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Rhetorical evolution of oppositional discourse in French academic writing

Oppositional discourse in academic writing

Abstract

We here analyze the quantitative and qualitative evolution of academic conflict (AC) in a corpus of 90 medical articles published between 1810 and 1995. The linguistic means expressing AC were recorded in each paper and classified according to whether they expressed a direct or an indirect conflict. The frequency of each category of AC was first recorded in each paper, and then calculated per 20-year periods. Our results were analyzed using Chi-square tests. In the **whole** corpus, direct AC were more frequent than indirect ones ($p = .0001$). When analyzed per 20-year periods, our quantitative results allowed us to divide the 185 years studied into 2 distinct periods, the cutting-off point being the 1910's when the frequency of indirect AC started a slow but continuous ascent. In each Block **direct** AC outnumbered indirect ones ($p = .0001$), but indirect AC were more frequent in Block B than in Block A ($p = .039$). A qualitative analysis of the AC recorded revealed that both 19th and 20th century AC were expressed in a personal, polemical and authoritarian manner, although the confrontational stance of late 20th century AC tends to be mitigated either by means of hedging expressions or through the shifting of person to object thematization. We conclude that when formulating their professional disagreement, French-speaking scientists have always been authoritative, categorical, direct and personal, although the tone of voice of confrontations tends to be more "low key" as we approach the turn of the 21st century.

1. Introduction

In his book *Science in Action: How to Follow Scientists and Engineers through Society* (1987), Latour offers us a highly competitive, almost adversarial (rather than cooperative) view of (Anglo-American) science. This is why he uses military strategy metaphors when referring to scientific activity in general: for him, writers "fortify themselves" so as

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to be able to “withstand the assaults of a hostile environment”, they “mobilize allies” or “lure” them away from their competitors, they “change camps”, “construct successive lines of defense,” etc. More specifically, when referring to intertextuality (i.e., the use of source texts), Latour (1987: 37–38) states that:

“Whatever the tactics, the general strategy is easy to grasp: do whatever you need to the former literature to render it as helpful as possible for the claims you are going to make. The rules are simple enough: weaken your enemies, paralyze those you cannot weaken ... help your allies if they are attacked ... oblige your enemies to fight one another; if you are not sure of winning, be humble and understated.”

The rhetoric of academic conflict (to which the above paragraph obviously refers) has been addressed from various standpoints. Ziman (1968), MacRoberts and MacRoberts (1984), Myers (1989), Swales (1990), North (1992), Kourilova (1994), Belcher (1995) and Schramm (1996) — who dealt with that issue in Anglo–American academic discourse from a very general perspective — all underscore the fact that scientists today meticulously avoid personal attacks in order to maintain a free flow of information, and that when challenging previously published research results and/or conclusions, epistemic modality or subtle hedging strategies are used abundantly. Chubin and Moitra (1975) and Moravcsik and Murugesan (1975), for their part, focused on the quantitative aspect of the problem, and report that total criticism and even “partial negational references” are rare in English academic writing, thereby supporting the claim that blunt criticism is offensive and threatening in contemporary research articles. On the other hand, Swales and Feak (1995) and Motta–Roth (1998) discuss, *inter alia*, negative evaluation in book reviews — a topic related to academic conflict — from a cross–discipline perspective, whereas Kourilova (1996) analyzes critical comments in peer reviews of papers written by non–native English–speaking scientists. These authors reach the conclusion that criticism to prior texts in research articles is much more subtle and implicit than critical speech acts in book reviews and referees’ comments on manuscripts submitted for publication. Finally, the issue of AC has been addressed from a cross–linguistic/cross–cultural standpoint. Nguyen (1988), Do (1989), and Farrell (1997), for instance, interestingly note that defending one’s position and rejecting others’ may not seem to be obvious evidence of academic achievement in Vietnamese students’ papers. In the same vein, Taylor and Chen (1991) and Bloch and Li

(1995) point out that Chinese scientists — unlike their English counterparts — tend to avoid focusing on previous research gaps and shortcomings. Along the same lines, Ahmad's study (1997) revealed that Malaysian academics rarely criticize or evaluate previously published research, and Duszak (1994, 1997) remarks that, unlike English, languages such as German, Polish and Czech are low on text forms in judgments of academic achievement and quality of research. It is then clear from these works that the verbalization (directness or hedginess) and the frequency of critical speech acts are language – and culture– bound (for a recent analysis of this issue — analyzed, though, from a broad ELT perspective— see Kubota 1999).

However interesting the above mentioned research may be, it only refers to the pragmatic phenomenon of academic conflict (hereafter referred to as AC) in passing (i.e., as a relatively minor point in connection with some other of interest), and therefore does not provide an exhaustive treatment of the problem. There has been, to my knowledge, only one study dealing specifically with that issue in **contemporary** academic prose: it is Hunston's cross-disciplinary research (she analyzed articles from biochemistry, sociolinguistics and history) that brings further evidence to the fact that “incorrect knowledge claims” or direct attack upon existing claims are very unlikely to be found in contemporary scientific articles written in English, and that the linguistic strategies used to convey disagreement are discipline-specific. Nonetheless, aware of the rather reduced size of her corpus (6 papers only), Hunston herself remarked that further study was clearly necessary as many of the knowledge claims she made in her paper required validation from data of other kinds.

