An Expert System to Advise on Sexual and Marital Discrimination at Work

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The paper describes the basis of a simple expert system to support counsellors advising individuals who fear that they may have been denied promotional opportunities by virtue of their sex or marital status. The program can be used by potential clients to arrive at preliminary evaluations of their cases in law.

Four key considerations governed the design, architecture and choice of programming language.

1. The system must simulate decision making in a limited but important domain of knowledge in the Human Services. It therefore must possess a dialogue, an explanation facility, and a facility to offer a trace of the logic sustaining the inference generated by user answers.

2. The system must be easily expandable and capable of incremental development with a view to augmenting the program's utility.
3. The system must be readily available to anyone that may find it of benefit.

4. The system must be cheap or nil cost. Ideally producing useful software should entail the same commitment as writing a journal article, a desire to spread knowledge, to contribute to an intellectual debate, and not to expect direct financial gain. The users should be able to treat the system in much the same way they would treat an article; draw out the utility, evaluate any benefit, incorporate it into practice and index the system for future reference.

Description of the program to advise on Sexual and Marital Discrimination in Employment

The system is written in LPA Prolog Version 3.5 and compiled for distribution. The program runs on a b/w or colour EGA/VGA compatible monitor, XT/AT/386 based PC. Normally the program offers a blue window with dull green text that is restful to the eyes.

The core of the system is a set of questions called up selectively which require yes or no answers. There is an explanation facility to clarify ambiguity, provide additional diagnostic help, and to present comparable scenarios to guide the user to an answer.

A sample question for which a user may want guidance before answering is: Were domestic arrangements or other issues pertaining to marriage alluded to in the interview? Below is the explanatory text linked to the above question.

Sample questions that may be inappropriately asked.

1. Do you have children?
2. Do you intend to have more children?
3. Are you pregnant?
4. If your children are ill, which comes first, them or the job?

5. Do you think married women with responsibilities can cope with this type of post?
6 What does your husband do for a living?
7. Does your husband have any involvement with this company?
8. If you were successful how would it effect your husband?

If questions are asked relating to children, husband, or ability to balance domestic and career choices these questions may establish a case of discrimination.

The configuration of answers is matched against a recommendation. At the conclusion of a set of questions a recommendation is called up. The user is offered a trace facility to review the line of reasoning that led to the recommendation. The trace and recommendation can be reviewed repeatedly until the user chooses to return to the main menu or quit the program.

The recommendations reflect all lawful possibilities with additional comments on the main theme pinpointed in the dialogue. The following is a sample of a recommendation given at the conclusion of a dialogue. There is no evidence of discrimination based on sex or marital status for a married woman has been offered the job.

At any point in the conduct of the dialogue a legal advice facility can be called up to clarify a specific legal definition. The facility is in addition to the explanation facility available to support the user answering the set of questions.

Below is a rendition of the legal advice facility.

Sexual Discrimination Act

To view commission recommendations and sections of the act choose the letter heading text.

A. Equal Opportunity Commission recommended employment procedures.
B. General provision on employers not to discriminate.
C. Points in the appointment process where discrimination may occur.
D. Text defining direct marital discrimination.
E. Text defining indirect marital discrimination.
F. Text defining direct sex discrimination.
G. Definition of Genuine Occupational Qualification.
H. Text defining indirect sex discrimination.

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User Profile

The first group comprises those who feel that they may have been objects of discriminatory behaviour.

The program is designed for a lay or professional adviser working in the field of discrimination who may find it helpful in guiding his/her own reasoning when advising a new client coming to the agency with initial concerns reflecting possible sexual or marital discrimination. The expertise of the adviser may vary, but clearly an adviser unfamiliar with the law would be prudent using the program to draw out some initial views which may form the basis for

knowledgeable consultation with a person competent in this area of the law.

The expert system can also be used by the client herself to help her structure her initial concerns prior to seeing an adviser.

The system is biased towards positive recommendations of sexual or marital, direct or indirect discrimination. A recommendation inferring that discrimination has not occurred should considerably reduce the time taken for further consultation.

The second user group comprises those who have responsibilities under the Act.

The program can be used for training. Chairpersons of interview panels, managers and others with responsibilities fro selection and recruitment can use the system as a reference to refresh knowledge of definitions and recruitment issues either through use in training courses or as a tool at work.

At the university it is required that individuals who are involved in staff selection have training in the Sex Discrimination Act. With increasing pressure of time on training staff with limited opportunity for role play the program is expected to be used in training exercises.

Human-Computer Interface considerations

The dialogue, explanation and legal help facilities, and recommendations, have been written in a non-technical language and with real life examples as aids whenever possible.

In order to minimise the potential corruption of the output from an incorrect entry, entries outside a specific set of acceptable entries always listed at the top of the screen call for a further clarifying response from the user. The acceptable entry set has been kept simple to reduce key strokes and thus minimise the likelihood of error.

The menus offer a minimum number of options to avoid the confusion associated with options on a crowded screen. Essential information has also been carefully spaced on each screen to avoid overcrowding, hence user confusion. The window has been designed to bring up discrete pages to enhance presentation.

The dialogue is kept simple. Long overly complex dialogues inhibit the ability of the user for fast efficient consultation.

The system is designed so the user can control the pace of the dialogue. The user can move between a question, explanation, and legal facilities repeatedly until choosing to end the consultation.

Concluding Remarks

The expert system possesses a dialogue, explanation and legal advice facilities and a logic trace. The system rests on an inference mechanism which is a set of rules guiding the reasoning. The rule set is open to incremental development.

The system offers the user a consultation tool to facilitate the

evaluation of a presumptive case of sexual or marital discrimination. Some initial comments have been favourable with particularly positive comments about the logic trace facility. The system is freely available to those who may wish to use it. The system ought now to be used and evaluated.

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