terms in the index and only one of them leads to more than a single locator. For another, some of the index entries are adjectives and at least one is a verb. In fact, the index is not one's standard back-of-the-book subject index, but is instead an index to (the definitions of) terms. Such an index is quite useful for a work like this one, but should not be the only index. The absence of a subject index is an unfortunate omission and one of the book's few weaknesses.

Another feature of the book that I find less than helpful is its adoption of a bibliographic reference system based on numerical indicators rather than on author names and dates. Sometimes the authors overcome this weakness by mentioning the author's name and/or supplying a date for the reference in the text, but many references are simply by number. Personal experience suggests that readers are likely to know more under the name-and-date system of bibliographical references because only a limited number of references will be looked up and remembered under the numerical indicator system.

An underlying goal of the book's authors is to describe rigorously the properties of knowledge-based systems capable of common sense reasoning in real time. While some portion of that effort may not be of particular concern even to researchers within knowledge organization (e.g., robotic action), much of it is. Presumably, it will be only the exceptional reader of this review who finds *The Logic of Knowledge Bases* an easy read, and probably in no case would someone find it a fast read. But there are many parts of the book that should prove to be a thought-provoking and rewarding read, provided one is conversant with the basic notions and notations of first-order logic. Thus, despite the restrictedness of the audience to whom the book is explicitly addressed, a considerably larger audience could benefit from spending some thoughtful time among its pages.

Rebecca Green

Dr. Rebecca Green, College of Information Studies, Hornbake Building (South Wing), Room 4105, University of Maryland, College Park, Maryland 20742, USA. E-mail: rgreen@umd5.umd.edu.

VARET, Gilbert. **La science et son information à l'heure d'Internet [Science, its information, and Internet].** Paris : Presses universitaires de France, 2000. vii, 169 p. (Collection Science, histoire, société). ISBN 2-13-050994-0.

The work is divided into three parts, entitled roughly Givens, Issues, and Perspectives ("Constats", "Débats", "Perspectives"). [Note that all translations are the reviewer's, and often they should be considered as interpretations rather than direct translations, in order to try to provide better sense in the absence of the text]. Within the three parts are ten chapters, followed by additional notes and a short bibliography. There is no index.

Gilbert Varet is professor emeritus at the Université de Franche-Comté in France. His previous publications include a number of works on bibliography. This work offers a plea for rigour in bibliographic methods as they shift from paper-based to computer technology. At a time when the arrival of the World Wide Web has caused a paradigm shift in information science methods, a reflexion on the subject of what we do and how we do it can be useful. In addition, since information science has never been able to define itself very clearly (we argue and discuss among ourselves, constantly have to justify our existence to the university hierarchies and to the professional community, have difficulty defining the boundaries between ours and related disciplines, and so on), a philosophical reflexion on the subject can help shed some light.

But this work is not really about information science. It does include much discussion of information science issues but from a philosophical and rather abstract point of view. The discussion leans toward computer science. Indeed, the author does not look favourably at all upon information science as a discipline, and after raising a number of issues about it throughout the text, the better to decry it, in the end he denies that it even exists as a science, using the past tense to say in effect that it was barely more than a culture, far removed from the hard sciences, that attempted to branch out from computer science and that lasted for thirty years or so (p. 153). Should he be reminded that hundreds of schools worldwide still offer graduate education in this area?

It is no wonder the author is confused about what we do exactly, when we who work in the field have trouble sorting it out ourselves. Professor Varet may take comfort in the fact that in the ongoing march of

shifts in our field, "information studies" is replacing "information science" as the preferred term for our discipline, at least in North American schools. The author sees information science as a poor rival to computer science, one that is losing out as technology progresses. As an example, he notes that the *Annual Review of Information Science and Technology (ARIST)* is losing visibility (p. 98), although he provides no evidence to back this up. We note that as the flood of information continues unabated, it is pretty safe to say that everything is losing visibility, but also that tools like *ARIST*, that help sort out the mass of information, are probably needed more than ever.

Although Professor Varet obviously understands computer science fairly well, it is not clear that he has a good grasp on the rate of technological change. He notes that Microsoft Word is different (understand incompatible) between Apple and the Windows version (p. 30), although the two have been able to read each other without a translator since Word 6, which came out several years before this book. There is a discussion on reading bibliographic information on screen, as compared with reading it on paper (p. 75-76), in which the author complains that the information is not presented in the same way, indeed that it cannot be, because of the organisation of databases. This may have been true very early on, but bibliographic information can now be presented onscreen exactly as seen on paper. The computer simply does what it is told to do. If information science people, who understand these issues, were included in teams that design information interfaces, issues such as poor display of information could have been resolved long ago. A terminological issue in this context is that the author proposes the term "infographie" to describe text in computer form; however, the term is already well-established as the French equivalent of "computer graphics". We can see that this acception may have its place in philosophy, but using it with this meaning in information science is asking for trouble.

In discussing the "bibliographic deficit" (the notion that information is being thrown out onto the Web at a faster rate than the metadata needed to harness it), the author states that the very size of this deficit is slowly but surely increasing. Soon there will be no control at all and the information will be useless without the metadata. We note that the surge of information on the Net is a result of the possibility of doing it: people can and do just throw things out onto the Net, because it is possible to do so, thus causing this deficit. However, information science professionals can and do come along after the fact, and add layers of order to the chaos. This reflects a changing paradigm in information science: we used to do the ordering before information was made public, now information is made public before it has been organized.

