosing how best to describe them so as to satisfy the proposed test (or not). The attorneys defend their hypotheses in terms of past decisions and the purposes and principles underlying the relevant legal rules. The Justices test those hypotheses by posing hypothetical scenarios. These scenarios are designed to challenge the hypotheses' consistency with past decisions and with the purposes and principles underlying the laws at hand.

The first column of Table 1 shows such a cycle excerpted from the case of *California v. Carney,* 105 S. Ct. 2066 (1985). As discussed in Rissland (1989), the *Carney* case involved the

Table 1: Excerpt of transcript of oral argument made before the US Supreme Court in *California v. Carney,* 105 S. Ct. 2066 (1985), with self-explanation prompts added

Argument Transcript	Self-Explanation Prompts
MR. HANOIAN: So it is essential that they be provided with bright line guidance, and guidance which is workable. For, it it is not workable, there is no way to ensure the implementation.	1. What is "bright line guidance" – is that just another word for having a workable legal test? 2. What is the test for? 3. Which side is Mr. Hanoian (H) arguing for? 4. What result is H arguing for?
QUESTION: Would you buy the guideline of wheels?	5. What result would this test produce for the case at hand?
MR. HANOIAN: If the vehicle has wheels on it, I think that that makes it mobile and it would be subject to the exception.	6. Which exception?
MR. HANOIAN: I think I would, Your Honor, yes. That would provide a bright line. But I am looking a little bit more beyond just wheels. We are looking for self-locomotion, self-propelling.	7. Why would H not have accepted the Justice's proposed test? Since that test puts the current case within the vehicle exception which is just what H wants. 8. Can you think of a hypothetical situation for which the test proposed by the Justices (i.e., whether or not there were wheels) would produce an anomalous result? 9. Would it be problematic for H to find a hypothetical situation which reasonably should fall under the vehicle exception yet would not be covered by the test that he is proposing? 10. Can you think of a hypothetical situation that should fall under the vehicle exception yet H's test does not cover it?
QUESTION: Well, what if the vehicle is in one of these mobile home parks and hooked up to water and electricity but still has its wheels on?	
MR. HANOIAN: [*9] If it still has its wheels and it still has its engine, it is capable of movement and it is capable of movement very quickly.	11. Do you think H's response is effective?
QUESTION: Even though the people are living in it as a home and are paying rent for the trailer space, and so forth?	12. Why are the Justices adding these features to the hypothetical?
QUESTION: Well, there are places where people can plug into water, and electricity, and do. There are many places, for example, in the state I came from where people go and spend the winter in a mobile home. And you think there would be no expectation of privacy in such circumstances?	13. Why does it matter whether there would be expectations of privacy? 14. If it was clear that there is, or should be, a high expectation of privacy in the current fact situation, would that favor H's position? 15. Nothing is said from which we can infer how this particular hypothetical should be decided. Does that matter? That is, what good is it to use hypotheticals whose outcome is unknown? Wouldn't it be better to cite past cases, whose outcome we do know?
MR. HANOIAN: Well, I am not suggesting that there is no expectation of privacy in those circumstances, Your Honor.	16. By conceding that there are expectations of privacy in the hypothetical scenarios sketched by the judges, does H not reduce his chances of winning the case at hand? 17. Does H concede that the mobile home park hypothetical should have the opposite result as the case at hand? 18. How would H distinguish the current case from the mobile home park hypothetical?

legality under the 4th Amendment of a warrantless search of a motor home located in a downtown San Diego parking lot. Police suspected defendant Carney of trading marijuana for sex acts. After they questioned a boy leaving Carney's motor home, drug agents knocked at Carney's door. Carney emerged; an agent entered the motor home without a warrant or Carney's consent and observed the marijuana. Carney was arrested and the motor home searched revealing more marijuana. In the excerpt shown in Table 1, the State's attorney, Mr. Hanoian proposes a bright line test of when the vehicle exception to the warrant requirement should apply: if the vehicle/home is capable of self-locomotion. He then has to respond to the Justice's challenge hypothetical: a summer motor home with wheels that is hooked up to utilities. Mr. Hanoian responds that such a vehicle still might be moved in a hurry, but concedes the owners would have some expectation of privacy.

