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How Knowledge Organization helped to shape the emerging field of Terminology in Canada

Abstract
As the field of terminology began to take shape in Canada in the 1970s and early 1980s, it became clear that traditional linguistics methods were not sufficient to support this new field of activity. Following an analysis of five seminal Canadian works on terminology published during this period, we illustrate that knowledge organization had a significant influence on the development of terminology methodology by contributing ideas relating to conceptual maps, semantic relations and thematically structured presentations.

Introduction
Terminology is a relatively new field of linguistic activity described by Sager (1990, 2) as “the study of and the field of activity concerned with the collection, description, processing and presentation of terms, i.e. lexical items belonging to specialised areas of usage of one or more languages.” Terminology is often understood in contrast to lexicography. While lexicographers compile dictionaries containing general language words, terminologists prepare glossaries of terms from specialized fields of knowledge. Discussions about the need for terminology as a field of activity first surfaced in the 1930s, when an Austrian engineer named Eugen Wüster (1931) emphasized the need for clarity and precision in technical communication. However, it was not until the 1970s that the field of terminology as we know it today really began to take shape.

While terminology is firmly rooted in linguistics, there is widespread recognition that it is an interdisciplinary field. For instance, in the introduction to the first volume of the international scientific journal Terminology, the editors observe that “Terminology … is not based on linguistic principles alone, but is itself essentially of a multidisciplinary nature” (Loening and Sonneveld, 1994, 3). They, along with other terminology researchers, such as Sager (1990, 3), Picht and Draskau (1985, 22), and Cabré (1999, 25), refer to contributions from disciplines that include cognitive science, computer science, and information science, among others. However, beyond this type of general acknowledgment, we know of no detailed analysis of specific contributions made by information science – and more specifically by knowledge organization – to the formation of this new field of activity.

This paper seeks to explore some ways in which knowledge organization contributed to the formative years of terminology, focusing in particular on ways in which ideas and practices from knowledge organization inspired the development of an initial methodology for conducting terminology work in Canada in the 1970s and early 1980s. To the best of our knowledge, no prior research has focused explicitly on identifying
the ways in which methods and resources developed and used in knowledge organization were borrowed, adapted and integrated into the working practices and education of Canadian terminologists during the early years of this new field.

The paper is divided into four main sections. First, we describe the context in which terminology work developed in Canada. Next, we introduce the corpus of five seminal Canadian terminology publications that forms the basis for this study and that is investigated for evidence of contributions from knowledge organization to the emerging discipline of terminology. This is followed by a presentation and discussion of the themes identified in the corpus. Finally, we offer some concluding remarks.

1. Translation as a driving force for the emergence of Terminology in Canada

As Rondeau (1981, 38) notes, in the years following Wüster’s efforts to encourage clear and consistent technical communications, different groups began working in the area that came to be known as terminology. Consequently, different schools of thought emerged, including the German-Austrian school, the Soviet school, the Czechoslovakian school, and the (Canadian) Quebec school. It has been noted that, among these, the Quebec school distinguished itself by its close ties to translation, as well as by its strong focus on methods and pedagogy (Rondeau 1981; Delisle 2008).

Although terminology work can be carried out in a monolingual context, in the officially bilingual country of Canada it is strongly associated with translation (Kerpan 1977, 46-47). By the 1960s, translators working for the Government of Canada’s Translation Bureau estimated that they spent more than one-third of their time researching specialized terminology (Dubuc 1972, 36). To increase translators’ productivity, it would be necessary to reduce the amount of time they devoted to terminology research. Therefore, in Canada, terminology began to emerge as a new field of activity that was auxiliary to translation and was carried out by terminologists.

Commenting on the state of terminology in Canada near the end of the 1960s, Delisle (2008, 124) notes that terminology was not taught, textbooks did not exist, terminological research methods were embryonic, computerized term banks had not been developed, and the tasks of terminologists had yet to be defined. Nonetheless, driven by the needs of the rapidly expanding translation industry, terminology training was clearly needed. Not surprisingly, therefore, early efforts at providing formal terminology training took place within translator education programs. Indeed, each of the 12 undergraduate translation programs that were established in Canada in the 1970s and 1980s included at least one terminology course (Delisle 2008, 273). Where there is teaching, there is also a need for teaching materials, and it was during the 1970s that the first serious efforts to develop and document a methodology for conducting terminology work in a Canadian context took place. In the period between 1973 and 1981, Canadian professors, translators and linguists produced five seminal publications on terminology. The product of careful reflection and experimentation, these five
ground-breaking contributions, some of which generated further editions, would prove to have staying power. The next terminology books written chiefly for a Canadian audience did not appear for 20 years (i.e., Pavel and Nolet 2001; L’Homme 2004).

2. General methodology and corpus description
   
   Our approach to learning more about how knowledge organization influenced and inspired the early development of terminology in Canada has been to closely read the five Canadian publications on terminology that were produced between 1973 and 1981 to identify themes that reveal underlying contributions from knowledge organization. In this section, we will provide a general introduction to the five works in the corpus, before going on to discuss their knowledge organization-related content in more detail. In summary, these five seminal works from the Quebec school, published in French, served to document the development and evolution of a methodology for terminology work and served as teaching material to train Canada’s first generation of terminologists. The list below outlines key features of each volume.

