

Appendices

Appendix A: *Supplementary 11-pt precision results from Scenario 5a.*

Appendix B: *Supplementary correlation results from Scenario 5a.*

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Appendix E: *Search Tasks from Pilot Test 1.*

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Appendix A

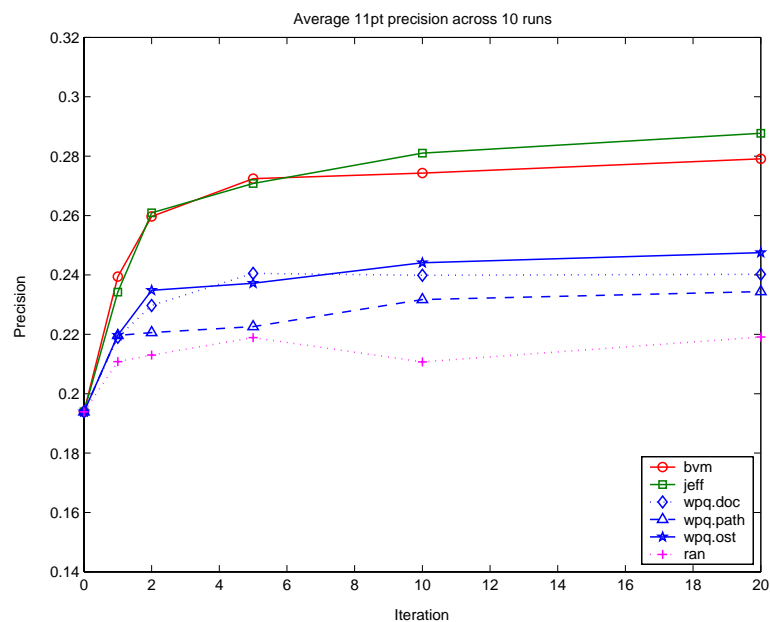


Figure A.1. Average 11-point precision across 10 runs for 10% wandering.

Table A.1. Percentage change in precision per iteration for a wandering level of 10%. Overall change in first column, marginal change in second shaded column. Highest percentage in each column in bold.

Model	Iterations									
	1		2		5		10		20	
bvm	19.0	—	25.3	+ 7.8	28.8	+ 4.7	29.3	+ 0.7	30.5	+ 1.7
jeff	17.2	—	25.7	+ 10.2	28.4	+ 3.7	31.0	+ 3.6	32.6	+ 2.3
wpq.doc	11.5	—	15.6	+ 4.7	19.4	+ 4.5	19.4	− 0.3	19.3	+ 0.1
wpq.path	11.7	—	12.1	+ 0.5	12.9	+ 0.9	16.3	+ 3.9	17.3	+ 1.2
wpq.ost	11.7	—	17.4	+ 6.4	18.3	+ 1.0	20.6	+ 2.8	21.7	+ 1.4
ran	8.0	—	9.0	+ 1.0	11.4	+ 2.7	8.0	− 3.9	11.5	+ 3.8

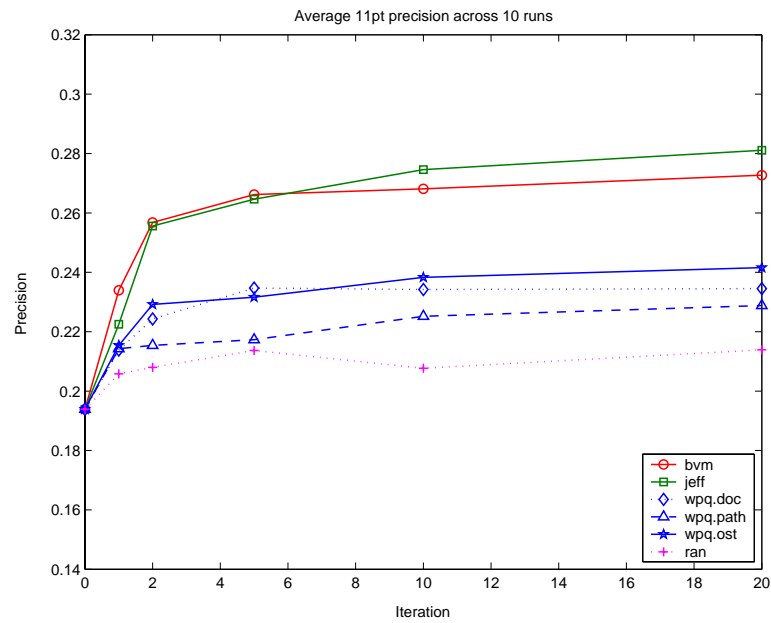


Figure A.2. Average 11-point precision across 10 runs for 20% wandering.

Table A.2. Percentage change in precision per iteration for a wandering level of 20%. Overall change in first column, marginal change in second shaded column. Highest percentage in each column in bold.

Model	Iterations									
	1		2		5		10		20	
bvm	17.1	–	24.5	+ 8.9	27.2	+ 3.5	27.7	+ 0.7	28.9	+ 1.7
jeff	12.9	–	24.1	+ 12.9	26.7	+ 3.4	29.4	+ 3.6	31.0	+ 2.3
wpq.doc	9.3	–	13.6	+ 4.7	17.4	+ 4.4	17.2	– 0.2	17.3	+ 0.1
wpq.path	9.5	–	10.0	+ 0.5	10.8	+ 0.9	13.9	+ 3.5	15.3	+ 1.6
wpq.ost	10.0	–	15.4	+ 6.0	16.3	+ 1.0	18.6	+ 2.8	19.7	+ 1.4
ran	5.8	–	6.8	+ 1.1	9.3	+ 2.7	6.6	– 2.9	9.4	+ 2.9

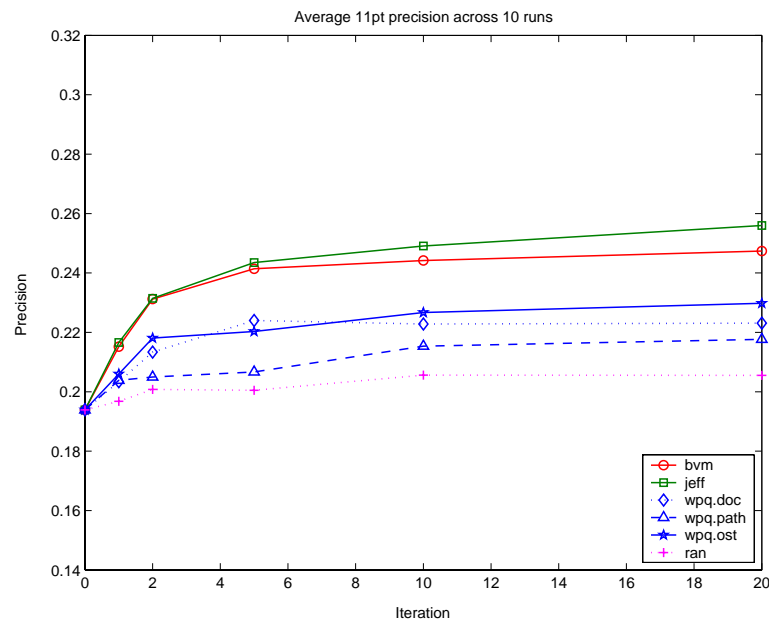


Figure A.3. Average 11-point precision across 10 runs for 30% wandering.

Table A.3. Percentage change in precision per iteration for a wandering level of 30%. Overall change in first column, marginal change in second shaded column. Highest percentage in each column in bold.

Model	Iterations									
	1		2		5		10		20	
bvm	9.9	—	16.1	+ 6.9	19.7	+ 4.2	20.6	+ 1.1	21.6	+ 1.3
jeff	10.5	—	16.2	+ 6.4	20.4	+ 5.0	22.2	+ 2.2	24.2	+ 2.7
wpq.doc	4.7	—	9.1	+ 4.7	13.4	+ 4.8	13.0	− 0.5	13.1	+ 0.1
wpq.path	4.9	—	5.4	+ 0.5	6.2	+ 0.8	10.0	+ 4.0	10.9	+ 1.1
wpq.ost	5.9	—	11.1	+ 5.6	12.0	+ 1.0	14.5	+ 2.8	15.6	+ 1.4
ran	1.5	—	3.4	+ 2.0	5.5	+ 2.2	0.9	− 4.9	5.6	+ 4.8

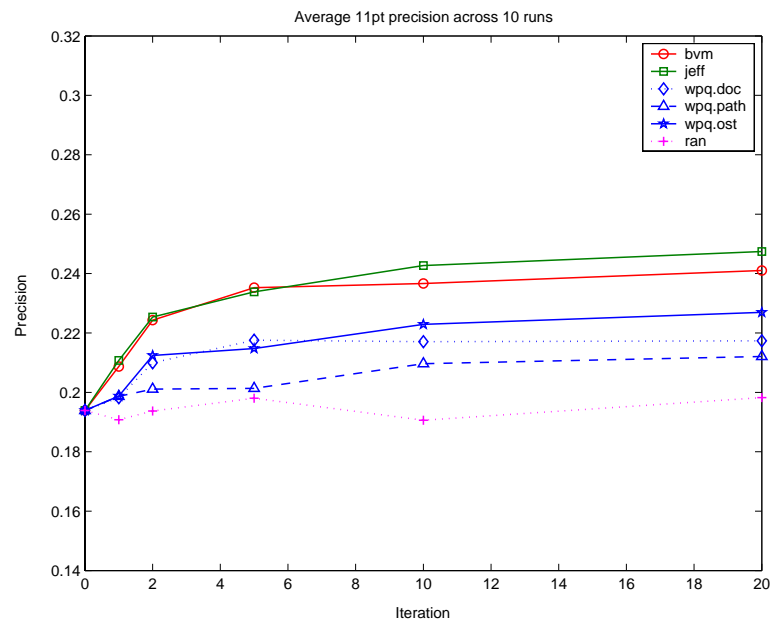


Figure A.4. Average 11-point precision across 10 runs for 40% wandering.

