system as the World-Wide Web, each website is microstructural within the WWW at large.

Such matters can become discussable if we have such a framework as reference science, whose findings and postulations can feed back into the practical business of making books and other artifacts. Reference science could be a liberating and integrating discipline, in which lexicography would not be eclipsed but strengthened, not downgraded but upgraded, in intriguing theoretical and practical ways. The term proposed is, I suggest, neither a cute neologism nor a novelty for its own sake, but at the close of this century a necessity.

Contemporary Lexicography, with Particular Attention to the User's Perspective

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Introduction

May I start by congratulating the Iwasaki Linguistic Circle and its founders on your special occasion: the 35th anniversary which you are celebrating this year. 35 years ago I had no idea that I would be making a professional career in the United Kingdom, eventually moving to Exeter where I was fortunate to start a number of ventures which you have probably heard about and for which you have invited me here.

To introduce the topic of my lecture, I should like to quote from the result of my most recent venture, the *Dictionary of Lexicography*, compiled in collaboration with Gregory James:

> LEXICOGRAPHY The professional activity and academic field concerned with DICTIONARIES and other REFERENCE WORKS. It has two basic divisions: lexicographic practice, or DICTIONARY-MAKING, and lexicographic theory, or DICTIONARY RE-SEARCH. The former is often associated with commercial book publishing, the latter with scholarly studies in such disciplines as LIN-GUISTICS (especially LEXICOLOGY), but strict boundaries are difficult to maintain and, in any case, are being bridged by such means as professional training, societies, conferences and publications. There are as yet no internationally agreed standards of what constitutes a good dictionary, but human ingenuity (and computer technology) produces new types every day against the background of various historical traditions, to meet people's insatiable need for rapid access to INFORMATION, linguistic as well as encyclopedic. [. . .]

In this crucial entry we distinguish between practical lexicography (dictionary-making) and theoretical lexicography (or dictionary research,

which is the term that I prefer over 'metalexicography'). Both dictionary-making and dictionary research can be sub-divided into a number of specialist branches. One of these, the study of dictionary use, will be the subject of the rest of my discussion here.

The user perspective

I do not claim — and have never claimed — to have invented the 'user perspective', although together with my students at Exeter I have made a significant contribution to render the topic academically respectable since the 1980's.

It would be impossible to give you a complete account of the various approaches to the study of dictionary use, but I can mention some investigative techniques that have been developed and illustrate them by reference to pioneering authors. Those who are not versed with the literature in this branch of dictionary research may find my state-of-the-art paper, Article 12 in the three-volume *Encyclopedia of Lexicography* (Hartmann 1989), a possible starting point.

I find it useful to distinguish six basic research methods: the critical review, the case study, the questionnaire, the interview, the personal protocol, and the experiment, and I will provide one example for each.

Any reader of *Lexicon* will be familiar with the text genre of the 'book review', and several members of the Iwasaki Linguistic Circle have successfully engaged in this activity in the context of evaluating dictionaries, moving from the expression of personal opinions to factual criticism based on relatively objective criteria. One particularly interesting approach in this direction was Dieter Zimmer's (1986) review of half a dozen German-English and English-German dictionaries in the style of a *Which* type product survey, measuring (on a scale of 20) the relative success of each of these dictionaries in providing translation equivalents for a select list of notoriously difficult words and phrases. For me, the striking result was not so much the conclusion that this post-war generation of bilingual dictionaries performed surprisingly well, but that the standard of measurement was a real task, the sort that might face an average translator any day.

Many dictionary reviews still more often reflect the superficial views of

a single critic rather than an assessment of how particular users have fared with the reference work in question in a range of typical look-up situations. The dictionary review is, in this sense, not 'representative' of wider classes of events, such as the foreign learner engaging in the performance of a translation exercise. The same may be true of the so-called 'case study' in which the aim is to obtain a detailed description of an individual event.

One example of a case study that I find interesting is Josh Ard's classic (1982) attempt to prove that bilingual dictionaries tend to encourage foreign-language learners to choose one-to-one or word-for-word translation equivalents while writing in the target language, and thus to promote interference errors. To this end, he filmed students in a language laboratory during a composition task. His observations seemed to confirm his hunch, but also demonstrated that banning the bilingual dictionary from the exercise would not prevent such errors altogether. Unfortunately, Ard's study is flawed by the simple fact that he only obtained detailed records of two subjects, a Japanese girl who used her dictionary a lot and a male Arab student who did not!

If it is representativeness we require, we must consider techniques that will give us data for more subjects than just one or two. The 'questionnaire' is the method that can survey a relatively large sample population. One of the most famous questionnaire studies is that by Clarence Barnhart (1962) in which he determined that the most popular information category for American college students is meaning, while the least important is etymology. I attempted to collect data of this kind on a very different group: learners of German in the schools and colleges of South West England. I found, among other things, that 90% of the subjects used the dictionary regularly for translation, that the bilingual dictionary was far more popular than the monolingual, and that learners had received practically no instruction on how to use their dictionaries.

