

Scientific Information in Philadelphia have, for example, a very low coverage of monographs, and monographs have not the same bibliometrical distribution as journals (cf. Cronin *et al.*, 1997). When journals are selected to represent a discipline or a domain, the actual selection reveals implicit definitions about the discipline. A discipline has always many subfields and connections to other fields, and any selection favours some subfields at the expense of others. Speaking about LIS, how are journals related to classification research, human-computer interaction, library history and many other fields represented? How is the decision reached about what journals to include in the database or in the specific study? (If journals are included on the basis of their JIF we have a problematic circular argumentation.) In LIS Gerald Salton is presently among the most cited authors. One could, however, argue that he is a researcher from computer science and not from LIS. All this implies that one's view on this issue depends on the theoretical view of LIS, which influences which journals are selected, which again influences which authors are most visible on such maps. If, for example, classification research is regarded an important subfield of LIS, other journals such as *Knowledge Organization* should be included.

Second, such maps depend very much on the citation behaviour of the authors writing the papers on which the maps are based. Garfield (1965), Kováts (1977), Cronin (1984) and Seglen (1996a) among others have provided insight into the motives of citation and their implications for bibliometric analysis ("citationology"). The most obvious bias is the negative citations in which authors cite other documents in order to express their disagreement. One well known and well documented example is the Harvard psychologist Arthur Jensen who got most of his citations from researchers who were in disagreement with and critical of Jensen's work (see Garfield, 1978). This example indicates that some papers may be too much cited. Another kind of bias is represented by different kinds of non-citedness or under-citedness. Kováts (1977) investigates non-indexed eponymal citedness (NIEC) as well as non-indexed indirect-collective citedness. NIEC refers to the practice of referring to a law, a concept, an instrument etc. (e.g. "Pauli exclusion principle") without direct reference to the author or the work in which this law or concept was first presented. Because of this practice, outstanding achievements often receive less than 50 percent of the citations they ought to be credited with. Kováts (1977) also reported that non-indexed indirect-collective references of the form (e.g. "... and the references cited therein") were found in 14.8 percent of the articles in *Physical Journal* in 1969, and such articles cited at least ten times more articles indirectly than directly. Kováts (1977, p. 707) concludes:

It must (should) be taken into consideration that the stock of indexed references in the journal literature of natural sciences is only a part of the real stock of references; that indexed citedness is not identical with real citedness; that the Citation Indexes are not suitable for the measurement of real literature citedness. There is a need to amend, limit and reduce the now commonly accepted meaning, value and validity of the quantified data of the Citation Indexes and of "citation analysis" and "metric" studies based on them. This need especially applies