Table A.4. Percentage change in precision per iteration for a wandering level of 40%. Overall change in first column, marginal change in second shaded column. Highest percentage in each column in bold.

Model	Iterations									
	1		2		5		10		20	
bvm	7.1	—	13.6	+ 6.9	17.6	+ 4.6	18.1	+ 0.6	19.5	+ 1.8
jeff	8.0	—	14.0	+ 6.5	17.1	+ 3.6	20.1	+ 3.6	21.6	+ 1.9
wpq.doc	2.2	—	7.6	+ 5.9	10.9	+ 3.5	10.7	− 0.2	10.8	+ 0.1
wpq.path	2.4	—	3.6	+ 1.2	3.7	+ 0.1	7.5	+ 3.9	8.6	+ 1.1
wpq.ost	2.4	—	8.7	+ 6.4	9.7	+ 1.1	13.0	+ 3.6	14.5	+ 1.8
ran	− 1.6	—	− 0.1	+ 1.5	2.1	+ 2.2	− 1.7	− 3.9	2.2	+ 3.9

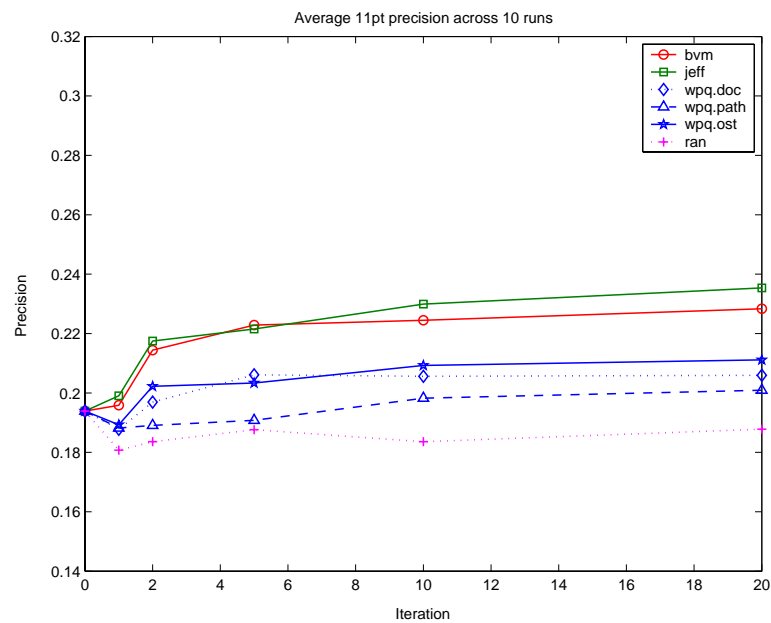


Figure A.5. Average 11-point precision across 10 runs for 50% wandering.

Table A.5. Percentage change in precision per iteration for a wandering level of 50%. Overall change in first column, marginal change in second shaded column. Highest percentage in each column in bold.

Model	Iterations									
	1		2		5		10		20	
bvm	1.0	—	9.6	+ 8.7	13.0	+ 3.8	13.6	+ 0.7	15.1	+ 1.7
jeff	2.6	—	10.8	+ 8.5	12.5	+ 1.8	15.7	+ 3.6	17.6	+ 2.3
wpq.doc	− 3.3	—	1.5	+ 4.7	5.9	+ 4.5	5.7	− 0.2	5.8	+ 0.2
wpq.path	− 3.0	—	− 2.5	+ 0.5	− 1.6	+ 0.9	2.2	+ 3.8	3.5	+ 1.3
wpq.ost	− 2.4	—	4.1	+ 6.4	4.6	+ 0.5	7.3	+ 2.8	8.2	+ 0.9
ran	− 7.3	—	− 5.6	+ 1.6	− 3.4	+ 2.1	− 5.6	− 2.2	− 3.2	+ 2.3

Appendix B

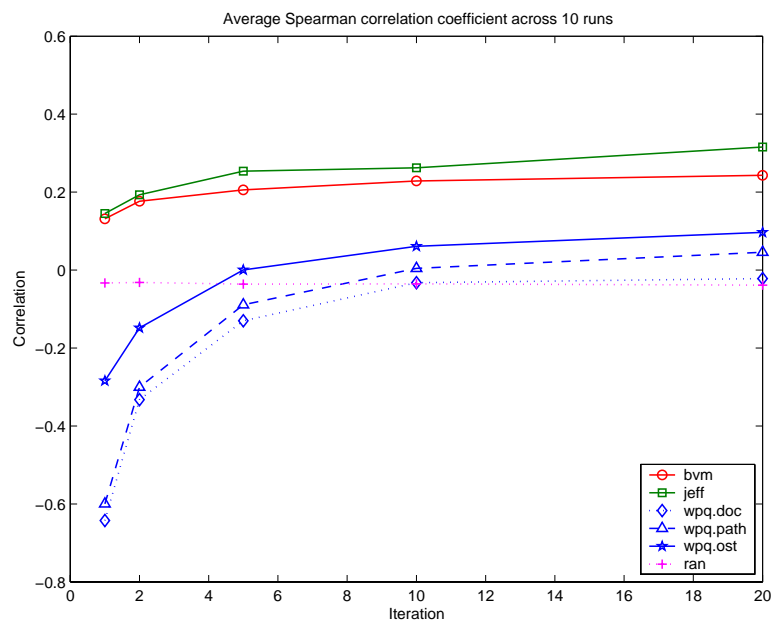


Figure B.1. Average Spearman correlation coefficient across 10 runs for 10% wandering.

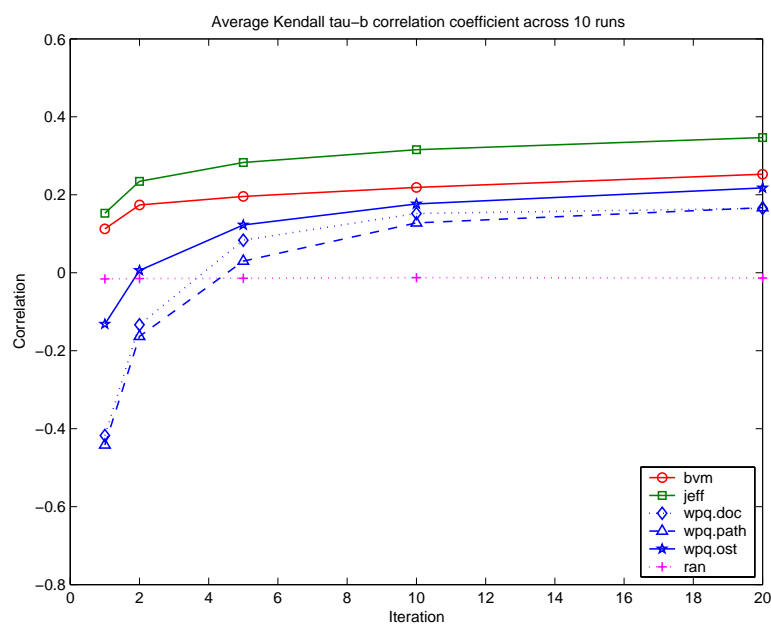


Figure B.2. Average Kendall correlation coefficient across 10 runs for 10% wandering.

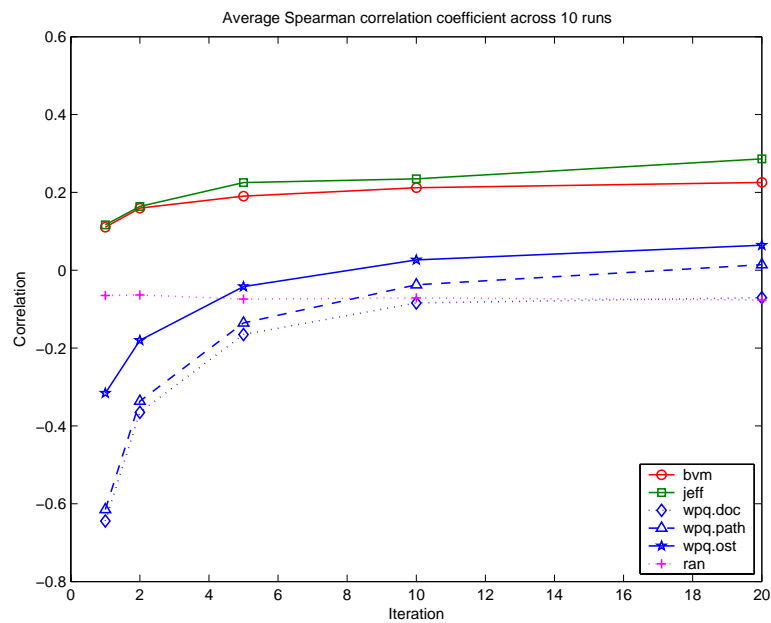


Figure B.3. Average Spearman correlation coefficient across 10 runs for 20% wandering.

