CHAPTER 2

JURISPRUDENTIAL CONSIDERATIONS

2.1 LEGAL RULES AND SOURCES OF LAW

This chapter initially looks at the need and role of legal rules as a means of social control and then examines some of the jurisprudential approaches towards legal reasoning. Finally, the position taken by this work so that, at least for some appropriate sub-problems, computationally well defined model of legal reasoning may be produced has been pointed out.

2.1.1 Legal rules

Society is like a busy junction on a high way. Individuals and groups have an infinity of wants they seek to satisfy. Obviously, not all these wants can be wholly satisfied, indeed, some of them must be denied satisfaction altogether. Since some of these wants are more urgent, and some more socially desirable, than others, we must have some criteria such as "justice" and "social utility" for establishing priorities among them. One of the major tasks of every government has been the creation and enforcement of rules of law (or legal rules) based on those criteria. The legal rules may be defined as: "guides to human conduct in society, established and enforced by officials acting on behalf of the whole community, and designed to achieve the best possible balancing and adjustment of the diverse interests in a society". It is an accepted fact that in a practical society new problems keep emerging causing the continual need of new rules. Hence the legal rules are not
and can never be static. Thus the law is viewed "not as a set of static rules but as a dynamic process by which legal rules are constantly being created, changed, and molded to fit particular situations including social questions and the settlement of disputes" [20].

Of course, this point of view seems to be valid only when one looks at law over a reasonably long period of time. However, to be of any practicable usefulness, over short periods it has to be treated as a static set and employed to resolve the "legal conflicts" that may arise during that period.

2.1.1.1 Types of legal rules

According to Hart [21] law can be viewed as a system of rules (figure 2.1, adopted from [22]) and the legal rules can be classified into two groups as follows:

(1) primary legal rules,

and (2) secondary legal rules.

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Social rules

Etiquette, chess etc.  Obligation rules

Law  Morality

Primary rules  Secondary rules(CAR)
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Figure 2.1 Hart's system of rules.
Primary legal rules

These are the rules purported to channel the conduct of private persons i.e., individuals and groups into patterns likely to keep conflicts to a minimum.

The rules that forbid us to rob, murder or to drive too fast are some good examples of primary rules.

Secondary legal rules

These are the rules that determine what happens to people who have violated the primary legal rules. These rules are also known as remedial legal rules.

The rules about forming contracts, executing wills and settling industrial disputes are some good examples of secondary rules.

Inevitably some people don't comply with the primary legal rules, either deliberately or through carelessness or ignorance. So there should be a system (police, judges - for instance) to apply secondary rules.

2.1.2 Origin and Sources of law

Law in India, like in most of the other countries, is of English origin and was initially drawn hermetically from the traditions, customs, business usages and moral standards of the people. During thirteenth century the justice was administered by the 'royal judges' appointed by the ruler of the respective countries. During the process of decision making these royal judges relied on their own judgment, their 'sense of justice', in addition to the law drawn from traditions etc. With the lapse of time i.e., around fourteenth century plaintiffs found themselves increasingly
baffled and thwarted by the rigid and high technical procedural requirements. The dissatisfied plaintiffs began to petition the ruler, the King, of the country. Under such situations the king used to hand over such petitions to an high official (Lord Chancellor) in his court. By around sixteenth century this practice became institutionalized and thus came into existence a supreme or 'Sovereign body' which started giving 'commands' that were a binding on the individuals. The endurance and exigency of a sovereign body has been identified as well as forwarded by both Austin as well as Bentham, well known legal theorists of recent times. Thus, at present, there exist two kinds of law universally available: one in the form of commands given by the sovereign body of the respective countries and the other in the form of decisions given by the royal judges and some other similar officials.

Accordingly there are two important sources of law in which the legal rules stay abstrused. These sources are:

i) Statutes (and other written rules and regulations like "acts", "ordinances" etc.) and

ii) Precedents.

