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A textual perspective in scientific articles: Patterns and moves

Jordi Piqué & J.-Vicent Andreu-Besó

Introduction

Although some writers believe that writing cannot be taught, we feel that there are some writing skills that can be acquired (Chernin, 1981, quoted in Gartland, 1993, 23). This premise was our point of departure, since we often supervise the work of health science professionals who need to express and project the feeling that they have something of value to share with other professionals. However, it is also known that many health science professionals may not have a natural writing ability. Gartland, who has written extensively on this topic, mentions two frequent mistakes made by inexperienced writers in the medical profession. First, "they do not target their article to an appropriate journal", and second, "they do not write for the reader who is the author's audience" (1993, 27). Thus, their research projects can be greatly hampered unless they master or at least acquire some specific writing skills in order to cope with the problem of being able to turn complex and vague thoughts into tangible and concrete words, sentences, and paragraphs.

There is still another problem here derived from the fact that we come from a non-English speaking area in which health professionals, for obvious reasons, need to publish internationally and in a second language. When Gartland wrote that, with few exceptions, "good science and good writing rarely go together" (1993, 30), he was not really thinking of a non-native speaker of English. Thus, our Spanish professionals would certainly face much more of a problem, in spite of how knowledgeable of the English language they have become. Science writers must be able to control the requirements of scientific proof, the logical development of their scientific argumentation, and to achieve this they must start with a sound basis of English grammar and composition.

In the last two decades, many essays have been published on the characteristics of written scientific essays. Some, although not many, have dwelt on their general structure. Others have studied isolated sections of the Research Article[1]. Most of them, however, have focused their attention on the rhetorical and syntactical features of scientific RAs.

In this paper, text is seen from both points of view: from the study of the RA structure and how it helps to better convey meaning across sections and moves, and from the analysis of specific discourse markers. Halliday and Martin, in their approach to systemic linguistics, describe "language as *a*

resource for meaning rather than as a system of rules" (1993, 22, their italics). The reader or, as in our case, the text analyst faces the challenge of uncovering that meaning by reacting to the intimations and implications of a given text. Peter Larsen (1991, 133), in his study of textual analysis related to fictional media content, further points out:

> The insights of textual studies may help to remind other qualitative researchers that while data sets hold information, they are, first and foremost, texts which must be analysed and interpreted to yield that information.

If health science information is conveyed with language and texts, it is thus reasonable that various forms of textual and discourse analysis be necessary to uncover its meaning. Our study of texts is a step further in this direction and will depart from a similar premise in order to explain the meaning of transition of RA moves.

Corpus description

We selected 10 RAs from a series of texts on current health science topics, such as AIDS, pain management and cancer, all of them published in the 1980s and 1990s and taken from a variety of journals (see Appendix). However, since we intended to study them from both a structural as well as a textual perspective, we made sure their format complied with the widely accepted IMRD macrostructure[2]. Figure 1 shows the details of our corpus in terms of number of articles (five from nursing and five from medicine) number of words (both total and per section), number of sentences, sentence length in words and standard deviation.

Figure 1. Corpus of RAs: number of words, number of sentences and sentence length

RAs	Total no. of words	No. of words per RA section					No. of sentences per RA	Average no. of words per sentence	SD
		A	[illegible]	M	[illegible]	D			
RA1/N	4374	160	276	568	2448	922	165	26.51	11.59
RA2/M	2471	152	421	557	494	847	89	27.76	16.85
RA3/M	5115	236	646	1120	490	2623	248	21.22	11.02
RA4/N	4808	213	1453	699	1396	1047	172	27.95	15.53
RA5/N	4356	98	849	1727	554	1128	241	18.07	10.30
RA6/N	4727	167	1773	236	1046	1505	237	19.95	8.64
RA7/M	4806	186	419	1376	920	1905	150	32.04	16.61
RA8/M	3247	181	611	781	757	917	142	22.87	8.23
RA9/M	3920	188	251	1091	1279	1111	173	22.66	10.95
RA10/N	4643	344	1245	1981	313	760	224	20.73	9.74
Totals	42467	1925	7944	10136	9697	12765	1841		11.95

MacDonald (1990, 34) suggests that, for the sake of clarity and readability in scientific texts, it is better to reduce sentence length and nominalisation by using a verbal rather than a nominal style. We have worked with a corpus of over 42,000 words and the general trend, with an average sentence length of 23.07 words, supports that advice[3]. In addition, the scarcity of relative clauses observed in our corpus also contributes to clarity and readability.

