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Linguistic Insights
Studies in Language and Communication

Maurizio Gotti &
Carmen Sancho Guinda (eds)

Narratives in Academic and Professional Genres

Peter Lang

Through Narrative Theory, the book offers an engaging panorama of the construction of specialised discourses and practices within academia and diverse professional communities. Its chapters investigate genres from various fields, such as aircraft accident reports, clinical cases and other scientific observations, academic conferences, academic blogs, climate-change reports, university decision-making in public meetings, patients' oral and written accounts of illness, corporate annual reports, journalistic obituaries, university websites, narratives of facts in legal cases, narrative processes in arbitration hearings, briefs, and witness examination accounts. In addition to exploring narration in this wide range of contexts, the volume uses narrative as a powerful tool to gain a methodological insight into professional and academic accounts, and thus it contributes to research into theoretical issues. Under the lens of Narratology, Discourse and Genre Analysis, fresh research windows are opened on the study of academic and professional interactions.

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Narratives in Academic and Professional Genres



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Edited by Maurizio Gotti,
University of Bergamo

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FRANÇOISE SALAGER-MEYER / MARÍA ÁNGELES ALCARAZ ARIZA /
MARIANELA LUZARDO BRICEÑO

The Medical Narrative from a Diachronic Perspective (1840-2009): Titling Practices and Authorship*

1. Introduction

Since before Hippocrates, case report narratives (hereafter abbreviated as CRs) have made a valuable contribution to the advancement of medical science (Simpson/Griggs 1985, Morris 1989). Given the unpredictable nature of medicine, many medical professionals will indeed have come across a patient who has not been a textbook case. The patient may have had a strange pathology, or reacted to a medical intervention in a manner that has not been seen before. The publication of such novelties and curiosities as CRs has for many centuries been a fundamental way of sharing knowledge and conveying medical experience, and throughout history there have been famous CRs that have helped shape the way we view health and disease (Jamjoom/Nikkar-Esfahani/Fitzgerald 2010).

In recent years, though, and especially since the 1990s (Maison-neuve *et al.* 2010), CRs have come under scrutiny and disfavor among some members of the medical scientific community, and they are now frequently relegated to the lowest ring of the hierarchy of study design. There are those who argue, for example, that CRs are *passé*, trivial (Rose/Corn 1984), and that they are even increasingly irrelevant in current medical practice and education (Yadav 2006) because their

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obscurity and rarity appeal only to a specialized few and because they add little to everyday medical practice. What is more, so argue the opponents of CR publishing, their anecdotal nature lacks the scientific rigor of large, well-conducted studies. CRs have therefore fallen down the hierarchical ladder of medical evidence, and many medical journals, for shortage of page space, now refuse to publish them.

Nevertheless, although they do not test hypotheses, prove associations or establish the frequency of occurrence of an event, CRs represent, as Carey (2010) puts it, a relevant, timely and important study design in advancing medical scientific knowledge, especially of rare diseases. Simpson and Griggs (1985) inveighed against throwing the baby out with the water bath. These authors and many other renowned medical researchers, such as Vanderbroucke (2001), Tomaszewski (2006), Smith (2008) and Maisonneuve *et al.* (2010), to name just a few, indeed assert that CRs still have a role to play in furthering medical knowledge and education. This is why many mainstream journals are now focusing on CRs, and the vastness of cyberspace has allowed for the development of a new breed of online medical journals, such as the *BMJ Case Reports*, the *American Journal of Case Reports*, and the *Journal of Medical Case Reports*, among others.

Apart from the above mentioned papers published by members of the medical scientific community about the relevance (or lack of) of CRs in their profession and about guidelines on how to write a CR (McCarthy/Reilly 2000, Cohen 2006), a few rhetoricians and applied linguists studied CRs from various perspectives. Atkinson (1992) and Taatvitsainen/Pahta (2000), for example, both examined the development of this narrative text-type, highlighting an increasing depersonalization of the genre. Berkenkotter (2008), for her part, analyses the evolving role of case history narratives in the growth of psychiatry as a profession, while Hunter (1991), in her study of medical case narratives in general, hints at the paradox that lies at the heart of contemporary medical science, i.e. the tension that exists between Baconian science and laboratory-based experimental medicine. More recently, Murawska (2010) examined the construction of impersonality with respect to agency and patient presentation in a corpus of medical CRs.

The aforementioned studies have helped us understand better not only the essence and *raison d'être* of the CR narrative, but also its evolution from a rhetorical, structural, stylistic and linguistic standpoint. Nonetheless, to the best of our knowledge, no study has ever been conducted on the evolution of CR titles.

Since there is evidence that doctors sometimes make clinical decisions from the titles of journal articles (Haynes *et al.* 1990, Goodman 2000) – the one part that is also listed in the table of contents – titles should convey effectively the topic of the report, and, if possible, the design of the reported investigation, while attracting the attention of and informing the primary target audience, editors and reviewers. This is why titles should be clear, accurate and precise (Swales/Feak 1994; Day 1998; Hartley 2008). As a matter of fact, the more precise and accurate the title is, the easier it will be for bibliographers to compile data for indexing, abstracting and other documentation purposes. However, it is only recently, as Goodman *et al.* (2001) report, that monographs about writing scientific papers (Day 1998; Huth 1999; Zeiger 2000) have begun to stress the importance and pivotal role of titles.