2.1.2.1 Statute

During the past century or so, the central feature of any legal system has been to view the law as a command of certain supreme or sovereign body as depicted in figure 2.2. As per Austin [23] any thing that is not a command is not a law. The legal rules pronounced by certain supreme bodies, like parliament, are collectively known as statute. The word statute is generally used as a generic term to comprehend such terms as "acts", "laws" and "ordinances", all of which are enacted by elected legislative bodies. Nowadays, most of the major innovations in legal rules are introduced by
legislatures, and much of the work of judges is interpreting these legislative or statutory rules.

Particular commands (Not law) General commands (Laws 'properly so called)

Commands of God (Divine laws)

Commands of the sovereign (Positive laws)

Commands of others (Positive morality)

Figure 2.2 Austin's commands.

2.1.2.2 Precedents

Judges "make law" every time they decide a case where in no existing rule quite fits. The desire of the community instinctive belief that "like wrongs deserve like remedies" imposes a duty on the decision makers to seek guidance by looking back at past decisions in similar cases (i.e., precedents). They also make law in absence of directly controlling precedent. The law made by the judges at an appropriate level of authority while deciding cases in the absence of either an applicable legislation or a directly controlling precedent is known as the case-law. The principle that judges build on the precedents established by past decisions is known as the doctrine of stare decisis.

One of the very important advantages of the precedents is that in the absence of principles they could be adopted as guides. However, precedents have a drawback that: they work ex post where as in labour relations rules must work ex ante. In other words, precedents does establish certain rules or law but not before something has gone wrong. In fact, the process
of law making by the judges employing the precedents was the only type of law making that existed once and is still considered to be extremely important.

Statutes v/s Precedents

The law can be broadly classified into two groups as follows:

1) Common law,
   and 2) Civil law.

The body of legal rules drawn on traditions and customs is known as the common law whereas the body of legal rules governing rights and remedies (in contradistinction to the rules of criminal law) is known as the civil law.

It has been found that legal reasoning from the decisions of previous cases is appropriate for application to common law systems, because there many human activities are not governed by statute, but are governed by the decisions that were taken in previous cases. However, reasoning from the decisions of previous cases seems to be less applicable in systems of law which are based on civil codes, like the industrial Disputes Act (India), where the significance of previous cases is given less emphasis [24]. At this point it should be carefully noted that whether the law is based on tradition and custom or on the civil code, the process of legal reasoning remains the same.

The reasons listed below have made the meaning of statute to be open ended, the finality of its existence not definite and its sole use unfeasible.

1) The statutes being formulated in natural language involving words having more than one apparent meaning cause
disputes about the specific meaning of a phrase or section within it.

2) The presence of an element of discretion in statutes, which does exist sometimes, that cause a dispute about whether the discretion should be applied in a given case or not.

3) The existence of unstated but clear intended exceptions to a statute.

4) The availability of more than a statute which are equally applicable to a facts situation but yield different end results.

5) The conflicting nature of the statute with the legal principles or general laws, like the constitution.

Under the circumstances discussed above, it is obvious that when a 'dispute' arises it could be resolved by presenting arguments for both sides before a court of law. In any system of law it would be a mere waste of energy, time and resources, if same process of interpretation and recognition of rules has to be repeated in generating the same arguments every time a similar dispute arises. All systems of law whether American or English, have some system of recording and reporting the decisions of a court. By referring to these past decisions (i.e., precedents) the unnecessary duplication of work that is done all over again solving the problems that have already been faced in arguments generation can be avoided, advantage of the accumulated wisdom of the generations can be had as well as the much needed uniformity in the legal decisions can be attained. Also it has been found that the imperfections in legal draftsmanship and hence the bugs that may be present in the statute usually become apparent not during parliamentary debate but at courts (i.e.,
run-time) when the statute is actually put into force and applied to unforeseen facts situations. It is not clear to see how in principle there can be any difference between reasoning from statutes and reasoning from the decisions of previous cases. In practice, it has been found, lawyers who cite statutory provisions almost always cite in addition past cases in which courts have "certain provisions" under similar circumstances. This need and use of precedents as citation has not only been observed by Ashley and Rissland [25] but as pointed out by Pollock [26] the concerned court needs "the materials already put into a shape by the counsel" in the form of "an assistance given to the court".