While Swalesian in approach, we followed Nwogu's (1997) interpretation of Swales (1990, 141), especially with regard to the CARS model (Create a Research Space) for introductions. Nwogu divides the medical RA into 11 moves[4], or discourse functions, indicating specific 'constituent elements' (CE) for each move (Swales' 'steps'). We focused on how the author, in the introductory section, handles the lexis and information units in order to present problems and limitations in the existing research (e.g., Moves 1 and 2). We also looked at how these limitations are dealt with and later answered in the discussion section (e.g., Moves 9, 10 or 11), where a specific outcome or other limitations are brought up or the authors simply promote further research. Figure 2 shows the CEs of the two sections in question.

Figure 2. Outline of moves and their CEs (adapted from Nwogu, 1997, 135).

Introduction

Move 1	Presenting Background Information:
by	CE 1 Reference to established knowledge in the field.
	CE 2 Reference to main research problems.
Move 2:	Reviewing Related Research:
by	CE 1 Reference to previous research.
	CE 2 Reference to limitations of previous research.
Move 3:	Presenting New Research:
by	CE 1 Reference to research purpose.
	CE 2 Reference to main research procedure.
	[...]

Discussion

Move 9:	Highlighting Overall Research Outcome.
Move 10:	Explaining Specific Research Outcomes:
by	CE 1 Stating a specific outcome.
	CE 2 Interpreting the outcome.
	CE 3 Indicating significance of the outcome.
	CE 4 Contrasting present and previous outcomes.
	CE 5 Indicating limitations of outcomes.
Move 11:	Stating Research Conclusions:
by	CE 1 Indicating research implications.
	CE 2 Promoting further research.

Analysis of results

From the perspective of meaning, 7 out of 10 RAs in the corpus follow specifically what we discussed above as regards making reference to 'limitations in previous research' (Move 2, CE 2) and how authors present a specific outcome (Move 9 or 10, CE 1), interpret it (Move 10, CE 2) or perhaps indicate some sort of limitation of the outcome (Move 10, CE 5). Through a close analysis of the corpus one can see that most Introduction (I) and Discussion (D) moves are represented in each of the RAs of the sample. It must be underlined, however, that the 'research problems' (Move 1, CE 2) can sometimes be interpreted as referring to 'limitations of previous research' (Move 2, CE 2), or else discussed in

terms of faulty or incomplete research (Move 2, CE 1). This may explain the fact that when there is no reference to a 'problem' in one category within the RA, a 'limitation' appears in its corresponding column (Figure 3). A similar situation is found in regard to Move 9 ('highlighting overall research outcome') and Move 10, CE 1 ('stating a specific outcome'), which makes it difficult to ascertain whether the text information is applicable to one move or the other.

Figure 3. Overview of moves and CEs in sections I and D.