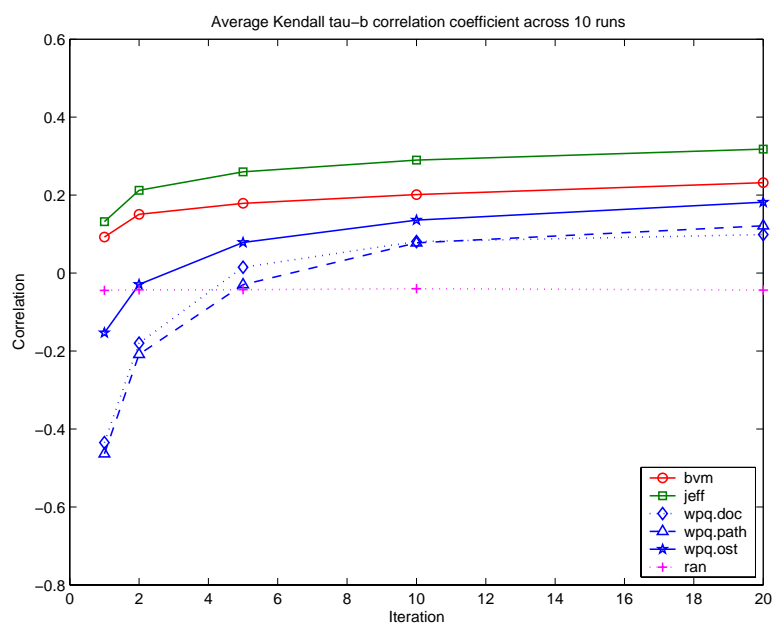


Figure B.4. Average Kendall correlation coefficient across 10 runs for 20% wandering.

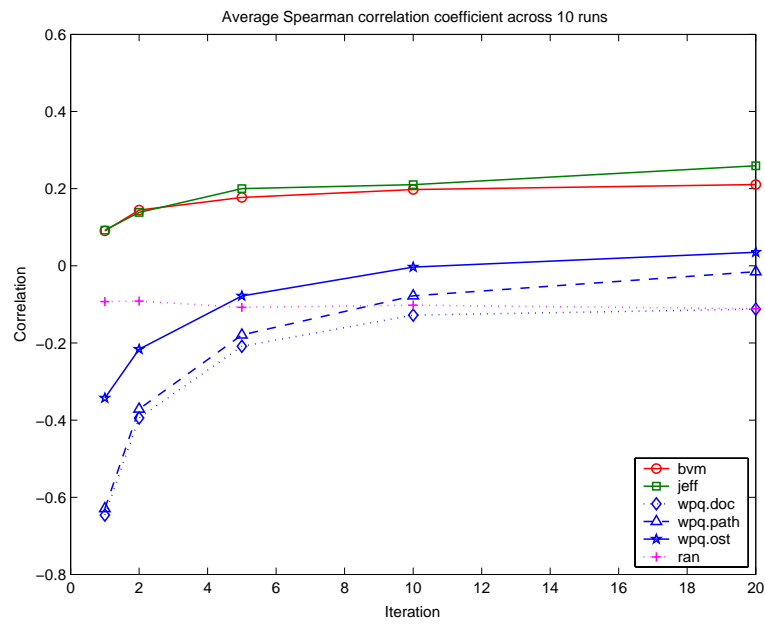


Figure B.5. Average Spearman correlation coefficient across 10 runs for 30% wandering.

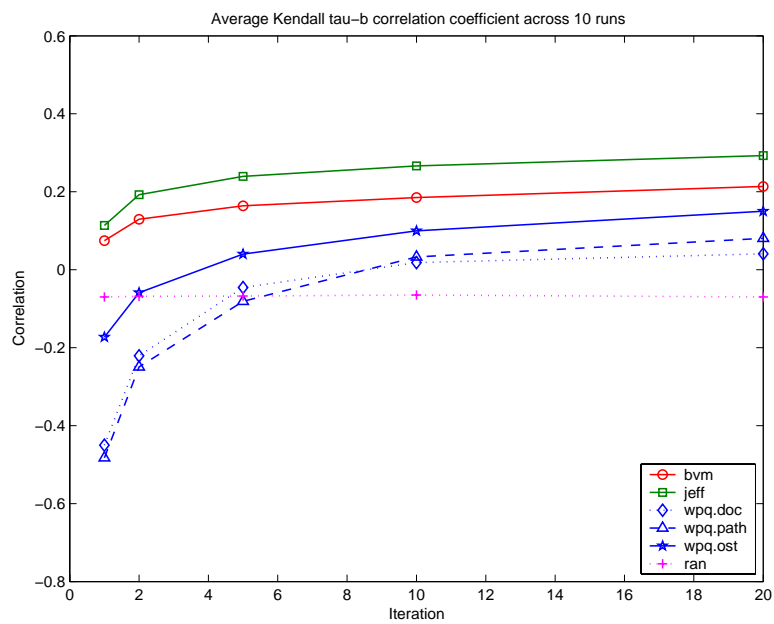


Figure B.6. Average Kendall correlation coefficient across 10 runs for 30% wandering.

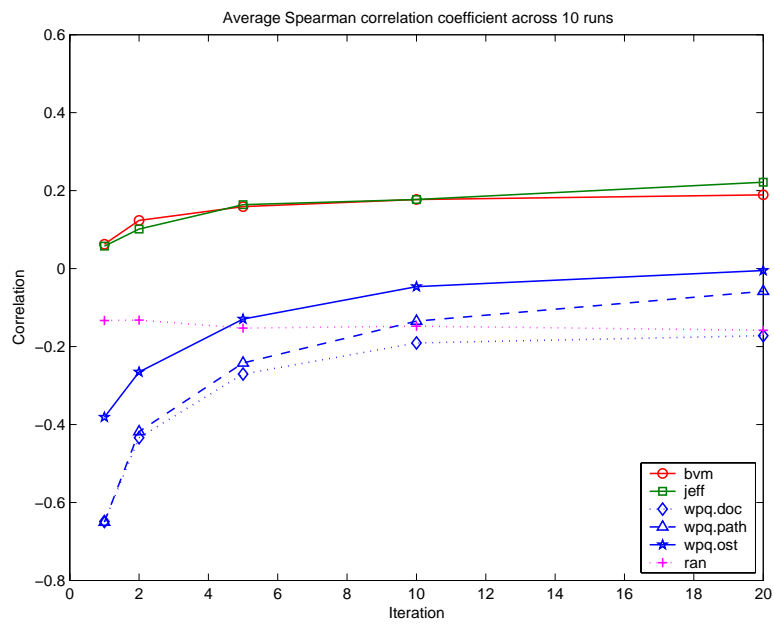


Figure B.7. Average Spearman correlation coefficient across 10 runs for 40% wandering.

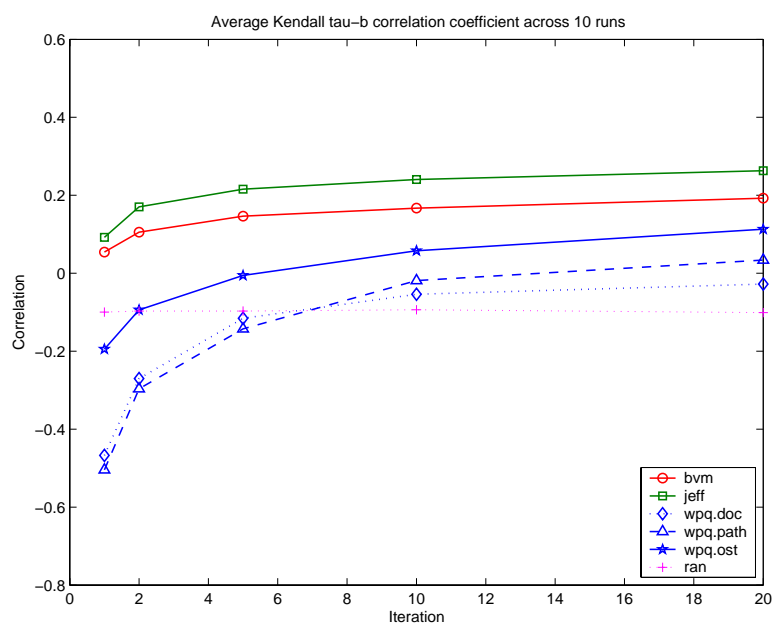


Figure B.8. Average Kendall correlation coefficient across 10 runs for 40% wandering.

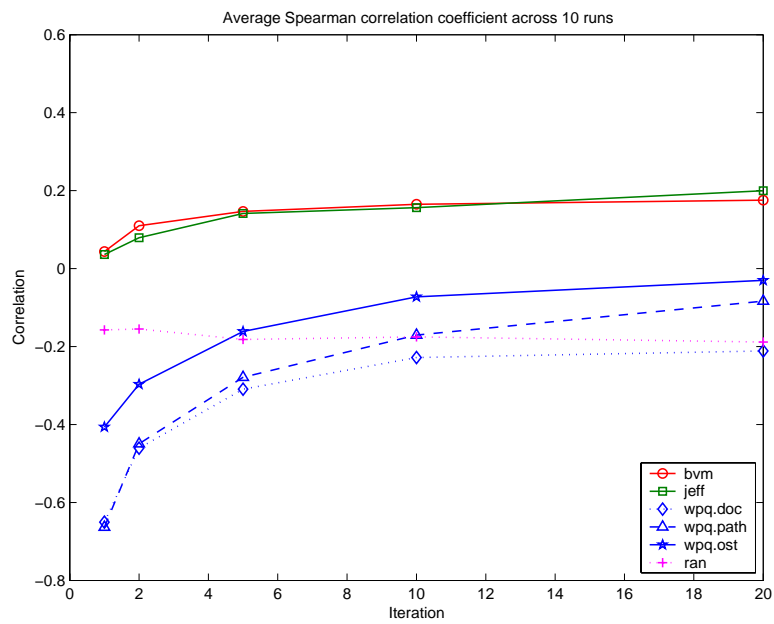


Figure B.9. Average Spearman correlation coefficient across 10 runs for 50% wandering.