In accordance with the observations made in the preceding paragraphs, in this work, the knowledge base of the system holds the legal rules drawn both from the statute as well as precedents. The codification of these legal rules into a required data structure format demands a thorough background of the concerned legal sub-domain as well as the A.I. techniques and the programming language being employed. The quality of the output of such A.I. programs depend almost entirely on the quality and nature of such rules available on the rule base. In a way, converting of legal rules into a form that is suitable for the development of computer assisted legal reasoning systems is similar to "restatement of law", a very much involved and complicated job. Some research projects like the LEGOL project [27] have solely attempted the development of an appropriate language that facilitates the formulation of legal rules so that the rules may be manipulated and interpreted by the computer readily. However, one has to wait and see how the statutes drafters will receive such languages and adopt them in practice instead of their centuries old and settled method of drafting techniques.
2.2 JURISPRUDENTIAL APPROACHES

Of fundamental importance to any applied researcher engaged in the development of a knowledge based computer-assisted legal reasoning system is to confirm with any one of the many jurisprudential theories that exist. However, there are too many such theories and there is a high degree of disagreement and dissent among the legal theorists nursing such theories. It is beyond argument that any attempt to develop a computational model in any of the numerous tributary fields of the legal realm has to confirm with any one of such jurisprudential theories. This section looks into two important legal point of views namely legal positivism and nominalism along with the conceptualism: one of the important factors based on which the positivism and nominalism theories are compared and classified.

2.2.1 Conceptualism

Conceptualism was first discussed in detail by Pound [28] where he refers to it as mechanical jurisprudence. Since then many legal theorists have commented on the validity of such process of legal decision making. Some among the reputed critiques are Holmes, Frank and Cardozo.

In Conceptualism the law is viewed as a set of axioms and the process of legal reasoning as deduction. According to Jerome Frank [29] the principle of conceptualism can be put forth in the form of a formula as follows:

\[ R \times F = D \]

where \( R \) is the set of rules, \( F \) is the set of facts of a case, and \( D \) is the decision.

Further he has opinioned that any legal system could be
viewed as a judicial slot machine, the facts F being inserted at one end of the machine and the decision coming out at the other end. However, justice Holmes has epigrammatically said that [30]:

"the life of the law has not been the logic: it has been experience. The felt necessities of the time, the prevalent moral and political theories, intuitions of public policy, avowed or unconscious, even the prejudices which judges share with their fellow men, have had a good deal more to do than syllogism in determining the rules by which men should be governed".

Many legal theorists, like Philip Leith, who surmise that logic or logical inference has no calling in the judicial decision making process always summon this statement of Holmes in order to substantiate their thoughts and opinions. At this point it is worth quoting justice Cardozo's comments [31]:

"...but we must not press the truth too far. Logical consistency does not cease to be good because it is not the supreme good. Holmes did not tell us logic is to be ignored when experience is silent".

The observations of both Holmes and Cardozo quoted above suggest that logic has something to do with not only (1) reasoning from premises but also (2) reasoning to premises. With this one can conclude that once the experience or thorough investigation gives us the premise in a particular case, the premise can be applied to the facts of a new case by deductive or mechanical logic. However, the question whether the creation of the premise from experience or by any other means is itself a product of logic is altogether a different matter. More or less this is the stand taken by Marek Sergot [32] while commenting on Leith's disfavor to the position of logic with reference to law.
The important (central) and organizing propositions of legal positivism, according to Dworkin [33], are:

(1) The law of community is a set of special rules used by the community directly or indirectly for the purpose of determining which behavior will be punished or coerced by the public power. These special rules can be identified and distinguished by specific criteria, by tests having to do not with their content but with their pedigree or the manner in which they were adopted or developed. These tests of pedigree can be used to distinguish valid legal rules from spurious legal rules and also from other sorts.

(2) The set of these valid legal rules is exhaustive of 'the law', so that if some one's case is not clearly covered by such a rule then that case cannot be decided by 'applying the law', it must be decided by some official, like a judge, 'exercising his discretion', which means reaching beyond the law for some other sort of standard to guide him in manufacturing a fresh legal rule or supplementing an old one.

(3) To say that some one has a 'legal obligation' is to say that his case falls under a valid legal rule that requires him to do or to forbear from doing something. In the absence of such a valid rule there is no legal obligation, it follows that when the judge decides an issue by exercising his discretion, he is not enforcing a legal obligation as to that issue.