Since exchanges like these occur under extreme time pressure, the examples are fairly succinct and the arguments are exposed under stress. Using the cyclic process of hypothesis, justification, challenge and response, the Justices, working with accomplished advocates, often engage in an extensive analysis of a case in the short span of time (thirty minutes per side) allocated to oral arguments. Table 1 shows only a brief excerpt, but (Rissland, 1989) maps the considerable expanse of analysis the participants traverse, and they do so using little more than repeated applications of this cyclic process.

Examples of oral argument can give beginning law students an overview of a process that they may only dimly perceive, even as they engage in it in a Socratic class. Conveniently, the Supreme Court Oral Arguments are available electronically in written and (sometimes) audio form (see http://www.oyez.org/oyez/frontpage). The pedagogical utility of an example depends upon the students' ability to assimilate the cycle of hypothesis, justification, challenge and response that occurs within it. In order to make good use of it they must be able to do so well enough to replicate or even extend the cycles on their own.

There are a number of reasons why this may not be easy. The students may be unfamiliar with the cyclic process, or may have missed some aspects of it when forming their conceptual models. Even practicing litigators wonder how best to respond to the Justice's hypothetical challenges. Although the outward manifestations of the cycle appear in the transcript, the process itself unfolds against a background of shared but implicit knowledge. The participants (advocates, justices, and their clerks) have all read written briefs, lower court opinions, relevant statutes, and precedents. Moreover, there exists a shared conceptual vocabulary for explaining the argument moves (e.g., in terms of issues, hypotheses, and rule-like tests, legal conceptual predicates in those rules, and the purposes and policies underlying the rules) and a set of skills for performing the moves (e.g., distinguishing or explaining away distinctions) with which the students may not be sufficiently familiar. In addition to that, students must induce their conceptual model from examples that, being real and not cleaned-up for a textbook, are far more complicated than they are used to.

3. Study of Self-Explanation Prompts

In order to assess how much law students draw from reading these examples and to find out how they can best be supported in doing so, we plan to study students' self-explanations as they study transcripts and audio recordings of the oral arguments. In particular, as a first step toward our modeling and tutor development goals outlined above, we have begun preparing for an empirical study, involving first-year law students, to evaluate the effect of providing specific prompts to help explain the arguments. These prompts, illustrated in Table 1, are detailed questions designed to lead law students to process an argument transcript more actively. The prompts include fairly straightforward questions aimed at helping students to keep track of important information, such as who is arguing for which side or who is proposing what test (see prompts 3, 4, and 6 in Table 1). They also include more challenging questions that ask students to interpret what was left unsaid, due to time limitations, interruptions, or the shared background knowledge of the participants (see prompts 5 and 17). Also more challenging are questions that ask students to reflect on the effectiveness of the arguments that were made (e.g., prompts 11 and 16), to identify alternative arguments or responses that could have been made (prompt 18), and to reflect on why they were not made (e.g., prompts 7). Students are also asked to identify tactics for posing and varying hypotheticals that the Justices use (e.g., prompt 12), to generate hypotheticals themselves (e.g., prompts 8, 10), to reflect on why hypotheticals are being used in the first place (prompt 15), and to reflect on the *kinds* of arguments and the *kinds* of hypotheticals that are generally effective (not illustrated). It is plausible that such detailed prompts will help students gain a better understanding of the arguments and the underlying process of hypothesis formation and testing.

The cognitive science literature provides ample evidence that studying examples is an effective learning strategy at the early stages of acquiring a cognitive skill (e.g., Atkinson et al., 2000) and that self-explanation prompts can help students gain a deeper understanding of the subject matter (Atkinson et al., 2003; Chi et al., 1994; Renkl et al., 1998; Schworm and Renkl, 2002; submitted). The effectiveness of prompts has not (yet) been shown in ill-structured domains as complex as Supreme Court oral arguments, although Schworm and Renkl (submitted) did show the advantages of prompts to explain examples of a less complex argumentation task. In light of the evidence that prompts do not benefit all students equally (Chi et al., 1994; Renkl, et al., 1998, p.106), it is thus important to ask how effective prompts are in such challenging domains.

In order to answer that question, we will compare the learning gains of students studying US Supreme Court oral argument transcripts with and without prompts. We will assess the students' understanding of the oral arguments by looking at the quality of their answers to the prompts and their answers to a set of summary questions posed after they have studied the transcript. These summary questions will probe students' understanding of the issues that were debated, the tests that were proposed to resolve these issues, and the hypotheticals that were posed. We will also assess the improvement in students' argumentation skills by posing an argumentation task that involves posing additional hypotheticals that a Justice might use to explore or put pressure on an argument position or proposed test, as well as responding to such hypotheticals.