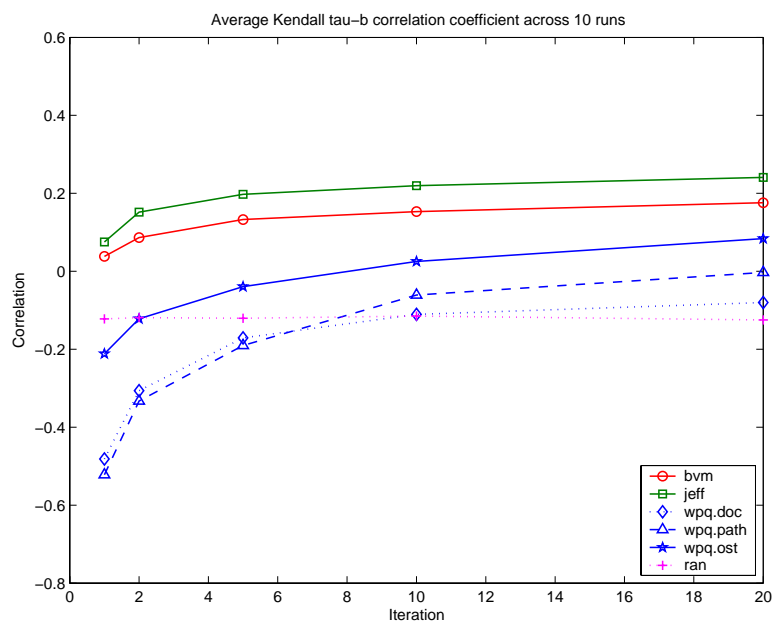


Figure B.10. Average Kendall correlation coefficient across 10 runs for 50% wandering.

Appendix C

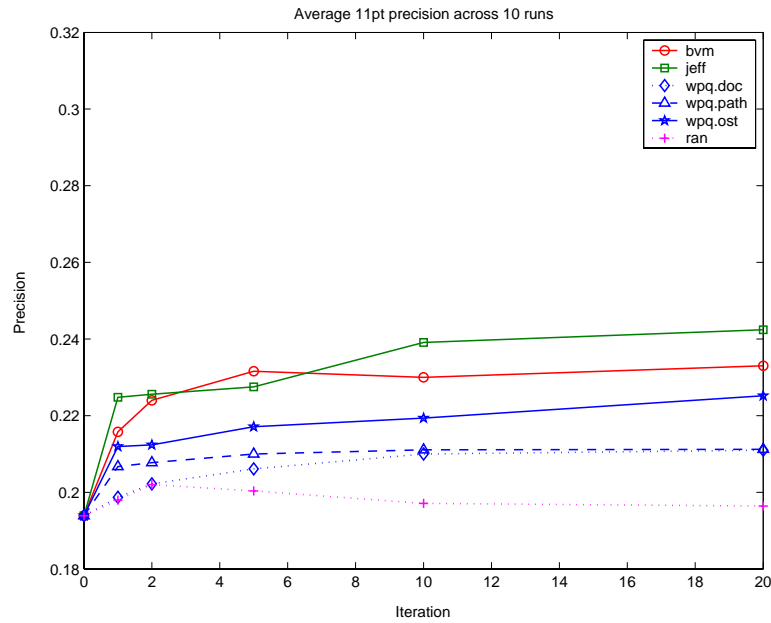


Figure C.1. Average 11-point precision across 10 runs for Scenario 5b.

Table C.1. Percentage change in precision per iteration for Scenario 5b. Overall change in first column, marginal change in second shaded column. Highest percentage in each column in bold.

Model	Iterations									
	1		2		5		10		20	
bvm	10.1	–	13.4	+ 3.7	16.3	+ 3.3	15.7	– 0.7	16.8	+ 1.3
jeff	13.7	–	14.1	+ 0.4	14.8	+ 0.8	18.9	+ 4.9	20.0	+ 1.4
wpq.doc	2.4	–	4.1	+ 1.7	5.9	+ 1.9	7.7	+ 1.9	8.1	+ 0.5
wpq.path	6.2	–	6.7	+ 0.5	7.7	+ 1.1	8.1	+ 0.5	8.2	+ 0.05
wpq.ost	8.5	–	8.7	+ 0.2	10.7	+ 2.2	11.6	+ 0.1	13.9	+ 2.6
ran	2.1	–	4.0	+ 2.0	3.2	– 0.8	1.6	– 1.6	1.3	– 0.4

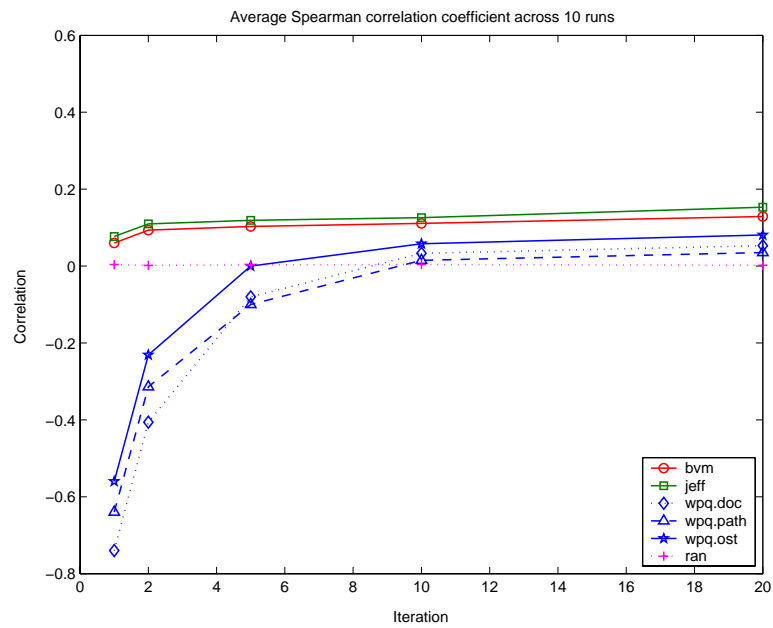


Figure C.2. Average Spearman correlation coefficient across 10 runs for Scenario 5b.

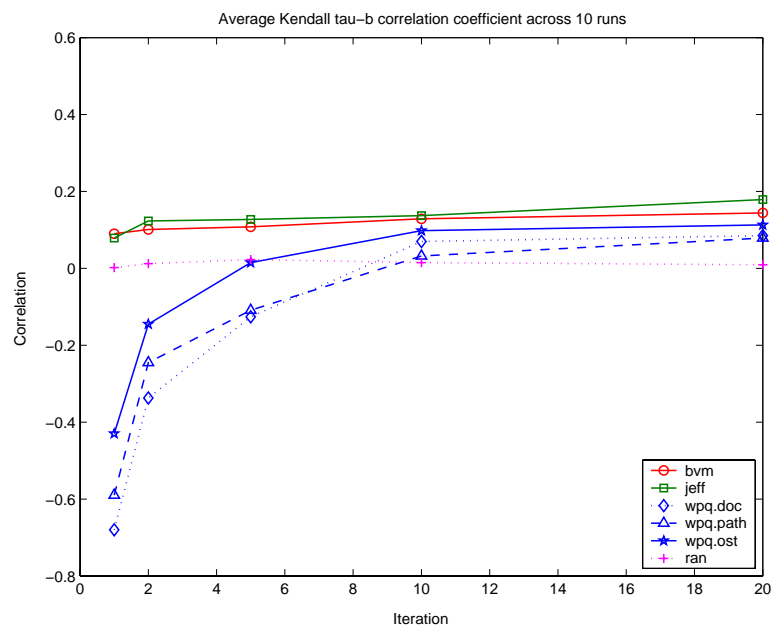


Figure C.3. Average Kendall correlation coefficient across 10 runs for Scenario 5b.

Appendix D

D.1 Introduction

The aim of this pilot test was to evaluate the interface components such as document representations and relevance paths and how well the heuristic-based framework identified information needs and tracked changes in formulations of them. The hypotheses tested were:

Hypothesis 1

The terms selected by the heuristic-based framework identifies the information needs of the subject (i.e., term selection support).

Hypothesis 2a

The heuristic-based framework tracks changes in the formulation of information needs.

Hypothesis 2b

The heuristic-based framework makes search decisions that correspond closely with those of the subject.

These hypotheses tested the two components of the heuristic-based framework: the Binary Voting Model and the information need tracking component. Details now are given of the experimental subjects, the search tasks, the experimental methodology and the systems used.

D.2 Experimental Subjects

24 subjects were recruited. In a similar way to that already described in Chapter Four, recruitment was specifically aimed at targeting two groups of subjects: *inexperienced* and *experienced*. The experienced subjects were those who used computers and searched the Web on a regular basis. Inexperienced subjects were those who searched the Web, used computers and the Internet infrequently. On average per week, inexperienced subjects spent 3.1 hours online, and experienced subjects spent 34.9 hours online. Overall, subjects had an average age of 26 with a range of 38 years (youngest 16 years, oldest 54 years). 14 males and 10 females participated in the experiments. The classification between experienced and inexperienced subjects was made on the basis of the subjects' responses to questions about their experience and their own opinion of their skill level.