The recently created field called 'titleology' (Baicchi 2003, cited in Soler 2011: 124) has grown quite substantially since Swales claimed in 1990 that titles were an issue in academic genres that had not been fully addressed. As Soler (2011) remarks, since then, the field has diversified itself through a heterogeneous range of topics, and the vast and rich literature on the subject has examined the issue from a range of various perspectives (see Soler 2011 for an excellent review of the literature on the subject). However, as we said before, medical CR titles have never been the object of any study, very likely because CRs are considered a low profile genre, which, as the Introduction to this chapter has hopefully demonstrated, is not entirely true.

It is thus our intention here to fill that conceptual gap by presenting the results of a diachronic analysis of a corpus of CR titles from 1840 to the present (see 'Corpus' below) and compare them with the results obtained by previous research on titles in other scientific genres, such as the research paper and the review article. More precisely, the present study aims at answering questions related to the

evolution of the type of CR titles, their length, their grammatical and syntactic complexity, and their authorship practices. By examining authorship data, this study seeks to develop, *inter alia*, a sense of the collaborative practices of medical CR writers.

2. Corpus and methods

We analyzed a corpus of 180 randomly selected CR titles divided into three blocks comprising 60 CR titles each: Block A from 1840 to 1850; Block B from 1920 to 1930, and Block C that covers the year 2009. Titles from Blocks A and B were drawn from one single journal, the *British Medical Journal (BMJ)*. Since the *BMJ* stopped publishing case reports in the late 1990s, Block C titles were drawn from the *BMJ Case Reports* (see the new breed of medical journals mentioned in the Introduction) that was launched by the end of 2008, and whose 2008 and 2009 issues are freely accessible on line. This explains why we chose the year 2009 as our Block C.

Neither the *BMJ* nor the *BMJ Case Reports* has a stated policy regarding the writing of CR titles. The only policy the *BMJ* has addresses the length of titles and the (non-)use of abbreviations.

Twenty-nine variables were recorded in each of the 180 titles. These were divided into two categories: 1) numerical or quantitative variables (those that can be counted), and 2) categorical or qualitative variables that cannot be counted but answer a yes/no question. The following variables belong to the *numerical/quantitative* group:

- 1) Number of authors and their institutional affiliation (from the United Kingdom, from Europe but outside the United Kingdom and from outside Europe);
- 2) Title length. All the words included in the title were counted. The concept of *word* was defined as the unit occurring between spaces. Each word making up abbreviations was counted as one word: for example, *AIDS* was counted as four different words. Compound words and hyphenated words were counted ac-

ording to the number of their semantic components: for example, *muco-enteritis* was counted as two words;

- 3) The number of titles that start with the expression (*A*) *case of*;
- 4) Punctuation data: the number of commas, colons, semi-colons and full stops;
- 5) Grammatical data: the frequency of present and past participles, of compound nouns (e.g. *airway blockade*) and compound adjectives (e.g. *life-threatening condition*), of prepositions, coordinating and subordinating conjunctions, and relative pronouns.

To the *categorical/qualitative* group, belong:

- 1) the absence of author's affiliation;
- 2) the different types of authors' collaboration (local, national or international);
- 3) the different types of titles:
 - a. verbal vs. nominal. A verbal title – also called 'informative', 'declarative' (Smith 2000: 915) or 'assertive sentence title' (Rosner 1990: 108) – contains an active verb with a full sentence that usually states the findings or the conclusion of the research being reported (e.g. *Antidepressants treat depression in adults*). By contrast, a nominal title, also called 'indicative', does not contain any conjugated verb (e.g. *antidepressants in the treatment of depression in adults*);
 - b. general subject or 'topic titles', such as *Epiploic appendagitis* (C);[†]
 - c. 'attention-bidding' titles that use startling openings, such as *The farmer who did not need a wheel-barrow* (C);
 - d. 'question titles', e.g. *Antipsychotic-induced urinary dysfunction: anticholergency effect or otherwise?* (C);
 - e. 'research procedure titles', i.e. those that contain a statement of purpose, method and/or outcome, such as *Ruptured gastric ulcer in an old man: Laparotomy: Recovery* (A), which mentions both the method (*laparotomy*) and the outcome (*recovery*).

1 The letter at the end of each example refers to the Block from which the example was drawn.

As can be seen, the previous examples (except *Antidepressants treat depression in adults* and *The farmer who did not need a wheelbarrow*) are also nominal.

The above-mentioned variables were recorded in each CR title according to the interpretative skills of the first two authors of this chapter. Ambiguous and doubtful cases were measured against the interpretation provided by an English-speaking medical doctor.

Results were analyzed by means of a principal component analysis (Saporta 2011). Through a principal component analysis, a table of quantitative data (the frequency of the 29 above mentioned variables in each title) is reduced to a set of graphs that highlights the similarities and differences among the observed individuals (the 180 CR titles). These similarities and differences are initially recorded in a table of data but, because of the size of the table, their distribution cannot be appreciated. We can imagine that each CR title is represented by a point in a multi-dimensional space since each title is characterized by 29 measurements (the above mentioned variables). Similarly, the variables are characterized by their distribution in the 180 CR titles. On the graphs (see Results section below) each Block (A, B, C) – made up of 60 CR titles each – is represented by a point in a multi-dimensional space. Similarly, the variables are characterized by their distribution in the three blocks.