	INTRODUCTION						DISCUSSION							
	Move 1		Move 2		Move 3		Move 9	Move 10					Move 11	
	CE1	CE2	CE1	CE2	CE1	CE2		CE1	CE2	CE3	CE4	CE5	CE1	CE2
RA-1/N		x	x		x	x		x		x		x		x
RA-2/M		x	x	x	x		x		x		x	x		
RA-3/M	x	x	x	x	x	x		x	x	x	x	x	x	x
RA-4/N	x	x	x	x	x	x	x	x	x	x	x	x	x	
RA-5/N		x	x		x		x			x	x	x	x	x
RA-6/N	x	x	x	x	x	x	x	x	x		x			x
RA-7/M	x	x	x	x	x	x	x	x	x	x	x	x	x	x
RA-8/M	x	x	x		x			x	x	x	x	x		x
RA-9/M			x	x	x	x	x		x	x		x		x
RA10/N	x	x	x	x	x	x	x	x	x	x	x	x	x	x

These initial data partially coincide with Nwogu's (1997, 125) observations in regard to introducing background information (Move 1). In 7 out of 15 texts in Nwogu's corpus, Move 1 is present; in our corpus, 6 out of 10 in CE 1, and 9 out of 10 in CE2 (RA-9/M show no presence of Move 1, neither CE 1 or CE 2). Moves 2 and 3 show a 100% presence of moves in Nwogu, while in our corpus either CE 1 or CE 2 is present in all RAs of our sample.

In the discussion section, however, we have found more discrepancies. While Nwogu (1997) finds Move 9 in all of his texts, we clearly identified it in only seven cases in our corpus. Perhaps this is due to a more restrictive interpretation of the move label, 'highlighting overall research outcome', and we preferred to assign the statement in question to Move 10, CE 1, 'stating a specific outcome'. The most surprising sample, however, is RA-2/M, in which the discussion section practically dwells – even when interpreting or contrasting their outcomes – upon the 'limitations' (Move 10, CE 5) of the research.

Additionally, we have already attempted elsewhere (Piqué & Andreu-Besó, 1998, 185-86) to give a socioacademic explanation when it comes to referring to the nursing professionals' tendency to be more verbose in their introductions (e.g., RAs 4/N, 6/N and 10/N in Figure 1). In these introductions they cover an area still not well known or recognised by other health professionals, i.e., nursing. Thus, nursing professionals address their research papers to a possible readership still hesitant in accepting them as true researchers, as members of a true profession, and who are often disregarded by the medical scientific community.

INTRODUCTION MOVES

Based on a general reference to 'established knowledge in the field' (Move 1, CE 1), a research gap is initially presented in terms of the problems (Move 1, CE 2) and/or limitations (Move 2, CE 2) of previous research, thus justifying the author's research purpose (Move 3, CE 1):

Move 1, CE 1: "Severity of illness is an important clinical construct used by physicians to classify their patients." [RA-8/M]

Move 1, CE 2: "Studies on the role of socio-economic factors in the survival of patients with colorectal cancer have yielded inconsistent results [...]." [RA-2/M]

Move 2, CE 1: "[...] very little is known about the levels of knowledge and the attitudes about AIDS which this group holds." [RA-1/N]

Move 2, CE 2: "No descriptive nursing research has been published on nursing actions to prevent or alleviate pain in children." [RA-4/N]

"[it] has so far not systematically been investigated [...]." [RA-2/M]

"[...] no information is currently available to describe [...]." [RA-7/M]

Although the reference to the research procedure (Move 3, CE 2) is not always present in the introduction (see Figure 3), the aim of the research appears as the most obvious declaration of intent (Move 3, CE 1) throughout the article.

"The objective of this research was to develop a clinical staging system to predict progression to AIDS in HIV-infected individuals who do not have AIDS." [RA-9/M]

The announced deficiency in research is often expressed in terms of the aim of a specific paper, as in the following:

Move 3, CE 1: "This study moves towards rectifying this deficiency." [RA-1/N]

A lack of research on a specific topic or area of investigation can also appear elsewhere in the RA, such as in the following sentence, which is drawn from section D:

"No studies are available that quantify the reports of other clinical populations." [RA-3/M]

DISCUSSION MOVES

Some RAs focus on an 'overall research outcome' (Move 9), often right from the onset of the section, with expressions such as the following:

"The major finding of the study was that modeling alone was as effective as more elaborate combinations of methods in changing breast self-examination behavior." [RA-5/N]