Jeremy Bentham, Jhon Austin, Hans Kelsen, H.L.A. Hart are some of the most important legal theorists who have fostered positivism. The legal positivism is "now accepted in one form or another by most working and academic lawyers who hold views of jurisprudence" [34]. It is Hart, in [35], who
has given the fullest and modern expression to the concept of legal positivism. Figure 2.1 on page 13 depicts Hart's view of 'the law' as 'a system of rules'. One of the most important arguments of Hart is that "the words used to construct legal rules, and therefore the legal rules themselves, have a number of clear meanings and no set of rules can provide predetermined answers to every case that may arise". He refers to this as 'open texture' of legal rules of law. Austin also has expressed a similar opinion, however, and calls them as "legal rules having fury edges".

2.2.2.1 Open texture

The notion of open texture has its origin in the philosophy of language, but it is in jurisprudence that this notion has been most useful. The legal philosopher who is most often quoted in this connection is Hart [19], who argues that legal concepts are incurably open textured. He considers the legal rule "No vehicle may be taken into the park" in order to explain the concept of open texture. He argues that the word "vehicle" in the rule given above obviously means a motor-car, a bus and a motor-cycle. Quite often questions like 'Does the word "vehicle" used here include bicycles, airplanes, roller skates?' arise. According to the rule given above, if some one takes a bus into the park he has violated the rule and has to be punished. However, what happens when some one takes a 'bicycle' into the park. This fact situation rises the issue 'whether a "bicycle" is a vehicle or not'. Treating a bicycle as a means of conveyance to move from one place to another one may consider it as a "vehicle" and decide that the act of taking the bicycle into the park as violation of the legal rule and hence make the person punishable. Proceeding further, Hart argues that there is more than just looking at the word 'bicycle' to classify it as a 'vehicle' or otherwise. He continues his argument stating that, under such circumstances, the initial aim or purpose of the rule also has
to be considered. In pronouncing the legal rule given above the initial aim was to 'maintain peace and quiet in the park'. Now the question to be resolved becomes 'Whether purpose of having the peace and quiet in the park is violated or not?'. Thus the case no more remains clear as it was to start with. Next he considers the question 'What happens if some children take an electrically propelled toy motor-car into the park?'. As the toy motor-car makes sound, however low it may be, it seems taking a toy motor-car into the park amounts to the violation of the rule and such an act becomes punishable. This decision is expected, though one would not appreciate, as the act of taking an electrically propelled toy motor-car into the park amounts to the 'violation of the purpose' of the legal rule given above. However, giving importance to the literal meaning of the word 'vehicle' does not make the person involved punishable. An additional question that naturally surmounts, Hart mentions, is that "Can they (the aged and other needy people who come to park) not forego certain amount of peace for the enjoyment of the children?". Thus he drags one more criterion that is known as 'competing interest' which further contributes to the openness of the legal rules. Such competing interests are due to the incapability of human legislators to anticipate all the possible combinations of circumstances which the future may bring.

Hart concludes that there are several 'penumbral cases' where it is uncertain whether the word applies or not; whether the interests of the competing groups are to be taken into account or the original aim of the rule has to be considered thus giving rise to a concept which he has referred to as 'opentexture'.

2.2.2 Clear and Hard cases

Examples considered in the previous subsection indicate that there are many instances or facts situations which rise
more questions than extending a plausible solution. The case in which justification of decisions can be achieved by simple deduction employing clear established rules are known as clear cases.

Cases in which the problems of 'interpretation', 'classification' or 'relevance' arises and no established rule could be used readily are known as Hard cases [36].