D.3 Experimental Tasks

Each subject was asked to complete one search task from each of four categories, each containing two tasks. The categories were: *fact* search (e.g., finding a named person's current email address), *decision* search (e.g., choosing the *best* financial instrument), *background* search (e.g., finding information on dust allergies) and *search for a number of items* (e.g., finding contact details for a number of potential employers) (White *et al.*, 2003b). Each search task was placed within a simulated work task situation (Borlund, 2000b). This technique asserts that subjects should be given search scenarios that reflect real-life search situations and should allow the subject to make personal assessments on what constitutes relevant material. The different tasks engender realistic search behaviour and produce different types of simulated information needs within the range of verificative and conscious topical information needs (Ingwersen, 1992). The search tasks issued to subjects are included in Appendix E.

There were two tasks per category, each of a similar level of difficulty (verified by *a priori* pilot testing and questions in the post-task questionnaire) and subjects were asked to choose the task they would like to do. No other constraints were placed on their task selection. Subjects chose 51% of tasks because they were *interesting*, 21.8% of tasks because they felt they were *easy*, 19.8% because they were *familiar* with the topic area and 7.4% for *no reason*.

Offering subjects a choice of tasks allowed them to select tasks that interested them and were familiar. Subjects with topic experience are better equipped to make query modification decisions using that topic's terms and relevance assessments of that topic's documents (Kelly and Cool, 2002). Whilst the subject groups were homogeneous (i.e., inexperienced or experienced) no criteria other than search experience were used in the selection of candidates. Subject interests were potentially diverse and it was not possible to offer a single task in each task category that appealed to all subjects. Giving subjects a choice of tasks in each category increased the likelihood that the task they chose would interest them.

D.4 Experimental Methodology

In this pilot test subjects completed four search tasks, two tasks on each of the two systems: experimental and baseline. The presentation of tasks to subjects was held constant; each subject performed the search tasks in the same order, however the order of presentation of systems was rotated across subjects. The tasks had been used in previous experiments (White *et al.*, 2003b), where the impact of task bias was not significant. Subjects were given a maximum of 10 minutes to complete each task. Longitudinal evaluations such as those used

in Vakkari (1999) and Kelly (2004) can be used to monitor search behaviours over periods of time and in operational environments. Since experimental and situational variables are difficult to control in longitudinal studies their usefulness for the comparative evaluation of retrieval systems is limited.

The subjects were given a short tutorial on the features of the two systems and a training task that allowed them to use both systems. Background data on aspects such as the subjects' experience and training in online searching was then captured using an 'Entry' questionnaire. After this, subjects were introduced to tasks and systems according to the experimental design. Subjects were instructed to attempt each task to the best of their ability and write their answer on a sheet provided. As it was felt that this may affect subject interaction, subjects were not told how the Binary Voting Model and information need tracking component operated. A search was regarded as successful if the subject felt they had succeeded in their performance of the task. This is closely related to real information seeking situations, where the goal of any retrieval system is to satisfy the searcher.

Once they had completed a search, the subject was asked to complete questionnaires regarding various aspects of the search. Semantic differentials, Likert scales and open-ended questions were used to collect these data. These methods for capturing subjective information have been effective in related work (Brajnik *et al.*, 1996). In addition, semi-structured interviews were conducted after each search and after the experiment as a whole. Background logging was used to record each subject interaction event (e.g., queries submitted, mouse clicks, etc.) with an associated time stamp.

D.5 Systems

Two systems were used in this pilot test: the experimental system and the baseline system. The systems used document representations and relevance paths in the same way as described in Chapter Five. The experimental system used subject interaction to infer interests, select appropriate terms to add to the query and make decisions about how to use the new query. The baseline system used the same interface components as the implicit system but differed in one key way; in the baseline system the searcher was solely responsible for adding new query terms and selecting what retrieval strategies were undertaken after these terms have been added. These options gave subjects increased control over the search but also increased responsibility for making decisions.

The baseline interface contains one additional component; a control panel that allowed subjects to modify their query and make search decisions. The nature of this baseline allowed me to evaluate how well the experimental system estimated information needs from the perspective of the subject. I tested whether the system chose terms and made search decisions that matched those selected by the subject and whether the subject felt the support offered was beneficial. Systems that use implicit feedback can be unpopular since they remove searcher burden but also searcher control (Kelly and Teevan, 2003). In this pilot test I acknowledged this, and compared the approach with a baseline where the subject has such control. In the next section the findings are discussed.

D.6 Discussion

From observations and informal post-search interviews, subjects appeared to use the relevance paths and find the information shown at the search interface of value in their search. This is important, as the success of the both systems – especially the experimental system – is dependent on the use of these interface features. This finding was also important for the design of the systems described later in this thesis as it demonstrated the potential of systems that structure and monitor searcher interaction in this way.

Experienced subjects made more use of the relevance paths. Such subjects may be able to adapt to the new interface technology more easily. However, the content-rich results interface increased inexperienced searcher awareness of document content significantly more than experienced subjects. Experienced subjects may be able to infer more from standard representations such as document title and URL and therefore need less information at the interface. Although inexperienced subjects did not use the paths as often (since they were perhaps unfamiliar with the concept), they seemed to prefer the increased levels of content when they did.

Subjects did not rate their own search terms as *always* useful. They acknowledge that they are not able to adequately conceptualise their information need, even when given the chance to refine the terms used to express it. However, as they view and process information, and their state of knowledge changes, they become more able to express these needs (Belkin, 1980). The Binary Voting Model through a process of reinforcement learning (i.e., being repeatedly shown indications of what constitutes relevance) learned progressively, training itself with searcher interaction to better identify what is relevant. The Binary Voting Model was used in this pilot test to test my initial ideas that were later formalised into the Jeffrey's Conditioning Model.

The Binary Voting Model chose terms to represent the information needs of the subject. I used the degree of term overlap between the terms chosen by the subject and those chosen by the system as a measure of how well the model approximated information needs. Across both subject groups terms chosen by the Binary Voting Model co-occurred with any subject terms on a high number of occasions.

All subjects were instructed before the experiment that the different search decisions provided varying degrees of interface support and will have an increasingly dramatic effect in recreating or restructuring the retrieved information. They were not told that the control related in any way to shifts, changes or developments in their information need. Subjects adapted well to the need tracking and seemed comfortable with making search decisions that led to different outcomes (i.e., re-searching the document collection or reorganising information already retrieved).

The form of implicit feedback tested in this pilot evaluation is at the extreme end of a spectrum of searcher support. Based on informal feedback received during and after the pilot test, the approach removed too much searcher control. Feedback systems that use implicit feedback techniques may be best used to make decisions in conjunction with, not in place of, the searcher. As in *interactive query expansion* (c.f. Koenemann and Belkin, 1996), a system implementing such technology would monitor interaction and present potentially useful terms at the interface. In this collaboration, the searcher – who is best equipped to make relevance decisions – would select potentially useful terms and add them to the search query. Subjects also suggested that the system could also recommend search decisions based on the predicted degree of information need change. The system would give the searcher control over whether the recommended strategy is then executed.

This test confirmed the value of the content-rich search interfaces and the effectiveness of the components to estimate information needs and information need change. A fuller description and analysis of Pilot Test 1 is presented in White *et al.* (2004a).

Appendix E

T1.Fact

Simulated work task situation: You have just finished reading a very interesting article from a popular journal in your area of research. It has been five years since the article was first published, but you note that the author is Jan-Jaap Ijdens from the Robert Gordon University, Aberdeen. You have a keen interest in what the article discusses and would like to send an electronic mail to the author. However, you contact the university and find that Dr Ijdens has moved, leaving no forwarding email address.

Task: Bearing in mind this context, your task is to find his current email address.

T2.Fact

Simulated work task situation: You have recently formed a quiz team with your friends at university and have decided to enter a national competition. As a precursor to being invited to participate, you must first answer a set of questions that will be sent off to the competition organisers to be marked. Only the top scoring teams will be invited to compete at the national finals. You are finding one of the questions on the identity of the first male winner of the New York Marathon difficult to answer as this is not your area of expertise. The only clue you are given is that it was first run in 1970.

Task: Bearing in mind this context, your task is to find the name of the first male winner of the New York Marathon.

T3.Decision

Simulated work task situation: This summer, during your vacation, you are planning to go on a touring trip of North America. You want information to help you plan your journey and there are many tourist attractions you would be interested in visiting. You have set aside 3 months for the trip and hope to see as much of the continent as you can. As you cannot drive, you will have to use public transport, but are unsure which type to take.

Task: Bearing in mind this context, your task is to decide on the *best* form of transportation between cities in North America that would be suitable for you.

T4.Decision

Simulated work task situation: You have recently inherited a large sum of money left by a recently deceased distant relative. A number of friends have advised you that it may be worth investing this money in a financial instrument, such as a bond or corporate stocks. At present you are unaware of stock market trends and lack the knowledge required to make a sound judgement on what to do with this money. You would like information to help you decide.

Task: Bearing in mind this context, your task is to find information that will aid your decision on the *best* type of financial instrument to invest in.

T5.Background

Simulated work task situation: You have been asked, as part of your coursework for computing science or psychology this year, to write an essay on the Data Protection Act (computing) or 'Nature versus Nurture' (psychology). The essay should cite a number of sources, provide arguments for and against, and come to a conclusion incorporating your own views and opinions. You would like to gather information that could be useful for this task.

Task: Bearing in mind this context, your task is to find information that would be helpful for your essay, i.e., points for and against

T6.Background

Simulated work task situation: You are currently working as a research assistant at the University of Glasgow. Your laboratory is in an old building and one of your colleagues has developed a severe dust allergy that you believe is caused by his working environment. He is writing a letter to complain about the lack of cleanliness in your working environment and has asked you to help find information about dust allergies.