We found preliminary evidence of the utility of the self-explanation prompts in a pilot study involving two law students, a first-year student and a second-year student. Both students were asked to carry out the following activities:

1. Read a brief summary of the relevant area of the law.
2. Read through excerpts from the transcript of the oral argument– no self-explanation prompts were provided but the student was encouraged to take notes.
3. Write answers to a set of summary questions about the argument exchange, without having access to any of the materials used previously (transcript, notes, etc.). The questions asked students to compare the lawyers' positions, to state in general terms what types of hypotheticals were problematic for each lawyer, and to state who they think had the better argument and would win.
4. Go through the transcript again, this time writing answers to the self-explanation prompts.
5. Answer the summary questions again, without having access to any of the materials used previously.

The participants in the planned experiment will be asked to study several excerpted transcripts in this manner, the students in the pilot study worked only through excerpts from *Carney*, discussed above.

The pilot study results illustrate that US Supreme Court oral argument transcripts pose a significant challenge for first-year law students (the target population). As can be ascertained by comparing the two student columns in Table 2, the second-year student provides more detailed, complete, and accurate answers to the self-explanation prompts. For example, when Mr. Hanoian (arguing for the state of California) concedes that there are expectations of privacy in one of the Justices' hypotheticals, he (the second-year student) understands the importance to Mr. Hanoian of emphasizing the distinction between the Justice's hypothetical and the *Carney* facts (see his answers to prompts 17 and 18, Table 2). His distinctions are also relevant to the issue, unlike those of the first-year student. In general, the first-year student's answers leave room for improvement, as could of course be expected. In the planned experiment we will determine what level of

Table 2: Sample answers to self-explanation prompts by a first-year student (Student1) and a second-year student (Student2). The questions and responses to which these prompts pertain are shown in Table 1.

Self-Explanation Prompt	Student 1	Student 2
16. By conceding that there are expectations of privacy in the hypothetical scenarios sketched by the judges, does Mr. Hanoian not reduce his chances of winning the case at hand?	No, if he is seen as unreasonable, his arguments will suffer and he will look as though he does not understand the import of privacy	No, clearly the court thinks that there is an expectation of privacy in this hypo. A strategic admission by Mr. Manoian is required at this point in order to maintain the ear of the court. If he were to deny that there was an expectation of privacy, the court would dismiss him outright. His admission is limited though in that he states that hs is not saying that there is "no" expectation of privacy, leaving him open to exaplin that although there is some expectation of privacy, it does not rise tot he level needed for home warrant.
17. Does Mr. Hanoian concede that the mobile home park hypothetical should have the opposite result as the case at hand?	No, he might believe the expectation of privacy is outweighed by the importance of retianing the evidence	He does not. First, he has not conceeded that the mobile park hypo would not fall under the warrant exception, only that there is some expectation of privacy, not how much. Second, the hypo is still distinguishable from the instant case since this was an RV in a paking lot and not a mobile home hooked up to the utilities as in the hypo.
18. How would Mr. Hanoian distinguish the current case from the mobile home park hypothetical?	distinguish through seriousness of the crime	As stated above, the instant case involves an RV that is in a parking lot, a less parmanent location than a mobile home park. Also, the RV was just parked there where the hypo mobile home was conneccted to utilities. The people in the hypo are also paying rent for the space where the RV is just parked.

improvement can be achieved by unguided practice with self-explanation prompts.

As preliminary evidence that the self-explanation prompts are effective, they elicited answers with greater depth of thought from the first-year student (step 4 in the 5-step process outlined above) than was evident in the notes that he took in the absence of prompts (step 2). His notes were almost exclusively paraphrases. For example, the note related to the last contribution to the argument excerpt shown in Table 1 said: "Admit some expectation of privacy." By contrast, his answers to the prompts related to the same contribution, shown in Table 2, include insightful observations about argumentation strategy.

