RELATIONAL, MATERIAL, MENTAL AND VERBAL PROCESSES IN MATHEMATICAL RESEARCH ABSTRACTS

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ABSTRACT

Abstracts are one of the most important sections in academic articles as they represent the readers' first encounter with the article. In Hyland's words (2004, p. 65), "this … is the point at which a piece of research may stand or fall – at which the reader must be 'hooked'". In other words, it is based on the abstract that the reader first judges the quality of the researcher's work and decides whether to continue reading the article or abstain from doing so. Because of its importance in gaining the interest and acceptance of the corresponding research community, research on abstract writing has proliferated. Abstracts have particular generic features which reflect the common practices of the corresponding research community (Hyland, 2004) and differentiate them from other sections in the research article. These generic features become more fine-tuned according to the specificities of the discipline to which abstracts belong. In this context, the present research attempts to study relational, material, mental and verbal processes in mathematical research abstracts in order to find out how researchers abide by the generic features of abstracts and the specificities of Mathematics, a discipline belonging to the hard domain of knowledge. To this end, a corpus of thirty mathematical research abstracts is investigated using both quantitative and qualitative methods. The analysis has shown that relational, material, mental and verbal processes are not equally distributed. This is attributed to the generic features of abstracts and the specificities of the corresponding discipline, i.e. Mathematics. This is also traced back to the communicative functions of relational, material, mental and verbal processes.

KEYWORDS: Relational, Material, Mental and Verbal Processes/ Research Article Abstracts/ Generic Features/ Disciplinary Norms

INTRODUCTION

According to Halliday (1975, p. 16), "language has evolved in the service of particular human needs ….This functional principle is carried over and built into the grammar, so that the internal organization of the grammar system is also functional in character." In other words, human beings make lexico-grammatical choices from the linguistic system in order to serve particular functions. These functions are determined by contextual factors such as register and genre. Seeing the importance of genre in the build-up of any text, the notion of genre will be reviewed in the following subsection.

Genre

According to Huckin (2006, p. 93), "[j]ournal article abstracts have become an increasingly important genre, especially in science and technology." The importance of article abstracts in academic writing is attributed to four reasons. First, abstracts "serve as stand-alone mini-texts". In other words, they summarize the article including the findings and

research methods. In this way, they allow writers to be informed of the new discoveries in their respective cultures. Second, "they serve as screening devices". That is, they are the starting point based on which the readers decide whether to read the article or not and the corresponding research community judges whether the abstract conforms to the norms of the genre, discipline and register to which it belongs. Third, "abstracts serve as previews, creating an interpretive frame that can guide reading." Thus, they help readers to understand the article. Fourth, they "serve as aids to indexing by professional indexers for large database services" (Huckin, 2006, p. 93). For all these reasons, the abstract genre has been analyzed by various scholars including Hyland (2004), Berkenkotter and Huckin (1995), Suntara and Usaha (2013), and Ren and Li (2011). Abstracts have been investigated for many linguistic features such as that-clauses (Rakam, 2010) as well as tense and voice (Abarghooeinezhad & Simin, 2015). Unlike these studies, the present research will focus on verb complementation. This choice is motivated by the fact that novice researchers find difficulties in using lexical verbs in academic writing (Granger & Paquot, 2009). It is also justified by the importance of verbs in clause structure (Sinclair, 1990, p. 137). These reasons explain why transitivity will be investigated in the present research from the perspective of Systemic Functional Linguistics (henceforth SFL).

Transitivity and Process Types

In SFL, "transitivity is a system of the clause, affecting not only the verb serving as Process but also participants and circumstances" (Halliday & Matthiessen, 2014, p. 227). Process types are classified into six types which are namely material, mental, verbal, relational, behavioral and existential processes. Only four process types will be investigated in the present research. These processes are material, relational, mental and verbal processes. The analysis has been limited to these four process types as behavioral processes "are the least distinct of all the six process types because they have no clearly defined characteristics of their own" (Halliday & Mathiessen, 2014, p. 301) and existential ones "are not, overall, very common in discourse – on the order of 3 to 4 per cent of all clauses are 'existential'" (Halliday & Mathiessen, 2014, p. 307-308). Each process type expresses particular functions in context. This is why the present research attempts to find out how academic writers construe their identities in mathematical article abstracts through analysing the lexico-grammatical choices of material, mental, relational and verbal processes. Each process type is associated with particular participants and has its own distinctive features. For this reason, each process type will be described in what follows.

