

## On the Effect of Disciplinary Variation on Transitivity: The Case of Academic Book Reviews

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**Keywords:** academic book reviews, transitivity, disciplinary variation.

### **Abstract**

*The purpose of this study was twofold. First, an attempt was made to systematically characterize Book Reviews (BRs) as an academic written genre in terms of the elements of transitivity system. Secondly, the effect of disciplinary variation on the lexico-grammatical features of this genre was explored. To this end, a corpus of 90 academic BRs from discipline-related professional journals (physics, sociology, and literature) were randomly selected and analyzed. Significant differences were observed in terms of both the type and frequency of processes and participants. This, it seems, points to a difference in the semantic configuration of BRs peculiar to each discipline, although they all seem to fulfill a similar communicative purpose—evaluating knowledge production in the academic milieu. To be more specific, the observed features indicate that BRs in physics journals, as compared to their counterparts in sociology and literature journals, appear to carry a higher percentage of passive construction, non-human concrete participants, and of relational and existential processes, together with a lower percentage of specific human participants; hence, leading to texts heavily laden with grammatical metaphor and impersonality.*

### **1. Introduction**

To date, (critical) discourse analysts have extensively studied the important role of the transitivity system in revealing and/or concealing ideological orientations and positions (see, e.g., Fairclough, 1989, 1995; Hodge & Kress, 1996, Stubbs, 1996) Transitivity has also been analyzed in scientific texts and academic settings (cf. Halliday & Martin, 1993; Eggins, Wignell & Martin, 1993; Martinez, 2001, Young & Nguyen, 2002). Fulfilling the communicative purpose of “evaluating knowledge production” (Motta-Roth, 1996) in academic settings, BR seems to be a clear instance of “evaluative” discourse that can act as

a “sounding board” to make the interplay between the specific elements of the transitivity system more apparent.

BRs are, it seems, of great value to the academic community. Firstly because, if it is true that the function of BRs usually found on the last pages of a journal is to evaluate knowledge production, it should then be very useful in the process of the acquisition of academic literacy. Secondly, familiarity with the lexico-grammatical features of this genre may enhance reading/writing ability of ESL/EFL users and can equip them with certain strategies to help them read/write BRs critically or give them certain critical insights into the very process of reading and writing BRs. Furthermore, learning more about the structure of BRs can also help scholars create more acceptable and accountable instances of BRs by developing sensitivity to and awareness of the subtle interplay between the elements generating this genre, i.e., discourse structures, linguistic encoding, etc.

Seen from a different angle, disciplinary variation, from the early days of ESP/EAP scholarship, has remained a controversy from both theoretical and empirical perspectives. Some scholars (cf. Widdowson, 1979; Trimble, 1985) give credence to the subject- and language-independent or, in a word, the universal nature of scientific and/or academic discourse, still others (e.g., Halliday, McIntosh & Strevens, 1964; Halliday, 1988) believe in linguistic variations resulting from functional variations inherent in different disciplines. Besides, empirical data have not yet resolved the controversy, either. While some studies document variations in the discoursal and linguistic features of the same genre across disciplines (Holmes, 1997; Williams, 1999; Samraj, 2002; to name but a few), others provide evidence for the universality of academic discourse (e.g., Paltridge, 1993; Thompson, 1994). The existing controversy, therefore, warrants further investigation in this particular area.

In light of the above contentions, the express purpose of this study was (1) to identify prototypical generic textual features of BRs at the lexico-grammatical level within the transitivity system in Systemic Functional Linguistics (SFL) and (2) to investigate whether or not the lexico-grammatical features of BRs vary across disciplines. To the best of our knowledge, this research is the first study which systematically investigates the clusters of elements of the transitivity system in BRs.

That is to say, this study essentially utilizes the transitivity system in Systemic Functional Linguistics (SFL) to identify the lexico-grammatical elements that are meaningfully selected by text producers to shape and realize the structure of this genre. An SFL-referenced analysis fundamentally uses lexico-grammar to characterize a genre by providing an explanation, not a mere description, of linguistic elements, their role and meaning in context and the relationship among them. As also pointed out by Halliday (1988, p. 163), one should attempt to find a “prototypical syndrome of features” that may characterize a genre. Besides, the features should be studied together as clusters rather than each in isolation. And, analysts should be prepared to explain and rationalize the observed configuration. Very much in line with these arguments, to venture on this slippery but much discussed area, the present study incorporated these micro-elements in its design in order to provide, to the extent possible, a richer and a more rationalized description of BRs.