However, this general outcome could also be understood as Move 10, CE 1 ('stating a specific outcome'), as the following statement shows:

"We have demonstrated that a simple, valid AIDS Clinical Staging System can be developed based on relatively few variables." [RA-10/N]

A major drawback may often appear in that the author/s may indicate that not all research expectations have been fulfilled:

Move 10, CE 5: "The results of the study where basic knowledge of AIDS is concerned are often less than encouraging [...]." [RA-1/N]

The significance of what has been achieved appears clearly and remarkably stated when the authors write in the same section:

Move 10, CE 3: "This study has provided the first quantitative estimate of the experiences of dehydration state symptom in those with advanced cancer." [RA-3/M]

Texts referring to Move 11, 'stating research conclusions', in its two different CEs, are difficult to classify since they can also be taken as expressions for 'stating a specific outcome' (Move 10, CE 1), or even, as mentioned above, Move 9 ('highlighting overall research outcome'). However, in sentences such as the following, the meaning of something accomplished and/or demonstrated through the author's research should be sufficient to point to Move 11:

> Move 11, CE 1: "The results of this research now serve as the basis for development and testing of nursing action protocols for pain alleviation in hospitalized children." [RA-4/N]

Metaphors are employed in many scientific contexts. The following is included to express the significance of a research project and subsequent accomplishments:

> Move 10, CE 3: "[...] this study breaks new ground in providing vital new quantitative information." [RA-3/M]

But, at the same time, a word of caution may also appear in the same move:

> Move 10, CE 5: "[...] there is no evidence from this study that these objectives are being achieved." [RA-1/N]

In most RAs, the results of a given study are presented comparatively as being in partial or full agreement with prior research findings:

> Move 10, CE 4: "The results of our analyses [...] are in agreement with earlier findings from North America, Hawaii and Sweden." [RA-2/M]

It is nonetheless recognized that the research gap has not yet been bridged, as several limitations exist. Some RAs actually include whole paragraphs, within the discussion section, in which these limitations are dealt with in depth:

> Move 10, CE 5: "Several features of this study limit the ability to generalize conclusions [...]." [RA3/M]
>
> "Several limitations of this work should be noted." [RA-10/N]

Other sentences are not as explicit, although the sense of not having accomplished specific results can also be detected:

> Move 10, CE 5: "Nevertheless misclassification of SES remains a major concern for patients from heterogeneous, large communities where health care is provided by a variety of institutions. The problem is certainly most evident for Saarbrücken [...]." [RA-2/M]

It is not a common practice to find in scientific RAs explicit self-applied laudatory expressions, more proper of a critical 'review' paper than of the RA itself. Thus, they are difficult to classify under Nwogu's (1997) macrostructure. It may be considered, perhaps, an implication of the authors' research (Move 11, CE 1, 'Indicating research implications'):

> "[...] this survey is timely." [RA-1/N]

This appropriateness of research is also expressed in terms of the need to further implement it (Move 11, CE 2):

> "Future research is needed to better describe the etiology and consequences of undiagnosed asthma-like illness among children." [RA-7/M]

The next example also enhances this reference to the RA's research implications:

> "This study has provided the first estimates of the severity and distribution of dehydration symptoms in the dying." [RA3/M]

This is then followed by an invitation to replicate and even improve the present research (Move 3, CE 2):

> "Replication of this study using a larger group of subject would improve its power." [RA3/M]

