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A corpus-based study of the correlation between text technicality and ideational metaphor in English

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Abstract

This article intends to conduct a corpus-based study on the correlation between technicality and two typical ideational metaphors in English texts, i.e., nominalization which is typical experiential metaphor and verbalization which is typical logical metaphor. A general distribution pattern of the typical ideational metaphors within the contexts of genre and discipline was investigated in the BNC. Based on this general pattern, the use of typical ideational metaphors was investigated, both in the academic papers of natural sciences and social sciences written by Chinese users of English as a foreign language (EFL) and those by native English users. The first investigation based on the BNC shows that typical ideational metaphors are not only genre sensitive but also discipline sensitive, and the technicality of text is determined by the use of verbalizations rather than by that of nominalizations. The second investigation based on the research papers shows that native English users write more technical English than EFL Chinese users, and among the four groups of research papers, the EFL Chinese science papers are farther from the native English science papers than the EFL Chinese linguistic papers from the native English linguistic papers in technicality. This research is of implication to the discipline-based English training of the non-native English learners.

Keywords: Corpus-based; Ideational metaphor; Nominalization; Verbalization; Technicality

1. Introduction

Grammatical metaphor developed by Halliday (1985, 1994) and Halliday and Matthiessen (2004, 2014) refers to ''the expression of a meaning through a lexicogrammatical form which originally evolved to express a different kind of meaning'' (Thompson, 1996:165). See example (1) quoted from Halliday and Matthiessen (1999:343):

(1) a. They shredded the documents before they departed for the airport.
b. Their shredding of the documents preceded their departure for the airport.

The two sentences in example (1) construe the same meaning which is realized congruently as a clause complex in example (1a) while incongruently or metaphorically as a simple clause in example (1b). The congruent realization is defined as ''typical ways of saying things'' (Halliday, 1994:343), and the incongruent realization, as ''not expressed

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through the most typical (and highly coded) form of representation'' (Halliday, 1978:180). The two clauses in example (1a) are nominalized as two nominal groups in example (1b) and correspondingly, the temporal relation construed by the hypotactic conjunction *before* in example (1a) is verbalized as the verbal group *preceded* in example (1b). The process of nominalization or verbalization is one that creates grammatical metaphor.

Grammatical metaphor in the Hallidayan sense includes ideational metaphor and interpersonal metaphor. Ideational metaphor is further divided into experiential metaphor and logical metaphor: The former arises mainly from the nominalization of verbal groups and the latter from the verbalization of conjunction groups (Martin, 1992). It can be seen from example (1) that nominalization producing experiential metaphor and verbalization producing logical metaphor are closely interrelated: Nominalization comes first, and verbalization is induced by nominalization (He and Wen, 2017).

Grammatical metaphor is an economical means of packaging information (Halliday, 2004), and nominalization is ''the single most powerful resource for creating grammatical metaphor'' (Halliday, 1994:352). Nominalization is also a common feature of scientific writing (Martin, 1992, 1993; Galve, 1998; Halliday, 1998, 2004; Biber et al., 1999; Charles, 2003; Banks, 2003, 2005; Biber, 2006; Colombi, 2006; Holtz, 2009; Yuliana, 2011; Devrim, 2015; Liardét, 2016). This is because nominalization gives scientific writing ''an appearance of solidity, stability, and fixed factuality'' (Banks, 2005:350), and it ''can assist in maintaining an impersonal tone, often by deleting a human agent within a given sentence'' (Baratta, 2010:1017). Here is an example retrieved from a medicine text in the academic sub-corpus of the BNC:

(2) These *changes* may also *precede* the *development* of adenomatous polyps. (BNC_W_AC_MEDICINE)

There are two nominalizations in example (2), *changes* and *development*, which are linked by the temporal verbal group *may also precede*. Empirical research (Galve, 1998; Biber et al., 1998; Charles, 2003; Baratta, 2010) on the use of nominalization in scientific texts concludes that the comparatively more formal tone required in scientific texts ''is assisted via a frequency increase for the most part of nominalizations'' (Baratta, 2010:1035) and the use of nominalization is on an increasing trend in the language of science (Banks, 2008; Biber, 2012). Even in the scientific community there are still disciplinary differences in the use of nominalizations (MacDonald, 1994; Unsworth, 1997; Swales, 1998; Charles, 2003). According to MacDonald (1994), for example, nominalizations occur more in hard sciences than in humanities. Nominalization used in grammatical metaphor is associated with the language users' advanced level of literacy (Halliday and Matthiessen, 2004), and therefore, fewer nominalizations are expected in the works written by second language users than those by first language users (Flowerdew, 2006; Nesi and Moreton, 2012; Jiang, 2015).

Grammatical metaphor is an important resource in constructing technicality in scientific writing (Martin, 1993), and hence can be considered as an indicator of text technicality. Technicality is not a genre or discipline but a feature of genres or disciplines; we use ''technical'' to distinguish it from ''non-technical'' or ''everyday'' rather than from ''academic'' or ''scientific''. Technicality is ''a graded rather than a binary quality'' (Copeck et al., 1997:393). An academic lecture (spoken) and an academic paper (written), for example, are both of the academic genre, but they are not necessarily of the same degree of technicality. According to Copeck et al. (1997), academic texts are more technical than fiction texts with regard to genre. In the present research, we use technicality to refer roughly to the degree of scientificality or academicality of text, without considering the context of mode, genre or discipline. We do not use scientificality or academicality because some non-academic texts may be of higher degrees of technicality and academic texts of different disciplines may also be of different degrees of technicality.

Thus, we conducted a corpus-based study on the distribution of typical ideational metaphors from two perspectives, i.e. genre and discipline, with regard to writing, for a general distribution pattern of ideational metaphors. After a general pattern was identified, we further investigated the use of typical ideational metaphors by EFL Chinese users and that by native English users. To this end, we worked on two hypotheses: (1) ideational metaphors (typically realized as nominalizations and verbalizations) are more prevalent in academic or scientific texts than in other texts with regard to genre, and more prevalent in hard science texts than in social science texts with regard to discipline; (2) EFL Chinese users use fewer nominalizations and verbalizations in their academic paper writing than native English users.

We will introduce the corpora and data collection in Section 2. The findings of the research on the distribution of ideational metaphor will be presented in Sections 3 and 4 respectively, and those of the research on the academic papers written by EFL Chinese writers and native English writers will be presented in Section 5. A discussion on the findings follows in Section 6.

2. Methodology

2.1. Corpora

In this research, we will use the British National Corpus (BNC) as the target corpus because the BNC allows enough data which are organized into spoken texts and written texts in terms of mode (Hyland, 2009), and the written texts cover a

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