In what follows some background information on the SFL perspective is provided in order to put this study in its proper theoretical perspective and help clarify the points that will be discussed later in this paper.

## **2. The Transitivity System in SFL**

*The SFL approach to genre analysis is simply known as 'systemic' theory. As articulated by Halliday (1985, p. xiv),*

systemic theory is a theory of meaning as choice, by which a language, or any other semiotic system, is interpreted as networks of interlocking options: 'either this, or that, or the other', and so on. [...] it means starting with the most general features and proceeding step by step so as to become ever more specific: 'a message is either about doing, or about thinking, or about being; if it is about doing, this is either plain action or action on something; if acting on something it is either [... ]

It is believed here that this type of grammar which is functional in its approach— "it is based on meaning" (ibid) — and semantic in its orientation, "with the grammatical categories as the realization of semantic patterns" (ibid), can provide useful insights into the meaning and effectiveness of a text and may nicely relate a text to the non-linguistic universe of its situational and cultural environment. In other words, SFL holds that the relation between the meaning and wording is not arbitrary and the form of the grammar relates naturally to the meanings that are being encoded.

'Clause' rather than 'word' or 'sentence' is the unit of analysis in SFL. And the function of a clause is analyzed in terms of: (a) Subject, Finite, Predicator, Complement, and Adjunct (SFPCA), (b) Theme and Rheme; (c) Given and New, and (d) Process and Participant or transitivity system. SFPCA captures syntactic niceties of the text. Theme-Rheme and Given-New indices deal with the way a text is packaged and the way information in a text is structured in a clause. However, a Process and Participant analysis of text reveals the way language users manipulate language to represent their perceptions of reality (cf. Bloor & Bloor, 1995, pp. 107-109).

In this theoretical model, it is, in fact, the transitivity system (Process, Participants and Circumstances) which "specifies the different types of processes that are recognized in the language, and the structures by which they are expressed" (Halliday, 1985, p. 101). By definition, the term 'process' refers to the 'goings-on' in reality: doing, happening, being, etc. The entities involved in every process are referred to as 'participants', and 'circumstances' refer to certain conditions associated with a process. Process, participant and circumstance are generally realized as Verb, Noun, and Adjunct, respectively (cf. Halliday, 1985; Bloor & Bloor, 1995; Thompson, 1996). And, the processes are of the following types: (1) material, (2) mental, (3) relational, (4) verbal, (5) existential, and (6) behavioral (Halliday, 1985; Bloor & Bloor, 1995; Thompson, 1996; Halliday & Martin, 1993; Halliday, 1994).

Material Process or the process of 'doing' involves some physical action and shows that something is going on in the external world. Mental Process, however, indicates that

something goes on in the internal world of the mind. This process necessitates the involvement of a conscious participant, i.e., a human agent who will be considered ‘Senser’ and another entity—‘Phenomenon’— which is to be sensed or experienced. Relational Process, on the other hand, does not involve an action or require some entity to act upon another. Essentially, it is a process of ‘being’ and it is concerned with the relationship set up between two things or concepts. Verbal Process indicates the process of ‘saying’ but as Halliday (1985) reminds us, “‘saying’ has to be interpreted in a rather broad sense; it covers any kind of symbolic exchange of meaning” (p. 129). Existential Process shows that something exists or happens. And finally Behavioral Process refers to the process of human physiological and psychological behavior. Table 1 below displays the possible configurations in SFL of these lexico-grammatical categories.

**TABLE 1**

Process Types, their Meanings, and their Relevant Participants in SFL

| Process     | Meaning  | Participant                                |
|-------------|----------|--|
| Material    | Doing    | Actor, Goal, Beneficiary                   |
| Mental      | Sensing  | Senser, Phenomenon                         |
| Relational  | Being    | Carrier, Attribute, Identified, Identifier |
| Verbal      | Saying   | Sayer, Receiver, Verbiage                  |
| Existential | Existing | Existent                                   |
| Behavioral  | Behaving | Behaver                                    |

The presence, absence or high/low frequency of these processes and/or participants may have different implications. In the following section, an array of studies utilizing an SFL model of analysis is presented.