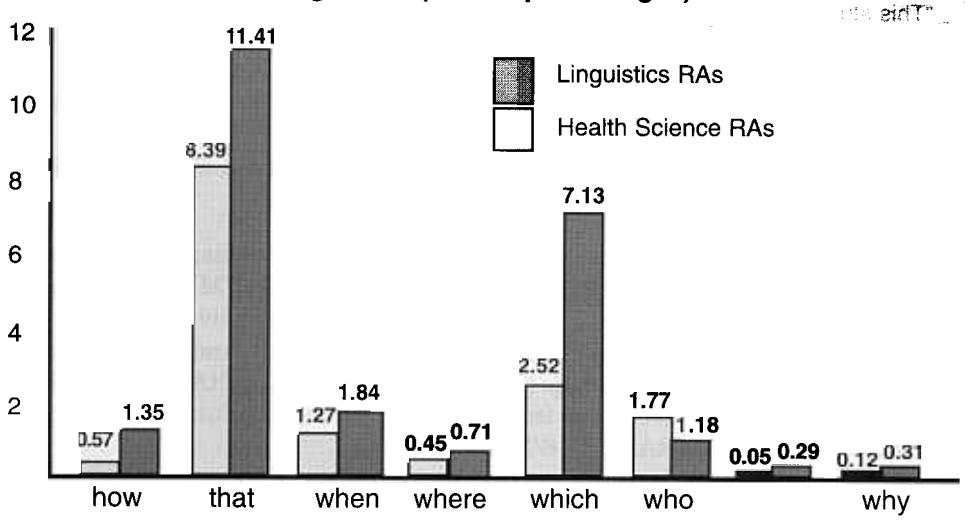
In some RAs, it may also occur that further concluding remarks are presented in a separate article section (RAs 1/N, 3/M, 6/N, and 7/M). Following the above macrostructure (Figure 2), we interpret it as a subdivision of the discussion. This paragraph is used basically to reintroduce and emphasize the most significant research findings (Moves 9 or 10, CE 1, in RAs 6/N and 7/M), but especially to underscore the importance of promoting future research on the issue under study (RAs 1/N, 6/N and 7/M).

A TEXT APPROACH

From a textual perspective, the data presented in Figure 1 give us an indication of the trend in scientific texts towards writing short sentences, with an average length of 23.07 words per sentence (SD 11.95). This has a specific bearing on clarity of meaning. It entails, first of all, a decrease in subordinate clauses, as compared to other more rhetorical specialisations, such as literary criticism mentioned by MacDonald (1990, 37). This also presents a shift in terms of the importance of verb tense choice, namely as a considerable decrease in nominalisation. MacDonald (1990, 34) further points out the widely shared opinion that two features of sentence structure may affect readability in a negative way: on the one hand, excessive clause length; on the other, excessive nominalisation. She also emphasises the idea that both features are connected and therefore longer-than-average sentences are likely to contain more nominalisations, as they involve more complex transformations. At sentence level, we want to stress the importance of reducing relative clauses. While literary texts suffer from an overabundance of subordinate sentences, the texts in our corpus stay within limits that contribute both to the clarity of the information conveyed as well as to stylistic and syntactical norms.

If relatives are, as noted by Halliday, "items which relate the clause in which they occur to another clause, in a structural relationship" (1994, 50), the sentence will obviously be lengthened by their excessive use, and thus worth our study. When comparing our corpus with a corpus of texts from linguistic studies in general[5], the differences are significant, as shown in Figure 2 below (the data in the graph correspond to the use of relatives per 1,000 words). We have taken into consideration only definite relatives, i.e., 'which', 'who', 'that', 'whose', 'when', 'where', and including 'how' and 'why' as relatives[6].

Figure 4. Comparative distribution of relative pronouns in two corpora: Health sciences and linguistics (data in percentages).



The above graph shows that, in all categories except 'who', the texts from the linguistics corpus have a higher frequency of use than the health texts. We find the difference in the use of the non-personal relative pronoun 'which' particularly relevant and especially the so-called "general purpose relative pronoun" 'that' (Quirk and Greenbaum, 1973, 106), with higher percentages than the rest. This confirms our earlier statement, in terms of the importance of reducing the use of relative clauses in scientific writing for the sake of clarity and readability.