3. Results

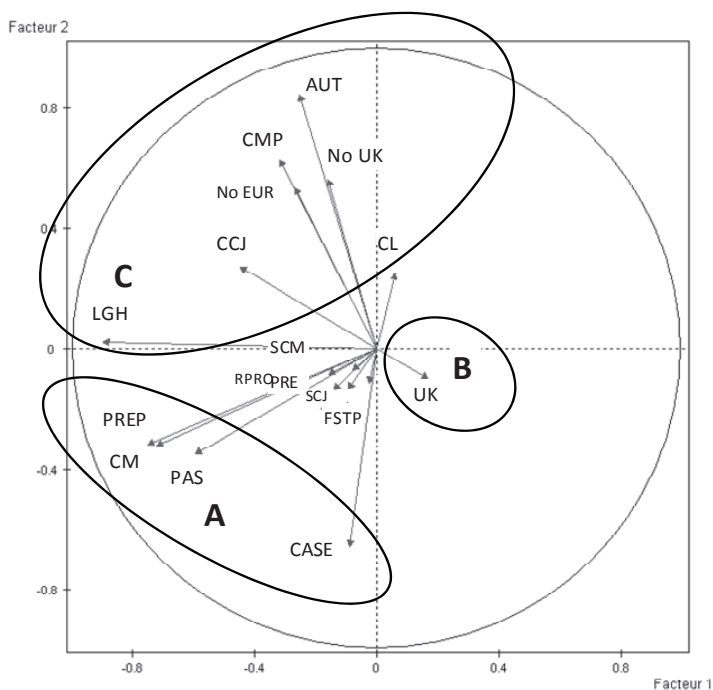
3.1. Deleted variable

Before presenting the findings regarding the distribution of the variables around the axes drawn by the principal component analysis, let us refer to the nominal and verbal variables. Since we only recorded an example of verbal/informative title (see the above-mentioned attention-bidding title) of verbal/informative title, we

decided to delete this variable from the principal component analysis, but we will discuss this finding in Section 4.1 below.

3.2. Numerical/quantitative variables (Graph 1)

When analyzing the results of a principal component analysis, it is always important to bear in mind that the further a variable is from the center of correlation (the center of the circle), the most discriminatory or representative it is, i.e. the more it distinguishes a group of individuals from another (our three groups of titles formed by the three blocks, themselves represented by the letters A, B, and C in the graphs).



Graph 1. Numerical/quantitative variables.

3.2.1. Vertical axis

Two sets of numerical variables that stand in clear opposition can readily be identified in Graph 1. In the lower part of the plane, we find the following variables listed here by decreasing order of discrimination: case, past participle (PAS), commas (CM), and prepositions (PREP). In the upper part of the plane, we find: authors (AUT), compound nouns and/or adjectives (CMP), NO UK and NO EUR – which refer to the fact that the authors of the case reports were either not from the United Kingdom or not from Europe –, coordinating conjunctions (CCJ) and colons (CL). The more frequent in a title the variables found in the lower part of the plane, the less frequent, in that same title, those found in the upper part of the plane, and vice versa.

Graph 1 also shows that letter A is found in the lower part of the plane; it is hence associated with the variables that appear in that part of the plane. Letter B too is found in the lower part of the plane, but much nearer the center than Block A. It is also closer to letter A than it is to Letter C. The proximity of Blocks A and B means that, as for the distribution of the numerical variables analyzed here, Block A resembles Block B more than Block C. As for letter C, it is found in the upper part of the plane and clearly distinguishes itself from Blocks A and B: it is hence characterized by the variables that appear in that part of the plane.

As for the variables that appear near the center of the circle – relative pronoun (RPRO), semi-colon (SMC), full stop (FSTP), present participle (PRE), and subordinating conjunctions (SCJ) – nothing much can be said about them, except that they are not representative of any block in particular, precisely because, as we said before, they are very near the center of correlation. The direction of the arrows (towards letter A) indicates, however, that these variables are more characteristic of Block A than they are of Blocks B and C.

3.2.2. Horizontal axis

One variable only is associated with the horizontal axis of Graph 1: the ‘length’ (LGH) variable. As it is so far from the center of correla-

tion, we can assert that it is very well represented, i.e. it is highly discriminatory and, as Graph 1 shows, associated with Block C.