1) Corbeil (1973) Guide de travail en terminologie (Guide to working in terminology): The first volume on terminology to be published in Canada, it was a modest effort intended to launch discussions on the development of a methodology for conducting terminology work. It was based largely on the professional tips and tricks gleaned through the experience of employees of Quebec’s Office de la Langue Française (OLF).

2) Auger and Rousseau (1978) Méthodologie de la recherche terminologique (Methodology of terminology research): A reworked version of the initial OLF volume, this work took into account the experience and knowledge gained by attempting to implement earlier versions of a terminological methodology. More widely distributed, it helped the Quebec school to gain international recognition.

3) Boutin-Quesnel et al. (1979) Vocabulaire systématique de la terminologie (Systematic vocabulary of terminology): A complement to the OLF’s methodology document, this structured glossary of terminology vocabulary was the first of its kind in the field and was intended to describe the metalanguage of terminologists. It had a unifying effect on Canadian terminologists and helped to establish terminology as a distinct field.


5) Rondeau (1981) Introduction à la terminologie (Introduction to terminology): The
first Canadian volume to break away from a purely practical perspective, this work nonetheless provided an overview of approaches to terminology, and helped to situate the work that was being carried out in Canada in a wider international context.

3. Findings and discussion

In this section, we will first present a general overview of the main steps that emerged as being important for conducting terminological research. Having this high-level understanding of how a terminologist works will help readers to better process the more specific discussion that follows, which considers how principles and practices from knowledge organization contributed to the development of a methodology for the newly emerging field of terminology in Canada.

3.1. Overview of the main steps in a Terminology research project

The goal of a terminology research project is to produce a glossary or collection of term records that contains a comprehensive coverage of the terms belonging to a specialized field (or subfield) of knowledge. A glossary typically contains a structured list of the preferred terms, accompanied by additional linguistic information such as a foreign language equivalent, related terms (e.g. synonyms, abbreviated forms, spelling variants), and part of speech. The term is also accompanied by a definition, as well as a context showing an example of the term in use. Sources are clearly documented. An alphabetical index accompanies the structured collection to facilitate look up.

To produce a glossary, Canadian terminologists working in the 1970s typically followed these main steps. First, terminologists did some background reading to familiarize themselves with the specialized subject field. Next they compiled a documentary corpus that they then examined to identify the terms that are proper to the subject field at hand. As they read the corpus, terminologists extracted not only the potential terms, but also additional information that could be used to help them map out the conceptual structure of the field and understand the relations between the concepts. Information that could be used to help define concepts or demonstrate examples of the term in use was also collected. The data were then analyzed to complete tasks such as identifying which term would be the preferred term (and which would be designated as synonyms), or defining the term. In Canada, where terminology was almost exclusively carried out in a bilingual fashion, all of these preceding steps were conducted independently in both English and French, and then an additional interlingual analysis was carried out in order to establish a conceptual match between the concepts in both languages and to confirm linguistic equivalence. Finally, the results would be compiled into a glossary or collection of term records.
3.2. Contribution of Knowledge Organization to Terminology

In this section, we present a number of themes that were identified in the five works described above, focusing specifically on those terminological activities that were inspired by work being carried out in knowledge organization.

Before there was an established methodology for carrying out terminology work in Canada, those charged with conducting terminological research experimented and did the best they could, drawing mainly on approaches used by 19th-century lexicographers (Delisle 2008, 42). However, lexicographers take a semasiological approach to their work, which means that they begin by identifying the lexical item and work towards establishing its definition. In other words, lexicographers ask the question “What does the word X mean?” It soon became clear that this approach had limitations in terminology, where it was important to understand the subject field as a whole rather than considering the terms in isolation. Indeed, a more appropriate question for terminologists seemed to be “What do you call X?”, which takes the concept as the starting point, rather than the term. Therefore, these early terminologists soon began looking beyond lexicography to draw inspiration from other disciplines too, including knowledge organization. An examination of the contents of the glossary of terminology prepared by Boutin-Quesnel et al. (1979) reveals a number of entries that have been borrowed or adapted from knowledge organization:

- analyse notionnelle (subject/concept analysis)
- classement systématique (subject order)
- index (index)
- notion (concept)
- relations internotions (semantic/conceptual relations)
- terme générique (broader term)
- terme spécifique (narrower term)
- terme privilégié (authorized term)
- terme rejeté (non-authorized term)
- vedette (heading/entry term)

Information about knowledge organization proved to be useful to terminologists in a number of different ways, including helping them to produce a conceptual map for the subject field under investigation, helping them to identify the conceptual relations needed to create definitions and establish interlingual equivalents, and helping them to present the results of their research in a structured format.