As pointed out by Suskind, in his jurisprudential inquiry into A.I. and legal reasoning [37], most of the times legal philosophers argue about the process by which difficult legal problems (i.e. hard cases) are, or should be, resolved. It is hard legal problems which interest legal philosophers and which account for the bulk of writings on jurisprudence. But there is a general consensus, in every school of philosophy, that easy cases are solved every day by simply applying generally recognized legal rules to the facts of the case

2.2.3 Nominalism

Oliver Wendell Holmes (1841-1935), justice of the United States Supreme Court for about thirty years, has been considered as the spiritual father of the nominalism. The central theme of nominalism, also referred to as legal realism, lies hidden in the sentence: "The prophecies of what courts will do in fact, and nothing pretentious, are what I mean by law" appearing in one of the writings of Holmes [38]. Karl Nickerson (1893-1962) and Jerome Frank (1889-1957) are some of the other realist jurists identified with legal realism. The characteristics of the nominalism, as opinioned by the jurists mentioned above, can be summarized as:
(1) Law is what officials (i.e., judges) do; it is not to be found in, and cannot be deducted from the rules by which those officials are guided.

(2) It is an investigation into the unique characteristics of cases.

(3) It needs assessment of rules of law by evaluation in relation to politics, philosophy, economics etc., and

(4) It needs an awareness of irrational and non-logical factor in judicial decision making.

2.3 RESOLVING THE OPEN TEXTURE

It has been observed that the main source of vagueness in the legal realm is due to the open texture of the legal concepts. Any implementation should have certain capability to resolve the effect of open texture on the arguments that are generated which will have certain definite bearing on the final outcome. The following sub sections examine the suitability of (1) Approximation (2) Probability theory and fuzzy logic, and (3) Analogical reasoning, approaches to handle the open texture of the legal concepts.

2.3.1 Approximation

Approximation proposes to replace the vague concepts by some sharp concepts which approximate to it. Thus, for example, for "lengthy service" one could use "over 5 years". It can be readily admitted that the approximation method can not serve to capture the full meaning of the vague concept and would lead to error in some cases. But it seems to work very well most of the times and a great deal of error could be eradicated by fine tuning the value used in the approximation. The problem of choosing a suitable approximation becomes
harder if we consider open textured legal concepts. For whilst one can see how he might make a reasonable approximation in the case of simple vague concepts or predicates like "lengthy service", the multidimensional situation of a legal case is altogether a different proposition.

However, the task is not impossible because there is no real limit to how sophisticated we can make this definition of the approximating concept. For example, consider a statute that "a person will receive a heating allowance if his place of residence is hard to heat, and this allowance will be at a higher rate if his place of residence is extremely hard to heat". In this statement lie two legal concepts "hard to heat" and "extremely hard to heat" which need approximations to be constructed for them. Constructing such approximation needs to identify what these concepts are taken to mean in practice. To do so, one could interview a panel of experts from the appropriate government department, or consult the explanatory documentation which is issued to the adjudicating officers, or analyze the decisions made in all previous cases of this sort and finally come out with a model of what "hard to heat" and "extremely hard to heat" actually mean in practice. The model could be formalized, and the rules may be shown to the appropriate experts and the model may be refined until some consensus regarding reasonable approximation arises. This is precisely the methodology which is used in the construction of "classical" knowledge-based systems or expert systems.

Obviously, it looks as if by employing "approximation" method open textured concepts can be eliminated altogether. However, even though an "approximation" to a legal concept is a collective opinion of a set of experts, it is not the final value, just a better value that seems to narrow down the effect of opentexture in most of the routine cases or easy
cases. The decision maker will have an opportunity to access such values which he still could reject, the key point being final decision is his. The approximations undoubtedly permit the routine cases to be decided mechanically. However, the existence of "opentexture" cannot provide no right answer in the case of cases that are not routine even with the use of approximations.

2.3.2 Probability Theory and Fuzzy Logic

One of the most important and well known characteristics of the knowledge-based systems (expert systems) is their ability to handle the "uncertain knowledge". Typically an expert system associates some kind of "certainty factor" with every rule in its knowledge base and with every item of data which the user has supplied. For example, every rule of the MYCIN system enmeshes a number between 0 and 1 representing the certainty of the inference contained in the rule. The system's "inference engine" then manipulates these various certainty factors according to some calculus to arrive at an estimated certainty factor for one or more of its conclusions.