3.3. Categorical/qualitative variables (Graph 2)

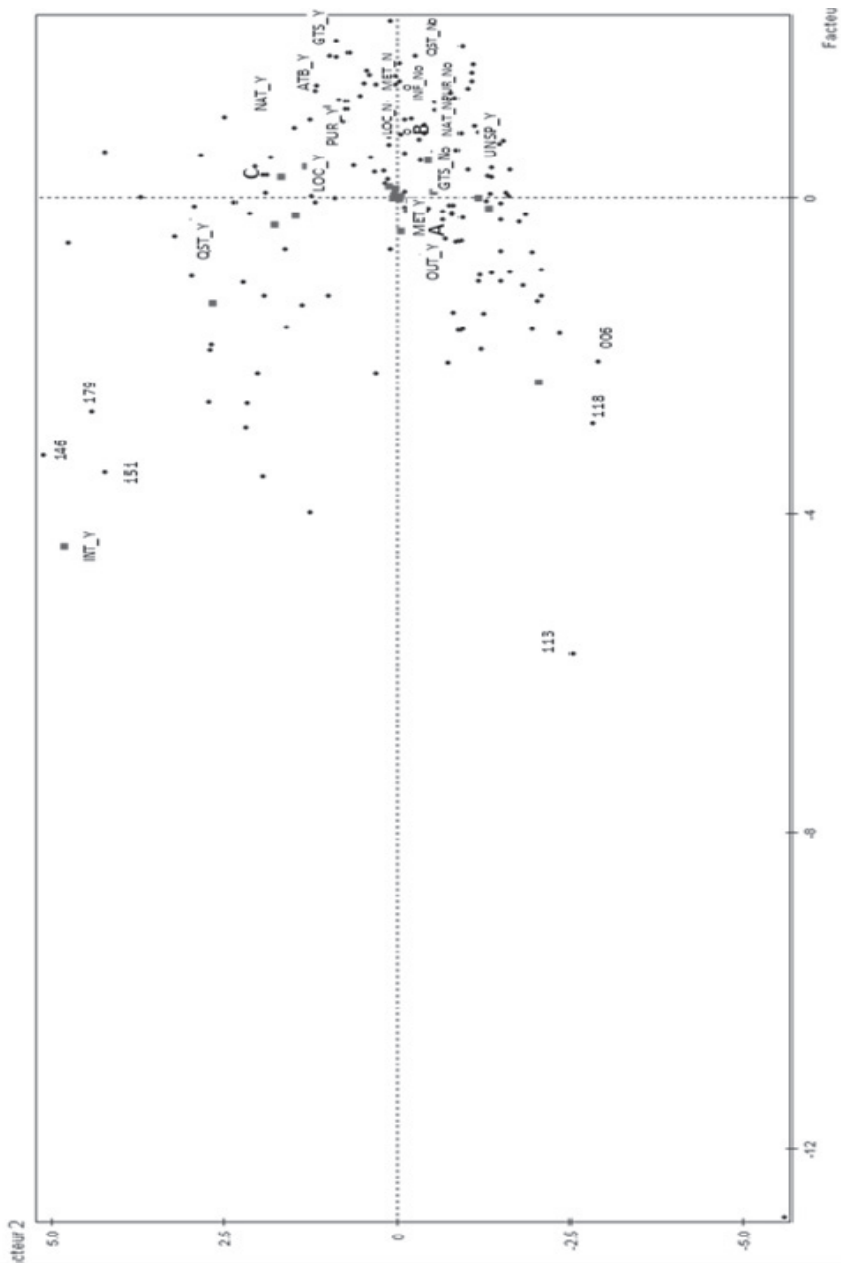
Graph 2 shows the distribution of our categorical or qualitative variables around the axes. It can be seen that Block A is characterized by the following variables: unspecified authorship (UNSP Y), mention of methods (MET Y) and of outcome (OUT Y), and the absence of general subject title (GST NO). Block B distinguishes itself from Block A in the sense that it is characterized by the absence of mention of methods (MET NO), of purpose (PUR NO), and of outcome (OUT NO), and the presence of General Subject titles (GST Y). The variables that indicate the absence of author collaboration (LOC NO, NAT NO, INT NO) are also characteristic of Block B, as is the variable that indicates that the institutional affiliation of the authors is mentioned in the case report bylines (UNSP NO).

It should nonetheless be mentioned that, as was observed in Graph 1, Block B is much closer to Block A than it is to Block C, which means that, as for the distribution of the categorical variables analyzed here, it resembles Block A more than Block C. By contrast, Block C clearly distinguishes itself from the other two blocks. Graph 2 shows that it is characterized by the following variables:

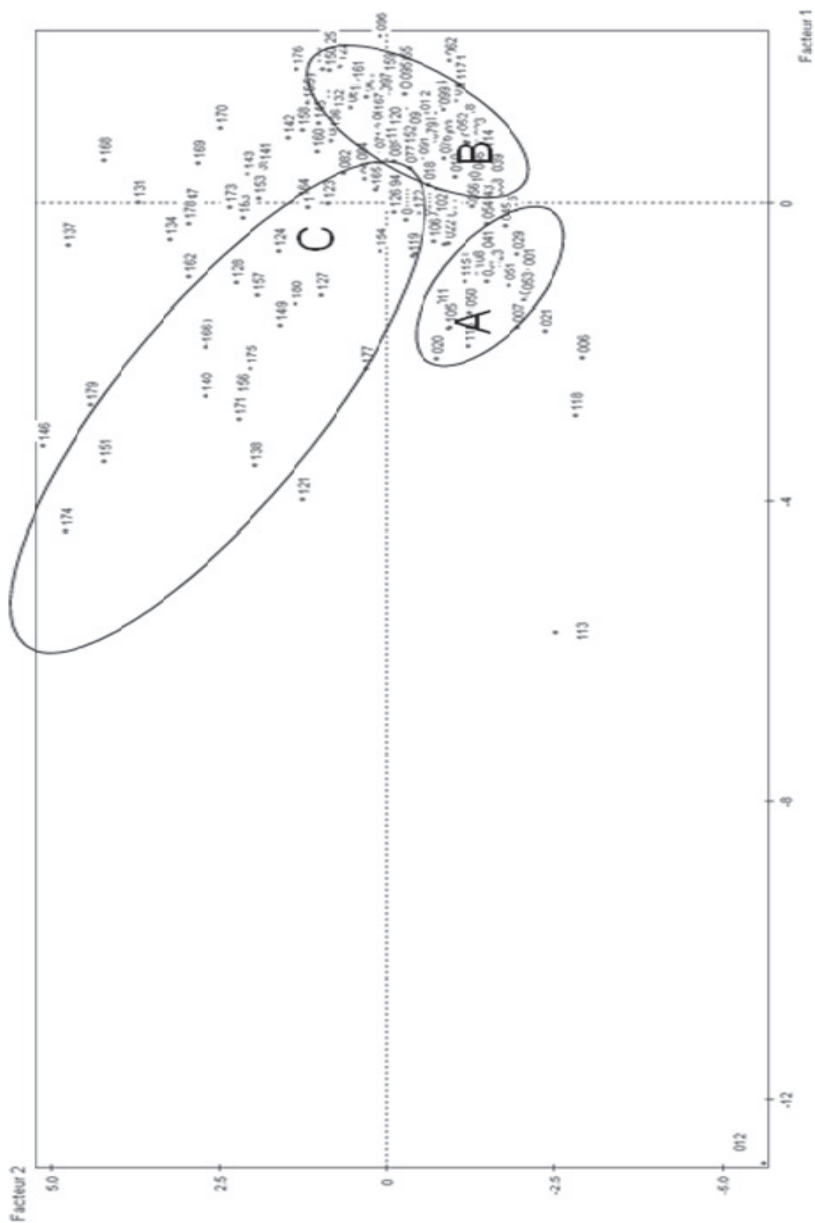
- 1) those associated with collaboration: INT Y, LOC Y, NAT Y;
- 2) those associated with title types: question type (QST Y) and attention-bidding titles (ATB Y)

3.4. Individual distribution (Graph 3)

Graph 3 displays the distribution of the 180 individuals (our 180 CR titles) around the axes, each point representing one individual. Although there is (logically) quite a lot of individual overlapping, it can readily be seen that our 180 individuals are concentrated around their respective Block: from 01 to 60 around letter A; from 61 to 120 around letter B, and from 121 to 180 around letter C.



Graph 2. Categorical/qualitative variables.



Graph 3. Individuals: Block A: 01-60 / Block B: 61-120 / Block C: 121-180.

A few individuals, however, are not located where they should normally be:

- 1) title no. 12 belongs to Block A but is found very far from the cloud of points representing that block: it is indeed located at the extreme left-hand side of Graph 2.
- 2) titles no. 113 and 118 belong to Block B, but are found very far from the cloud of points that form Block B. As a matter of fact, they are near the cloud of points that represent Block A.
- 3) titles no. 105, 108, 115 and 116 belong to Block B but are found within the cloud of points that represent Block A.

4. Discussion

4.1. Indicative/Nominal Group titles

As we said in the previous section, all the titles we analyzed consist of more or less expanded nominal phrases, also called ‘indicative titles’, which give a straightforward presentation of the object of the study. Here are three examples, one from each block:

- (1) Severe myositis on commencement of efavirentz (A)
- (2) Trauma and appendicitis (B)
- (3) Cardiogenic shock secondary to spontaneous mitral rupture (C)

This result clearly corroborates those of previous research on scholarly paper titles that also found a marked preponderance of nominal/indicative titles over verbal/informative/full sentence titles. Busch-Lauer (2000), for example, observed a much higher frequency of indicative titles over full sentence ones in a corpus of German and English research article (RA) titles. Soler (2007), for her part, found that 72% of the English-medium research paper and review article titles she analyzed in the field of biology belonged to the nominal group. In an-

other study, that same researcher analyzed the structural construction of a corpus of Spanish titles of research papers and review articles in the biological and the social sciences, and found a prevalence of nominal group title construction in both genres and both disciplines (Soler 2009). This led this author to conclude that the prevalence of the nominal group construction is indicative of neither a disciplinary nor a generic variable (Soler 2011). On the contrary, she asserts – and we fully agree with her on that point –, this (nominal) title construction is a means to imprint the nominal, lexically dense and impersonal style that typifies scientific discourse.