**3. Previous Studies**

In an attempt to develop a systemic-functional description of the discourse of history and to investigate how language is used to represent and teach “the story of people”, Eggins, Wignell & Martin (1993) analyze high school history textbooks with an eye to the systemic linguistic realizations of grammatical metaphor. Specifically, they examine the following types of participants in the texts: (1) Human/specific; (2) Human/generic, (3) Non-human/time and place, (4) Non-human/metaphorical, and (5) Non-human/concrete. They find a high incidence of non-human metaphorical participants, e.g., nominalizations, and a scant presence of human participants, especially specific human actors. Their findings suggest that, far from being a dynamic account of people and events, when history gets written down, it is neither a story nor is it about people. Using grammatical metaphor, people are effaced, actions become things, and sequence in time is replaced by frozen setting in time. In short, the discourse of history seeks, it appears, to maximize the distance between what people actually did and how it gets written about.

Analyzing lexico-grammatical features of two geology textbooks, Love (1993) finds grammatical metaphor (cf. Halliday, 1985) a marked feature in the expression of

geological information. Specifically, she finds a high incidence of relational and existential process verbs, with nominalized geological processes acting as their main participants, especially in the subject position of sentences, whereas material process verbs that seem to be the most congruent verbs to describe geological processes as events in time are quite infrequent. She then argues that the use of grammatical metaphor by employing nominalizations of actions in relational and existential processes are tools of generalizations and classifications in scientific inquiry; hence, understanding this feature seems to be necessary for advanced geology studies.

Besides, from the same systemic-functional perspective, Gosden (1993) examines the choices of unmarked theme, i.e., Grammatical Subjects (GSs) in scientific Research Articles (RAs). Gosden (1993) allocates GSs to one of the following four domains: (1) Participant (e.g., I, we, or other persons), (2) Discourse (e.g., nominalized items and discourse processes such as argument, explanation, etc.), (3) Hypothesized and Objectivized (e.g., scientific naming and classifying that turn common-sense knowledge into scientific, organized knowledge such as 'solid waste' to include office paper, domestic waste, plastic sheeting, raw material packaging, etc. the terms that may not be transparent for non-technical readers), and (d) Real-World (e.g., real-world processes and entities such as beam, switch, vibration,...). These domains, it is reported, represent a horizontal continuum from where the writer is most visible (Participant domain) to where the writer is least visible and topic-based themes replace interactional themes (the Real-World domain). The results of the study reveal that 67.2% of sentences in scientific RAs contain unmarked theme which are distributed among the mentioned domains: Participant (9.2%), Discourse (6%), Hypothesized and Objectivized (7.6%), and Real-World (77.2%). The analysis also reveals how the changing discourse roles of subjects throughout scientific RAs, especially the overwhelming domination of Real-World themes, strongly characterize this genre.

Replicating Gosden's (1993) study, McKenna (1997) allocates GSs to the same four domains to investigate how engineering writers linguistically convert real-world entities and processes into non-real-world concepts. McKenna (1997) tracks authorial presence in three engineering reports. Results reveal that more than two thirds of sentences in engineering reports contain unmarked themes which are distributed among the mentioned domains: Participant (4.11%), Discourse (5.87%), Hypothesized and Objectivized (36.20%), and Real-World (53.82%). The findings lead McKenna (1997) to conclude that the difference between a layperson account and an engineer report is not just due to verbal sophistication but it is mostly the result of the linguistic reconstrual of natural phenomena into scientific concepts and principles.

Martinez (2001) reports on the ways in which impersonal constructions, encoded in the transitivity structure, are used in experimental research articles (RA), thus allowing writers to strategically distance themselves from the information they present. The study focuses on the features of the transitivity structure in the corpus of 21 experimental research articles in the fields of physical, biological and social sciences. The distribution of material, mental, verbal, relational and existential processes in different sections of the RA points to a relationship between the characteristic process types and the function of the

sections. The analysis reveals a tension between the need to present findings objectively and the desire to persuade readers of their validity in an appropriate style.