Relational Processes

Relational clauses stand for characterization and identification. In such clauses, relational processes are typically *be* and *have* (Halliday & Matthiessen, 2004, p. 214). They are seen as processes of being in the sense that they relate two participants to each other. As Halliday (1994, p. 119) puts it, "there are two parts to the 'being': something is being said to 'be' something else. In other words, a relation is being set up between two separate entities". An example of relational processes is provided in the following sentence:

E1. It **wasn't** one nation at that point; it **was** a large number of independent political entities.

(Halliday & Mathiessen, 2014, p. 211)

Material Processes

According to Halliday and Matthiessen (2014, p.224), "a 'material' clause construes a quantum of change in the flow of events as taking place through some input of energy." In these clauses, processes stand for various activities. In the

words of Fontaine (2013, p. 74), material processes "[cover] the range of processes that express activities of doing, happening, changing and creating". The following sentence includes an example of a material process:

E2. These **are formed** by chemical precipitation, by biological precipitation, and by accumulation of organic material.

(Halliday & Mathiessen, 2014, p. 185)

Mental Processes

Mental clauses "[construe] a quantum of change in the flow of events taking place in our consciousness" (Halliday & Matthiessen, 2014, p. 245). This change can stem from an individual's own consciousness or from something else encroaching on it. The processes involved in such clauses denote individuals' cognitive construal of situations in the external world or their emotions, reactions and attitudes towards those situations (Fontaine, 2013, p. 75). An example of verbal processes is cited in the following sentence:

E3. But this **reminds** me of Tamara.

(Halliday & Mathiessen, 2014, p. 198)

Verbal Processes

Verbal clauses "are clauses of saying" in narratives as they establish "dialogic passages" or "develop accounts of dialogue on the model of 'x said, and then y said' together with quotes of what was said" (Halliday & Matthiessen, 2004, p. 252). This is why Eggins (2004, p. 235) defines verbal processes as "processes of verbal action." Examples of these processes include *say*, *report*, *explain*, *argue*, *talk* and *tell*. Verbal processes function differently from one discourse to another. Whereas in news reporting they identify the sources of information, in academic discourse they enable the writers to "quote and report from various scholars, while at the same time indicating the writer's stance with verbs like point out, suggest, claim, assert" (Halliday & Matthiessen, 2004, p. 253). The following example includes a verbal process:

E4. The study **says** that such a diversified village structure produces a dualistic pattern of migration.

(Halliday & Mathiessen, 2014, p. 254)

The present research seeks to analyze how writers construe meaning through making grammatical choices in accordance with the specificities of the abstract genre and the discipline under study, i.e. Mathematics. This is why disciplinary norms will be the focus of the next subsection.

Disciplinary Norms

As is previously mentioned, these four process types will be analyzed in research abstracts belonging to Mathematics, one discipline pertaining to the hard domain of knowledge. This domain, as opposed to the soft domain of knowledge, is characterized by a particular set of features. Among these features, Hyland (2004, p.30) identifies the cumulative nature of knowledge as writers build new knowledge based upon previous knowledge. In fact, there is no disruption; this is a continuous process since the writers add to the existing literature. As Hyland (2004, p.30) puts it,

An important cognitive feature of hard knowledge is its relatively steady cumulative growth, where problems are typically seen as determined by the imperatives of current interests and new findings are generated by a linear development from an existing state of knowledge.

In addition to the cumulative nature of knowledge, Hyland (2004, p. 38) claims that the hard sciences are characterized by the frequency of research verbs such as *develop*, *show* and *observe.* This is explained by the cumulative nature of knowledge and the inductive approach in the hard domain of knowledge as knowledge comes as a result of experiments conducted in laboratories. In the words of Hyland (2004, p.38), "the scientific ideology which perceives laboratory activity as impersonal, cumulative and inductive also helps to explain the relatively high frequency of 'research' verbs found in the science/engineering corpus."

The present research will study the extent to which the distribution of the four process types in mathematical article abstracts reflects the characteristics of the hard domain of knowledge.

Although Mathematics shares various features with other disciplines belonging to the hard domain of knowledge, it has its "own discursive practices" (Samraj, 2013, p.41). When writing in a particular discipline, the writer has to consider the previous academic writings in the same discipline and to abide by the basic rhetorical features adopted by other scholars in the same discipline. In doing so, academic writings in each discipline become stable, thus helping writers to overcome the difficulties which may be encountered because of the generic specificities of each discipline (Hyland, 2004, p. 4)

METHODS

To explore the distribution of material, mental, relational and verbal processes in mathematical article abstracts and to find out how these choices are motivated by the genre under study, a corpus of fifty abstracts has been collected from the journal of Advances in Mathematics. These articles are published on the following website: https://www.journals.elsevier.com/advances-in-mathematics/. To this corpus, both quantitative and qualitative methods of analysis have been applied.