Task: Bearing in mind this context, your task is to find information about dust allergies in the workplace i.e., possible causes and cures.

T7.Number of Items

Simulated work task situation: You are entertaining a foreign exchange student who has expressed an interest in theatre and the arts. You are considering taking them to a local production of an Arthur Miller play. However, you are unfamiliar with his work and would like to find out more about some of the plays he has written. You decide on three plays – 'The Crucible', 'Elegy for A Lady' and 'Death of a Salesman' – that you would be interested in finding more about.

Task: Bearing in mind this context, your task is to provide a one sentence description of the plot in each of the three plays.

T8.Number of Items

Simulated work task situation: After you graduate you will be looking for a job in industry. You would like to keep your options open as you are unsure of what you would like to do exactly. However, since your choice of subjects in subsequent years of your course will impact on your employment options, you feel that now is a good time to decide on a job that would suit you. Friends and family have advised you to contact employment agencies and companies working in career development.

Task: Bearing in mind this context, find five contact names and email addresses for such recruitment companies specialising in your preferred line of work.

Appendix F

In this Appendix I present the experimental documents from the experiment described in Part IV of this thesis. These include:

F.1. Information sheet, Consent form and Receipt of Payment

F.2. 'Entry', 'Search' and 'Exit' Questionnaires

F.3. Training Search Task, Search Tasks and Task Completion Sheet

(Task A: High Complexity, Task B: Moderate Complexity, Task C: Low Complexity)

Department: *Computing Science*
Subject Identification Number for this study:



**UNIVERSITY
of
GLASGOW**

INFORMATION SHEET

Title of Project:

Web Search Interface Investigation

Name of Researcher:

Ryen W. White

You are being invited to take part in a research study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take the time to read the following information carefully. Ask me if there is anything that is not clear or if you would like more information.

The aim of this experiment is to investigate the relative effectiveness of three different Web search interfaces. We cannot determine the value of search systems unless we ask those people who are likely to be using them, which is why we need to run experiments like these. Please remember that it is the interfaces, not you, that are being evaluated. You were chosen, along with 47 others, because you work or study at the University of Glasgow.

It is up to you to decide whether or not to take part. If you decide to take part you will be given this information sheet to keep and asked to sign a consent form. If you decide not to take part you are free to withdraw at any time without giving a reason. You also have the right to withdraw retrospectively any consent given, and to require that any data gathered on you be destroyed. A decision not to participate will not affect your grades in any way.

The experiment will last between one-and-a-half and two hours and you will receive a reward of £12 upon completion. You will be given a chance to learn how to use the three interfaces before we begin. At this time you will also be asked to complete an introductory questionnaire. You will perform three tasks, one with each interface, and complete a questionnaire about using each system. You will have 15 minutes for each task. The questionnaires will ask how you felt during each search. All of your interaction (e.g., mouse clicks, scrolling, key presses) will also be logged. You are encouraged to comment on each interface as you use it, all your comments will be recorded on audio cassette *or I will take notes if you so prefer*. You will have the option to review, edit, or erase the recording. Please ask questions if you need to and please let me know when you are finished each task. You will be asked some questions about the tasks and systems at the end of the experiment.

All information which is collected about you during the course of this research will be kept strictly confidential. You will be identified by an ID number and all information about you will have your name and contact details removed so that you cannot be recognised from it. Data will be stored only for analysis, then destroyed.

The results of this study will be used for my Ph.D. research. The results are likely to be published in late 2004 and will be available online at <http://www.dcs.gla.ac.uk/~whiter/study/>. You can request a summary of the results in the consent form. You will not be identified in any report or publication that arises from this work.

This research is being funded by the Research Student Committee at the Department of Computing Science, University of Glasgow and the Engineering and Physical Sciences Research Council (<http://www.epsrc.ac.uk>). This project has been reviewed by the Faculty of Information and Mathematical Sciences Ethics Committee.

For further information about this experiment please contact:

Ryen W. White (e.mail: ryen@dcs.gla.ac.uk or tel: 0141 330 2788).
Department of Computing Science, University of Glasgow
17 Lilybank Gardens
Glasgow, G12 8RZ.

Department: *Computing Science*
Subject Identification Number for this study:



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CONSENT FORM

Title of Project:

Web Search Interface Investigation

Name of Researcher:

Ryen W. White

Please initial box

1. I confirm I have read and understand the information sheet dated (..../..../2004) (version) for the above study and have had the opportunity to ask questions.
2. I understand that my permission is voluntary and that I am free to withdraw at any time, without giving any reason, without my legal rights being affected.
3. I agree to take part in the above study.
4. I would like to receive a summary sheet of the experimental findings

☐☐☐☐

IF YOU WISH A SUMMARY, leave an email address _____

Name of subject

Date

Signature

Researcher

Date

Signature

1 for subject; 1 for researcher

Department: *Computing Science*
Subject Identification Number for this study:



UNIVERSITY
of
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RECEIPT OF PAYMENT

Title of Project:

Web Search Interface Investigation

Name of Researcher:

Ryen W. White

I confirm receipt of £12 paid for my participation in the above experiment.

Name of subject

Date

Signature

Researcher

Date

Signature

ENTRY QUESTIONNAIRE

This questionnaire will provide us with background information that will help us analyse the answers you give in later stages of this experiment.



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ID: System: Task:

Please place a TICK ☒ in the square that best matches your opinion

Section 1: PERSONAL DETAILS

1. Please provide your AGE:

2. Please indicate your GENDER:

Male.....	<input type="checkbox"/>	1
Female.....	<input type="checkbox"/>	2

3. Please indicate the HAND YOU USE TO CONTROL THE MOUSE:

Right.....	<input type="checkbox"/>	1
Left.....	<input type="checkbox"/>	2

4. Please provide your CURRENT OCCUPATION:

5. What college/university degrees/diplomas do you have (or expect to have)?

Degree:	<input type="text"/>	Subject:	<input type="text"/>	Date:	<input type="text"/>
Degree:	<input type="text"/>	Subject:	<input type="text"/>	Date:	<input type="text"/>
Degree:	<input type="text"/>	Subject:	<input type="text"/>	Date:	<input type="text"/>

Section 2: SEARCH EXPERIENCE

6. Overall, for how many years have you been doing online searching?


7. Do you carry out online searches at home or work?

Yes.....	<input type="checkbox"/>	1
No.....	<input type="checkbox"/>	2


If YES, how frequently?

once or twice a year	once or twice a month	once or twice a week	once or twice a day	more often
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. How much experience have you had:

	None  A lot				
Using point-and-click interfaces e.g. Macintosh, Windows.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching on computerised library catalogues locally (e.g. in your library) or remotely (e.g. Library of Congress).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching on World Wide Web search services (e.g. Google, AltaVista).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Searching on other retrieval systems..... (please specify which systems).....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	1	2	3	4	5
	<input type="text"/>				

9. You find what you are searching for:

Never  Always				
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5

10. Please indicate which search engines you use (mark AS MANY as apply)

Google (http://www.google.com).....	<input type="checkbox"/>	1
Yahoo (http://www.yahoo.com).....	<input type="checkbox"/>	2
AltaVista (http://www.altavista.com).....	<input type="checkbox"/>	3
AlltheWeb (http://www.alltheweb.com).....	<input type="checkbox"/>	4
Others (please specify).....	<input type="text"/>	5

11. Using the search engines you chose in question 10 is GENERALLY:

	1	2	3	4	5	
easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	difficult
stressful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	relaxing
simple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complex
satisfying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	frustrating

SEARCH QUESTIONNAIRE

To evaluate the system, we now ask you to answer some questions about it and your search in general. Take into account that we are interested in knowing your opinion: answer questions freely, and consider there are no right or wrong answers.

Please remember that we are evaluating the system you have just used and not you.



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ID:		System:		Task:	
-----	--	---------	--	-------	--

Place a TICK ☒ in the square that best matches your opinion. Please answer all questions.

Section 1: SEARCH PROCESS

1. The search we asked you to perform was:						
	1	2	3	4	5	
stressful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	relaxing
interesting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	boring
tiring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	restful
easy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	difficult

Section 2: SUPPORT

Each of the three systems has different features to help you find relevant information. In this section we ask you about the system you have just used.

Content Presentation

2. As I searched, I tried to only view information related to the search task					
Agree			Disagree		
1	2	3	4	5	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

3. The information laid out on the results page was:						
	1	2	3	4	5	
unhelpful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	helpful
useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not useful
ineffective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	effective
not distracting	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	distracting

Choosing Additional Query Words

Each system offered terms that could be used to construct a new query for reordering sentences and documents, or re-searching the Web.

4. I felt comfortable with how the new query was constructed

Disagree

Agree

☐

☐

☐

☐

☐

5

4

3

2

1

Choosing Action

Each system allowed the reordering of sentences and documents, or re-searching the Web. In this questionnaire we call this the 'action'.

5. I felt comfortable with how the action was selected

Agree

Disagree

☐

☐

☐

☐

☐

5

4

3

2

1

Relevance Assessment

The Automatic and Interactive systems assumed that much of the information you viewed was relevant. In the Checkbox system you explicitly marked relevant items.