It is when referring to the evolution of scientific titles that our results do contrast with those of previous research. Indeed most research on the topic has underlined a shift over time towards fuller sentence (informative) titles. Almost twenty years ago, Berkenkotter/Huckin (1995), for instance, already reported that titles of RAs had become more informative over time. The findings of their research showed that in the 1970s, full sentence titles were very rare, and that in the mid-1990s, they constituted more than 20% of all journal articles and were especially common in biology. Goodman (2000, 2010) shares that same opinion when he too asserts that RA titles are becoming more informative, and that the third person singular in such titles increased 43-fold between 1970 and 2009. His research also showed that the increasing use of the third person singular in RA titles is even more pronounced in core clinical journals: on average a 105-fold increase in such journals compared with a 43-fold increase in lesser quality journals.

Since we did not find a single case of verbal/informative title in our CR corpus, it would seem that the use of full sentences in scientific title writing is a generic question. Indeed, the research we mentioned above deals with research and review articles, whereas ours exclusively focused on CRs. We can thus assert that CR titles – at least those published in the *British Medical Journal* – have always been, and still are, written as nominal phrases. The format of the case report being essentially that of a narrative, it is not surprising that its titles show a different line of evolution from that of the RAs, a genre in which the narrative elements were gradually eliminated (Atkinson 1992). What is more, because in a CR the narration of one case

precludes generalizations across population groups and because a single case history cannot be replicated, CR writers are most likely reluctant to use declarative or informative titles that would tend to give a generalization flavor to the CR findings.

4.2. Title length: information load and semantic richness

The length of a title is an indicator of the amount of information an author intends to give the readers prior to text reception. As was seen in Graph 1, the length variable was clearly associated with Block C, which means that the information load and semantic richness of CR titles have increased over time. In this respect, our findings corroborate the results of previous studies. Lewinson/Hartley (2005), for example, reported a 1.25-fold increase in research paper titles between 1970-1974 and 2005-2009, and Goodman (2011) found an approximate doubling in the number of words in RA titles since the 1970s. At least on this dimension of title length, the evolution of CR titles resembles that of RA titles.

The coordinating conjunction variable (CCJ, see Graph 1), which is intimately related to title length, was also clearly identified with Block C. Certainly, the most numerous the coordinating conjunctions in a title, the longer the title. The two most frequent coordinating conjunctions found in Block C were *and* and *or*.

The colon variable (CL, see Graph 1) was also found to characterize Block C, which means that its use has also increased over time. This too has a direct bearing on title length. It has been shown indeed that titles with colons (also called compound titles, Hartley 2007) are longer on average and contain more information than titles without them. In Blocks A and B, colons were mainly used to introduce the findings of an autopsy (4) or of a surgical procedure (5):

- (4) Obscure case of sudden death: Enlarged thymus (A)
- (5) Volvulus of the caecum: Double obstruction (B)

Characteristic of these two blocks as well, but more frequent in Block A than in Block B, was the use of two colons in the same title, where the first colon introduces the consequence of the event described in the first part of the title (6) or a surgical procedure (7), and the second precedes the treatment outcome, either death or recovery.

- (6) Case of perforation of the stomach: Peritonitis: Death (A)
- (7) Ruptured gastric ulcer in an old man: Laparotomy: Recovery (B)

By contrast, in Block C, colons are mostly used to underline the originality and/or rarity of the CR:

- (8) Gallbladder colonic fistula: an unusual cause of diarrhoea (C)
- (9) Tick-borne relapsing fever: conjunctival haemorrhages (C)

This use of colons in today's CR titles contrasts quite sharply with the use of colons in today's RA titles where, at least in the *British Medical Journal*, colons present compulsory information, viz, the type of the research being reported, whether it is a systematic review, a meta-analysis, a data base survey, a cross-sectional analysis, etc.

Our findings regarding the increasing use of colon titles in medical CRs do not seem to lend support to Soler's hypothesis (2007, 2011), according to which this title construction could be a disciplinary and generic characteristic of the RA in the social sciences written both in Spanish and in English. Our study shows that colon titles are very frequently used in other genres as well, such as the CR, and in other disciplines, such as medicine.

All in all, our findings lead us to put forward the hypothesis that the longer titles from Block C are explained by the fact that today's titles require more detailed information about the type of disease and its consequences, the uniqueness of the CR, its educational value and its originality. In short, today more bottom-line information is being loaded into the most highly foregrounded part of any article, the title.

4.3. Increasing syntactic complexity

Block A titles were generally understandable to the layman, an assertion that reminds us of Gunnarsson's remark (1998) about 19th century single medical cases written in Swedish. The great majority of Block A titles started with the expression *A case of* (see Graph 1 where this variable is clearly identified with Block A), as the following example illustrates:

- (10) Case of asphyxia from hanging, treated by bleeding (A)
- (11) Case of induction of premature labor (A)

Such titles were usually very short and syntactically and semantically rather simple. But CR titles became more and more complex, both semantically and syntactically. The increasing syntactic complexity and semantic richness of CR titles are not only related to increasing length (see above), but also to the increasing number of compound nouns and adjectives in Block C (cf. the CMP variable in Graph 1) as a way to condense information (Salager-Meyer 1984). What in Block A or B would have been expressed as *a case of diabetes treated with insulin* (Block B, CR no. 17) would in Block C be rendered as *Insulin-treated diabetes*. Apart from examples 8 and 9 above, here are two additional examples of titles with several compound nouns:

- (12) Giant true cyst of the spleen with elevated *serum markers, carbohydrate antigen 19-9* and *cancer antigen 125* (C)
- (13) *Compartment syndrome* after low molecular *weight heparin* following lower *limb blunt trauma*: lessons for *outpatient deep vein thrombosis protocols* (C)

We recorded five cases where the whole title was a compound noun (14) or compound adjective (15). Here are two of them:

- (14) Post-liver transplant tuberculosis (C)
- (15) Schistosomiasis-induced male infertility (C)

The higher frequency of compound nouns and adjectives in Block C is directly related to the low frequency of prepositions recorded in that Block (PREP variable on Graph 1). Prepositions, especially *of*, *by*, *in*, and *with*, were found to be a distinctive feature of Block A titles:

(16) Case of compound fracture of the skull, with loss of a portion of the brain (A)

(17) Case of strangulated hernia in a child 10 month old (A)

What is interesting to observe, too, is the fact that not only are compound nouns and adjectives more numerous in Block C than they are in Blocks A and B, but they are also longer, as examples 12 and 13 above and example 18 below illustrate:

(18) Pneumothorax: a common complication of *CT-guided transthoracic needle lung biopsy*. (C)

4.4. The use of commas and past participles (Block A)

The numerical variables ‘commas’ (CM) and ‘past participle’ (PAS) and the categorical variables ‘mention of methods/treatment’ (MET Y) and of ‘outcome’ (OUT Y) were all clearly associated with Block A (Graphs 1 and 2). This is explained by the fact that in the mid-19th century, all past participles expressed either a therapeutic procedure (19) and/or a surgical outcome (20) and were preceded by a comma.

(19) Case of profuse uterine hemorrhage, successfully *treated* by galvanism (A)

(20) Case of shortsightedness, *cured* by operation (A)

These two examples show that at that time much emphasis was put on the treatment administered and/or the surgical procedure performed and their final outcome (see use of colons for introducing results/outcomes in Block A titles, section 4.2 above), and not on the CR originality or educational value as is the case in today’s CRs. By the mid-20th century that practice had disappeared almost entirely and general subject titles (GST) became the preferred mode of writing CR titles.

4.5. Title type diversity (Block C)

General subject titles (GST Y), also called *topic titles*, such as:

- (21) Trauma and appendicitis (B)
- (22) Laryngeal diphtheria in old age (B)

were clearly characteristic of Block B (Graph 2). These titles rather look like editorial titles or titles of oral communications. Conversely, question titles (QST Y) were found to be more frequent in Block C than in the remaining two blocks (Graph 2):

- (23) Recurrent wheezing: only asthma? (C)
- (24) Complete remission of a relapsing adult T cell leukemia following treatment of a secondary acute promyelocytic leukaemia: towards a reappraisal of arsenic trioxide and all-transretinoic acid? (C)

As can be seen, these interrogative titles are basically yes/no questions, whose specific pragmatic thrust must be regarded as a specific rhetorical procedure by which authors try to advertise their texts in order to attract possible readers. As Dietz (2001) points out, there is a kind of pedantic academic suspense to such questions that arouses the curiosity of colleagues by questioning a hitherto accepted thesis. What is more, with such titles, the author already presents solutions to a controversial problem that can then be seen as a specific means to sell one's text (Dietz 2001: 31). However, Maisonneuve *et al.* (2010) do not recommend question titles for CR and RAs, and posit that such titles are better suited for editorials and/or oral communications. This is probably why their frequency, although higher in Block C than in Blocks A and B, was in general very low, a finding that corroborates that of cross-disciplinary (social and biological sciences) and cross-linguistic (German, English and Spanish) research on titles (Busch-Lauer 2000; Anthony 2001; Hartley 2007; Soler 2007, 2011).

Attention-bidding titles (ABD Y) were found to be also clearly more frequent in Block C than in the remaining two blocks (Graph 2).

Apart from the example given in Section 2 above, here are two additional examples. Example 26 even includes an exclamation mark:

(25) Wedding ring in the wrong place: an unusual presentation of penile incarceration in a child with a wedding ring (C)

(26) Neonatal respiratory distress: do not forget the rarer causes! (C)

Goodman (2011: 39) qualifies such titles as ‘soundbite titles’. As is the case with question titles, the *raison d’être* of attention-bidding titles is to attract the reader’s attention: “Presumably, for good or ill, and whether mistaken or not, such a tactic is intended to get articles better noticed”, sustains Goodman (2011: 39).

We can then see that both question and attention-bidding titles, although not very frequent, are more characteristic of today’s CR titles than they were in the mid-19th and mid-20th centuries.

4.6. Authors and collaboration

4.6.1. Number of authors

The institutional affiliation of nine out of 60 (15%) of CR authors in the mid-19th century was not identified probably because it was obvious that they worked at a British institution, the *British Medical Journal* being a British journal. As Graph 2 clearly shows, this practice had totally disappeared by the mid-20th century where all authors’ institutional affiliation was mentioned in the CR bylines (the variable ‘UNSP NO’ was clearly associated with Block B).