Young and Nguyen (2002) compare two modes of presenting the same scientific topic: (1) in a physics textbook and (2) in an interactive teacher talk. They report that both the textbook and the teacher talk use verbs of action to represent scientific processes, but the teacher talk constructs the teacher and students as active participants in these processes, while the textbook constructs the readers as distant observers. The textbook contains, it is reported, more grammatical metaphors, which are *frequently* left unpacked, whereas in the teacher talk grammatical metaphors are *always* unpacked. Both the textbook and the teacher talk show similar thematic organization but while this is explicit in the textbook, in the teacher talk it is interactionally constructed. They conclude with a discussion of the implications of these findings for the socialization of students to science discourse through different instructional modes.

#### **4. Data Collection Procedures and Methodology**

A random sample of 90 BRs published in professional English journals between the years 1998-1999 on (a) sociology (N=30), (b) physics (N=30), and (c) literature (N=30) served as the corpus of the study. To appreciate the rationale behind this sampling, the following points should be borne in mind.

Firstly, as there are multitudes of scientific, nonscientific, and interdisciplinary fields that form the totality of human knowledge, a selection seemed necessary to make. Therefore, a corpus of BRs in the fields of 'physics' and 'sociology' as two branches of the physical and social sciences respectively, and in the field of 'literature', as a branch of the fine arts (in contrast to the 'hard sciences') was taken to serve as data. These fields are assumed to be 'different' both epistemologically and intuitively. And, discursal and linguistic variations are expected to be more detectable in these fields than in presumably closer disciplines.

Secondly, a large pool of professional and academic journals related to the mentioned areas of inquiry, available at the time at the libraries of the universities in Tehran, was tracked down and inspected. Altogether, 336 book reviews [physics (N = 119), sociology (N = 108), and literature (N = 109)] were collected. Of this primary cluster, a secondary corpus of 90 BRs [physics (N = 30), sociology (N = 30), and literature (N = 30) with a purposeful air was randomly selected. For the number of cases in the sample to be representative of the characteristics of the population, 30 cases from each discipline were selected. Because, for 30 or more samples with 30 or more cases per sample, the sampling distribution will be normally distributed (cf. Hatch & Farhady, 1982, p. 98).

And, finally, in order to avoid the possible influence(s) of generational and diachronic changes in transmissional style of this genre, only BRs published over a span of two years (1998-1999) were included in the sample

##### **4.1 Methodological Framework for the Analysis of BR Texts**

To analyze the transitivity system and its linguistic manifestations in BRs, first, the BR texts were sectioned into clauses. Secondly, the frequencies and, in turn, the percentages of

categories in all 90 BR texts and then, separately, in each discipline-specific corpus (30 BRs) were calculated.

In this study, the classifications of processes and participants introduced by Halliday (1985) and Eggins et al. (1993) were used as the analytical frameworks for the study of BR texts. Specifically, employing Halliday's (1985) categorization of Processes, their definitions and instantiations (cf. Halliday, 1985, pp. 101-144), an attempt was made to locate the material, mental, relational, verbal, existential, and behavioral processes in the corpus. And, the model for the analysis of Participant types was basically that of Eggins, Wignell and Martin (1993) consisting of: (1) Human/specific; (2) Human/generic, (3) Non-human/time and place, (4) Non-human/metaphorical, (5) Non-human/concrete. This model was, however, expanded to account for the subcategories of the first, second, and fifth categories as well:

(1) Human—specific

Human—specific: The author(s)

Human—specific: The reviewer

Human—specific: The other(s)

(2) Human—generic

Human—generic: The reader(s)

Human—generic: The other(s)

(3) Non-human—time/place

(4) Non-human—metaphorical

(5) Non-human—concrete

Non-human—concrete: The Book under review

Non-human—concrete: The other(s)

## 4.2 Reliability of the Analyses

In order to vindicate the reliability of the analyses, of the already-available pool of data, 15 texts (five from each discipline) were randomly selected and two independent judges, who were trained beforehand in a joint training session, were asked to codify them unaided. Then, Kappa coefficient ( $k$ ) as an appropriate non-parametric measure to index the degree of agreement between the judges was used to calculate the inter-coder reliabilities. Application of Kappa procedure produced acceptable degrees of agreement (cf. Crookes, 1986) across the coders on process types ( $k = 0.95$ ) and on participant types ( $k = 0.92$ ).

## 5. Results

The findings of this study are presented below under three separate subheadings for ease of reference.