The first-year student also provided more insightful answers to the summary questions *after* answering the prompts (step 5) than he did *prior* to answering them (i.e., after taking notes - step 3). For example, asked to state the issue presented by *Carney,* he provides a more coherent statement after answering the prompts. Before prompting, he answered: "What constitutes mobility and presents exigent circumstances necessary to merit a warrantless search." After prompting, his answer was: "Whether protection protecting one's home are afforded to potentially mobile objects." Also, in identifying the general concerns raised by the issue he was able, after answering the self-explanation prompts, to cast the question in more general and coherent terms as one of social policy. Before he saw the prompts, he answered "allowing warrantless searches where privacy is expected violates the purpose of the warrant". After prompting he answered: "In a broader sense a question which could create a two-tiered system that grants protections to those wealthy enough to afford stationary homes while allowing more open searches of the homes of the impecunious". Third, after answering the self-explanation prompts, he phrased the lawyers' proposed tests in terms of a nice tradeoff of values using the phrase "at the expense of" in each answer (e.g., "a system maximizing retention of evidence at the expense of some privacy"). Although the lawyers did not use those terms in their tests, it is still interesting that the student was now thinking more abstractly about the tradeoff of values at stake. Finally, in answering prompts, the student opined that Mr. Hanoian had the harder task of "creating and [sic] all-encompassing class for bright-line rules." His answer suggests that he was developing an accurate model of the advocates' task.

In short, there was a marked difference between the notes and the answers to the self-explanation prompts. Also, the answers to the summary questions show some, albeit less dramatic, improvement. We were pleased to see any improvement at all, given that the study lasted only 2.5 hours. Also, the student carefully studied the transcript the first time around and some level of fatigue may have set in by the time he answered the questions for the second time. We note that the "evidence" presented here of the prompts' effectiveness is merely illustrative and falls well short of proof. Apart from the fact that one cannot generalize on the basis of the results of a single participant, the improved answers may simply have been the result of having studied the transcript a second time or having answered the summary questions previously. In the planned experiment we will avoid this confound by including a control condition whose subjects will study transcripts without the use of self-explanation prompts (in step 4 of the activity sequence outlined above).

4. Discussion

As mentioned, so far two law students have analyzed the *Carney* transcript using the self-explanation prompts. We plan to run an experiment during the summer of 2005.

Two important tasks remain. First, we need to create self-explanation prompts for additional transcripts other than *Carney*. The challenge is to create a set of prompts that address the most difficult aspects of the hypothesis-testing process while not being overly "dense." (With the current set, it took students 2-2.5 hours to finish the study.) We will continue to conduct pilot studies such as the one described in this paper in order to refine our methods. In order to find good prompts, we try not to be guided too much by any preexisting theory or model of case-based argumentation (e.g., Aleven, 2003; Ashley, 1990; Rissland, 1989), since our goal is to develop a novel model of hypothesis testing.

A second challenge is to devise a reproducible way to assess the students' understanding of the oral arguments. Unfortunately, no generally-accepted test of argumentation skills or oral argument comprehension is available. Thus, we

plan to measure students' understanding by the quality of their answers to the self-explanation prompts and summary questions, as well as their performance on an argumentation task. With respect to grading, we will follow an approach we have tried before (Aleven, 1997), using both "Gestalt grades" and more detailed grading criteria. Once we have a range of student answers, we will ask graders to rank them and to explain their rankings. These rankings will then be used to develop our grading criteria. Special attention will be paid to establishing inter-rater reliability (Carletta, 1996).

The planned experiment is a first step toward achieving our project goals: to develop a novel AI model of hypothesis testing and formation in the legal domain and to use that model in an intelligent tutoring system. The data we collect will provide guidance in the development of the planned AI model. It will no doubt illustrate a rich set of connections between issues, general concerns, tests, and strategies for posing and responding to hypotheticals. The experiment will also provide insight into what is easy and what is hard for law students and where we should focus our efforts when developing an ITS. Further, if the self-explanation prompts turn out to be effective, they will provide a low-tech way to construct an early version of the planned ITS, one that focuses on supporting self-explanation. We foresee a system in which the students respond to prompts by means of menus. The menus can be populated with explanations (good and bad) collected in the planned experiment. Menus, combined with feedback, can be a surprisingly effective way of supporting learning by self-explanation (Aleven and Koedinger, 2002). Ultimately, we will build a system that goes beyond supporting self-explanation and engages students in a simplified hypothesis-testing process.

The experiment, if successful, will contribute to the AI & Law literature in several ways. It will demonstrate a practical way in which US Supreme Court oral arguments can be leveraged for instructional purposes. It will provide empirical support for the idea that the use of specific prompts to explain a complex hypothesis-testing process leads students to construct a better mental model of that process. The experiment will also contribute to the field of cognitive science, by extending findings on the effectiveness of self-explanation prompts to open-ended domains of greater complexity than have been studied thus far.

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