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Internet Accounting Dictionaries: Present Solutions and Future Opportunities

Abstract

An examination of existing accounting dictionaries on the Internet reveals a general need for a new type of dictionary. In contrast to the dictionaries now accessible, the future accounting dictionaries should be designed as proper Internet dictionaries based on a functional approach so they can be used in communication-oriented and knowledge-oriented situations. The lexicographers need to take a large number of aspects into consideration and this should be done by identifying the need of an international target group and present the data in such a way that the lexicographical information costs are kept at a low level.

1. Introduction

Financial reporting is gaining increased attention and importance on the international scene, and the *lingua franca* is English. It is therefore important that the international actors have access to reference works that can help them produce financial reporting information directly in English or help them translate the information into English. It is equally important that these texts are written in idiomatically correct English, using terms from the correct field-specific register, i.e. the language of accounting, and this involves an important distinction between British, American and international (IAS/IFRS) English. The point is that such texts are used to attract funds from investors not only in domestic financial and money markets, but also increasingly in foreign and international market places for investment and fund raising.

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The best way in which to attract the attention of possible investors is to present clearly written reports in a language that everyone can understand and use as a basis for making investment decisions. And this is where Internet accounting dictionaries come in with their great potential for presenting the information needed by the users in a variety of situations, because this type of dictionary is not restricted by a limited amount of pages as are the traditional, printed dictionaries. This paper will examine some of the existing accounting dictionaries found on the Internet in terms of their function(s), data and search capabilities and relate these features to the needs of users. We will also analyse the true potential of Internet accounting dictionaries and identify the elements that are required for an optimal Internet accounting dictionary for an international user group.

2. The Nature of Internet Accounting Dictionaries

An Internet accounting dictionary is a special breed of the type of dictionary that is available on the Internet generally, more specifically of the subtype that deals with the subject field of accounting and financial reporting. A dictionary that deals with one subject field only is called a **single-field dictionary**, as it is particularly devoted to treating the factual and linguistic aspects of a selected subject field (Nielsen 1990: 132-133; and Nielsen 1994: 39-42). One way in which to find this type of specialised dictionary is to visit the website YourDictionary.com, which lists Internet dictionaries according to various criteria, including subject areas. Under the heading **Accounting**, this website lists 22 dictionaries (September 2004), all monolingual covering the language English, and they go under various names such as dictionary, glossary and list. A further Google search revealed that these 22 dictionaries constitute a fair representation of existing accounting dictionaries when the search language is English, and also revealed the existence of four bilingual accounting dictionaries with English as the target language in three.

Not all the dictionaries listed under the heading **Accounting** are immediately relevant, however. Seven of the dictionaries listed are not accounting dictionaries *stricto sensu*, as they are tax dictionaries or tax glossaries, one is a finance glossary, and one is an acronym dictionary mainly for the health and insurance sectors. Although tax and finan-

cial matters may impact on accounting, these dictionaries will not be considered here as they belong to different subject fields and are therefore only marginally relevant for our analysis and discussion. Of the remaining 13 dictionaries, three cannot be found when clicking on the relevant links, and two further dictionaries cover the subject auditing, which may be regarded as a sub-field of accounting. This leaves eight dictionaries that are Internet accounting dictionaries proper (see Fig. 2 below). The four bilingual accounting dictionaries found on the Internet consist of an English-Arabic/Arabic-English accounting vocabulary, a Danish-English, an English-Chinese, and a Japanese-English accounting dictionary (see Fig. 1 below). These dictionaries vary considerably in their coverage of accounting terminology, from as little as 13 terms to several thousand terms, but they form a useful basis for taking stock of the present state of affairs and discussing the lexicographical basis for future Internet accounting dictionaries.

The overriding feature of a dictionary when placing it into a typology is its function(s). An Internet dictionary is an electronic reference work that has been designed to fulfil one or more functions, contains data supporting the function(s), and contains lexicographic structures that combine and link the data in order to fulfil the function(s). It is important to appreciate that the function(s) selected by the compilers of a dictionary provide the basis for all other lexicographic decisions, and that the compilers must determine the fundamental needs of the users on the basis of the dictionary function(s) relative to the intended user group, taking into account their factual and linguistic competences.

The functions of dictionaries can be divided into two general types: communication-oriented and knowledge-oriented functions. **Communication-oriented** functions include reception of texts in the user's native language (L1) or in a foreign language (L2), the translation of texts into L1 or L2, the production of texts directly in L1 or L2, and the revision and editing of texts in L1 or L2. In focusing on the transfer of a message from a sender to a receiver, these functions are characterised by being text-dependent. **Knowledge-oriented** functions – which focus on deriving and verifying primarily propositional knowledge and the acquisition of information – include the acquisition of factual and/or linguistic knowledge generally about the L1 or L2 culture, or in connection with a specific issue in the L1 or L2 culture, for instance in a learning context such as a university course on accounting. These

functions, which focus on knowledge, i.e. data that – through a mental process – have become information that has a use or purpose, are characterised by being text-independent. In basing the whole design on a functional approach, the compilers of a dictionary have the opportunity of making multifunctional dictionaries, catering for the needs of the users in an optimal way (see e.g. Bergenholtz/Kaufmann 1997: 98-99; and Bergenholtz/Nielsen 2002:5-6).

Figures 1 and 2 below reveal that the lexicographers have not paid much attention to the function(s) of their dictionaries. Only few explicitly specify the types of situation in which they offer help, and none of the dictionaries contains a user's guide, which the lexicographers may have used to specify functions. The inclusion of such information would not only have benefited the user, but would also have forced the lexicographers to give additional consideration to the design and compilation of their dictionaries. Everyone's ABC of Accounting Language is one of the few Internet accounting dictionaries specifying the function for which it has been compiled: Dedicated to helping take away some of the pain out of studying. This is a very general statement, as it does not identify the types of situation in which it may be used. In functional terms, Everyone's ABC of Accounting Language is potentially multifunctional. It can be used as an aid to understand the accounting texts the students have to read during the course; it can be used as an aid to write exam answer papers, i.e. producing accounting texts in L1 (and perhaps L2 if foreign students are involved); it can be used to acquire knowledge about accounting generally or about a specific accounting issue. However, in order to actually help the users in these types of situation, the lexicographers must carefully consider the necessary data types and their presentation. If these aspects of functionality are taken into account at the planning stage and subsequently put into operation, the dictionary will have a relatively broad user appeal, and be able to give assistance in a plurality of use situations. This also provides a glimpse of the true potential of Internet accounting dictionaries.

A truly international Internet accounting dictionary caters for the needs of a heterogeneous target group. Some are accounting experts with considerable factual and linguistic knowledge pertaining to accounting and financial reporting in their own culture, whereas others are semi-experts with limited factual and linguistic knowledge pertain-

ing to their own culture. Some semi-experts may, however, possess considerable linguistic knowledge of English, for instance professional translators. Finally, laypeople with a particular interest in financial reporting information are also potential users of an accounting dictionary, and they are unlikely to possess much factual and linguistic knowledge about accounting and its language usage (see e.g. Bergenholtz/Kaufmann 1997: 99). This distinction between different user groups is directly related to the function(s) of the dictionary, as they need different data types for different situations. For example, the semi-expert will probably need both factual and linguistic data in order to understand an English accounting text (or a definition in an English accounting dictionary), produce or edit an accounting text in English, or translate an accounting text into English. It is particularly important to take the factual and linguistic competencies of the target group into consideration when planning, designing and compiling an international accounting dictionary, as the target group will consist of, for instance, accounting experts from many countries and cultures, who have to understand or produce accounting texts in English.