6. How you conveyed relevance to the system (i.e. ticking boxes or viewing information) was:

	1	2	3	4	5	
difficult	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	easy
effective	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	ineffective
not useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	useful

7. How you conveyed relevance to the system made you feel:

	1	2	3	4	5	
comfortable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	uncomfortable
not in control	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	in control

↓

ONLY COMPLETE 'Notification that Action has Occurred' IF YOU HAVE JUST USED THE AUTOMATIC OR INTERACTIVE SYSTEMS

↓

Notification that Action has Occurred

8. The system communicated its action in a way that was:

	1	2	3	4	5	
unobtrusive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	obtrusive
uninformative	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	informative
timely	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	untimely

9. The appearance of the 'idea bulb' when the system chose/recommended an action was:

	1	2	3	4	5	
not disruptive	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	disruptive
not useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	useful

Section 3: ADDITIONAL WORDS CHOSEN/RECOMMENDED BY THE SYSTEM

The systems chose or recommended additional query words. In this section we ask you about this process.

10. The words chosen/recommended by the system were:

	1	2	3	4	5	
irrelevant	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	relevant
useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not useful



ONLY ANSWER QUESTION 11. IF YOU HAVE JUST USED THE CHECKBOX OR INTERACTIVE SYSTEMS



11. You accepted any recommended words because (mark AS MANY as apply):

they meant the same.....	<input type="checkbox"/>	1
they were related to words you had chosen already.....	<input type="checkbox"/>	2
you couldn't find better words.....	<input type="checkbox"/>	3
they represented new ideas (i.e. not part of your original request).....	<input type="checkbox"/>	4
other (please specify).....	<input type="text"/>	5

12. The extra words ENTERED BY YOU originated in ideas from (mark ONE only):

a. the list of terms suggested by the system.....	<input type="checkbox"/>	1
b. the retrieved set of documents and extracted information.....	<input type="checkbox"/>	2
c. a combination of 'a' and 'b'.....	<input type="checkbox"/>	3
d. other (please specify).....	<input type="text"/>	4

13. I would trust the system to choose words for me

Agree		Disagree		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5

14. Do you have any further comments about the words that were chosen/recommended?

Section 4: ACTION CHOSEN/RECOMMENDED BY THE SYSTEM/YOU

The Automatic and Interactive systems attempt to choose actions that reflect changes in the required information. The Checkbox system lets you choose the action. In this section we ask for your views on this process.



**ONLY ANSWER QUESTIONS 15. to 18. IF YOU HAVE JUST USED THE
AUTOMATIC OR INTERACTIVE SYSTEMS**



15. The action chosen/recommended by the system reflected changes in the information you searched for:

Never					Always
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	4	3	2	1	

16. The action chosen/recommended by the system was:

	1	2	3	4	5	
useful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	not useful
unhelpful	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	helpful
appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	inappropriate

17. You accepted any chosen/recommended actions because (mark AS MANY as apply):

they matched what you wanted to do (i.e. were appropriate).....	<input type="checkbox"/>	1
they were worth trying (i.e. to see what would happen).....	<input type="checkbox"/>	2
you hadn't considered doing them.....	<input type="checkbox"/>	3
other (please specify).....	<input type="text"/>	4

18. I would trust the system to choose an action for me

Disagree					Agree
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
5	4	3	2	1	



ONLY ANSWER QUESTION 19. IF YOU HAVE JUST USED THE
CHECKBOX OR INTERACTIVE SYSTEMS



19. YOU CHOSE any actions because (mark AS MANY as apply):

they matched what you wanted to do (i.e. were appropriate)..... ☐ 1

they were worth trying (i.e. to see what would happen)..... ☐ 2

similar actions had been beneficial before..... ☐ 3

other (please specify)..... 4

20. Do you have any further comments about the action chosen/recommended by the system?

Section 5: TASK

In this section we ask about the search task you have just attempted.

21. You chose this task because (mark ONE only) :

you had an interest in it..... ☐ 1

you were familiar with similar tasks..... ☐ 2

there were no other tasks you could do..... ☐ 3

it was the least boring..... ☐ 4

no reason..... ☐ 5

other (please specify)..... 6

22. The task we asked you to perform was:

	1	2	3	4	5	
unclear	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	clear
simple	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complex
unfamiliar	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	familiar

23. I encounter a task similar to this one frequently

Agree			Disagree	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
1	2	3	4	5

24. I had an exact idea of the type of information I wanted

Disagree Agree

☐ ☐ ☐ ☐ ☐

5 4 3 2 1

25. I believe I have succeeded in my performance of this task

Agree Disagree

☐ ☐ ☐ ☐ ☐

1 2 3 4 5

26. I think there was better information available (that the system did not help me find)

Disagree Agree

☐ ☐ ☐ ☐ ☐

5 4 3 2 1

27. Do you have any further comments about the task you have just attempted?

EXIT QUESTIONNAIRE

The aim of this experiment was to investigate the relative effectiveness of three different Web search interfaces.

ID:	<input type="text"/>	System:	<input type="text"/>	Task:	<input type="text"/>
-----	----------------------	---------	----------------------	-------	----------------------

Please answer the following questions as fully as you feel able.

Section 1: SYSTEM EXPERIENCES



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1. Rank the systems in order of preference (1 = best, 3 = worst):

Checkbox:
Recommendation:
Automatic:

2. Explain your ranking in the previous question

3. How did you feel about each system you used?
[please refer to printed screenshots if necessary]

Checkbox

Interactive

Automatic

Section 2: TASK EXPERIENCES

4. Rank the tasks in order of preference (1 = best, 3 = worst):

First Task:

Second Task:

Third Task:

5. Explain your ranking in the previous question

Section 3: COMMENTS

6. Do you have any further comments or questions about the systems or experiment?

Please take note of my email address and let me know if you have any further questions.

Thank you for your help

Department: *Computing Science*



TASK A

Title of Project:

Web Search Interface Investigation

**UNIVERSITY
of
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Name of Researcher:

Ryen W. White

Please choose one task from the six topics given below. *You may not choose a task from the same topic as any chosen previously.* You have 15 minutes to attempt this task. Please remember that it is the systems that are under evaluation, not you.

Topic

- | | |
|----------|---|
| 1 | A friend who has been attempting to gain a university place has been complaining that there are too many people attending university today, you were unsure if this assessment was correct and have decided to find out what changes there have been in the student population in recent times. |
| 2 | You are currently working as a research assistant at a local university. Your laboratory is in an old building and one of your colleagues has developed a severe allergy that you believe is caused by his working environment. You want to gather information on allergies in the workplace that will help you advise him. |
| 3 | You are about to depart on a short-tour along the west coast of Italy. The agenda includes a visit to the country's capital, Rome, during which you hope to view many of the city's modern art galleries and museums. You decide to find out from a number of sources which are the most popular art galleries and museums, and for what reasons. |
| 4 | Whilst in a mobile phone shop, you overhear a staff member telling one of their friends to buy a 3rd Generation phone. Your friend didn't want to be sucked into buying something that may soon be obsolete so has asked you to explain 3rd Generation mobile phone technology to them. |
| 5 | Your friend has just finished reading a copy of a national newspaper in which there is mention Internet music piracy. The article stresses how this is a global problem and affects compact disc sales worldwide. Unaware of the major effects you decide to find out how and why music piracy influences the global music market. |
| 6 | Whilst having dinner with an American colleague, they comment on the high price of petrol in the UK compared to other countries, despite large volumes coming from the same sources. Unaware of any major differences, you decide to find out how and why petrol prices vary worldwide. |

Department: *Computing Science*



TASK B

Title of Project:

Web Search Interface Investigation

**UNIVERSITY
of
GLASGOW**

Name of Researcher:

Ryen W. White

Please choose one task from the six topics given below. *You may not choose a task from the same topic as any chosen previously.* You have 15 minutes to attempt this task. Please remember that it is the systems that are under evaluation, not you.

Topic

- | | |
|----------|--|
| 1 | A friend has recently been applying to various universities and courses but has been complaining that they are finding it difficult to attain a place due to a much larger and varied number of people attending university. You were unaware if their assessment was correct so you have decided to find out how the composition of the student population has changed over the past 5 years. |
| 2 | You are currently working as a research assistant at a local university. A colleague has recently been diagnosed with a dust allergy caused by dust in his working environment. He is writing a letter to the university complaining about the lack of cleanliness. He has asked for you to help him find information on the causes of dust allergies that may be useful for constructing this letter. |
| 3 | You are about to depart on a short-tour along the west coast of Italy. The agenda includes a visit to the country's capital, Rome, during which you hope to find time to pursue your interest in modern art. However, you have recently been told that time in the city is limited and you want information that allows you to choose a gallery to visit. |
| 4 | Whilst in a mobile phone shop, you overhear a staff member telling one of their friends to wait until 3rd Generation phones are available before purchasing a new one. The staff are looking for a quick sale and don't seem to be very forthcoming with information on this technology so you decide to find out for yourself what special features will be available on 3rd Generation mobile phones before making a decision. |
| 5 | Your friend has just finished reading a copy of a national newspaper in which there is mention of Internet music piracy. This article suggests that the costs of steps taken to stop the illegal downloading of music are passed directly to the consumer. You decide to research which actions have been most cost-effective in combating the problem. |
| 6 | Whilst out for dinner one night, one of your friends' guests is complaining about the price of petrol and all the factors that cause it. Throughout the night they seem to complain about everything they can, reducing the credibility of their earlier statements so you decide to research which factors actually are important in deciding the price of petrol in the UK. |

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TASK C

**UNIVERSITY
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Title of Project:

Web Search Interface Investigation

Name of Researcher:

Ryen W. White

Please choose one task from the six topics given below. *You may not choose a task from the same topic as any chosen previously.* You have 15 minutes to attempt this task. Please remember that it is the systems that are under evaluation, not you.

