

Dialogue Interactions in Oral Hearings

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Abstract. The human reasoning process used in conducting arguments to resolve conflicts and reach a decision is an interdisciplinary study. Modelling argumentation has a great impact on the development of theories and applications in AI especially in critical domains that involve richness of reasoning such as Law. Therefore, argumentation has been recognised as a core topic in AI and Law. Developing computational argumentation systems that simulate legal reasoning requires resolving distinctive challenges that concern contextual rules, procedural issues and the interpretation of different elements.

This PhD research aims to provide a supportive computational model for analysing stages in the Supreme Court starting from the oral hearings. In particular, a key aim is analysing the social values of the legal arguments from different perspectives, and finding the relation between the Court opinion and the components constructed in the Court oral hearings. This paper gives an overview of the current PhD research proposing the problem, the overall aims and the approach required to fulfil the aims. Furthermore, it provides a summary of the background in argumentation in the domain of AI and Law and presents the deliverables obtained so far.

1 Research Problem and Aims

This work aims to develop a framework for deliberation through which Supreme Court oral hearings can be analysed in order to identify the components from which arguments are constructed for delivering the opinion. Following on from the analysis, a dialogue system will be defined to capture the moves made during the hearings. This dialogue system will be validated through application to selected cases in various courts. It will then be investigated how the framework can be generalised so that it can be applied to other domains in which deliberative reasoning occurs.

In comparison to other contexts, dialogues in the legal domain combine arguments from different sources, i.e. argument about the case evidence and facts, argument from legal rules, argument from precedent cases, argument from hypothetical tests and others which are required to resolve the ambiguity of the conflict issues. However, the structure of exchanging arguments in legal dialogues is not clear, the argument types are interleaved and there is no particular order for the parties to pose arguments which makes the analysis of the oral hearings more complicated.

Furthermore, coming to a decision in a legal case dialogues is a separate process that requires legal analysis in order to derive the case facts, apply the facts to the current law, which intended to reflect the values of society, and announce the decision that is limited

to two outcomes (deciding for plaintiff and decide for defendant), in a form of Court opinion that explores the arguments supporting the decision. Modelling these aspects provide challenges in the computational development in the domain of AI and Law.

Thus, in particular, this PhD research is initially attempting to fulfil the following aims:

- Define a representation based on conflicts in social values that enable to show the components of the arguments for the U.S. Supreme Court oral hearing dialogues.
- Provide a full analysis of the oral hearing dialogues by studying a particular legal case study using the defined representation.
- Develop a dialogue system by defining speech acts and a dialogue protocol .
- Analyse the subsequent Court opinion arguments by finding the relation between the argument components that emerge from the oral hearings through selecting and justifying the options.
- Demonstrate the model using other Supreme court cases and other jurisdiction.
- Generalise the model to handle deliberation dialogues in non-legal contexts.

2 Background Research

Extensive work has enriched the domain of argumentation in AI and Law over the last 25 years [8]. The nature of legal dialogues emerge different types of arguments which result in different types of argumentation schemes such as argument from analogy, argument from expert opinions, argument from rules and others. These argumentation schemes are used extensively in modelling legal reasoning.

Thus, modelling reasoning with legal cases has been a central topic of AI and Law from the beginning, and there is now a good degree of consensus, especially with regard to the main elements involved. This consensus can be expressed as a tree of inference with a legal decision as the root and with evidence as the leaves. Between the two there are a number of distinct layers.

Immediately below the decision there is a level of issues [10], or values [6], which provide the reasons why the decision is made. The idea here is that laws are made (and applied) so as to promote social values: whether a value is promoted or not is an issue. Where more than one value is involved and they point to different decisions, the conflict needs to be resolved. Sometimes it is appropriate to give priority to one value over another (as in [6]), sometimes a balance needs to be struck (as in [10]). Note that the relation between issues may be seen as a matter of ordering, or requiring a balance between the values: there is as yet no consensus on this point [7].

At the next level down there are a number of *factors* [3]. Factors are stereotypical fact patterns which, if present in a case, favour one side or the other by promoting a value, and so are used to resolve the issues and permit comparison between the cases. Sometimes (as in [3]) it may be convenient to group several factors together under more abstract factors, so that we may have two or three layers of factors, moving from the base level factors through more abstract factors, before reaching the issues.

Below the factors there are the fact patterns used to determine their presence. These facts supply reasons for and against the presence of the factor which need to be considered and weighed to make a judgement. At the lowest level there is the evidence.