### 5.1 Passive Voice Construction in BR Texts

The frequencies and percentages of passive voice constructions were computed (see Table 2 below). As it can be observed in Table 2, of the total number of clauses (8302) in 90 BR texts, 1214 (14.6%) employed passive constructions. It appeared that all discipline-specific BR texts carry almost similar percentages of this construction in their textures. However, physics BRs as compared to sociology and literature BRs tended to utilize rather more passive structures.

**TABLE 2**

**Distribution of Passive Voice Construction in the Corpus**

|                     | No. of clauses | Passive      |
|---------------------|----------------|--------------|
| Physics (N = 30)    | 2181           | 348 (15.9%)  |
| Sociology (N = 30)  | 2659           | 386 (14.5%)  |
| Literature (N = 30) | 3462           | 480 (13.8%)  |
| Total               | 8302           | 1214 (14.6%) |

**5.2 The Analysis of Process Types**

The frequencies and percentages of different types of processes were also computed (see Table 3). In percentage terms, the processes appeared in the following order: Material (37.9%), Relational (24.8%), Verbal (17.4%), and Mental (17.3%). Besides, Existential and Behavioral types of processes in texts appeared quite inconspicuous. In fact, the percentage of Behavioral process was so low that it could be neglected in the final analysis. This is congruent with the results of Martinez' (2001) study of RAs. That is to say, it appears that academic writing does not use Behavioral process clauses frequently. In addition to this overall pattern, different discipline-specific texts showed differences in percentages of each process. Compared with literature and sociology BRs, physics BRs showed a greater tendency to employ Existential and Relational processes (cf. Table 3 below).

**TABLE 3**

***The Distribution of Process Types in Discipline-Specific BRs***

|            | Discipline  |              |              |              |
|------------|-------------|--------------|--------------|--------------|
|            | Physics     | Sociology    | Literature   | Total        |
| Material   | 772 (35.4%) | 1019 (38.3%) | 1363 (39.4%) | 3154 (37.9%) |
| Mental     | 358 (16.4%) | 495 (18.6%)  | 585 (16.9%)  | 1438 (17.3%) |
| Relational | 612 (28 %)  | 632 (23.8%)  | 818 (23.6%)  | 2062 (24.8%) |
| Verbal     | 369 (16.9%) | 445 (16.8%)  | 631 (18.2%)  | 1445 (17.4%) |

|             |           |           |           |            |
|-------------|-----------|-----------|-----------|------------|
| Existential | 61 (2.8%) | 42 (1.6%) | 47 (1.3%) | 150 (1.8%) |
| Behavioral  | 9 (0.4%)  | 26 (0.9%) | 18 (0.5%) | 53 (0.6%)  |
| Total       | 2181      | 2659      | 3462      | 8302       |

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Further examination of this cross-disciplinary variation through Chi-square tests of significance revealed significant differences between physics BR and the other two disciplines in terms of the processes used to structure texts (cf. Table 4). However, the difference between literature BRs and sociology BRs did not appear to be significant.

**TABLE 4**  
**Results of Chi-Square Tests (Process by Discipline)**

|                          | $\chi^2$    | df |
|--------------------------|-------------|----|
| Physics vs. Sociology    | 28.316<br>* | 5  |
| Physics vs. Literature   | 32.241<br>* | 5  |
| Sociology vs. Literature | 9.751       | 5  |

p<.01

### 5.3 The Analysis of Participant Types

A statistical 'participant' analysis was also revealing. As it can be seen in Tables 5 and 6, more than half of the main participants in three discipline-specific BR texts are *metaphorical*. And, *time* and *place* as the non-human categories of participants seem to be the main participants in only 1% of the observed cases. Regarding other types of participants, nevertheless, considerable marked differences were observed. Specifically, literature BRs seemed to accommodate more human-specific participants whereas sociology BRs carried more human-generic participants. Physics BRs were, however, laden with the non-human, concrete category of participants. Besides, application of the Chi-square tests of significance indicated that disciplinary variations are clearly significant. (see Table 7 below).