Topic

- | | |
|----------|--|
| 1 | A friend has recently been applying to various universities and courses but has been complaining that they are finding it difficult to attain a place due to the rising numbers of students. You were unsure if their assessment was correct so you have decided to find out how the size of the student population changed over the last 5 years and how it is expected to change in the coming 5 years. |
| 2 | You are currently working as a research assistant at a local university. Your laboratory is in an old building and one of your colleagues has recently been diagnosed with a dust allergy caused by dust in his working environment. You decide to help him by finding some simple steps that can be taken to tackle dust allergies. |
| 3 | You are about to depart on a short-tour along the west coast of Italy. The agenda includes a visit to the country's capital, Rome, during which you want to visit an art gallery. Your friend has an interest in impressionist paintings and you would like to find a gallery in Rome that has such paintings. |
| 4 | Whilst in a mobile phone shop, you overhear a staff member telling one of their friends to wait until 3G or 3rd Generation phones are available before purchasing a new one. The staff are looking for a quick sale and don't seem to be very forthcoming with information on this technology so you decide to find out for yourself what special features will be available on 3G or 3rd Generation mobile phones before making a decision. |
| 5 | You are having a discussion with your friend about an article on Internet music piracy. Your friend suggests that illegal music downloads are affecting sales of compact discs, and driving up compact disc prices in Europe in particular. Unsure if this is true, you decide to find out whether music piracy has a direct influence on European compact disc prices, and if so, to what extent. |
| 6 | While out for dinner one night, your friend complains about the rising price of petrol. However, as you have not been driving for long, you are unaware of any major changes in price. You decide to find out how the price of petrol has changed in the UK in recent years. |

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TRAINING TASK



**UNIVERSITY
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Title of Project:

Web Search Interface Investigation

Name of Researcher:

Ryen W. White

Please read the task description below and once you feel comfortable that you understand what is required, try using the training system to attempt it.

Next weekend, a close friend of yours is hoping to go on a short-break to Paris, France. He has recently moved house and does not have a phone line installed. As a result he has asked you to look for hotels in the city on his behalf. Both of you are not too confident with your French speaking skills and would like to find hotels that offer an online registration service. Your friend expects to get Internet access again soon and he would like the Web address (e.g., <http://...>) from five such hotels in the city, so that he can pursue the booking himself.

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TASK ANSWERS/NOTES



Title of Project:

Web Search Interface Investigation

**UNIVERSITY
of
GLASGOW**

Name of Researcher:

Ryen W. White

ID:		System:		Task:	
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Please write your answers or any notes in the space provided below. If you require more paper, please ask the experimenter. You have 15 minutes to attempt this task.

Appendix G

In this Appendix I present details of the Interaction logs created during the experiment. The tags used in the log files are given in Appendix G.1 and an excerpt from the logs is included in Appendix G.2.

Appendix G.1

The tags used in the interaction logs are described in the tables below. The symbol ‘#’ is used to represent a number where appropriate.

Table G.1.

General interaction tags.

Tag	Meaning
SENT [doc #][sentence #]	Sentence clicked
LRSENT [sentence #]	Low-ranked sentence clicked (rank above 15)
SENTAR [sentence #]	Sentence arrow clicked
L [#]	Length of top-ranking sentence list
DOC [doc #]	Document viewed
LRDOC [doc #]	Low-ranked document viewed (beyond first 10)
HIGHDOC [doc #]	Document title highlighted
LRHIGHDOC [doc #]	Low-ranked document highlighted
SUM [doc #]	Summary viewed
SUMFAIL [doc #]	Summary could not be created because of technical problems
SUMOK [doc #]	Summary created
SS [doc #][sentence #]	Summary sentence clicked
SIC [doc #][sentence #]	Sentence-in-context viewed
NEXT [start #]	Next button clicked
PREV [start #]	Previous button clicked
NP	New relevance path
STEP [#]	Step number in relevance path
COORD [#,#]	Position of the mouse pointer [x-coordinate, y-coordinate]
CLICKCOORD [#,#]	Position of a mouse click [x-coordinate, y-coordinate]

Table G.2.

Explicit relevance assessments tags.

Tag	Meaning
XTITLE [doc #]	Title relevant
XSENT [sentence #]	Top-Ranking Sentence relevant
XSUM [doc #]	Summary relevant
XSS [doc #][sentence #]	Summary sentence relevant
XSIC [doc #][sentence #]	Sentence in context relevant
XCA	Clear all checked representations

Table G.3.

Result set information tags.

Tag	Meaning
RESREP [#]	Total number of potential representations
RESDOC [#]	Total number of documents returned

Table G.4.

Queries and query modification tags.

Tag	Meaning
Q $[t_1, \dots, t_n]$	Original query
EC [rank position #][t]	Expansion term chosen from list of potential expansion terms
ER [rank position #][t]	Term removed from list of chosen expansion terms
EL [#]	Expanded query length
EXP $[t_1, \dots, t_n]$	Expanded query
ECA	Clear all expansion terms
XCQ	Clear query from Checkbox system
XRQ	Restore query from Checkbox system
XTA $[t]$	Add term t from Checkbox system
XTD $[t]$	Remove term t from Checkbox system

Table G.5.

Retrieval strategy (action) tags.

Tag	Meaning
AU	Undo action
AU-MIN	Undo action from minimised window (Automatic system)
AU-MAX	Undo action from maximised window (Automatic system)
AREC [a]	Recommended action

Appendix G.2

An excerpt from the interaction logs of the Recommendation system for the search task on dust allergies. The initial query was ‘causes dust allergy’ and the contents of the EXP[...] tag are the top 20 terms recommended by the system.

```
COORD[585,401] : 1078940148799 : Wed Mar 10 17:35:48 GMT 2004
COORD[569,400] : 1078940149050 : Wed Mar 10 17:35:49 GMT 2004
COORD[601,396] : 1078940149310 : Wed Mar 10 17:35:49 GMT 2004
COORD[620,395] : 1078940149560 : Wed Mar 10 17:35:49 GMT 2004
COORD[557,404] : 1078940149821 : Wed Mar 10 17:35:49 GMT 2004
COORD[589,408] : 1078940150071 : Wed Mar 10 17:35:50 GMT 2004
COORD[572,404] : 1078940150321 : Wed Mar 10 17:35:50 GMT 2004
COORD[571,403] : 1078940150572 : Wed Mar 10 17:35:50 GMT 2004
SENTAR[8] : 1078940150692 : Wed Mar 10 17:35:50 GMT 2004
EXP[house allergic information medical mite faq treatment medication
options learn reasons advice allergies symptoms asthma health mold
allergens pollen air] : 1078940150882 : Wed Mar 10 17:35:50 GMT 2004
COORD[571,403] : 1078940150942 : Wed Mar 10 17:35:50 GMT 2004
AREC[trs] : 1078940150952 : Wed Mar 10 17:35:50 GMT 2004
NP[21] : 1078940150962 : Wed Mar 10 17:35:50 GMT 2004
STEP[21][1] : 1078940150962 : Wed Mar 10 17:35:50 GMT 2004
LRHIGHDOC[29] : 1078940150962 : Wed Mar 10 17:35:50 GMT 2004
CLICKCOORD[571,403] : 1078940151002 : Wed Mar 10 17:35:51 GMT 2004
COORD[571,403] : 1078940151253 : Wed Mar 10 17:35:51 GMT 2004
COORD[440,404] : 1078940151513 : Wed Mar 10 17:35:51 GMT 2004
COORD[375,400] : 1078940151763 : Wed Mar 10 17:35:51 GMT 2004
COORD[350,390] : 1078940152014 : Wed Mar 10 17:35:52 GMT 2004
COORD[350,392] : 1078940152264 : Wed Mar 10 17:35:52 GMT 2004
COORD[350,394] : 1078940152525 : Wed Mar 10 17:35:52 GMT 2004
TDOC[29] : 1078940152595 : Wed Mar 10 17:35:52 GMT 2004
DOC[29] : 1078940152595 : Wed Mar 10 17:35:52 GMT 2004
TDOC[29] : 1078940152595 : Wed Mar 10 17:35:52 GMT 2004
STEP[29][2] : 1078940152785 : Wed Mar 10 17:35:52 GMT 2004
CLICKCOORD[350,394] : 1078940152785 : Wed Mar 10 17:35:52 GMT 2004
COORD[350,394] : 1078940152795 : Wed Mar 10 17:35:52 GMT 2004
COORD[738,234] : 1078940153055 : Wed Mar 10 17:35:53 GMT 2004
COORD[711,13] : 1078940153306 : Wed Mar 10 17:35:53 GMT 2004
COORD[955,164] : 1078940153766 : Wed Mar 10 17:35:53 GMT 2004
COORD[932,137] : 1078940154017 : Wed Mar 10 17:35:54 GMT 2004
COORD[787,161] : 1078940154267 : Wed Mar 10 17:35:54 GMT 2004
COORD[640,161] : 1078940154527 : Wed Mar 10 17:35:54 GMT 2004
COORD[590,127] : 1078940154778 : Wed Mar 10 17:35:54 GMT 2004
COORD[521,108] : 1078940155038 : Wed Mar 10 17:35:55 GMT 2004
COORD[514,101] : 1078940155288 : Wed Mar 10 17:35:55 GMT 2004
COORD[514,101] : 1078940155549 : Wed Mar 10 17:35:55 GMT 2004
COORD[514,101] : 1078940155799 : Wed Mar 10 17:35:55 GMT 2004
```