Facts are determined by particular items of evidence, and where evidence conflicts a judgement will need to be made: often this judgement is made by a jury of lay people rather than lawyers. In the lower courts there will be real items of evidence, but by the time a case reaches the Supreme Court, the facts are usually considered established and beyond challenge. one example of work concerned with this stage includes Gordon's Pleadings Game [11], which identifies which facts are agreed by the parties and which will require resolution in the trial itself.

Thus a complete argument for a case will comprise a view on what can be considered as evidence for relevant facts: what facts are required to establish the presence of various factors, and how they relate; how the factors can be used to determine the issues; and, where issues and values conflict, how these conflicts should be resolved. In the first stage of this research we will show how these elements relate to the individual and collective goals of the oral hearing dialogues.

3 Research Methodology

Towards the main aim of establishing a deliberative reasoning framework, this research is intended to follow a qualitative method as shown in the following description.

Oral Hearings Analysis and Representation The research begins by investigating the dialogue interactions in the legal domain, particularly in the U.S. Supreme Court oral hearings. After that, we analyse the oral hearing transcript using a case study from the domain of AI and Law and provide a preliminary representation of the arguments components exchanged at this stage. Based on the defined components, we also define the speech acts required to capture the moves in the oral hearings and construct the arguments representation for every party in each oral dialogue.

Opinion Analysis and Representation Following the oral hearing, we define a representation for the court opinion and analyse the decision by navigating through the arguments constructed from the oral hearings.

Dialogue System Toward automation for this analysis, we develop a dialogue system to support the process of constructing the argument components representation using the defined dialogue moves. Throughout this stage, we need to define the legal case ontologies for the components to provide the grammar that set out the rules for how the components can be combined and constructed. Further more, we will define the algorithm that is required to navigate through the trees to provide the analysis for the decision made and propose *a protocol* for the oral hearings dialogue.

Evaluation In order to evaluate the system, we apply the implemented system to a number of supreme court cases and cases from other jurisdictions to identify required modifications of the ontologies and representation.

Generalisation Finally, the work elements will be combined together, *generalise* the developed system to include deliberative dialogues in non-legal contexts, and conduct an empirical evaluation and theoretical analysis on the final version.

4 Research Results

This section shows an overview of the findings we obtained so far. First we will investigate the dialogues in the oral hearings stage and identify a normative set of speech acts which could be used by counsel and Justices to achieve their dialogue goals. After that, we explain how the illocutionary force of these acts can be represented in terms of a developing *Arguments Component Tree* (ACT). For illustration, we use the transcript of the oral hearing in *California v Carney*, and give the resulting ACTs. Finally, we relate the ACTs to the majority and minority opinions in *Carney*.

4.1 Dialogues in Oral Hearings

There are three nested dialogues in the main oral argumentation dialogue of the Supreme Court. Each of the three dialogues will involve a counsel and nine justices. Prior to analysing the arguments in the oral hearings dialogues, we will describe the initial situation, the individual goals and the collective goal for Oral hearings accordingly.

In the *initial state* of the petitioner presentation, briefs from the petitioner, respondent and any "friends of the Court" are available. These will set out (and justify) a set of tests forming candidate arguments: the arguments of each counsel will, if accepted give rise to a decision for their clients. These briefs will also state the accepted facts of the case, and draw attention to relevant precedent cases. The *collective goal* is to obtain a clear statement of the argument for the petitioner. Individually *the counsel* will wish to state his argument and answer any critical questions satisfactorily: modifying his tests if necessary. *The justices* will wish to clarify any points that had not been made clear in the original brief, and to pose challenges arising from other briefs.

The *collective goal* of the second dialogue, the respondent presentation, is to obtain a clear statement of the argument for the respondent. The respondent dialogue differs in its *initial state* because the petitioner has already presented. Thus as well as presenting his own argument, *counsel for the respondent* may wish to rebut the argument proposed by the petitioner, and so will have the goal of questioning the petitioner's argument as well as presenting his own argument. *The justices* remain interested in clarification and eliciting answers to questions arising from the other briefs.

While the *collective goal* of the rebuttal dialogue is again a clear statement of the arguments, the *initial state* now also contains the respondent's argument and the individual goal of *the counsel* is to pose questions against this argument. *Justices* usually say very little during this stage, but they may seek clarification of the exact questions being posed.

The goal of the three dialogues together is to provide a clear statement of the arguments for the petitioner and the respondent to provide a basis for the justices to decide the case.

4.2 Speech Acts Used in Oral Hearings

The goal of the dialogues is to establish the various components, and the connections between them, expressed as clearly and unambiguously as possible, which can be used by the justices in constructing the tests that will provide arguments to resolve the case.