An important aspect for any lexicographer to consider is the ease with which the user will be able to acquire the necessary information from the data presented in the dictionary. This is, of course, also an aspect that has high priority with the users. It may be dealt with under the heading lexicographical information costs. For the purposes of dictionary making, use, analysis and research, **lexicographical information costs** may be defined as the difficulty or inconvenience that the user believes or feels is associated with consulting a dictionary, an article or any other text part of a dictionary (see Nielsen 1999: 111). Lexicographical information costs may be divided into two distinct types: search-related and comprehension-related information costs. **Search-related information costs** are the costs (i.e. difficulty or inconvenience) related to the look-up activities the user has to perform when consulting a dictionary in order to get access to the data the user is searching for. The more activities the user has to perform to get to his target, the more significant will the costs be, and so will the risk of getting it wrong at one or more steps in the search process. **Comprehension-related information costs** are the costs (i.e. difficulty or inconvenience) related to the user's ability to understand and interpret the data presented in a dictionary. In other words: How easy (or

difficult) is it for the user to understand the data presented? This is directly related to the factual and linguistic competence of the user and the way in which the data are presented. The very design and structure of the dictionary may contribute to keeping the lexicographical information costs at a low level, as an inappropriate design and structure may lead to high or increasing information costs. The actual wording and presentation of the data in the articles, for instance a high degree of textual condensation of factual data in definitions, may affect the information costs adversely, whereas a clear and consistent search structure may reduce the lexicographical information costs.

3. Types of Data Needed by the Users

Before selecting types of data for each article it is imperative to establish the profile of the user group(s), which again makes it possible to map the user needs and competencies. The ultimate goal of any dictionary is that it must (of course) present the best possible data within its specific subject area to the user of that dictionary, and that these data have been arranged as adequately as possible.

In a previous article (Nielsen/Mourier in print) we have shown that the purpose of the user profile is to identify the major characteristics and lexicographic needs of the users, taking into account the factual and linguistic competencies in relation to L1 and L2 and the different cultures. For a bilingual accounting dictionary users may be split up into three main user groups: (1) a primary user group consisting of persons with considerable linguistic competence and small to medium factual competence, made up of semi-experts such as translators and secretaries, (2) a secondary user group, made up of experts within accounting and finance with considerable factual knowledge and small to medium linguistic competence such as accountants and financial analysts, and (3) a tertiary user group consisting of persons with small to medium linguistic and factual-knowledge competencies such as student accountants and student translators, journalists as well as laypeople interested in financial reporting information. The primary user group needs more factual information, the secondary group more linguistic information, and the tertiary group needs both.

Therefore, we can establish that a bilingual accounting dictionary with more than a reception function needs data supporting linguistic as well as factual knowledge, both on the L1 and the L2 side.

For the particular purpose of a bilingual accounting dictionary between Danish (or another language) and English (or vice versa), another parameter has to be considered: which type of English? Traditionally, Danish companies have focused on British English, but with the growing need for approaching international capital markets and the adoption of the international accounting standards (IFRS), an increasing number of Danish and other European enterprises now choose to communicate in American English or international English (Mourier 2004: 145). Accounting terminology differs widely between British and American English and also international accounting English as applied by IFRS has its own English, biased heavily towards American English, but with some British terminology and British spelling (apart from terminology, grammar and spelling differs between British and American English). Therefore, for the purpose of the accounting dictionary, the lexicographic data supporting English (be it as L1 or L2, depending on whether the dictionary goes from Danish or another language into English or vice-versa) must contain the three varieties of English to support user needs. This is a further challenge, not so much in the compilation of data within the three 'Englishes', but certainly to the arranging of the data in each article, as illustrated below.

An investigation of some of the accounting dictionaries available on the Internet (see section 2 above) found few bilingual dictionaries with English as L1 or L2, and a number of monolingual English dictionaries. Some of the latter appeared from the source to be British-English dictionaries, and some to be American-English. None were found to systematically include and compare the various types of English.

3.1. General characteristics of the bilingual Internet accounting dictionaries

The four bilingual Internet Accounting Dictionaries found (see Fig. 1 below) are all compiled by and for the use of non-native English users: Arab, Japanese, Chinese and Danes. The first three only include lemmata with one equivalent and no definitions or other data fields (synonyms, antonyms, references, etc.). At the date of visiting the

site (18 September 2004), the Japanese dictionary included a limited amount of lemmata. The Danish dictionary comprises 4,200 lemmata with definitions and equivalents in British, American and international English, 15,400 collocations in Danish with translations into English, synonyms and antonyms as well as source references (September-2004 figures; continuously updated and supplemented with new lemmata).

<p>English-Arabic & Arabic-English for Accounting Vocabulary <i>Only equivalents, no date as for last update, no function specified</i> <i>Target group: not specified, but appears to be accountants, probably Arab in particular</i> http://www.jps-dir.com/dictionary/wordsdiclist.asp?cmd=reset</p>
<p>English-Chinese Accounting Dictionary for Marietta College Accounting Students <i>Only equivalents, for college students, last updated April 2002, no function specified</i> <i>Target group: Chinese students in the Accounting and Public Accounting majors</i> http://www.marietta.edu/~johnsong/chinese/acctdict.html</p>
<p>Japanese-English Dictionary <i>Helps translate accounting documents into English, only equivalents, last updated 1996</i> <i>Target group: originally personal use, but now also "you"</i> http://www2g.biglobe.ne.jp/~ykawamura/je-dic.htm</p>
<p>Danish-English Accounting Dictionary <i>Equivalents in GB, US and international English, definitions, collocations with translations into English, synonyms and antonyms in Danish and English, as well as source references.</i> <i>Functions: both communication-oriented and knowledge-oriented – helps translate, produce, revise, understand accounting texts and provides extra knowledge about accounting.</i> <i>Target groups: translators, accounting text producers, journalists, students, accountants – both semi-experts and experts in accounting.</i> http://www.regnskabsordbogen.dk</p>

Fig. 1: Bilingual Internet Accounting Dictionaries having English as L1 or L2.

For the purpose of the compilation of an Internet accounting dictionary, the three dictionaries focusing on English as L1 or L2 versus Arabic, Chinese or Japanese offer poor inspiration, considering the opportunities

offered electronically. Apart from providing an equivalent to the lemma, neither knowledge nor linguistic information is provided. Without the help of definitions, the user learns nothing except a word that may or may not be the proper choice in the user's particular situation.