Quantitative Analysis

The quantitative approach provides objective findings; the obtained results are valid and reliable as they are context-free and unbiased because this approach is based on precise measurement (Katz, 2009, p. 35). In order to find about the frequency of each process type in the corpus under study, one computational software, i.e. the UAM CorpusTool, is used. Thanks to this software, the frequency distribution of each variable is detected. To get a better idea of the quantitative analysis, the UAM CorpusTool and frequency distribution will be described in what follows.

The UAM CorpusTool

The quantitative analysis has been carried out through one computational program which is the UAM CorpusTool. This program is downloaded for free from the following website: http://www.corpustool.com/. It allows the researcher to annotate four linguistic features, i.e., material, mental, verbal and relational processes. In order to do so, one layer named process types is created. This layer is shown in the following figure:
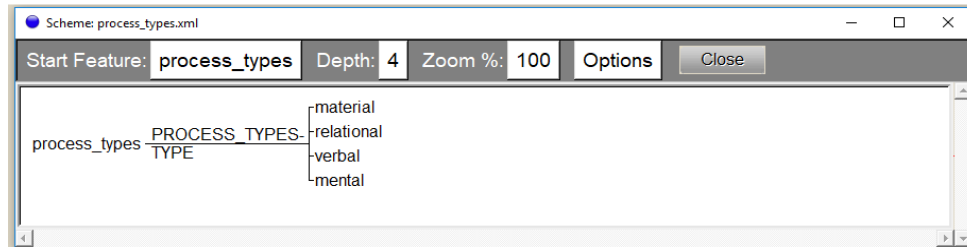
Figure 1: Process Types

This layer is based on segment coding; that is to say, the researcher will look for particular linguistic items and assign to each one of them a particular feature. As Figure 1 shows, this layer consists of one scheme which is made up of four features, i.e. material, relational, verbal and mental. In the present research, it is hypothesized that the choice of one particular feature instead of another is determined, by the generic features of the Abstract and the specificities of Mathematics, a discipline belonging to the hard domain of knowledge.

Frequency Distribution

Frequency distribution is one of the statistical tools allowing "[researchers to] make a distribution by giving a frequency for each individual value taken by the variable" (Triki & Sellami-Baklouti, 2002, p. 46). In the present research, frequency distribution is used to measure the distribution of each process type in the corpus under study. These distributions can be displayed thanks to the UAM CorpusTool.

Qualitative Analysis

Quantitative findings pave the way for the qualitative analysis. Indeed, the researcher has to interpret the statistics and explain the similarities and differences in the distribution of the variables. As Triki and Sellami-Baklouti (2002, p.37-38) claim

> The objective of the linguist is not to translate a given text into a set of numbers, but rather to classify those numbers in a meaningful way and to interpret them, after having proved their significance, providing thus empirical evidence for his/her conclusions about a given text.

In the present research, the qualitative analysis is manifested in the description of the functions of each process type in mathematical research abstracts and the interpretation of the distribution of the four process types in the corpus under study.

RESULTS AND DISCUSSIONS

Since the present research seeks to explore academic writers' choices of material, mental, relational and verbal processes and to study the extent to which the distribution of these processes is genre related, their frequencies are displayed in the following table:

Table 1: Frequencies of the Four Process Types in Mathematical Research Abstracts

Processes	Frequencies	Percentages
Material	473	71.45%
Relational	109	16.46%
Mental	68	10.27%
Verbal	12	1.8%

As Table 1 shows, material, relational, mental and verbal processes are not equally distributed in mathematical research abstracts. In fact, material processes are the most frequent as they represent 71.45 %. These processes are mainly used to describe the actions of the researchers, as can be seen in the following examples:

E 5. The Hankel determinants can also be evaluated by **using** the Hankel continued fraction.

E 6. Instead, Gessel's conjecture was first proved **using** an inventive computer algebra approach in 2008.

E 7. We **produce** additional derived auto equivalences of a GIT quotient.

E 8. In particular, we show that each homogony n-sphere has the "same" isoperimetric foliations as the standard sphere Sn has except for n= 4, **reducing** the classification problem on homogony spheres to that on the standard sphere.

E 9. The twist construction is a geometric T-duality that **produces** new manifolds.