The following speech acts will thus need to enable such components to be proposed, and a set of critical questions challenging the components, or seeking additional components to be posed (see [1] for fuller discussion).

- **Values Assertion:** The following values are relevant to decide the legal question. *Law Enforcement and Privacy are the values relevant to determining whether a case falls under the automobile exception.*
- **Issues Assertion:** The values require consideration of these issues. *The issues are whether there was sufficient exigency (so that Law Enforcement is promoted) and insufficient expectations of privacy (so that Privacy is not demoted) to permit a search without a warrant.*
- **Issues Linkage Assertion:** The issues should be considered collectively as follows. *The issues are related as Sufficient Exigency \vee Insufficient Privacy.*

We then have a number of moves to introduce factors relating to the issues.

- **Factors for Issue Assertion:** The following factors are relevant to resolving the issue. *Vehicle Configuration and Location are relevant to resolving Sufficient Exigency.*
- **Factor Linkage Assertion:** The factors relevant to the issue should be considered collectively as follows. *Sufficient Exigency is resolved by considering Vehicle Configuration \wedge Location.*

We need a number of assertions to identify the facts relevant to the various factors:

- **Facts for Factor Assertion:** The following facts are relevant to determining whether a factor is present. *Wheels and Means of Propulsion are relevant to determining Vehicle Configuration.*
- **Fact linkage Assertion:** The facts relevant to the issue should be considered collectively as follows. *The presence of Vehicle Configuration is determined by considering ((Wheels \wedge Engine) \vee Self propulsion) \vee (Vessel \wedge (Motor \vee Oars)).*

The structure as a whole is meant to provide a *test*. The test can be challenged at all three levels to question the relevance of the components, the completeness of the asserted components and how the components relate. There is no evidence level, as the facts have been determined by the lower court, but whether such facts are observable by a person applying the test in practice [1] does need to be considered.

In the course of the hearing the various components of the proposed tests emerge. The dialogue is often not well structured: the challenges are not posed in any particular order, and may be interleaved with the presentation of the proposal, so that the proposal is modified as it is presented. None the less, the aim of each counsel is to present and defend the components required for a test which will decide the case for their client, and the Justices aim to get a clear statement of the various components which they can use to build the arguments in their opinions.

4.3 Argument Components Tree (ACT)

We can now organise the argument components identified in the speech acts as an Argument Component Tree (ACT). For each dialogue in the oral hearing we form one ACT

for the counsel and one for the Justices (we do not distinguish individual Justices). Each ACT is constructed starting from the issues. Issues may be *conjunctive* so that all issues must be considered. Or they may be *disjunctive* so that the issues are independent, and one positive will suffice. These are shown in the ACT using “^” and “v” respectively. Sometimes, however, the relationship is not truth functional: like factors, all must be considered, but none is necessary or sufficient (see [5] for a fuller discussion of these relationships). The non-truth functional relation is shown in the ACT using “+”.

Throughout the dialogue, the participants’ ACTs are updated by the assertion of new factors to resolve issues, or facts that indicate the presence of factors or the linkage between them in order to construct a test. These links may also be truth functional conjunction or disjunction, or reasons that must be considered, essentially the standard factor/abstract relation of [3]. These are shown in the ACT as arrows from children to parent and the factors and facts which attracted the most attention in the dialogue are indicated with an “R”.

All the facts mentioned in the oral hearing are *underlined*. Furthermore, the ACT distinguishes several types. Facts which are true of the current case are indicated using an *asterisk* (*); facts which are not true in the current case but could be used in future tests are indicated by a *question mark* (?), while an *exclamation mark* (!) is used for facts which could not be used in practice, perhaps because they are not directly observable. By the end of the dialogue, each ACT shows a *complete* representation of a perspective on the components exchanged in the course of the dialogue. The next section provides the ACTs constructed in the case study, *California v Carney*.

4.4 California v Carney: A Case Study

This case is concerned with whether the exception for automobiles to the protection against unreasonable search provided by the Fourth Amendment applies to mobile homes, in particular motor homes in which the living area is an integral part of the vehicle. The Fourth Amendment protects the “right of the people to be secure in their persons, houses, papers, and effects, against unreasonable searches and seizures.” A search is considered reasonable if a warrant has been obtained.

California v Carney has often been used in AI and Law to explore Supreme Court oral argument (e.g. [12], [4]), and to consider the interaction of two competing values (e.g. [9]). In *Carney*, the competing values are enforceability of the law, which makes exigency important, and citizens’ rights, which include the right to privacy [7]. In the following sections we provide an example of the construction of the ACTs in the oral hearing dialogues of *Carney*.