Although details depend on the specific knowledge-based system, certainty factors are always based, usually very loosely, on probability theory or on fuzzy logic or on some combination of these two. When the user of a particular system is asked if 'the employee is working above the ground level' he will answer "yes, with certainty 0.3", or something similar. This factor 0.3 may indicate that the employee works above the ground level with probability 0.3 or that it is 0.3 true that the employee works above the ground level, or something in between. Whether a particular version of uncertainty in a particular system is based more on fuzzy logic or more on probability theory is not a point of concern here. Rather it is the applicability of either the
probability theory or fuzzy logic to the legal domain that has to be examined over here.

The case of probability theory has been considered first. By looking at some employee physically one can say that his or her length of service is quite long, without taking into consideration the vagueness associated with "long". Problems with the vagueness will arise only when the proper personal records of the employee are looked at and the actual length of service is computed. A similar situation arises when one needs to decide whether a claimant's house is "hard to heat". Statistics may indicate that ten percent of houses are hard to heat, and that forty percent of houses in the claimant's town are hard to heat, and that ninety percent of houses in his street are hard to heat. These figures definitely provide a facility to estimate the probability that any claimant is entitled to heating allowance. However, these figures do not provide any clue as to whether a particular claimant's house is hard to heat or whether the claimant is entitled for the heating allowance. Thus, though the probability theory is one of the most powerful techniques using which the decisions could be predicted it has nothing to do with the vagueness or open texture associated with the legal concepts or with their representation.

Fuzzy logic is purported to be a general solution to handle vague concepts, rather than a mere implementation convenience like approximation, or treatment of some other idea like probability theory. As suggested by Zadeh in [39], the basic underlying idea in fuzzy logic is to assign a truth value to a statement, that is not merely restricted to "true" or "false", instead may take all the intervening values between 0 and 1 as well, so that "lengthy service" may be 1 for a length of service equal to 5 years, 0 for 4 years, 0.4354 for 4.5 years, and so on. The curve which maps observable "length of services" (or whatever) onto the truth
value of the vague concept is called "truth profile". Such truth profiles of certain concepts may be employed to determine the truth value of statements containing them. Whilst this approach has been successfully employed in certain suitable applications, it is not applicable to the legal realm. This is because, employing fuzzy logic gives rise to situations where one may say that a truck is a vehicle to degree 1; a bicycle to degree 0.7; a tricycle to degree 0.3, and so on. However, in practice, law does not provide for degrees of membership or degrees of truth. A retrenched employee has to be eligible for the retrenchment compensation or not, a criminal defendant has to be declared guilty or not guilty, and for the purpose of a particular rule an object has to be a vehicle or not. Associated with this any attempt to employ the fuzzy logic has an additional problem of actually drawing the truth profile. To draw a truth profile is to draw a significant conclusion, the very same reason for which we started seeking help of alternatives like fuzzy logic.

2.3.3 Analogical Reasoning

In employing analogical reasoning for problem solving in any domain the basic idea is to have a data base of examples along with the final result or results on the system. In the legal realm, these examples may be either certain prototypical cases or actual cases that have been decided earlier. When a new case is presented to such a system, it attempts to match the new case with the examples in the data base to extract those which appear to be most similar. If all such extracted examples point the same conclusion then the decision will be clear cut and if not it will be up to the user to decide which example or precedent he or she wishes to use. In fact this is one of the very widely used methods of legal reasoning by the practicing lawyers when they come across routine cases.
The use of computers for problem solving with examples has certain practical difficulties. Firstly, one should find out a method of storing the examples themselves which, of course, needs some general method that takes into consideration infinite variety of circumstances that are found in any arbitrary legal case. A method that might be employed to maneuver such a situation could be to find out all open textured concepts and to list a, manageably, large number of attributes for every such concept. The listing of such attributes is not practicable as it is not possible to predict as to what features of a case will such attributes turn out to be relevant. This hurdle suggests to think of the list of attributes as a variable list that dynamically varies from case to case. However, such an idea needs more effort to be practicable. Secondly, even if one hopes that examples could be stored employing some method, there still remains the difficulty of a good matching algorithm and defining what is meant by "similar". The simplest method one can think of is to associate some kind of weight to every attribute as a way of indicating which features of an example are to be seen as more relevant. With this the function of the matching algorithm will be just to calculate the weighted sum and to propose the examples with scores above certain threshold as most "similar". Though one can think of more sophisticated matching algorithms, by taking into consideration certain other factors, there still remains the problem of defining the meaning of "similar", a very much opentextured concept.