An important area in this study has to do with the choice of words to express the transition from the problems and/or limitations found in previous research, and how these are solved or answered by each author. Swales (1990, 154) reports that the transitional textual expressions typically appear in terms of adversative sentence-connectors. In our corpus, however, we also find other solutions to establishing both the introductory RA moves and the discussion moves. Some appear with adversative expressions, while others contain a consequential introductory phrase; both groups of connectors, however, are used rather sparingly. In either case, the solution to the given problem often takes a more elaborate form or fixed expression, although it is difficult to suggest that a specific formula or sequence of words should be used in a given section of the RA.

Taking Swales' (1990) suggestion in regard to the introduction section of RAs, two connectors should be basically underscored: the concessive conjunct 'however', and 'although', used as a correlative, through which the author wants to express opposition or contrast. Equally important in use is the connector 'thus', as indicating a result, a common signal for clause reference (Quirk and Greenbaum, 1973, 302). These three conjuncts appear 54, 34 and 19 times, respectively, in our corpus. Figure 5 below shows the frequency of use of the

three conjuncts.

Figure 5. Frequency distribution of common conjuncts in the health science corpus

		RA	RA	RA	RA	RA	RA	RA	RA	RA	RA	totals
	section	1	2	3	4	5	6	7	8	9	10	
However	I	2	1	0	2	1	0	2	0	0	1	9
	M/R	8	2	2	2	3	0	7	3	1	0	28
	D	5	1	3	1	3	0	7	1	6	0	27
Although	I	0	1	1	4	0	1	0	0	1	2	10
	M/R	7	0	0	1	0	3	1	0	1	0	13
	D	2	0	0	3	0	2	2	0	0	2	11
Thus	I	1	0	0	0	1	0	0	0	0	1	3
	M/R	0	0	2	3	0	1	0	0	0	0	6
	D	0	0	5	0	1	2	0	0	2	0	10
		25	5	13	16	9	9	19	4	11	6	

Bringing together the concept of structure and meaning with the use of certain connectors, we have come to the conclusion that authors are quite selective in choosing the appropriate word or expression, often having in mind the precise section of the essay. The adverbial conjunct 'however', for instance, appears on nine different occasions in the introduction and 27 in the discussion, making a total of 36, compared to the 28 times this conjunct appears in the methods and results sections combined. What is significant here is that most of the 27 uses in the discussion are found in CEs 4 and 5, where the authors use this conjunct to contrast their research, underscore the limitations of their outcomes or reinforce particular subordinate clauses when used together with 'although' introducing the subordination.

> Move 2, CE 2: "However, [...], survival rates [...] were about 20% lower than survival rates of patients with higher SES [...], although these results just failed to reach statistical significance." [RA 2/M]

This includes a combination of 'however' and 'nevertheless':

> "[...] although the result is statistically non-significant, only 11% of the BN students identify infertility as a symptom, [...]. Nevertheless, 'Don't know' responses for the BN student group tend to be higher than [...]" [RA 1/N]

The opposite occurs in the following example in which 'although' introduces achievements in the literature and is followed by limitations on a particular area of research:

> "Although there are a number of descriptive and theoretical works on the topic of dehydration in those with advanced cancer, no previous research studies have examined the symptoms of dehydration as reported by dying patients." [RA3/M]

Thus, the conjunction 'although', which appears a total of 10 times in the introduction and 11 in the discussion, is normally used for the introduction of a subordinate clause contrasting what has been said in the main clause. Although both 'however' and 'although' are classified by grammarians as con-

juncts of concession (Quirk & Greenbaum 1973, 249), and by teachers as connectors of contrast or opposition, occasionally they are followed by a conjunct of result ('consequently' in this case) strategically located, as in the following sentence:

> Move 10, CE 3: "BSE, *however*, needs to be performed only once a month. *Consequently*, the dynamics presumably responsible [...] are not operational." [RA 5/N]

Discussion

The health science corpus used in this research conveys, first of all, the idea that the nursing RA writer uses more space in his/her introduction to cover an area which is still somewhat unknown to readers or to discuss topics which may even be questioned by other health professionals. Thus, one of the most obvious outcomes has been that most nursing RAs in our corpus have a larger number of words in the introductory section than their medical counterparts. Medical writers, however, representing a scientific community with a long-standing tradition, need not dwell as much on topics already well-known by their readership.