Dialogue One - Petitioner Oral Hearing In this dialogue the petitioner states that the exigency is sufficient in *Carney* regardless of any expectations of privacy. This position was based on the *inherent mobility* of the motor home, together with its location offering ready access to the highway, as the factors satisfying the automobile exception, as illustrated in the petitioner ACT of Figure 1.

For the Justices privacy is also an issue that needs consideration. As the vehicle was not actually moving on the road, they suggest tests give a bright line (BL) for

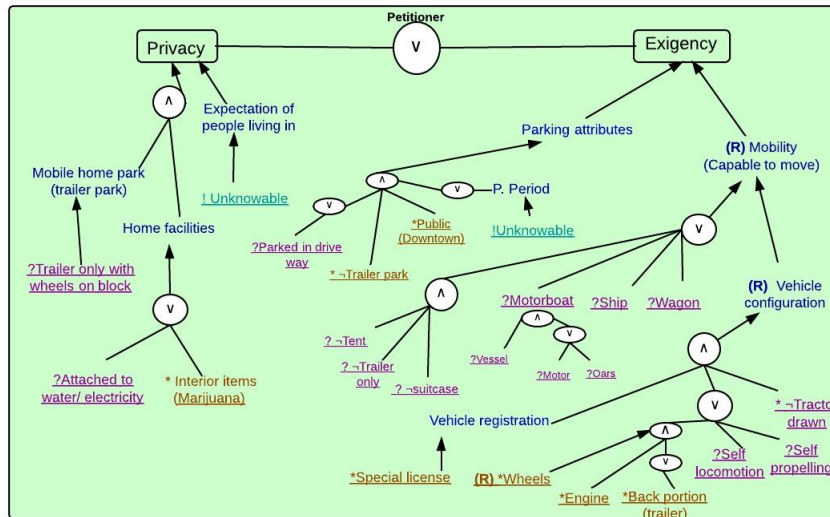


Fig. 1. Petitioner Dialogue - Petitioner ACT

applying the automobile exception to parked vehicles. They propose certain facts to test the privacy degree including the type of the parking lot and attachment to home utilities (water /electricity) relating to the expectations of people living in a mobile home. Furthermore, the Justices challenge the sufficiency of the mobility factor for exigency by considering the vehicle license type (which is different for motor homes and regular cars) and discussing other mobile things such as tents, suitcases, trailers with wheels, houseboats and regular automobiles.

In response to these challenges, the petitioner maintained that exigency is the sole issue and it overrides any expectation of privacy. The petitioner indicates that mobility involves any vehicle, wagon, ship or motorboat but not a mobile item such as a tent, suitcase or trailer, stressing the importance of self-propulsion for the automobile exception. This position thus stresses the significance of the vehicle's configuration and its ability to move quickly on a public highway, which is not true of any of the other mobile objects.

The petitioner accepts the need to consider parking location claiming that if a vehicle is in a residential location (such as a mobile home park) and/or attached to home utilities such as (water/electricity) it *might* not be considered inherently mobile, whereupon issues of privacy would become relevant, but claims that a vehicle in a regular parking lot can always be considered inherently mobile. Figure 1 also presents these components and the relation between them in the petitioner ACT.

Dialogue Two - Respondent Oral Hearing The respondent in contrast insists that *both* exigency and privacy issues need to be considered. The respondent accepts that the exigency is indicated by mobility, but says that this mobility is limited to vehicles that are actually moving on the highway: thus the exigency was insufficient in *Carney* because the mobile home was inoperable (because there was no driver and the curtains were drawn). Moreover, it was parked not far from a courthouse so obtaining a warrant was possible.

Furthermore, the respondent claims that the mobile home attracts sufficient expectations of privacy. He states that such expectations can be indicated through the configuration of the mobile home which involves a living compartment that contains furniture such as bed, refrigerator and other attributes indicating a residence. Moreover a separate class of vehicle known as a *house car* is recognised and defined in the California vehicle regulation code. In addition, the respondent states that privacy interests of a mobile home arise from its use for the storage and transportation of personal effects, and so it should be respected as much as a suitcase, which had previously been held to attract Fourth Amendment protection (see *US v Chadwick*). Figure 2 shows the respondent's ACT.

The Justices defend the petitioner exigency factors, i.e. parking location and vehicle configuration to insist that the vehicle was able to move quickly and thus falls within the automobile exception, giving an example of a crashed car (*Cady v Dombrowski*). The Justices do consider the privacy of home attributes and personal effects, but argue that it is not possible to determine these factors from outside the vehicle, so that no bright line test is given.