The frame method of representing the knowledge holds a lot of potential employing which one can think of to store the examples on line conveniently. In fact some non legal experiments have used this. Though the use of frames does suggest a possible scheme for representing examples there still remain certain difficulties regarding (1) what details of a case has to be put into the slots of the frame and (2) what level of matching is required.
The foregoing discussion reveals one important point that any attempt to resolve the problem of open texture by using examples tantamounts to shifting of the attention towards (1) storing examples at some abstraction level (2) designing an universal matching algorithm (3) selecting relevant attributes of a case and (4) determining a plausible threshold value that assists in defining the meaning of "similarity". Also, the use of examples needs important decided cases or hypotheticals to be identified and stored. At this point it should also be noted that, because of the very large number of cases that are decided every year, many cases are not reported and even when reported often only a gist will be reported. It is evident that any attempt to practically solve these new problems is analogous to the way in which some sharp approximations are provided to the vague concepts.

As the use of analogical reasoning also cannot solve non-routine cases or hard cases ex ante, attempts to find out "similar" examples every time a new case is to be analyzed that enmeshes so many underlying problems as discussed earlier seems to be a waste of energy and time. On the other hand the efforts could be utilized to select important cases manually, encode their legal knowledge content into rules and use these rules whenever required. However, this is not to underestimate the utility of examples. Use of examples is one of the very important methods of teaching/learning. This is why one comes across many illustrative examples following the definition of certain theorem or concept in standard textbooks or class room teaching.

2.4 SUMMARY

This chapter has discussed two common jurisprudential beliefs, positivism and realism, along with the conceptualism or deductive logic, one of the main criteria on which the
legal theorists differ. It has been pointed out that in positivism decisions are dictated by deductive logic, in some form or the other, and in realism the decision making process is arbitrary, with judicial opinions as mere rationalisation. It is apparent that the realism approach is in direct opposition to the positivism approach and thus has an "weakening effect" on the positivists paradigm. However, it has been observed that the realists have suggested nothing which is pragmatically tangible instead of positivism [40].

As already mentioned, withstanding the arguments of different schools of thought in legal philosophy and jurisprudential literature, any attempt to propose or develop a computational formalism for legal knowledge has to comply with any one of the many disjunctive jurisprudential theories that exist. Also the discussion in the preceding sections of this chapter evidently point out that either the legal realism or realists arguments have offered nothing much to the computer scientists or A.I. personnel involved in developing computational formalisms. On the other hand as pointed out by Dworkin [33] and as per Suskind's [37] inquiry into the jurisprudential approaches to A.I. and legal reasoning has revealed, in practice "the law" has been considered as a system of rules and the decision making process as a rule guided activity and most of the fact situations or cases can be resolved by employing the deductive logic in some form or the other. Though Hart seems to have a tendency towards realism, when he talks about hard cases and open texture, he also agrees that deductive logic is used in decision making process and only when certain propositions seem to be having rival possibilities are to be ascertained, a thorough introspection of the relevant facts is necessary. As discussed in section 2.3 use of methods like approximations, probability theory fuzzy logic and analogical reasoning to avoid the situations at which "rival possibilities" may arise are not applicable to the legal realm. Interviews with some of the practicing advocates at Madras high court as well as Bangalore high court
have also revealed the fact that "the law" is a system of rules and the decision making process is a rule-guided activity and only when certain critical points are to be ascertained, the use of logic is suspended for a moment, thorough legal research is done, and the process of deductive logic is continued. This midway approach of using deductive logic with the assistance of the professional as well as the academically acquired knowledge of the user is known as 'second-order justification' [41]. Many other legal theorists, like Sartorius [42], also have corroborated this midway approach by pronouncing that Hart's 'system of rules' and 'rule of recognition' may be 'loosened up a bit' to take into account of 'general results' and hence provide an authoritative standard to identify 'principles' along with the rules, an expect of realist jurists. This betwixt approach of legal positivists which employs deductive logic in its reasoning process and takes advantage of the user's legal knowledge querying the user at certain crucial stages has been adopted by this work.