3.2.1. Subject field breakdown

For instance, Corbeil (1973, 28) advises that an early and important step in a terminology project involves delimiting the domain that will be the subject of the research. He indicates that it is not sufficient to simply give the name of the domain,
but rather, it is necessary to clearly specify the subdivisions or branches of the domain that will be taken into account, as well as those that will be excluded from the project. He suggests that a terminologist can facilitate this task by taking as a starting point an existing classification, such as the Universal Decimal Classification (UDC).

Auger and Rousseau (1978, 17) take things further, noting that for each subdomain, the terminologist should prepare a structured list of concepts. According to Auger and Rousseau, the elaboration of a concept system makes it easier for a terminologist to get a better overview of the subject field and to understand the relations between the concepts. Auger and Rousseau (1978, 20) likewise suggest consulting thesauri and subject classifications as models to help guide this process, a recommendation that is later echoed by Rondeau (1981, 72).

Dubuc (1978, 36) is the first from the Quebec school to use the word onomasiological to describe the concept-to-term direction of terminology research, and like Auger and Rousseau, he advocates strongly for the elaboration of a concept system that illustrates how the various concepts in a subject field are related to one another. Not only is the resulting conceptual map useful for providing the terminologist with a general overview of the subject field, it also provides vital information for later stages of the terminology research project, such as definition construction and the establishment of interlingual equivalence.

### 3.2.2. Establishing definitions and interlingual equivalents

After noting that definitions represent one of the most complex aspects of terminology work, Corbeil (1973, 26) explains that one very effective way to define a term is to refer to its broader term (i.e., a more generic concept) and to indicate how it differs from its coordinate concepts. This method is also advocated by Dubuc (1978, 98), and to do this, the terminologist must have a good understanding of the semantic relations in play. Indeed, Boutin-Quesnel et al. (1979, 27) define the term definition in a way that draws attention to the importance of conceptual relations for definition construction: Definition: ‘a statement that describes a concept and allows it to be differentiated from other concepts within a concept system’.

Meanwhile Dubuc (1978, 72) explains, and Rondeau (1981, 33) confirms, that the way to establish whether English and French terms are equivalent is to determine whether both refer to the same concept. This requirement comes out clearly in Boutin-Quesnel et al.’s (1979, 20) definition for Equivalent: ‘each of the terms of different languages that designate corresponding concepts’. Hence, once again, understanding the place of a concept within the concept system is critical.

### 3.2.3. Systematic presentation of entries

The emphasis on knowledge organization in terminology also extends to the way the contents of glossaries are organized. In contrast to lexicography, where the vast
The majority of dictionaries use alphabetical ordering to present their entries, Corbeil (1973, 67) and Auger and Rousseau (1978, 46) encourage a systematic organization for terminology glossaries, identifying a number of benefits to this latter approach. For example, in the same way that the conceptual map could help the terminologist to gain a better understanding of the overall subject field, so too could a structured presentation help the glossary user to better understand how the different concepts are related to one another. Corbeil (1973, 68) recognizes that systematic ordering requires a more complex design and a greater effort on the part of the terminologist than does alphabetical ordering, but he argues strongly that it is more advantageous for the user. Nonetheless, when a terminological resource is ordered systematically, Corbeil recommends providing a corresponding alphabetical index to facilitate look up.

Boutin-Quesnel et al. (1979) put this recommendation into practice when producing the glossary of terminology. The glossary adopts a systematic ordering for its entries, which are divided into three main categories (terminology theory, methodology, and types of terminology collections), with further levels of subdivision. The systematic presentation is accompanied by an alphabetical index.

4. Concluding remarks

As pointed out by Delisle (2008, 169), Canadian linguists first began to reflect seriously on the theory and methodology of terminology in the 1970s. It was during this decade that Canada’s terminology community began to organize itself, to equip itself with conceptual tools and a metalanguage, to outline working methods, and to submit their ideas to the test of experience. Early efforts drew heavily on methods used in lexicography, but it soon became clear that these alone would not suffice and that budding terminologists would need to look elsewhere for additional inspiration.

One of the disciplines that terminologists turned to was knowledge organization. The first four terminological works to be published in Canada were highly practical in their orientation and contained very few references to existing literature. However, Rondeau (1981) incorporated more theoretical ideas as well. This latter volume includes a 16-page list of references, including a number drawn from the field of knowledge organization. Among these, for example, we find references to several early works by Ingetraut Dahlberg, a German professor of information science who founded the journal *International Classification* in 1974, the title of which was changed to *Knowledge Organization* in 1993, and which remains important in the field today.

Through a close examination of five seminal works published by members of the Quebec school between 1973 and 1981, we have demonstrated that knowledge organization significantly influenced the emerging field of terminology in Canada, and particularly the development of a methodology for carrying out terminology work. As emphasized by Rondeau (1981, 61), methodology has an extremely important place in terminology, and the strong focus on methods and on bilingual comparative...
terminology are features that distinguished the early Quebec school from others.

While terminology’s linguistic and lexicographical roots remain evident, there can be no denying that this young field also owes much to the discipline of knowledge organization, which inspired many elements of the concept-oriented methodological framework needed to carry out terminological research effectively.

Acknowledgements
An expanded version of this paper investigating how terminology has been influenced by the field of information science more broadly is found in Bowker (2017).

References