3.2. General characteristics of the monolingual English Internet accounting dictionaries

Fig. 2 lists the monolingual English Internet accounting dictionaries we visited in September 2004. The list includes our brief comments as to scope, target group and compiler:

<p>yourdictionary.com http://www.yourdictionary.com/diction4.html#accounting gives a selection of special-subject Internet dictionaries, the following focusing on accounting¹:</p> <p>AICPA Dictionary of Accounting Terms and Abbreviations <i>Updated regularly (last updated September 2004), only definitions, many lemmata are names of institutions, organisations or accounting bodies</i> <i>Compilers: American Institute of Certified Public Accountants</i> <i>Target group: members of the American Institute of Certified Public Accountants, accounting students and accounting professionals</i> http://www.aicpa.org/members/glossary/a.htm</p> <p>Everyone's ABC of Accounting Language <i>Definitions only, but written into a context, based on a text on accounting, and the lemma list is made up of links to the terms in the text where also definitions are found, no function specified, but must be reception and perhaps knowledge-building, examples, related words, rules and regulations, encyclopaedic What it means? section</i> <i>Compiler: Jayne Smith, Staffordshire University Business School</i> <i>Target group: students at Staffordshire University Business School</i> http://www.staffs.ac.uk/schools/business/bsadmin/staff/s5/mscproj/agloss/htm</p>
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¹ Some were not accessible, either because membership was required to get access, or because the link was non-operational, and one focuses on accounting acronyms only and has therefore been left out.

<p><u>Accounting Dictionary/Glossary</u> <i>Definitions only, occasional synonyms (profit and loss statement), abbreviation of lemmata, cross-references (PLS), function not specified but must be reception of texts and knowledge-building</i> <i>Compiler: Venture Line</i> <i>Target group: not specified, appears to be accounting professionals and accounting students</i> http://www.ventureline.com/glossary.asp</p>
<p><u>Accounting Terminology Guide</u> <i>Function is an educational tool, reception and knowledge-building, cross-references (capitalised terms in definitions + see)</i> <i>Compiler: New York State Society of CPAs</i> <i>Target group: an educational tool for journalists who report on and interpret financial information</i> http://www.nysscpa.org/prof_library/guide.htm</p>
<p><u>Glencoe Accounting Dictionary</u> <i>Function is an educational tool available at the student site, no date</i> <i>Compiler: Glencoe Online; Glencoe/McGraw-Hill Company (US based)</i> <i>Target group: students</i> http://www.glencoe.com/sec/accounting/glossary/index.htm</p>
<p><u>HTML List of Accounting Terms</u> <i>Function not specified but must be reception and knowledge-building; accounting dictionary a subject glossary that is a sub-dictionary of InvestorWords' general Internet financial dictionary that encompasses over 6,000 definitions and 20,000 links between related terms – continuously updated (special field shows recently included terms)</i> <i>Compiler: InvestorWords (accounting terminology as a subdivision of investor terminology) – Charles Schwab</i> <i>Target group: not specified, anyone accessing the site</i></p>
<p><u>Ohio State University Accounting Terms</u> <i>Informative glossary, very limited selection of terms, mostly abbreviations - select a word to view its definition, no date</i> <i>Compiler: Ohio State University</i> <i>Target group: not defined, but probably addressing students at Ohio State University</i> http://www.osc.state.nc.us/sigdocs/sig_docs/sigGlossary.html</p>
<p><u>Tax and Accounting Dictionary</u> <i>A glossary of terms</i> <i>Compiler: Total Tax Solutions Inc. – California-based tax consultants</i> <i>Target group: Total Tax Solutions' clients, but in principle anyone accessing the site</i> http://www.totaltaxsolutions.com/glossary.htm</p>

Fig. 2: Monolingual (English) Internet Accounting Dictionaries.

For the purpose of a comparison with the Danish-English Internet Accounting Dictionary², which we are continuously updating, as well as inspiration for our on-going work with an English-Danish Accounting Dictionary, it is relevant to discuss how the various dictionaries meet the user requirements – with a special view to target group, function, scope, lemmata and relevant data fields.

3.2.1. Target group

Above we established the importance of defining the users before selecting any other data for a dictionary. The target groups of the dictionaries listed in Fig. 2 have been specified in some cases to be accountants (e.g. the AICPA Dictionary of Accounting Terms and Abbreviations), in other cases to be accounting professionals and accounting students (e.g. Venture Line Accounting Dictionary/Glossary), one (New York State Society of CPAs – Accounting Terminology Guide) states the dictionary to be an educational tool for journalists who report on and interpret financial statements, and others again do not specify their target groups at all, but from the site users appear to be accounting professionals and students. One addresses clients (Total Tax Solutions), obviously to help clients understand a difficult subject.

The target group of the Danish-English Internet Accounting Dictionary is more complex (heterogeneous), as it includes both users needing factual and linguistic information at various competence levels. The implications are that the dictionary should meet this challenge and have both knowledge-oriented and communication-oriented functions; fortunately the Internet medium may help address the challenge as appears below.

3.2.2. Function(s)

The overall function of any dictionary designed for knowledge-building is first of all to provide adequate and clear definitions in order to define the relevant lemma precisely, to distinguish between polysemy, if any,

² <http://www.regnskabsordbogen.dk>, Danish-Danish and Danish-English Accounting Dictionaries, lexicographers: Sandro Nielsen, Lise Mourier and Henning Bergenholtz, Centre for Lexicography, Aarhus School of Business, in cooperation with Copenhagen Business School, 2003, continuously updated.

but also to provide extra knowledge to the user about the subject-matter relating to this particular lemma. We shall look further into the importance of definitions under data fields below. All Fig. 2 dictionaries include lemmata with definitions and are therefore to a wider or a narrower extent suited as tools for knowledge-building. However, the definitions included vary in quality (see 3.2.5 below).

For the communication-oriented functions, the dictionary needs to help users with text reception as well as text production (writing, translating, editing and revising texts). Concerning these functions, only the Danish-English Internet Accounting Dictionary among the Fig. 2 dictionaries addresses all aspects (see 4.1 below).

3.2.3. Scope

The scope of the dictionaries varies widely. Some have a limited range of core accounting terminology, some focus rather on acronyms and abbreviations. Since Internet dictionaries, being electronic, do not have to observe space or time limits (may be continuously updated), this finding is disappointing. Only InvestorWords compiles a fairly wide selection of accounting terms with relevant, but not consistent cross-references³.

3.2.4. Lemmata

To compare the compilation, the selection of lemmata and the information included to help the user, we have looked at the following three accounting terms according to type of English:

British English	American English	International English
profit and loss account	income statement	income statement
book value	carrying value	carrying amount
fixed asset	non-current asset	non-current asset

³ The user is referred from 'profit and loss account' to 'income statement', but not vice versa, and there is no indication of the various types of English these two terms represent.

and at two accounting terms that share characteristic features, but differ as to use and collocability:

depreciation (used about tangible fixed assets)	amortization (US)/amortisation (GB/IFRS) (used about intangible fixed assets)
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As can be seen, *depreciation* is the appropriate term used when referring to tangible fixed assets, whereas *amortisation* (British and international English) or *amortization* (American English) is used about intangibles. It is important that the user is aware of this difference and chooses the term that is appropriate for the context.