Secondly, we have found a direct relationship in the transition moves between the research gap – expressed as problems (Move 1, CE 2) or limitations (Move 2, CE 2) in the introductory section, and the statement of research accomplishments – specific outcome, its interpretation and significance (Move 10, CEs 1, 2, or 3) in the discussion. And this has been shown both in terms of specific linguistic markers and in the direct relationship of the information conveyed.

Thirdly, and on the number and use of conjuncts, it must be said that a significant amount of adversatives appear in the discussion, especially in Move 10, CEs 4 and 5, where the author's research is being contrasted with previous outcomes, while at the same time stating its own limitations. The use of these adversatives, along with short sentences with a limited number of subordinate clauses, also enhances the clarity of scientific writing, as has been shown throughout our corpus.

Finally, we must conclude that health science RAs do follow a set procedure and provide a specific structure through which its essential message is made more meaningful and direct. Therefore, this feature makes the analysis easier, combining structure and information. The content of a text has to be taken as a meaningful whole, which means that text analysis necessarily involves an act of interpretation (Larsen, 1991, 122). All throughout this process of analysis, bringing together a textual perspective (words, sentences, frequencies, percentages, etc.) with an informational approach (text as a vehicle for information, meaning, contextualisation, etc.), computers[7] have proven to be not just a useful aid, but also an indispensable tool in making our results more accurate and reliable[8].

Endnotes

1 The following have studied the general structure of articles: Weissberg and Buker (1990), Nwogu (1991; 1997) and Skelton (1994). Introductions, results and discussions have all been analysed in isolation. Introductions were studies by Swales (1981), Gupta (1995), Bhatia (1997), and Piqué and Andreu-Besó (1998). Brett's article (1994) was on results; papers on discussion sections include Hopkins and Dudley-Evans (1988) and Holmes (1997). Most of them, however, have focused their attention on the rhetorical and syntactical features of scientific RAs (Crookes, 1986; Butler, 1990; Gosden, 1993; Salager-Meyer, 1994; 1998; Webber, 1994).

2 Since the American National Standards Institute, first in 1972 and again in 1979, prescribed the IMRD or IMRAD system (for Introduction, Materials and Methods, Results and Discussion), it has been widely accepted by academic writing scholars (Day, 1988; Swales, 1990; Weissberg & Buker, 1990). Maher (1992, 22) also includes title (T) and Abstract (A) in this macrostructure, hence TAIMRAD.

3 Marckworth and Bell reported in 1967 (quoted by MacDonald, 1990, 37) an average length of 23.8 words per sentence in learned and scientific writing. This may not be the case, however, in other specialisations. Such is the case, for instance, in MacDonald's (1990, 37) study, where in literary criticism she accounted for sentences that ranged from 44.32 to 60.42 words per sentence.

4 The term 'move' appears in discourse analysis connected with classroom interaction (Sinclair & Coulthard, 1975), as well as for the analysis of conversations in reference to different speech acts (Edmondson, 1981), and also in reference to genre analysis, specifically to determine the information structure in article introductions (Swales, 1981).

5 This corpus, made of texts from applied languages (79,962 words in length), contains 3,090 sentences, and an average of 25.88 words per sentence (SD 15.94).

6 We have not taken into account, however, the Ø markers in relative clauses since they are not relevant to this study. The search for indefinite relatives in our health science corpus, such as 'whatever', 'whichever', 'whoever', 'whosoever', 'whenever', 'wherever', did not yield any results, and the same occurred with 'however' as relative.

7 We are grateful to Mike Scott for having introduced us to his WordSmith Tools (1996), a complete and powerful software package, through which we have calculated statistically lexical items, frequencies, etc.

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Appendix. Reseach articles referred to in the text.

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