Coming-to-know verbs in research articles in three academic disciplines

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Abstract

This paper focuses on the use of “coming-to-know verbs” (Meyer, 1997) in research articles in law, literary criticism and medicine. These verbs are interesting from a comparative perspective, as they can emphasise different aspects of epistemological achievements. The use of these verbs is compared empirically across these disciplines, using a corpus of academic research articles. The results suggest that this approach can identify real differences between writing in different academic disciplines, which are illustrated in this paper.

Key words: research article, disciplinary comparison, corpus analysis, discourse studies

Introduction

Recent research in the rhetoric of science has become interested in disciplinary differences in academic texts. While different disciplines share the common culture of the academia, there are evident distinctions which set them apart. These distinctions also bear on the way academics in different disciplines put forward their arguments.

My paper studies differences in argumentation in research articles representing three disciplines, literary criticism, academic law, and medicine. Using a corpus linguistic approach, I aim to demonstrate how the particularities of disciplinary cultures are present in research reports in each field. This paper concentrates on the use of "coming-to-know verbs" (Meyer 1997), that is, lexical verbs which are used to indicate epistemic achievements in academic texts. The following example sentences illustrate this concept.

Differences in availability were observed among the preparations evaluated in this study. [MED]

In subpart C, we weigh the costs and benefits of each alternative. [LAW]

In Wharton's idealism we see links to Renan, who, in a strict sense, is not a nationalist at all. [LIT]

Corpus-based text analysis focusing on this feature is useful in that it helps us to identify and describe real differences between writing in different academic disciplines. Based on my analysis, I suggest that texts in these three disciplines are different in terms of how coming-to-know verbs are used. Further, I argue that these differences reflect the way that authors in different disciplines wish to present themselves to their readers, and what objectives they aim to achieve in their texts. Medical writers systematically present new information based on established methods, while in literary articles new information is found in the midst of summaries, descriptions evaluations and quotations. Finally, in legal
articles the new information being presented is typically a critical evaluation of a court case.

**Theoretical background**

Linguistic and stylistic variation within the register of scientific writing is an issue which is familiar to and often commented on by authors of scientific documents, teachers of writing, and linguists working on specialized languages. Variation according to disciplinary context has also been addressed in previous research. For instance, Bazerman (1981) demonstrates how texts in sociology, molecular biology and literary criticism are fundamentally different when it comes to how they talk about the object of study, evaluate knowledge claims and cite previous research. Fahnestock and Secor (1988) discuss how arguments differ in terms of their rhetorical structures in science and the humanities: they suggest that while the former aim at getting facts straight about the object of research, the latter are concerned with presenting claims which reinforce values which the audience adheres to. Recently, Hyland’s (2005) work on metadiscourse in academic writing has shown that there are conventions particular to some academic disciplines which are not shared by others.

This paper focuses on a group of verbs referred to as coming-to-know verbs in Meyer (1997), which have a central role in the construction of academic knowledge. According to Meyer, verbs belonging to this group are used to refer to epistemic gains in academic texts. An ideal coming-to-know verb in academic discourse describes the acquisition of knowledge through the scholar’s intentional action (Meyer, 1997: 119). Meyer identifies 58 verbs with this function, including *find, see, observe, search,* and *obtain.*

Meyer’s insight is that different verbs may put the emphasis on different aspects of the epistemological achievement and therefore are not interchangeable but chosen by the author according to the context. In this way, analysing the use of these verbs in academic texts may tell us which kind of knowledge claims are considered appropriate in a given situation.

This is a pilot study in a PhD project studying linguistic and stylistic differences in research articles across four academic disciplines, academic law, literary criticism, clinical medicine and physics.

**Material and method**

My research draws on a corpus of academic research articles which I am compiling for my PhD project. The corpus used in the present study consists of 64 articles in literary criticism and 56 articles in academic law, selected from established, peer-reviewed journals with international readership and high esteem (1). The overall size of the corpus is ca. 1.3 million words of running text. I have limited the corpus searches to the main body of text, excluding text in abstracts, footnotes, endnotes and bibliographic details. To provide a point of comparison from the hard sciences, I carried out the same searches in medical research articles in the Medicor corpus (Vihla, 1998). The size of the research article subcorpus of
Medicor is ca. 113,000 words.