3.2.5. Data fields

Selection of lemmata

The accounting terms seem to be selected at random in some cases: Glencoe and Everyone's ABC e.g. include *depreciation*, but not *amortisation*, even though both terms are used about the write-down of fixed assets: depreciation for tangible assets only, and amortisation for intangibles. InvestorWords and Venture Line were found to be the most comprehensive monolingual dictionaries in number of lemmata, with InvestorWords having the highest amount of accounting terms, and the most in-depth definitions with many cross-references. Our search for the above terms seems to indicate that most of the dictionaries have not relied on a corpus for lemma selection, not even relevant texts such as the accounting policy chapter or the financial statements in a conventional annual report.

Definitions

To provide clear definitions, however, is a further challenge for the lexicographer. Long definitions are no safeguard in this respect. In fact, definitions may be both too brief and too long-winded and complicated. The lexicographer will have to carefully weigh the user needs and the functions of the dictionary and then formulate definitions as concisely and clearly as possible. This is especially challenging in the case of a target group consisting of different user types (see the discussion above). The following comments discuss the definitions to **depreciation**, **amortisation**, **fixed asset**, **profit and loss account** or **book value** (in British,

American or international varieties) in dictionaries selected from the list in Fig. 2 above.

AICPA Dictionary of Accounting Terms and Abbreviations

This dictionary primarily contains names of institutions, organisations or accounting bodies; a search for the accounting terms above gave no results.

Staffordshire University Business School: Everyone's ABC of Accounting Language

Everyone's ABC offers a special way of helping the user: Each lemma has a definition that generally appears as a text-book-like paragraph, which may make it difficult for the user to quickly withdraw the information needed, as a lot of reading is necessary, even considering that the target group consists primarily of students (the compiler is Staffordshire University Business School). Because of the design and structure, the dictionary seems to fall between two stools: is it a dictionary or a textbook? Comprehension-related information costs (see Section 2 above) are associated with its use, since the articles have long text passages the user will have to read through to find the information needed, just as the user will have to jump by clicks from passage to passage. As an example, the article **Depreciation** has:

"Is the measure of wearing out of a fixed asset. All fixed assets are expected to wear out, become less efficient and to get 'tired'. Depreciation is calculated as the estimate of this measure of wearing out and is a charge in [the Profit and Loss Account \[clickable\]](#). Accumulated Depreciation is the total depreciation charges to date deducted from the cost of the fixed assets to show Net Book Value in the Balance Sheet [learn more about depreciation \[clickable\]](#) Watch a [car becoming more worn out over time \[clickable\]](#)."

As appears from the style and contents, the dictionary addresses students, probably studying accounting at an introductory level. Even so, it might have been useful that the term *Balance Sheet* (like *Profit and Loss Account*) had been clickable also, just as the lack of reference to *amortisation* used about intangible assets is unfortunate, the student is left to believe that *depreciation* is used about all fixed assets, and the term *amortisation* is not included in the dictionary.

Venture Line: Accounting Dictionary/Glossary

Venture Line's definitions are comprehensive for 'DEPRECIATION' and 'AMORTIZATION' (both in upper-case letters), the latter definition showing the polysemy of the term amortization:

AMORTIZATION

(1) the general reduction of a debt by means of periodic payments...

..

And

(2) the process of spreading the cost of an intangible asset over the expected useful life of the asset.....

The information under (2) that *amortization* is applied to an intangible asset is extremely helpful. Similar information under *depreciation* (applied of tangible assets) as well as cross-references from *depreciation* to *amortization* and vice versa might have increased information quality and provided consistent user help.

Venture Line's definitions of 'NON-CURRENT ASSET', 'FIXED ASSET' and 'FIXED ASSETS' rather confuse than help the user:

NON-CURRENT ASSET

includes PPE (property, plant and equipment) as opposed to current assets which includes cash, cash equivalents (e.g. securities, short-term notes, etc.), inventory and accounts receivable.

FIXED ASSET

is a long-term tangible asset that is not expected to be converted into cash in the current or upcoming fiscal year, e.g., buildings, real estate, production equipment, and furniture. Sometimes called PLANT.

FIXED ASSETS

are those assets of a permanent nature required for the normal conduct of a business, and which will not normally be converted into cash during the ensuring fiscal period. For example, furniture, fixtures, land, and buildings are all fixed assets. However, accounts receivable and inventory are not. Sometimes called PLANT.

Having studied these definitions, the user will learn the following:

Non-current assets include property, plant and equipment. Of these, plant is also known as a fixed asset or fixed assets. Non-current asset is defined negatively in that it is not a current asset (which is defined here, as well as under the lemma **current asset**, instead of using this article's

space to provide a proper definition of *non-current asset*). Fixed asset is defined as a tangible asset; however, a fixed asset may be an intangible or tangible asset, or a long-term investment. Plant is not a synonym to all types of fixed asset, only to one of the types of tangible assets. The definitions are correct in stating the long-term aspect of a fixed asset, but must be said to be insufficient with regard to other characteristics. The user may also wonder why fixed asset is included both in the singular and the plural forms.

Venture Line defines CARRYING VALUE: ‘*also known as “book value”, it is a company’s total assets minus intangible assets and liabilities, such as debt*’. The user is not helped with any clear understanding of the meaning of *book value/carrying value* in respect of fixed assets (compare with the definition in Example 2 below). A search for BOOK VALUE finds a long and complicated definition, elaborating on the definition of carrying value that also fails to mention the effect of any depreciation/amortisation, write-downs or revaluation.

New York State Society of CPAs: Accounting Terminology Guide (Nysscpa)

This dictionary defines the lemma **Amortization** as:

“Gradual and periodic reduction of any amount, such as the periodic writedown of a BOND premium, the costs of an intangible ASSET or periodic payment of MORTGAGES or other DEBT”.

The particular use of *amortisation* in connection with intangible assets is included as are uses of the term in other contexts. The term *depreciation* is not included in the dictionary, and therefore, of course, a useful cross-reference to this term is not found.

According to the dictionary, ‘*capitalized terms that appear within definitions of other terms are also defined in this guide*’. A search for ASSET gets no hit. However, a further study reveals that, erroneously, ‘Fixed Asset’ is defined as the last part of the definition under ‘Fiscal Year’ – probably a technical error.

Nysscpa defines *Income Statement* as

“Summary of the effect of REVENUES and expenses over a period of time”.

The definition does not inform the user that the income statement is part of the financial statements in a company’s annual or interim report

– here the word *summary* seems confusing. The definition includes a cross-reference to revenues, but not to expenses, which is inconsistent. Here, a cross-reference to *Annual Report* (which is included) would have been relevant. However, the definition to *Annual Report* refers to the income statement by the synonym ‘statement of earnings’ (and therefore no cross-reference is provided); the user is not able to see the inter-relationship, if he or she is not already aware of it:

Annual Report

Report to the stockholders of a company which includes the company's annual, audited BALANCE SHEET and related statements of earnings, stockholders' or owners' equity and cash flows, as well as other financial and business information.

Both **Book Value** and **Carrying Value** are found in this dictionary, however with a very brief, uniform definition for both lemmata, no differentiation as to type of English, and no cross-references between the two of them.