**TABLE 5**  
**The Distribution of Participants in Discipline-Specific BRs**

|     | Discipline  |           |              |              |
|-----|-------------|-----------|--------------|--------------|
|     | Physics     | Sociology | Literature   | Total        |
| H-S | 394 (11.7%) | 544 (13%) | 1200 (21.5%) | 2138 (16.3%) |

|        |             |              |              |              |
|--------|-------------|--------------|--------------|--------------|
| H-G    | 504 (15%)   | 733 (17.4%)  | 826 (14.8%)  | 2063 (15.7%) |
| NH-T/P | 28 (0.8%)   | 50 (1.2%)    | 60 (1%)      | 138 (1%)     |
| NH-M   | 1748 (52%)  | 2377 (56.5%) | 2782 (49.9%) | 6907 (52.5%) |
| NH-C   | 689 (20.5%) | 506 (12%)    | 711 (12.7%)  | 1906 (14.5%) |
| Total  | 3363        | 4210         | 5579         | 13152        |

Note. H-S = Human—Specific, H-G = Human—Generic, NH-T/P = Non-Human: Time/Place, NH-M = Non-Human: Metaphorical, NH-C = Non-Human—Concrete.

**TABLE 6**  
**The Distribution of Subtypes of Participants in Discipline-Specific BRs**

|        | Discipline  |             |             |              |
|--------|-------------|-------------|-------------|--------------|
|        | Physics     | Sociology   | Literature  | Total        |
| HS-A   | 241 (7.1%)  | 416 (9.8%)  | 606 (10.8%) | 1263 (9.6%)  |
| HS-R   | 99 (2.9%)   | 75 (1.7%)   | 52 (0.9%)   | 226 (1.7%)   |
| HS-O   | 54 (1.6%)   | 53 (1.5%)   | 542 (9.7%)  | 649 (4.9%)   |
| HG-R   | 54 (1.6%)   | 24 (0.5%)   | 62 (1.1%)   | 140 (1.1%)   |
| HG-O   | 450 (13.3%) | 709 (16.8%) | 764 (13.6%) | 1923 (14.6%) |
| NH-C-B | 333 (9.9%)  | 360 (8.5%)  | 332 (5.9%)  | 1025 (7.8%)  |
| NH-C-O | 356 (10.5%) | 146 (3.4%)  | 379 (6.7%)  | 881 (6.7%)   |
| Total  | 3363        | 4210        | 5579        | 13152        |

Note. HS-A = Human—Specific: the Author, HS-R = Human—Specific: the Reviewer, HS-O = Human—Specific: the Other(s), HG-R = Human—Generic: the Reader(s), HG-O = Human—Generic: the Other(s), NH-C-B = Non-human—Concrete: the Book, NH-C-O = Non-human—Concrete: the Other(s).

**TABLE 7**  
**Results of Chi-Square Tests (Participant by Discipline)**

|                          | $\chi^2$     | df |
|--------------------------|--------------|----|
| Physics vs. Sociology    | 218.368<br>* | 8  |
| Physics vs. Literature   | 375.527<br>* | 8  |
| Sociology vs. Literature | 414.104<br>* | 8  |

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P<.01

On the basis of these findings, which point to a significant variation across disciplines in terms of the frequencies of process and participant, it can be concluded that different clusters of lexico-grammatical features may be used in different discipline-specific BR texts to account for the specific nature of discipline-specific BR texts.

### 6. Interpretation of the findings

Here, the findings of this study are discussed in light of two major lines of comparisons: (1) a contrast between the lexico-grammatical features of BR texts, regardless of discipline, and Research Articles (RAs) as a different academic genre and (2) a comparison between various distributions of these features across three disciplines (physics, sociology, and literature). At first sight, this kind of frequency-referenced comparisons may not seem to be rigorous as such. Nevertheless, they can provide us, it seems, with logically-sound explanations about the nature of the observed differences.

The transitivity system offers alternative resources for the representation of experience, allowing for authorial intervention or impersonal distancing. That is to say, text producers' choice of the voice and of the process and participant types moves the text along an interaction-distance continuum: The higher the percentages of passive voice constructions, the more impersonality and objectivity there are in texts. Comparison of BRs with RAs in terms of the percentages of passive voice and process types suggests more impersonality and objectivity in RAs than BRs (see Martinez, 2001). The reported difference in the percentages of passive voice in RAs (34%) vs. BRs (14.6%) (cf. Table 2) is important if one considers that by removing explicit agency, passive voice tacitly encodes objectivity and impersonality. Voice is, in fact, one of the efficient linguistic devices that is used to present the discourse in such a way, as if human agency were not part of the world of action leading to what Halliday and Martin (1993) call "the objectification of discourse".