Graph 1 also indicated that the total number of authors recorded in Block C was much greater than that recorded in either Block A or B, i.e. it has been increasing over time (the variable AUT was in fact one of the most discriminatory variables, clearly identified with Block C). The growth in scientific collaboration – also called ‘hyper-authorship’ (Cronin 2002) – across disciplines, institutions, sectors and national borders has been extensively documented (e.g. Cronin 2005, 2012), and numerous diachronic studies of different disciplines, fields and sub-fields have revealed a striking growth in the average

number of co-authors per paper (Laband/Tollison 2000, Cronin *et al.* 2003). This phenomenon has been related to the growing specialization of science in general. In the particular case of medical case reporting, multiple perspectives on different aspects of a clinical CR illustrate the value of team work among a diverse group of specialists over a particularly difficult or complex case presentation.

4.6.2. *Collaboration practices*

Not only has the overall number of authors increased over time, but so have collaboration practices. There was no collaboration whatsoever in Blocks A and B (see Graph 2). Indeed, the absence of the three variables that refer to some kind of collaboration – whether local, national or international (LOC NO, NAT NO, and INT NO) – was found to be associated with Blocks A and B. By contrast, their presence (LOC Y, NAT Y and INTER Y) was closely related to Block C titles (Graph 2), thus underlining the fact that collaboration is an increasingly important factor in today's CR writing. To appropriate Castells' claim referring to scholarly RAs (Castells 2000, cited in Cronin 2005): "Scientific research in our time is either global or ceases to be scientific", although collaboration and the notion of the lone author have been found to be very much discipline-related (Cronin 2005, 2012). Our findings thus show that Castells' phrase thus does not apply to RAs only, but also to CRs.

It is finally interesting to observe (Graph 2) that the LOC Y variable (that indicates local collaboration) is even closer to point C than the NAT Y and INT Y variables are. This clearly corroborates the results of very recent research findings that show that physical location seems to influence to an appreciable extent those with whom one will work. This does not mean that today's medical CR writers collaborate exclusively with researchers from their own institution or at the same geographical location, but to a considerable degree, as Sugimoto and Cronin (2012) found, that the choice of collaborators is influenced by place. "Gender and geography continue to be influential in shaping the contours of a scholar's career in the digital age" (Sugimoto/Cronin 2012: in press).

4.7. The out-of-place and eccentric individuals

A close look at Graph 3 shows that CR 012 (Block A) is totally outside of the cloud of points that make up Block A. Here is the title, the longest (39 words) of the 180 titles we analyzed:

- (27) A case of muco-enteritis, followed by acute peritonitis, terminating in effusion into the abdominal cavity, relieved by profuse serous discharge from a spontaneous opening of the umbilicus by ulceration, followed by prolonged suppuration, repeated hemorrhage, and stercoraceous vomitio (A)

Apart from being the longest (there is almost no need to read the whole CR to know what it deals with!), this title presents one present participle, five past participles and six commas. It is precisely because of its totally unusual linguistic and syntactic features that this title is the most eccentric of all. Texts 113 and 118 (examples 28 and 29 below) that belong to Block B are found near the cloud of points that make up Block A.

- (28) Case of a large calculus, voided from the female urethra, encrusted upon a hair-pin, swallowed twenty seven months ago (B)
- (29) Case of cephaloma, cured in the foot, subsequently developed in various internal organs (B)

As can be seen, these two Block B titles share some linguistic and syntactic features that were found to be characteristic of Block A titles: they both start with *Case of*, and each one includes two past participles preceded by commas. It is therefore not surprising to find them amidst Group A titles. The same remark applies as well, though to a lesser extent, to texts 105, 108, 115 and 116 (Block B titles) where an abnormal number of punctuation marks (semi-colons, commas) and past participles was recorded, which makes them look like Block A titles.

5. Conclusions

Our research has shown that CR titles have evolved over the 160-year period studied here, in the sense that they have increased in length, syntactic complexity, semantic richness and title type diversity. Authorship patterns and collaboration practices – from the lone scholar of the mid-19th century to multi-authored CR – have changed too. Although internationalization of case reporting has increased over time, today's preferred practice is still local collaboration. The following factors could account for the various shifts observed: 1) the progressive professionalization of medicine, 2) the need of multidisciplinary teams to conduct ever-increasing complex research, 3) the rise of statistical methods and technologies, and 4) the increased specialization and the growing complexity of medical science. This epistemic shift towards a more scientific medicine reflects a larger evolutionary dynamic, the movement from a relatively non-professionalized, individual-centered, privately-based medicine to one which is highly professionalized, group-centered and public (cf. Atkinson 1992). All this has been conducive to changes in medical CR titling.

The only variable that has remained constant over the years is the nominal nature of CR report titles. In that sense, CRs distinguish themselves from RA titles. With no fear of being mistaken, we could posit that the non-verbal (non-assertive) nature of CR titles is due to the fact that CR authors cannot generalize their findings to the whole population precisely because their case is based on one (or just a few) patient(s).

We could however wonder whether CR titles will change in the future under the influence of the titles in the other medical genres. Perhaps. As Richard Smith (2000) sarcastically reckons, the trend is undoubtedly for scholarly journals to become like newspapers and for newspapers to become more like tabloids because practitioners want “take home messages. It is about readability and trying to get people's attention in an ever more crowded world” (Smith 2000: 915).

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