Glencoe Accounting Dictionary

Definitions are brief, often too brief to give the user real help, several relevant basic accounting terms are not included (e.g. fixed asset/non-current asset and amortisation not included), and there are no cross-references. The definition to e.g. *depreciation* is:

“Allocating the cost of a plant asset over an asset's useful life.”

Glencoe includes book value with a brief, however incomplete definition that works in the right direction: ‘*The value of an asset at a specific point in time. For a plant, it equals the initial cost of the plant asset minus the accumulated depreciation*’. As in Glencoe's definition of *depreciation* above, the use of *plant asset* contributes to making the definition too narrow. As in Venture Line above, tangible fixed or non-current assets are limited to include plant, and property and equipment are not mentioned. Obviously, the interpretation of tangible fixed assets as *plant* rubs off on other lemmata.

InvestorWords: HTML List of Accounting Terms

This dictionary offers appropriate definitions that include clickable cross-references. Two different definitions under *depreciation* as well as *amortization* take care of polysemy. InvestorWords' list includes **income statement**, **profit and loss account**, **book value**, **fixed asset** as

well as **noncurrent asset**, but not *profit and loss account* and *carrying amount/value*. The definition of **noncurrent asset** includes the following confusing information ‘*Examples [of noncurrent assets] include fixed assets, leasehold improvements, and intangible assets*’. Confusing, as intangible assets constitute only one type of fixed assets (the other main types being tangible assets and investments).

Ohio State University Accounting Terms

Amortization is defined as ‘*the allocation of the acquisition cost of an intangible asset over its expected useful life*’. However, Depreciation is defined as ‘*the systematic expensing of original cost of fixed assets*’. As there are no cross-references, the user searching for *depreciation* will not learn that amortization is used about intangible fixed assets.

For Fixed asset: definition ends by saying ‘*also known as property, plant and equipment. Examples include land, machinery, and furniture*’ – intangibles are not mentioned, included or referred to, nor are *income statement, profit and loss account, book value* and *carrying amount/value*.

Total Tax Solutions: Tax and Accounting Dictionary

The definitions include relevant information about the lemma. The definition of *depreciation* mentions the use of the term in connection with tangible assets, and the user is referred to *amortisation* – however, looking here, the user will not find that the definition of *amortisation* says it is used about intangible assets. *Book value* is included with a brief definition containing some of the relevant aspects. For *Fixed assets*, the user is referred to **Capital Asset** (singular), where the definition has ‘*Assets of either a tangible or intangible nature ...*’, failing to include the third type: investments. For the definition of **Income Statement**, see below under ‘Synonyms’.

Synonyms in English varieties

None of the dictionaries include comments as to type of English in synonyms. Nysscpa includes cross-references between *book value* and *carrying value*, stating ‘also known as’, but without referring to which term is British, American or international English usage. The same applies to InvestorWords, Ohio State University Accounting Terms and Total Tax Solutions that refer to synonyms by ‘also called’ or ‘also known as’.

Under the lemma **Income Statement**, Total Tax Solutions says: “The Income Statement is also known as Profit & Loss Account, Statement of Earnings, Statement of Income or Statement of Operations” - users may take their pick as no distinction between the terms is provided, neither according to most frequent use nor to variety of English. Any user would have benefited from knowing that all the terms are American synonyms (*income statement* being the most frequently used term), where *income statement* and *statement of income* are used in both American and international English, whereas *profit and loss account* is the British English term. A dictionary compiled by a California-based firm should of course focus on American English varieties of the lemma, however this is not true of other terms (see *book value* and *fixed assets* under ‘Definitions’ above)

Antonyms

None were found to contain antonyms. Like synonyms, antonyms are needed to broaden the linguistic knowledge of the user. Antonyms help the user make an appropriate choice of equivalent (Selberg: 2004: 31), and expands the information provided by the definition, enabling the user to understand the relationship between one term and another (Nielsen 1994: 279-281; and also Bergenholtz/Tarp 1995: 126-130). In this way, antonyms are useful for both text receptive and text productive purposes.

Grammar and spelling

None of the dictionaries include data on grammar or spelling. Total Tax Solutions quotes lemmata in plural where a singular form exists – leading the user to suppose that this lemma is a *plurale tantum*: Fixed Assets (even with a cross-reference to Capital Assets) vis-à-vis Capital Asset (in the singular). This lemmatisation principle appears to be inconsistent and confusing if the user searches for the term with a view to text production, translation or language audit.

As indicated above, spelling differs from British to American English, e.g. in *amortisation* (GB) and *amortization* (US). Here, the dictionaries seem to focus on users within their own type of English with no reference to other options, not even the IFRS-option (GB spelling), which might be relevant, as the International Financial Reporting Standards will apply to all listed companies in the EU from 1 January 2005.

The use of upper-case versus lower-case letters is often misleading, especially when upper-case letters are used in the whole lemma as in Venture Line (e.g. PROFIT AND LOSS STATEMENT) which makes it impossible for the user to deduct which letters must be upper-case and which lower-case when quoting the term in another context when producing, translating or auditing texts. As appears from the Total Tax Solutions example above, *Fixed Assets* are shown with a capital F as well as A. This may also be time-consuming for the user if direct lemma search is performed electronically, and has an adverse effect on the search-related information costs.

Collocations and phrases

None of the dictionaries contain collocations and phrases other than the context in which the definition appears. The functions of the dictionaries (see 3.2.2 above) are knowledge-building and text reception (as the only function among the communication-oriented functions), both within a more or less limited framework. With no or very limited data on grammar, spelling, various types of English (British, American or international), no collocations or phrases illustrating the use of nouns with special verbs and prepositions or other fixed contexts within accounting language, the dictionaries are of little and very limited use in connection with text production, translation, and language auditing.

4. What is the True Potential of an Internet Accounting Dictionary?

In the light of the above investigation of existing Internet accounting dictionaries and with a view to our ongoing compilation of the English-Danish Internet accounting dictionary, we shall now discuss the true potential of Internet accounting dictionaries and identify the elements that are required for an optimal Internet accounting dictionary for an international user group, giving examples from our Danish-English Accounting Dictionary that was opened to Internet access in 2003.

4.1. Relating functions and data types

We have previously (Nielsen/Mourier in print) defined a dictionary, including an Internet dictionary, as a lexicographic reference work that has been designed to fulfil one or more functions and stressed that it

must contain lexicographic data supporting the function(s) as well as lexicographic structures that combine and link the data in order to fulfil the function(s). The functions of our Internet accounting dictionaries are both knowledge-oriented (factual information) and communication-oriented (information needed for text production, revision, editing and translation).

When creating a multifunctional Internet accounting dictionary with a heterogeneous user group (see Sections 2 and 3 above), we must therefore include both factual and linguistic information. For an Internet-based electronic dictionary, space has no limits, but we also need to ensure that the user may search and easily access the data needed, so we have to plan the mapping of each article with this end in view.

As our dictionaries are first and foremost utility products they must be efficient both for knowledge-building and text production. Therefore, for knowledge-building, information data fields are given in-depth treatment and lemmata supplemented with synonyms and antonyms where relevant. Factual data fields may be included to supplement with specific information about changes in accounting standards or legislation etc.