Dialogue Three - Petitioner Rebuttal Towards the end of the oral hearing, the petitioner attempts to maintain his position and rebut the elements introduced by the respondent by showing the inapplicability of the tests to prove sufficient privacy.

According to the respondent test above, the fact that the living quarters are an integral part a vehicle should attract sufficient privacy expectations. The petitioner claims, however, that it is not possible to determine the required residential facts, and anyway in *Carney* there was no evidence of food or personal items inside the motor home (except marijuana!) as shown in Figure 1. Moreover, the petitioner states that the definition of "house car" is not used to indicate a dwelling like a house, but to permit the regulation of this type of automobile, as shown by the same definition applied to burglary, aligning house cars with vehicles rather than houses. The new components are used to update the petitioner ACT.

4.5 Relating the Oral Hearing to the Opinions

After the oral hearing, there are four ACTs. These will set out the available facts, factors and issues, and possible linkages between them. The task now is to merge these alternatives to produce an answer for the current case, and a test applicable to future cases. This is the role of the Justices' conference stage, and, given the (competing) ACTs, could be done by proceeding top down, choosing the desired elements, and evaluating the resulting structure using the facts of the case. Thus while all four trees identify privacy and

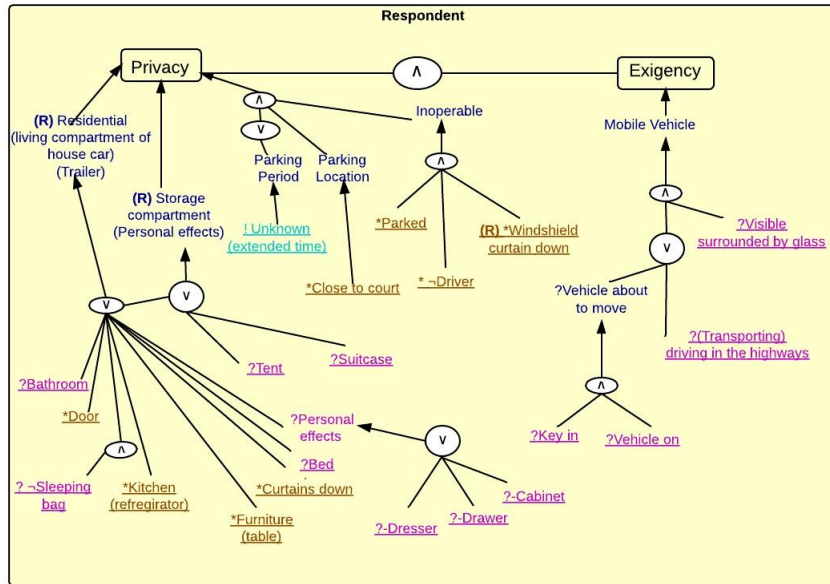


Fig. 2. Respondent Dialogue - Respondent ACT

exigency as issues, all three ways of linking them are available, and must be chosen between. Having identified *exigency* as an issue, a selection from the proposed factors must be made, and so on. Different Justices may make different choices, which may lead Justices to write individual opinions, either dissenting from the majority, or expressing a different view of the appropriate tests. For example, the Justices must decide upon the role that the factor ‘parking location’ plays. In the petitioner ACT it affects mobility, since the location determines how readily the vehicle can become mobile on the highway, whereas in the respondent ACT it affects privacy by indicating the current use of the vehicle.

From the analysis of *Carney’s* opinion, we find that the opinions offer different navigations through the components that have been presented in the oral hearing ACTs: *all* the components used in the opinions can be found in the ACTs. Some elements form the basis of the court opinion tests. Some of the remaining facts, although not true of *Carney*, are mentioned as potentially pertinent, and so may still provide tests in future cases.

5 Conclusion

In this paper we have provided an overview about the problem concerning the development of a deliberative reasoning framework through the investigation of the dialogue interactions in the Supreme Court oral hearings. In particular, we have focused on the

analyses of the social values of the legal arguments from different perspectives in order to find the relation between the Court opinion and the components constructed in the Court oral hearings. Throughout the paper, we have presented the main aims of the research in defining a proper representation of the Oral hearing, developing a dialogue system for constructing this representation, analysing the opinion by navigating through the tree representation and validating the application of the dialogue using selected cases from various courts. Furthermore, we have presented the reasoning model and show how we moved from the oral hearing transcripts to ACTs, through the use of a set of defined speech acts. Now that we have established a framework for conducting this analysis task, the next step will be to move towards automation.

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