Chapter 7

Conclusion & Scope for Future Work

Introduction

In the following sections, the conclusion of thesis work and future work is explored.

Conclusion

In the introduction, a view was expressed with a hope that the work in this thesis could be a step towards a general purpose development of composite knowledge-based system for Indian legal domain with specific reference to transfer of property act. In this final chapter, researcher will conclude by describing the progress made towards this goal in terms of development process, prototype, development of main components, observation, performance evaluation and its application to the problem in a legal domain. The author will also suggest some future research directions.

The aim of this thesis has been to develop knowledge-based system (working hybrid legal expert system) based upon a realistic approach to the Indian legal systems with specific reference to transfer of property act.

To conclude, the use of computers in law has moved from simple automated search and office management programs to informative programs and finally to diagnostic programs with increasing application of "intelligent" algorithms over time. The research work has developed an integrated knowledge-based system which incorporates the rule-based and
case-based reasoning for transfer of property act of Indian legal domain with specific reference to transfer of property act by using VisiRule and Java. VisiRule provides a graphical decision charting logic for representing rules, which makes the application development easy. All the sub problems as mentioned in research problem statement are addressed, they are

i) The prototype model was developed by incorporating rules, which has been tested and validated by the domain experts.

ii) A comprehensive Rule based reasoning system covering all the aspects of transfer of property act is implemented and tested. It is found that modules developed are working satisfactorily.

iii) The case based reasoning related to cases of transfer of property act is also designed and developed and evaluated. The system has been found useful because the related cases required by the users are found quickly. The same could be referred and related to current cases.

iv) A hybrid reasoning module which combines the case and rule based reasoning, is also implemented and validated. The performance of this module was better as it is possible to relate current problem with previous cases.

v) A web-based tutoring model is user friendly and it will help a common man to understand the working / domain concepts of transfer of property act.

vi) The performance of the system is tested by case study. It was found that conclusions of domain experts and conclusion arrived by the expert system were similar.

Hence, this work can be of great help to both the non-law-literates and also for experts in the field of law for productive and fast decision making.

Programs display increasing sophistication not only due to improved computer speed and memory but also due to software development. The question facing researchers is not whether computers can be used effectively in legal research but how to best use them. As far as tasks go, computers clearly are already useful in teaching and research as well as in legal practice. As far as software technologies go, neural networks may show themselves to be useful, but they have not yet. The computer language Prolog could be used for some legal inferencing (deductive inferencing for example) but has an unfriendly interface. Further, WIN-Prolog from Logic Programming Associates London has many tools such VISIRULE, CHIMERA, INTELLIGENT SERVER is very effective software in development of expert systems. The VISIRULE tool has been used to develop the rule-
based expert systems. The rule-based expert systems are a proven technology. To combine the flexibility of a rule based expert system with the forward and backward chaining capabilities of Prolog may be the best future - and indeed the JAVA NET BEANS system does allow that, which has been used to develop the Case-based reasoning part in this hybrid system.

In all events, the future of automated hybrid legal expert systems is both challenging and bright. Hopefully these programs illustrate some of the problems and possibilities of this fascinating field.

**Scope for future work**

The most obvious avenue of future research using Transfer of Property Act – Expert System (TPA-EXPERT) is the development of a rule-based system, for movable property as this work deals only with the immovable property and the linking together of that rule-based system with the existing case-based system to form a hybrid system. As argued in Chapter 3, a hybrid approach is desirable where the system seeks to represent statute law and case law. TPA-EXPERT has been designed to facilitate such an articulation. There are also several areas of further research which could be carried out using the existing TPA-EXPERT system. Some of the issues which can be an area of future research could be

i) As stated earlier the expert system for movable property could be developed.

ii) The system could be developed for different facets of Indian legal domain such as company law, labour law, Hindu law, Muslim law to name a few.

iii) Research could be extended to the process of updating specifications / rules to take account of changes in the law. More significant changes in the law might require the addition of new attributes, or the complete rewriting of a specification. Further testing could be performed.

iv) From the collection of related cases a gist of cases could be prepared for the reference of domain expert.

v) More study can be conducted in integration of rule and case based systems.

This thesis has argued that a legal expert system need not be based upon a complex or deep model of legal reasoning in order to be successful. It has recommended a practical approach to legal expert system design. TPA-EXPERT is a working example just one possible example of such an expert system. Despite its simple knowledge representation
structure, it has shown itself capable of producing good advice. And its simple structure has facilitated the specification transfer of property act. TPA-EXPERT incorporates a simple model of the way in which lawyers argue with cases. However, no attempt has been made to model the way in which lawyers decide which cases to use in those arguments. No one would accept that theory as adequate, and yet it yields a practical tool. TPA-EXPERT, too, is a practical tool. It demonstrates that a pragmatic approach to legal expert system development can be a successful one.