Very much in line with this argument, the observed differences, in this study, in the distributions of process types in the two genres also support the above contention. That is to say, the percentages of different process types (cf. Table 3) in BRs [Material (37.9%), Relational (24.8%), Verbal (17.4%), Mental (17.3%), Existential (1.8%), and Behavioral (0.6%)] clearly appeared to be considerably different from those observed in RAs (see

Martinez, 2001, p. 235): [Material (45%), Relational (35%), Verbal (7%), Mental (10%), Existential (3%), and Behavioral (0.2%)].

In general, Relational and Existential processes hide human agency and downgrade actions into nominalizations, whereas Verbal and Mental processes allow for the engagement of human participants in the processes (cf. Halliday, 1994, Martinez, 2001). Accordingly, the higher percentages of Relational and Existential processes in RAs (38%) vs. BRs (27%) along with the lower percentages of RAs' Verbal and Mental processes (17% vs. 35%) reduce the potential for interpersonal communication in RA texts. However, in a BR, the reviewer usually refers to human agency, especially the author, as he/she is supposed to be accountable for the content of the book.

Disciplinary variations, nonetheless, seem to influence this interactional feature of BRs. Specifically, by employing more passive voice constructions (cf. Table 2) and a higher percentage of Relational and Existential processes (cf. Table 3), physics BRs tend to move more towards the impersonality and objectivity end of interaction-distance continuum than sociology and literature. This particular difference between physics BRs and the sociology and literature BRs, in this study, turned out to be statistically significant (see Table 4).

As to the type of participants appearing in BR texts, the results of this study are congruent with those of Love's (1993) analysis of geology textbooks and Eggins et al.'s (1993) analysis of history textbooks. In this study, about 52% of the main participants in three disciplines were 'metaphorical', i.e., nominalizations and/or abstract nouns (see Table 5). In this respect, all three disciplines showed similarity. In fact, this is a major feature of academic writing which is often loaded with grammatical metaphor (cf. Love, 1993; Eggins, et al., 1993). Besides, *time* and *place* as the non-human categories of participants were the main participants in only 1% of observed cases.

Regarding other types of participants, nevertheless, considerable disciplinary differences were observed (cf. Tables 5 and 6). Specifically, literature BRs appeared to accommodate more human-specific participants (22% in literature vs. 13% in sociology and 12% in physics). This simply means that a higher percentage of participants in literature BRs were individuals—the author of the book, the reviewer, and other literary figures such as Shakespeare, Arthur Miller, Victor Hugo, etc. This finding is hardly surprising, because literature *is* about individuals and their literary works. Interestingly, sociology BRs appeared to carry more human-generic participants (17.5% in sociology vs. 15% in physics and 15% in literature) suggesting that *groups* of people such as readers of the book, feminists, sociologists, leaders, activists, middle-class mothers, etc. rather than specific individuals are often the main players in the actions that interest sociology. Physics BRs were, however, loaded with non-human, concrete category of participants (20.5% in physics vs. 12% in sociology and 13% in literature) signifying that inert, inanimate objects like the book, thermometer, pulse tube cooler, home computers, space crafts, etc. replace specific or generic human actors in texts.

On the whole, it can be concluded that book reviewers employ different lexico-grammatical devices to strike a balance between impersonality and interaction. That is, they attempt to appear impartial and disinterested by objective presentation of information, on the one hand, and persuade readers and influence their attitude, on the other hand. However, it seems that reviewers in different disciplines influenced by the epistemological nature of the inquiry favor different devices to convey their messages. In fact, literature and physics BRs appear to be located on the two opposing ends of the impersonality continuum, with sociology somewhere in between with a little distance from literature. In all, the “prototypical syndrome of features” (cf. Halliday, 1988, p. 163) that can characterize physics BRs as more abstract and impersonal can be summarized as higher percentages of (a) passive construction, (b) relational processes, (c) existential processes, (e) concrete non-human participants, and (f) lower percentages of specific human participants in texts. In a word, it seems that the present study provides evidence for this SFL doctrine that the epistemological nature of the disciplines within which the BR writers operate influence their writing.

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