For this study, I have searched and analysed all the instances of the 58 coming-to-know verbs in a corpus of academic research articles. I have classified the occurrences according to the subject of the clause in order to find patterns which would characterise articles in one discipline and distinguish them from texts in the other two disciplines.

My focus is primarily on those instances which are genuinely about the author acquiring knowledge about the object of research. Irrelevant occurrences were excluded from the analysis, and occurrences referring to agents other than the writer were considered only if they were relevant to the argument which the author was presenting (e.g. discoveries made by other scholars).

**Results**

Coming-to-know verbs are almost equally frequent in literary and legal articles: there are on average 8.5 occurrences of coming-to-know verbs per 1,000 words in literary articles and 9.1 in legal articles. The figure is considerably higher for medical articles, 14.1 verbs per 1,000 words. Also, the lists of the most common verbs in different disciplines are far from identical (Table 1. below).

As pointed out above, verbs in this group are polysemic, so the raw numbers can only give us a rough idea as to how these verbs relate to the construction of disciplinary knowledge. However, there are subtle differences between disciplines which can be seen by looking at the use of individual verbs in more detail. In what follows, I will discuss some of these differences and consider how they may be motivated by aspects of the disciplinary culture.

**TABLE 1. Ten most frequent coming-to-know verbs for each discipline**

<table>
<thead>
<tr>
<th>LITERATURE</th>
<th>n/1000</th>
<th>LAW</th>
<th>n/1000</th>
<th>MEDICINE</th>
<th>n/1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>see</td>
<td>1.35</td>
<td></td>
<td>find</td>
<td>0.83</td>
<td></td>
</tr>
<tr>
<td>find</td>
<td>0.82</td>
<td>note</td>
<td>0.58</td>
<td></td>
<td>1.30</td>
</tr>
<tr>
<td>show</td>
<td>0.48</td>
<td>determine</td>
<td>0.54</td>
<td></td>
<td>0.95</td>
</tr>
<tr>
<td>note</td>
<td>0.46</td>
<td>seek</td>
<td>0.53</td>
<td></td>
<td></td>
</tr>
<tr>
<td>reveal</td>
<td>0.35</td>
<td>recognize</td>
<td>0.47</td>
<td></td>
<td>0.82</td>
</tr>
<tr>
<td>establish</td>
<td>0.30</td>
<td>see</td>
<td>0.44</td>
<td>obtain</td>
<td>0.71</td>
</tr>
<tr>
<td>seek</td>
<td>0.30</td>
<td>establish</td>
<td>0.44</td>
<td>receive</td>
<td>0.71</td>
</tr>
<tr>
<td>recognize</td>
<td>0.29</td>
<td>show</td>
<td>0.40</td>
<td>rate</td>
<td>0.70</td>
</tr>
<tr>
<td>learn</td>
<td>0.25</td>
<td>rate</td>
<td>0.39</td>
<td>assess</td>
<td>0.65</td>
</tr>
<tr>
<td>encounter</td>
<td>0.18</td>
<td>reach</td>
<td>0.34</td>
<td>observe</td>
<td>0.58</td>
</tr>
<tr>
<td>demonstrate</td>
<td>0.17</td>
<td>receive</td>
<td>0.34</td>
<td>evaluate</td>
<td>0.50</td>
</tr>
</tbody>
</table>

**Ideal coming-to-know verbs**

Occurrences of verbs sharing all the characteristics of an ideal coming-to-know verb are most frequent in medical articles, while literary and legal texts show more deviation from this pattern. Medical writers commonly use the verbs *find* and *observe* to refer to their
achievements. While *find* usually occurs active sentences, instances of *observe* are almost exclusively found in passive sentences.

We *found* that injury itself strongly activated MAPK and led to its nuclear translocation.

(MED)

The efficacy of loteprednol etabonate was also *observed* in supportive efficacy measures.

(MED)

**Medicine vs. soft sciences**

Some coming-to-know verbs are common in medical research articles but hardly occur in the other two disciplines. These verbs refer to special procedures carried out in order to obtain numerical data. For instance, the verbs *calculate* and *measure* are frequent in medical writing to describe the activities of the researcher:

We *calculated* prevalence of overweight and average weight...

(MED)

Weight was *measured* with a Health-O-Meter electronic scale...