For linguistic purposes, grammar and spelling data as well as collocations and phrases should guide the user to find correct terminology and text solutions, and the British, American and international varieties of English that exist in a particularly high number in accounting texts must be included for the relevant lemmata, enabling the user to make the appropriate choice of English. Because of being electronic dictionaries, the Internet accounting dictionaries are provided with a medium that makes it possible to include and arrange this considerable number of multipurpose data in a logical way for the users – enabling each user to deduct precisely the data he or she specifically needs in the easiest and quickest possible way.

The following examples from the Danish-English Internet accounting dictionary illustrate how we attempted to achieve this goal. We have chosen to include the same five terms as examined above in the discussion of other Internet accounting dictionaries:

1. profit and loss account/income statement – Danish lemma: *resultatopgørelse*
2. book value/carrying amount – Danish lemma: *regnskabsmæssig værdi*

3. fixed asset/non-current asset – Danish lemma: *anlægsaktiv*
4. depreciation – Danish lemma: *afskrivning*
5. amortisation (GB/IAS spelling)/amortization (US spelling) – Danish lemma: *afskrivning*.

<p>resultatopgørelse [Danish lemma] income statement (IAS/IFRS US) [equivalent 1: international and American English] <i>eller [or]</i> profit and loss account (GB) [equivalent 2: British English] <u>synonym</u> P&L account <u>betydning [definition]</u> Resultatopgørelsen består af indregnede indtægter og omkostninger, hvor forskellen mellem disse udgør periodens indtjening, dvs. årets resultat. [The income statement shows recognised income and expenses, the difference between the two representing earnings for the period, i.e. profit or loss for the period.] <u>kollokationer [collocations]</u> <ul style="list-style-type: none"> • artsopdelt resultatopgørelse income statement classified by nature (US IAS/IFRS) profit and loss account classified by type of expenditure (GB) </p>

Example1: The article **resultatopgørelse** (‘profit and loss account’) in the Danish-English Internet Accounting Dictionary.

As Example 1 illustrates, the user looking for information about *resultatopgørelse* is informed that the English equivalent in US as well as international English as applied by IFRS is *income statement*, and that the English equivalent in British English is *profit and loss account*. In this way, the user may decide which term is appropriate for his/her particular use, depending on the variety of English needed.

The data field ‘synonyms’ informs the user of the synonym *P&L account*, an abbreviated version of the equivalent *profit and loss account*.

The definition to the Danish term enables the user to decide whether this is indeed the lemma needed. The definition is extremely important, since it delimits the lemma in particular contexts, enabling one equivalent only to be offered as the correct choice, besides including semi-technical terms and general terms as seen in their technical ‘accounting’

meaning. Second, definitions also provide users with problem-solving and additional information. This is particularly helpful to translators who are not accounting experts (in Example 1, the user will e.g. learn about the content in the income statement). Specialists in accounting, on the other hand, need updated information about changed rules and new terminology⁴. In some cases, up-dating information is provided by the collocations, phrases or in a factual data field. For an illustration of this, see Examples 3, 4 and 5 below.

For polysemous lemmata, the definitions are extremely important, as they will provide the specific meaning of the lemma in question, in this way combining it with the correct equivalent. Technically, this is done by listing the polysemous lemma as one headword that leads to two definitions, each with the proper equivalent. In total, the definitions support a plurality of functions useful to a mixed user group. Homonyms are provided with a comment as to word class, for the Danish word *aftale* e.g., there are two separate articles, one designating *aftale* as ‘verb’, the other as ‘noun’, after which follow the appropriate equivalents: *agree* and *agreement*.

The field ‘collocations’ contains sentences relevant to both knowledge- and comprehension-related functions. They provide the syntagmatic information that is necessary for combining words and producing idiomatic texts in a foreign language above the term level, because the collocational patterns of L1 and L2 differ. Besides, they offer information about grammatical differences in L1 and L2. This is important since none of the intended users can be expected to know the relevant grammatical aspects in situations involving translation, production, revision or editing of accounting texts. In many cases, a Danish singular noun or noun phrase corresponds to an English plural noun or noun phrase. The collocation shown in Example 4 below illustrates this.

The lemma **ombygningsudgift** (‘rebuilding cost’) provides an example where the phrase *leasehold improvement costs* gives the appropriate

⁴ In 2001, new accounting legislation, and in this connection also new terminology, was introduced in Denmark; in Dec. 2003, IFRS introduced some new terminology in connection with the revision of existing IASs; similarly in March 2004 with the adoption of new IFRSs.

translation of the Danish phrase *ombygningsudgifter vedrørende lejede lokaler* [i.e. rebuilding costs in respect of leaseholds]. This phrase is particularly informative to the user, because the English phrase does not include the equivalent to the Danish lemma: *rebuilding cost*.

If the user needs information about additional Danish-related data, such data can be found in the Danish Internet Accounting Dictionary (accessed by clicking on the icon for this dictionary in the left column of the site). Here, the user will find information about grammar, and besides the definition in Danish, Danish collocations and Danish phrases, and references to other lemmata relevant to this particular lemma.

<p>regnskabsmæssig værdi [Danish lemma] book value (US GB) <i>eller [or]</i> carrying amount (IAS/IFRS) <i>eller [or]</i> carrying value (US) <u>betydning</u> [definition] Regnskabsmæssig værdi er den værdi, et anlægsaktiv er indregnet til i balancen og fremkommer som kostpris med tillæg af evt. opskrivninger og efter fradrag af evt. foretagne af- og nedskrivninger. [Carrying amount is the amount at which a fixed asset is recognised in the balance sheet, constituting cost plus any revaluation, after deduction of any depreciation/ amortisation or write-downs for impairment.] <u>kollokationer</u> [collocations] </p>

Example 2: The article **regnskabsmæssig værdi** ('book value/carrying amount/carrying value') in the Danish-English Internet Accounting Dictionary.

Examples 1, 3, 4 and 5 show that the Danish-English Internet Accounting Dictionary provides data of interest to the user needing knowledge about L1 and L2, moving from L1 to L2. Example 3 below shows how the factual data field 'note' provides additional, up-dated information to the user in the Danish Internet Accounting Dictionary, in which the user may search for information special to Danish usage.

<p>regnskabsmæssig værdi <u>anmærkning</u> [note] Benævnelsen er indført med årsregnskabsloven og erstatter betegnelsen bogført værdi. [The term was introduced with the (Danish) Financial Statements Act to replace the term 'bogført værdi'] <u>betydning</u> [definition] (se Example 2 above) <u>synonymer</u> bogført værdi</p>

Example 3: The article **regnskabsmæssig værdi** in the Danish Internet Accounting Dictionary.

Besides showing the English varieties, Example 4 illustrates the knowledge-building function of the definition and the collocation shows the grammatical difference between L1 and L2.

<p>anlægsaktiv [Danish lemma] fixed asset (GB) <i>eller [or]</i> non-current asset (IAS/IFRS US) <u>betydning</u> [definition] Ved anlægsaktiv forstås et aktiv, der er bestemt til vedvarende eje eller brug for virksomheden. Et anlægsaktiv kan være immaterielt, materielt eller finansielt. [Fixed assets are assets that are intended for permanent ownership or use by the enterprise. A fixed asset may be an intangible or tangible, or an investment.] <u>kollokationer</u> • anlægsaktiver med begrænset brugstid [useful life: singular] fixed assets with limited useful lives [plural] (GB) non-current assets with limited useful lives [plural] (IAS/IFRS US)</p>

Example 4: The article **anlægsaktiv** ('fixed asset'; 'non-current asset') in the Danish-English Internet Accounting Dictionary.