Research by means of questionnaire surveys has been criticised on the grounds that it can only collect indirect evidence of attitudes, not document actual practices. The fourth technique I want to illustrate, the 'personal interview', moves another step further towards direct observation. One of my Ph.D. students, Turki Diab, used this technique, in combina-

tion with others, to collect evidence on whether and how nursing students in a university medical school refer to dictionaries in their work. This is a category of L.S.P. learners that had never before been surveyed, least of all in a Middle Eastern country. Such interviews allow us not only to get an accurate picture of which monolingual or bilingual reference works are consulted, chiefly in decoding tasks such as technical reading, but also what could and should be done to improve their users' reference skills.

What all these four research techniques have in common is the limitation that they capture views by indirect means rather than by factual observation of real contexts of consultation. A more direct method of gathering data is the 'protocol' or diary approach as pioneered by Hans Krings, whose (1986) study of the translation process in advanced German learners of French was entitled 'what goes on in the minds of translators'. The title was deliberately provocative: Krings was interested in eliciting evidence of certain mental operations, not by looking inside people's brains, which is impossible, but by encouraging the subjects to 'think aloud', i.e. to verbalise what they were doing. These think-aloud protocols were based on transcribed tape recordings and analysed in terms of so-called equivalent search diagrams. In this manner it is possible to picture the decision strategies, including any exhibited during dictionary reference acts, and learn more about what users do to obtain (or fail to obtain) required information.

An even more sophisticated research technique is the 'experimental test' in which several subjects are observed under strict laboratory conditions, as it were, while various factors are kept under close control. The prototype experiment was the one reported in Yukio Tono's (1984) Gakugei University dissertation in which he confronted students with texts containing nonsense words which had to be looked up in specially constructed mini-dictionaries. What Tono was able to prove conclusively in this manner was the fact (suspected by some of us for a long time) that users of bilingual dictionaries, when faced with long entries for words with multiple senses, will only go as far as the first or second sense of the word (and not proceed through the whole text of a particular entry) in order to find the most appropriate equivalent. Tono has explored a number of other

experimental research designs to chart user reference behaviour; most recently he has established a Website <http://www.u-gakugei.ac.jp/~tefldpt/tonolab/userstudy/index.html> with annotated bibliographical references to the literature on the user perspective, a most laudable undertaking.

The limits of the user perspective

There are, however, at least seven limitations of such user studies, and to research on dictionary use in general.

The number and scale of such studies is still too small, and there is still only a very restricted circle of centres and scholars to develop the appropriate expertise.

The target populations observed are still extremely limited. Most of the time students in educational settings are used as guinea-pigs, but we know next to nothing about other user groups, e.g. secretaries, technicians, journalists, librarians, scientists.

The types of reference works observed in use are still based mostly on general dictionaries, both monolingual and bilingual, in contexts of formal learning, but very little is known about the use of specialised dictionaries and other reference works such as thesauruses, encyclopedias, atlases and electronic dictionaries of all kinds.

The various studies that have been carried out are difficult to evaluate and compare because the methods employed and the settings in which they take place are so diverse. Hardly any have been replicated by others to verify assumptions and findings, and eclectic combinations of different techniques (as recommended by Diab 1990) are still rare.

The results of various studies are of limited generalisability. It is hardly likely that the conditions observed in a European school are similar to those in a Japanese school, or vice versa, or that trends observed for one language or proficiency level are the same in another language or proficiency level.

Many factors and variables have hardly been studied at all, e.g. differences in personality, attitude, learning styles, or the influence of different institutional regulations (such as syllabuses or examination conditions).

Finally, it has occurred to me — and no doubt to other people — that

most user studies are 'ex-post', which means that they are carried out with existing products. What we should also' consider is the possibility of surveying potential users for a new product. (We did a limited questionnaire survey of potential readers before starting our work on the *Dictionary of Lexicography*; and two years ago our M.A. students at Exeter pursued a project to test the opinions of students and staff at the university about the sorts of information categories that should be offered in a 'Dictionary of the University of Exeter' which might have been produced but never was.)

Conclusion

Nevertheless, with all these reservations, I hope to have made a sufficiently strong case for user research. What the user perspective has demonstrated is that different users vary greatly in their reference needs and reference skills.

And when all the available methods have been refined and applied, and all necessary studies of potential and actual users have been done, we can then also improve the teaching of the necessary skills (e.g. by 'workbooks', cf. Stark 1990) in order to further improve the quality and effectiveness of dictionaries and dictionary users alike. As I said just over 10 years ago (Hartmann 1987:28), "we must do more in research and instruction".

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