In examples E 5 and E 6, material processes show the active role of the researchers, through indicating the actions they performed during the experiment. In this way, researchers manage to market a positive self-image in their culture through highlighting their role on the one hand and stressing the accuracy and reliability of their experiment through providing an adequate description of the experimental procedures on the other hand. This positive marketing of the self is further revealed in example E 7, where the writers foreground their contribution to this field of research through displaying the concrete product of their experiment, thus reflecting their attempts to draw readers' attention to the originality of their research. This image is also conveyed through example E 8 by means of which the writers show the positive effects generated by their research. Considering that the abstract is the first section which readers encounter and it is the one upon which readers decide whether to continue reading the abstract or abstain from doing so, the writers seem to convince the readership of the importance of their piece of research in order to grant its acceptance by the corresponding research community.

Another function of material processes is describing the interaction between the variables in the research. This is illustrated by example E 9, where the writers indicate how one variable leads to the creation of another one. The explanation of the experimental design, coupled with the absence of any reference to the researchers, shows writers' intentions to convey a sense of detachment.

The frequency of material processes in mathematical article abstracts reflects writers' attempts to create a text which is close to the personal experiences of the readers. In other words, through describing different types of activities, material processes enable writers to create dynamism in scientific writing, which makes the text appealing to the readership and thus easier to read and understand. Such a frequency reveals the similarity between this genre and other genres like recipes and procedural texts. As Halliday and Mathiessen (2014, p. 219) put it, "recipes and other procedural texts are almost entirely 'material'". This finding supports the claim of Thompson (2004, p.91) that "material processes form the largest and most diverse category in transitivity". It is also consistent with the finding of Hyland (2004) that disciplines belonging to the hard domain of knowledge have a high frequency of research verbs.

Concerning relational processes, they are rated second as they represent 16.46% of the total occurrences of process types in the corpus. In spite of not being frequent, relational processes convey various functions which are illustrated by the following sentences:

E 10 .The twist construction **is** a geometric T-duality that produces new manifolds.

E 11. It is shown that its norm equals π and that it **has** a purely continuous spectrum which is the interval $[0,\pi]$.

E 12. In this article we obtain a simple topological and dynamical systems condition which **is** necessary and sufficient for an arbitrary pseudo-Anosov flow in a closed, hyperbolic three manifold to be quasigeodesic.

E 13. These results **are** in agreement with known facts about the classical Hilbert matrix.

Writers use the relational process *to be* in example E 10 in order to define technical terms. While defining the jargon specific to their own field of expertise, the writers aim at achieving familiarity and making the writing explanatory. This idea is confirmed by Barrass (2002, p.30) who maintains that, "always, in scientific writing [the purpose of the writer] is to explain." Obviously, through defining technical terms, writers manage to clarify the message to make it understood by the audience.

Relational processes can also have a descriptive function, as is illustrated by example E 11. In this sentence, writers use the relational process in order to display their findings, through describing one of the variables. Like the material process in example E 8, this relational process shows the worth of the research and reveals the voice of the researchers in their corresponding community. This voice can also be seen in example E 12, where the writers use the relational process *to be* followed by the adjective phrase *necessary and sufficient for an arbitrary pseudo-Anosov flow in a closed, hyperbolic three manifold to be quasi-geodesic* in order to provide their judgment about a particular variable. This reveals the strong presence of the researchers and reflects the extent to which writers have moved from objectivity to subjectivity.

As well as having a descriptive function, relational processes can express connectivity. For instance, in sentence E 13, writers use the relational process *to be* in order to display the relation between their research and previous studies in the literature. Through showing their allegiance to previous works in the literature, writers reflect their awareness of the rituals of the genre within which they operate. Accordingly, relational processes in mathematical article abstracts show how academic writers measure their authority with respect to two interpersonal moves (Tang, 2009, p. 185): "(a) the assertion of a writer's voice (encompassing his/her opinions, stance, and agenda), and (b) the locating of that voice within the ongoing or past 'conversations'of his/her discipline."

Obviously, the findings of the present study are different from those of Halliday and Mathiessen (2014, p. 215) claiming that relational processes are among the most frequent process types in the transitivity system. This can be seen as a local probability of the abstract genre. In the words of Halliday and Webster (2009, p. 252), "global probabilities are those pertaining to the language as a whole, in all contexts and registers. Local probabilities are those that are particular to one subsystem or text type, or even to one body of text." This local probability can be explained by the fact that descriptive relational processes reveal the engagement of the writer and his involvement, thus showing a movement towards subjectivity. This accounts for the infrequency of relational processes in mathematical article abstracts. Such infrequency can also be traced back to writers' attempts to create suspense in the abstract section, as they do not want to extensively display the different relations between their study and other works in the literature. Another reason justifying this infrequency lies in the communicative functions of the abstract section as writers often leave defining the jargon specific to

their level of expertise to the introduction section except for some of the key concepts which are necessary for the readers to understand the abstract section.