Example 5 shows how the Danish-English Internet Accounting Dictionary warns the user about the special American spelling and the use of two different equivalents in English in the factual data fields.

<p>afskrivning [Danish lemma] amortisation <u>anmærkning</u> [note] 'Amortisation' anvendes om immaterielle anlægsaktiver. På amerikansk engelsk skrives 'amortization'. ['Amortisation' is used about intangible fixed assets. In American English, the spelling is 'amortization'] <i>eller [or]</i> depreciation <u>anmærkning</u> [note] 'Depreciation' anvendes om materielle anlægsaktiver. ['Depreciation is used about tangible fixed assets.] <u>betydning</u> [definition] Afskrivning er den systematiske fordeling af afskrivningsgrundlaget over aktivets brugstid. Der skelnes mellem regnskabsmæssige og skattemæssige afskrivninger. [Depreciation/amortisation is the systematic allocation of the depreciable/amortisable amount over the useful life of the asset. A distinction is made between depreciation/amortisation for accounting purposes and for tax purposes.]</p>

Example 5: The article **afskrivning** ('amortisation'; 'depreciation') in the Danish-English Internet Accounting Dictionary.

As shown, the data fields provide the user with additional features of the lemmata. In the Danish-English Dictionary the user group consists of Danes, and therefore this information is provided in Danish. For the English-Danish Internet Dictionary in process, the operating language will of course be English. According to what is relevant for or appropriate to the individual lemma, the data fields include:

<p>A. notes to lemmata for factual information or recommended usage B. markers for English varieties (GB, US, IAS/IFRS, and even DK, signifying that the English equivalent is a translation of the Danish lemma, if a gap exists in the original English varieties) C. comment field to the equivalent (e.g. concerning American spelling usage or non-appropriate choice of equivalent in special context) D. cross-reference to the lemma in the dictionary's recommended spelling (1st Reference) – in this way the dictionary deals with misspellings (see 4.3 below) E. cross-references to other lemmata of interest (2nd Reference) F. synonyms G. antonyms H. sources (exploiting the Internet media, some are clickable providing direct access to the relevant Internet homepage).</p>
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Fig. 3: Data fields included in the Danish-English Internet Accounting Dictionary.

4.2. Comparing Internet accounting dictionaries

In the following, the dictionaries listed in Figures 1 and 2 are referred to as ‘O-IADs’ (other Internet accounting dictionaries), whereas the Danish-English Internet Accounting Dictionary is referred to as ‘DK/E-IAD’.

Definitions

Definitions must help the user and should never create confusion. They should be precise in content, written in a clear language and be as brief as possible. As appears from 3.2.5 above, few of the O-IADs meet this requirement.

Grammar, spelling, collocations and phrases

We have already established in 3.2.5, that none of the O-IADs provide information on grammar and spelling varieties, and for spelling, some of them even confuse the user by applying upper-case letters in the lemmata. None of them contains collocations or phrases that either illustrate the use of the lemmata in a context or provide additional knowledge-oriented information.

Data fields

A comparison between the data fields listed in Figure 3 shows the following:

- For factual information (A), the O-IADs give only what is limited to the definition, and for recommended usage of the term, no information is offered. As illustrated in the examples above, the DK/E-IAD offers both types of data.
- None of the O-IADs listed above includes notes as to English varieties, their spelling and usage (B and C); some of them offer synonyms in other English varieties, but without indicating language origin, offering no help to the user who needs e.g. the American term rather than the British one. The DK/E-IAD offers English varieties where appropriate and includes comment fields to the equivalent(s) concerning spelling and usage.
- As for cross-references (D and E), some of the O-IADs have cross-references, but only to other lemmata of interest, whereas the DK/E-IAD leads the user to the lemma searched for, even though the search word was misspelled.

- Regarding F: synonyms and G: antonyms, some O-IADs include a number of synonyms; the DK/E-IAD includes both synonyms and antonyms (see 3.2.5 above for importance of these).
- As to H: sources, only the DK/E-IAD refers to relevant sources, some of them being clickable so that the user will get direct access to the website in question.
- As appears from the examples above, the DK/E-IAD seeks to meet the different user needs by providing an array of functions relevant to a dictionary specialising in accounting. At the same time this dictionary was compiled from the start as an electronic dictionary on the Internet and designed accordingly (see 4.3 below). The advantages are enormous: unlimited space, continuous updating possible (important to a dictionary that specialises in a rapidly developing subject field such as accounting), and saving of search-related information costs. The disadvantages, if any, are difficult to see.
- A comparison of most of the Internet dictionaries listed in Figures 1 and 2 above with the Danish-English Internet Accounting Dictionary shows the importance of compiling an electronic dictionary as a genuine electronic dictionary, i.e. a dictionary that has been compiled right from the start as an electronic dictionary, benefiting from the technological possibilities. Providing a remake of an existing printed dictionary is inappropriate, as will appear from the next section, which discusses the special nature of electronic Internet dictionaries.

4.3. Improving search options

It is important to have a clearly defined search structure in an Internet dictionary because the user will not be able to turn over one page after another as in printed dictionaries. However, some Internet dictionaries appear to have been based on an existing printed dictionary or an ordinary computer file, such as a Word file, and not designed and developed directly for the electronic medium. Accordingly, they do not take advantage of the options available by the new technology on which electronic and Internet dictionaries are based. It is imperative that the lexicographers give careful consideration to the search options that make it

possible for the user to benefit optimally from the data contained in the dictionary relative to its functions and the user's needs.

All the Internet accounting dictionaries examined except one, have fairly simple search structures, as the lemmata are all presented in one overall alphabetical list or in several alphabetical lists with one for each letter of the alphabet. This means that the dictionaries offer one of two ways for the user to search for a term. If the user wants to find the term *profit and loss account*, the user will either have to access an all-inclusive alphabetical list containing all the articles, beginning with the letter A, and he will then have to scroll down the list until the term is found. This involves a considerable amount of time being spent on scrolling up and down the word list; it corresponds to starting with the first page of the word list in a printed dictionary and turning each single page until the page containing the term *profit and loss account* is found. This may be an appropriate search process if the dictionary contains only few lemmata, such as the Japanese-English dictionary, where all 13 lemmata are presented on the screen at the same time; and similarly Everyone's ABC of Accounting Language with its entire 48 lemmata presented on the screen.

The search structure with several alphabetical lists requires the user to perform a number of search actions. The user will first have to find the list of the alphabet giving access to the list containing the term *profit and loss account*, and then perform a positive act to get access to this specific list. This list contains all the lemmata beginning with the letter P arranged in alphabetical order, and the user will then have to scroll down the entire list until he finds the term he is looking for. This corresponds to a search in a printed dictionary where the user has direct access to the pages containing the lemmata beginning with the letter P and then has to turn each single page until the page containing the term *profit and loss account* is found. This search process may be appropriate in dictionaries that contain a total of several hundred lemmata, in particular if no list contains more lemmata than can collectively be shown on the screen.