(MED)

These verbs are infrequent legal and literary texts, because the objects of research in those disciplines are not that easily quantifiable, at least not in a way which could give insights into their nature.

An interesting feature of legal texts is the frequency with which the verb *weigh* occurs in the material. Legal articles contain some 45 instances of this verb, which is all but nonexistent in the other two disciplines. Although the literal meaning of the verb refers to a special, quantitative operation, the metaphorical use seems characteristic of legal writing.

Third, courts should *weigh* the costs of a coverage decision against the benefits to both the disabled individual, as well as society in general. (LAW)

**Metadiscursive uses**

Literary essays contain occurrences of coming-to-know verbs which do not refer to the achievement of the scholar; this is the case in the following two examples.

But because "A Utilitarian View" continues to operate as if aesthetic form and content are reconcilable, we may *see* some continuity between the two poems. (LIT)

This is not an act of trans-historical solidarity such as we *find* in the poems about silenced figures from the past by Carson's contemporary, Eavan Boland. (LIT)

These instances could be labeled metadiscursive in that they are strategies which the writer uses to present the argument in a socially acceptable way. The verbs which typically realise this function in literary articles are *see, find, encounter, and learn*. The grammatical subject is 'we', which includes both the writer and the reader among its referents. Wales labels this use of the pronoun as the "workshop we", which is thought to be persuasive and suggest intimacy and common activity between the writer and the reader (1996: 66).
Focus on the addressee
With some coming-to-know verbs, the writer does not figure as the agent behind the mental achievement, but rather as someone experiencing something and accepting it as true. Knowledge claims are presented in such a way as if the object of research was directly talking to the writer, instead of the writer talking about it. Here, too, we find differences between disciplines. The verb *show* is frequent in all three disciplines but particularly so in medical articles, whereas *reveal* is characteristic of literary essays.

Contrast sensitivity to the 1-cpd pattern *showed* a similar decrease during carbon dioxide supplementation. (MED)

This scene, when juxtaposed with the text's other shipwrecks, *reveals* a fictional structure through which Sidney explores the relative merits of reason and faith in understanding human experience. (LIT)

We could interpret the frequency of *show* as an application of the “speaking world” metaphor (Meyer, 1997: 23), whereby the facts of nature are thought to make themselves visible to anyone who has a keen eye to observe then. Similarly, the frequency of *reveal* in scholarly literary essays could be analysed as the invoking of what Fahnestock & Secor (1991) and Wilder (2005) have referred to as the appearance/reality *topos*. According to this *topos*, the literary text which is subjected to analysis is thought of as container of hidden meanings which can only be interpreted by a literary scholar who has the sufficient expertise and acumen.

Discussion
Attention to coming-to-know verbs highlights differences between the three disciplines as to what kind of knowledge can be considered valid, and how it is to be achieved. I hope to have shown that the framework established in Meyer (1997) can be usefully applied to the study of disciplinary differences in academic writing. It is interesting to note that while some features in the use of verbs perhaps characterise academic writing at large, others seem to be unique to writing in a particular discipline. The use of the verb *weigh* in legal research articles is a case in point.

Medical research articles use coming-to-know verbs more frequently than either legal or literary articles. In this sense, medical writing is more formulaic and systematic, displaying fewer possibilities in the way research procedures are represented to the reader. Medical writers also make it clear what new information the article is presenting, often using the verbs *find* and *observe*. By contrast, legal and literary articles do not make such a sharp distinction between new information and other information which is discussed in the text.

On the other hand, legal articles stand out as being more about reviewing past decision-making, while the two other disciplines are more about discovering new information. This is demonstrated by the frequency with which legal writers refer to the decisions made by parties in a court case. In between commenting these, there are actually rather few passages where it is the scholars who explicate their own reasoning.
Finally, an analysis of coming-to-know verbs can highlight possible differences in the preferred fact-finding strategies between disciplines. Verbs referring to special quantitative operations are only found in medical articles. Literary scholars often present an interpretation as the result of a joint enterprise involving both the scholar and the reader. And while legal scholars frequently refer to decisions which different agents in their texts have reached, results based on the own consideration are represented as procedures which do not involve a great degree of complexity, only the kind of competence which a scholar with their capacities would have.

References


Notes