Concerning mental processes, they are classified third as they represent 10.27 %. These processes reflect writers' cognitive construal of their academic identities. Examples of these processes are listed below:

E 14. Ira Gessel **conjectured** that the number of lattice walks had a simple hyper geometric form.

E 15. We further **prove** the existence and smoothness of invariant foliations on the center manifold.

E 16. We **prove** a general coloring theorem for hyper graphs of a special type: shift-chains.

E 17. Thus our TQFT **may be considered** as a super-TQFT.

E 18. At the same time, they **can be seen** as local positivity invariants

The mental process *conjectured* is used in example E 14 in order to display the beliefs of another researcher. Through holding another Senser, i.e. *Ira Gessel*, responsible for her interpretation, writers show a sense of detachment and foreground their objectivity. However, this image of objectivity is flouted when the writers use mental processes in examples E 15 and E 16 in order to display their findings and interpretations. This, therefore, reveals writers' strong voice and shows how they move from invisibility to visibility. This visibility is further reinforced through the personal pronoun *we* and the active voice in sentences E 15 and E 16 and it is downplayed in examples E 17 and E 18 through the use of the passive voice. Accordingly, mental processes uncover the views of the researchers and their judgments while at the same time voicing their presence. As Holmes and Nesi (2009, p. 59) put it, "mental processes were often found to involve subjective interpretation and result in greater visibility for the writer." This explains the infrequency of these processes, a fact which is also accounted for by the disciplinary features of Mathematics as belonging to the hard domain of knowledge. That is, knowledge in the hard sciences is cumulative (Hyland, 2004) and scientific research in this domain is characterized by experimentation and objectivity.

As far as verbal processes are concerned, they are the least frequent (1.8%). These processes have a reporting function, as is shown in the following list of examples:

E 19. they **assert** that all n-loop box integrals are equal to each other

E 20. The authors **claim** that the result is also true for the Minkowski metric case.

E 21. In other words, Weyl algebras **do not admit** genuine finite quantum symmetries.

E 22. Explicit detrimental formulae and multivariable extension of the Heine integral formula **are stated**.

E 23. This result **was announced** in a note with P.

In examples E 19, E 20 and E 21, writers report other studies through using verbal processes. Through citing other researchers in the abstract section, writers manage to review other studies and situate their research in the literature. This shows their intents to gain credibility for their research. Although citing other works reflects writers' attempts to minimize their personal and subjective footprint, it reveals their intention to convince the readership of the importance of their research within the corresponding culture. Henceforth, citing authorities in the abstract genre can be seen as a persuasive

tool meant to foreground the worth of the research. The fact that verbal processes are barely present in this genre can be accounted for by writers' intents to leave the extensive references to other works to the literature review.

Not only are verbal processes used to report other studies, but they are also employed by the researchers to display their findings, as is indicated by examples E 22 and E 23. The infrequency of these processes can be explained by the fact that writers in the abstract genre cannot disclose all the findings to the readers. Instead, they just display the most important findings to captivate readers' attention and to motivate them to read the article. Such infrequency is supported by the claim of Halliday and Mathiessen (2014, p. 219) that verbal processes characterize news reports and the finding of Hyland (2004, p. 37) that reporting verbs are not frequent in the hard sciences including Mathematics, the discipline under study.

CONCLUSIONS

Material, mental, relational and verbal processes are not equally distributed in mathematical article abstracts. Being the most frequent process types, material processes show writers' agency and foreground their contribution to the corresponding research culture. They also enable researchers to give credibility to their works as these processes serve as a tool to describe the experimental design. This, therefore, reveals how writers in the abstract genre move from objectivity while outlining their actions during the experiment to subjectivity when voicing this presence.These processes also create dynamismin the writing and, in such a way, the text becomes motivating for the readers. Accordingly, the frequency of material processes is attributed to their being effective tools for describing researchers' activities and for engaging the readers in a dynamic text. Though being infrequent, relational processes are rated second. These processes have a defining and descriptive function and they are used to display different types of relation between the variables in the research. Their infrequency is attributed to the communicative functions of the abstract genre and writers' intents to create suspense. Like relational processes, mental ones are infrequent. This infrequency is traced back to the sense of visibility and engagement they result in. Being barely present in the corpus, verbal processes serve as devices for reporting either the researchers' work or that of others. The infrequency of these processes is attributed to the communicative functions of the abstract section in comparison with other sections in the Research Article. While citing other works is mainly a characteristic of the introduction section, reporting the current researchers' findings is mainly a feature of the results section. Accordingly, the variation in the distribution of the four process types in mathematical research abstracts is attributed to the communicative functions of this genre, the specificities of the discipline under study and the intents of the writers.