The author is very interested in bibliography as a means to resource discovery, but does not recognize that this is also a contribution information science can make to organising the Web. Varet seems to think each science should order its own information, and he may well be right about this, but when has this ever happened? Librarians used to do this work for the scientists, and now in their newer forms of training as broader information professionals they still acquire the skills required to do so. Even if scientists had the training and skills, does professor Varet really think that they would take the time to add this whole additional layer of scholarly work? The author should remember that the Web is still in the very first stages of its existence, and that ordering the information content will get much more rigourous as time goes on, if only because the Web is likely to break down if this does not happen. Of course, information science professionals and people in the related professions are the ones who can do this. Some level of intellectual activity must take place in order for data to become information, and this is the work of information scientists, whose existence the author does not seem to, or want to acknowledge.

Professor Varet's summary dismissal of authority lists (p. 49) is a good example of a lack of understanding of tools used in information science that is prevalent throughout his reflexion. The author presents them as elitist vocabularies that are next to useless, claim to be exhaustive, are "concocted" by snobbish institutions and limited to their own collections. He asks: "Where do these so-called authority lists play the slightest part in organising the Web?" He cannot be aware of a lot of work going into building tools for uniform terminologies in many disciplines, not to mention crosswalks to permit these tools to communicate with each other, metadata cores and large metadata containers. Of course, many more such authority lists will be needed if we are to keep from drowning in the sea of information that is the Web. Another example of misunderstanding information tools is a diatribe against annotated bibliographies (p. 95). The author feels that they are facile because the reader can just take the lazy approach of reading somebody else's opinion instead of reading the list.

However, such commentary can be very well thought out and instructive, indeed so helpful that in the end it is a much better guide to what to read than the reader of the bibliography would be able to figure out on his or her own. In addition, the author complains that the commentary disrupts the reading of the list. This ignores the fact that a hypermedia database could easily display the references in the list the author wishes to see, and require a click by the reader to see the annotation. If only information science professionals existed, they could come to the rescue in such a situation! One last example: the author does not like boolean searching. In 30 years of searching, he has apparently never gotten satisfying results from the use of AND and OR (p. 80). Presumably he's talking about noise, silence, and false drops in full text searching. But further in the text (p. 132), boolean searching becomes a time saver, and it works "because of the logical continuity which governed the indexing of the ensemble of the materials gathered". Isn't that the value that information science people add to information?

It is true that computer science is reinventing information science as it discovers the problems we've been studying for decades. Computer science doesn't know we exist either. Thus what we call classification takes on the name ontologies as computer scientists discover the need for them, cataloguing data become descriptive metadata, and so on. Organising information is very different from organising data. Information scientists, who take organising information to be the focus of their activities, use computers as their main work tools, but this does not mean that they are competing with computer scientists. On the contrary, cooperation is needed more than ever.

There is an evident bias in this work toward methods used in the English-speaking world, especially the USA. There are snide references to the Bibliothèque nationale de France (p. 19, 49), while the Library of Congress catalogue is "the best and richest source of information" (p. 40), "admirable down to the finest detail" (p. 84). In the eyes of the author, Americans do everything so much better. In their handbooks, they provide relationships between bibliographic items by commenting and including "further readings" etc. At least in Québec, the French-speaking academic community includes such literature reviews, "état de la question" and so on in theses, research reports, and many other texts. Perhaps this is due to the influence of North American English speakers rubbing off on them!

There is a plea for rigour in bibliography, but Professor Varet does not discuss back-of-the-book indexing, nor conceptual indexing in the context of the Web. This is surprising since his bias toward the English-speaking world and his concern for rigour in information tools should favour such a discussion. Indexing has in common with bibliography that it is an intellectual activity that adds value to texts and makes them more useful, and like bibliography, it is not just computer output. Furthermore, the English-speaking world is good at it and the French-speaking world is not. It would be interesting to hear the author's reflexions on this related subject.

To his credit, the author adds humourous remarks here and there, which help lighten up the tone of this text that is mostly serious discourse that would be difficult to decode for those outside the field. It is a philosophical reflexion and quite clearly not a work of scholarship about information science, nor does it claim to be. Ultimately, this book can be considered outside the scope of literature for the information science community, except for those few who theorize about the nature and function of information science. For such readers, it is a provocative piece on a number of important information science issues.

James Turner

Dr. James M. Turner, École de bibliothéconomie et des sciences de l'information, Université de Montréal, C.P. 6128 Succursale Centre-ville, Montréal, H3C 3J7, Canada, e-mail: james.turner@umontreal.ca.

JACQUEMIN, Christian. **Spotting and discovering terms through natural language processing.** Cambridge, MA: MIT Press, 2001. 378 p. ISBN 0-262-10085-1

The book deals with specific experiments in automatic methods of identifying (spotting or discovering) terms in texts. The book's objectives are to show that:

(i) terms (for example, controlled terms from a thesaurus) appear in many variant forms in texts and any method of term spotting which ignores this fact is limited in scope;