The Danish-English accounting dictionary has a different search structure, primarily because it was designed and developed as an Internet dictionary proper. It does not contain an alphabetical list, or several alphabetical lists, but allows the user to search directly for a particular

term. If the user wants to look up the term *profit and loss account*, the user will have to type the term in a query text box and send the query by clicking on a search button. The result of the search will either be the article containing the lemma, or a message informing the user that the search term was not found. Had this been a printed dictionary, the user would be able to find the page with the term *profit and loss account* when he first opens the dictionary. This search process is appropriate in Internet dictionaries that contain several thousand lemmata, as it would require the user to spend an inordinate amount of time scrolling up and down alphabetical lists of lemmata.

However, none of the dictionaries have the optimal search structure for an Internet accounting dictionary. The Danish-English accounting dictionary comes closest to offering the user optimal access to its data, but its access structure could be improved seen from the user's point of view. The disadvantage – one it shares with the other dictionaries examined – is that it only allows the user to search for lemmatised terms, which in effect means that the user can only search for the “headline” of an article, and not for words contained elsewhere in the article such as in the definition. Future Internet accounting dictionaries should contain a search structure that allows for a more extensive search along the lines described below. If the user wants to search for a particular term, the user types this into the query text box and sends the query by clicking a search button. It is important to appreciate that the term may be a single-word linguistic unit, e.g. *asset*, or a string of words, e.g. *profit and loss account*. The actual search should be arranged in such a way that it will start in the articles so that the term searched for is found in the lemma field, the inflection field, the collocation and phrase field, and in the examples, if any. When the search process has been completed, the user will be told that the search has given one of the following possible results:

1. The search term was found x number of times in
 - (a) the lemma,
 - (b) x number of collocation and phrase fields,
 - (c) x number of examples.
2. The search term was not found.

To optimise the search the user should be able to indicate whether the search string typed in the query text box is the lemma searched for, is the beginning of a lemma, is the end of a lemma, or whether the search string is contained in a lemma. The user can then select the relevant option before clicking the search button. The main disadvantage of these specific options, except the first, is that the result of the search is likely to be a presentation of several lemmata or articles, often so many that they cannot all be shown on the screen at the same time. However, if the user is aware of this, he should be able to manage his search optimally in any given situation, and if the user's guide contains the necessary information, the user will be able to make an informed choice.

In connection with Internet dictionaries containing thousands of lemmata and no alphabetically arranged list of headwords, the dictionary should be able to deal with misspellings when the user is searching for a lemma. This does not mean that the user can spell a word in the query text box in any way he likes, but seen from the user's point of view, it will reduce the search-related information costs if he feels that the dictionary is helping him rather than rejecting him. Using a log file, the lexicographers may identify a relatively limited number of words that are important within the field of accounting but frequently misspelled by the users, for instance *financiel* instead of *financial*. It is important that the user will be able to find the lemma searched for, and the lexicographers should keep in mind that an Internet dictionary offers technical options that compensate for the "missing" word list known from printed dictionaries.

There are four solutions available to the lexicographers to deal with this type of situation. The dictionary may simply inform the user that the search resulted in no finds; this will force the user to make another search, is not particularly informative and adds to the search-related information costs. Secondly, the user may be directed automatically to the correctly spelled lemma without any comments. This is a pure service to the user, but he may never realise his spelling mistake and continue making it when searching in the dictionary and when producing financial reporting texts. Thirdly, the user may find the misspelled lemma (e.g. *financiel*) and be explicitly told that it is wrongly spelled and then directed to the correctly spelled lemma (e.g. *financial*) by way of a cross-reference. This explicitly informs the user of his mistake and the correct spelling, but forces him to perform a new search activity

by clicking on the cross-reference address. Moreover, this solution requires that the lexicographers lemmatise the misspelled version of the word, including the relevant information in the article, and providing the cross-reference. Finally, if the user misspells the search word (e.g. *financiel*) he may be directed automatically to the correctly spelled lemma and here find a comment that this word is commonly misspelled *financiel* and that the dictionary does not recommend that spelling. This solution explicitly informs the user of his mistake and at the same time gives him the correct solution; and it keeps the search-related information costs down as the user is not required to perform a new search activity. Furthermore, the lexicographers are not required to make an entire article dealing with the incorrectly spelled word, and this saves them work.

So far, the discussion of search options has focused on the terms as lemmata, but the optimal Internet accounting dictionary will also contain a considerable number of collocations and phrases. Seen from the user's point of view, direct access to these fields is beneficial, because it will give the user the opportunity to skip one or more steps in the search process compared to the traditional search options in both printed and electronic dictionaries. If the user can only search for lemmata, the user will have to find a collocation or phrase through a search operation consisting of at least two steps: the search for the lemma – and hence the article – and the search for the collocation or phrase inside the article. The most advantageous search option will allow the user to search directly for a collocation or phrase, such as *recognise expenses* or *recognise expenses as incurred*, instead of first having to go through a lemma/article. This also eliminates another problem the user is faced with in the traditional search structure, namely: Under which lemma should I search for the collocation/phrase? Should the user search under the lemma **recognise** (or **recognize**), **expense** or **incur**? The easy access to collocations and phrases is particularly relevant for the functions production, revision, editing and translation.

Another option that may benefit the user's search is to allow the user to decide how much or how little he wants displayed on the screen. The query text box will typically be placed in screen mid-position, and the user may opt for certain fields, such as examples, not to be displayed on the screen after a search has been performed. The search itself will not be affected by the user's choice, as it is a pure output function, which

merely reflects the user's preferences. In the design phase, the lexicographers will have to decide whether the system should "remember" the user's preferences in subsequent searches, and if so, how this is to be implemented technically.

5. Concluding Remarks

The examination of existing accounting dictionaries on the Internet has revealed a general need for a new type of dictionary. The dictionaries are mainly electronic versions of printed dictionaries or have been designed and prepared using principles that are only appropriate for printed dictionaries, alternatively traditional electronic files. Furthermore, the target group of the individual dictionary is limited geographically to such an extent that it is not really suited for an international audience. The compilers need to take account of the advances made in lexicography for this to succeed, and there is clearly a need to take a functional approach to the design and compilation of Internet accounting dictionaries. This does not only benefit the users but also the lexicographers, in that it forces them to work on a strictly methodical basis.

A state-of-the art accounting dictionary on the Internet is one that guides the user and provides answers to his questions in a given use situation. The best way in which to do this is to make a multifunctional dictionary that can be used in communication-oriented situations as well as knowledge-oriented situations. It is therefore necessary for the lexicographers to identify the different types of user and their factual and linguistic competences and relate this to the data to be included in the dictionary. This is particularly relevant for a dictionary that is intended for a heterogeneous, international target group, as their competencies vary considerably. It is important to appreciate that the lexicographical information costs should be kept at a minimum, implying that the user should be able to understand the definitions and the relationships between the terms presented, and that the user should be able to gain access to the data without wasting too much time and effort.

6. References

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