REFERENCES

1. K. Hyland, Disciplinary discourses: Social interactions in academic writing. The United States of America: The University of Michigan Press, 2004.

2. M.A.K. Halliday, Learning how to mean: Explorations in the development of language. London: Edward Arnold, 1975.

3. T. Huckin, Abstracting from abstarcts, in M. Hewings (Ed.), Academic writing in context: Implications and applications, United Kingdom: University of Birmingham Press, 2006, 93-103.

4. C. Berkenkotter & T.N. Huckin, Genre Knowledge in disciplinary communication: Cognition/culture/power. Hillsdale, New Jersey: Lawrence Erlbaum Associates, 1995.

5. W. Suntara & S. Usaha, S., Research article abstracts in two related disciplines: Rhetorical variation between linguistics and applied linguistics, English Language Teaching, 6(2), 2013, 84-99.

6. H. Ren & Y. Li, A comparison study of the rhetorical moves of abstracts in published research articles and master's foreign language theses. English Language Teaching, 4(1), 2011, 162-166.

7. I, Rakam, Evaluative that-clause: Abstracts of research articles as a case study, doctoral diss., Faculty of Arts and Humanities of Sfax, Sfax, MA, 2010.

8. M. Abarghooeinezhad & S. Simin, Analyses of Verb Tense and Voice of Research Article Abstracts in Engineering Journals. International Letters of Social and Humanistic Sciences, 47, 2015, 139-152.

9. S. Granger & M. Paquot, Lexical verbs in academic discourse: A corpus- driven study of learner use, in M. Charles, D. Pecorari & S. Hunston (Eds.), Academic writing at the interface of corpus and discourse, New York: Continuum International Publishing Group, 2009, 193-214.

10. J. Sinclair, Collins cobuild English grammar. London: Harper Collins, 1990.

11. M.A.K. Halliday & C.M.I.M. Matthiessen, Halliday's introduction to functional grammar. New York: Routledge, 2014.

12. M.A.K. Halliday & C.M.I.M. Matthiessen, An introduction to functional grammar (3 rd ed.). New York: Oxford University Press, 2004.

13. M.A.K. Halliday, An Introduction to functional grammar(2 nd ed.). London: Edward Arnold, 1994.

14. L. Fontaine, Analyzing English grammar: A systemic functional introduction. Cambridge: Cambridge University Press, 2013.

15. S. Eggins, An introduction to systemic functional linguistics. London: Continuum International Publishing Group, 2004.

16. B. Samraj, Disciplinary variation in abstracts: The case of wildlife behavior and conversation biology, in J. Flowerdew (Ed.), Academic discourse, New York: Routledge, 2013, 40-56.

17. M. Katz, From research to manuscript: A guide to scientific writing. The United States of America: Springer, 2009.

18. M. Triki & A. Sellami-Baklouti, Foundations for a course on the pragmatics of discourse. Sfax: ImprimerieReluired'Art, 2002.

19. G. Thompson, Introducing functional grammar (2 nd ed.).Great Britain: Hodder Education and Hachette UK Company, 2004.

20. R. Barrass, Scientists must write: A guide to better writing for scientists, engineers and students. New York: Routledge, 2002.

21. R. Tang, A dialogic account of authority in academic writing, in M. Charles, D. Pecorari & S. Hunston (Eds.), Academic writing at the interface of corpus and discourse, New York: Continuum International Publishing Group, 2009, 170-188.

22. M. A. K. Halliday & J. J. Webster, Keywords, in M. A. K. Halliday & J.J. Webster (Eds.), Continuum companion to systemic functional linguistics. London/ New York: Continuum, 2009.

23. J. Holmes & H. Nesi, Verbal and mental processes in academic disciplines, in M. Charles, D. Pecorari & S. Hunston (Eds.), Academic writing at the interface of corpus and discourse, New York: Continuum International Publishing Group, 2009, 58-72.