2. Purpose

Motivated by our own interest in cross-linguistic/cross-cultural studies of academic writing and by Hunston's observation, in 1995 we initiated a research project, the broad objective of which was to address the issue of AC from a **diachronic** perspective —an aspect of the problem so far undealt with¹— and in a much wider **trilingual** (English, French and

¹ In their excellent historical studies of English academic prose, Atkinson (1992, 1996), Bazerman (1988) and Valle (1991, 1993 and 1999) do analyze the problem of intertextuality (i.e., the evolution of citation practices in general) and refer to dispute and debate in the 18th, 19th and 20th centuries, but they do not *specifically* analyze the issue of academic confrontations.

Spanish) corpus of academic prose. The results obtained from the English sample texts studied are reported elsewhere in Salager–Meyer (1998a, b, and c and 1999) and Zambrano (1999). Our intention with the present article is to build on, complement and enrich our knowledge of AC by reporting the results obtained from the **French** corpus, a language which, as Dressen (1998) so rightly points out, has only received scant attention from linguists and LSP practitioners in spite of the fact that it is one of the world’s leading scientific languages.²

More specifically, the aim of the present paper is to analyze, over a 185 year-period (see ‘Materials and Methods’ section below), the evolution — in terms of frequency and form— of the linguistic/rhetorical strategies French scientists resorted to in order to convey their academic disagreement or professional dispute, i.e., how their conflicting knowledge claims were presented and argued for over the time period studied. As Atkinson (1996: 334) points out:

“Assuming the close interrelatedness of language and social activity, the study of evolving linguistic and textual practices can provide us with a powerful perspective on the developing scientific ‘form of life’.”

A “knowledge claim” is generally understood as an item in a research article which scientists put forward to be added to the sum of the knowledge–bank agreed upon by the community of the discipline they belong to (Swales 1990). A “conflicting knowledge claim” is thus to be understood as a *differential* between knowledge claims (Hunston 1993).

3. Materials and methods

We decided to select journal articles (and not textbook sections) as our primary source material. The characterization presented in the following *Results and Discussion* sections is then based on the analysis of 90

² Apart from Dressen’s comparative study of geology papers written in French and in English (1998), a few noteworthy exceptions could also be mentioned: Régent (1980, 1985), Montgomery (1996), Crosnier (1997), Donahue (1998) and Bachschmidt (1998) who all point out —to a varying degree, though— that the concept of science differs from one culture to the other (the French and the Anglo–American), thus explaining the differences in discursive and communicative speech acts these researchers observed between the two languages.

randomly chosen articles written in French by native–French speakers³ and published in 22 different French medical journals between 1810 and 1995. The source journals were in the main generalist rather than specialist medical periodicals. Articles were taken from 1810 and thereafter at 20 year–interval up to 1995 (the last period covers 25 years), each 20–year period being made up of 10 articles. The articles chosen in this manner totaled a number of 191,450 running words. Although the question of how many articles to include in studies of this kind is always a difficult one, I consider that the corpus under study is large enough to reveal major trends. Indeed, as Fox (1999) explains:

“Whereas general language corpora are recommended to be as large as possible, investigations into technical and professional languages have demonstrated the representativeness of small-domain specific corpora, totaling 20,000-30,000 running words, a consequence of the restrictions of specialized languages: predictable topics, limited syntactic structures of unusual distribution and specialized vocabulary.”

Finally, in order to get an accurate picture of the data distribution, it was decided to use full–length papers — instead of a given length of papers— as our basic unit of analysis.

The selection of 19th century source journals from which we sought our sample texts was mostly based on the availability of materials⁴. The choice of the 20th century journals from which we sought our sample texts was made on the basis of two specialists informants’ recommendations (both active medical researchers) as to which French medical journals they considered most prestigious (see Conrad 1996 for the importance of selecting leading journals in corpus–based research), and with the help of two librarians who provided us with a list of the most frequently consulted medical journals written in French.

Our 19th century medical articles included: 1) narratives of single cases or diseases which were then called “*mémoires et observations*”.

³ Native–French speaker status was assessed on the basis of the authors’ last names and of institutional affiliation (especially the address of the first named author). Moreover, I use the expression “French medical journals/periodicals” to refer to medical periodicals written in French, whether these are printed in France, Canada, Switzerland, Belgium, etc.

⁴ Our corpus was collected from the library of the *Faculté de Médecine* (Claude Bernard) Lyon (France).

All these were somewhat similar in function to the present day English “case report”; 2) summation of knowledge articles then generally labeled “*revue scientifique*”, and 3) experimental reports which started appearing in the closing years of the 19th century. Our 20th century medical articles consisted of original research papers (*mémoires originaux*), survey or review articles (“*mise au point*”) and case reports (“*études de cas*”). Book reviews, laboratory reports, letters to the editor and articles such as discussions of ethical and/or sociological issues of medical practice, salary, work conditions, etc. were excluded.

The approach adopted in the present study is text-based. Because in such an approach, texts are read and interpreted by one reader only, the question is often raised as to whether this is not too subjective and whether other analysts would not get different results. Moreover, as Valle (1999) remarks: “A project in which the study is outside the writer’s own discipline necessarily requires help from members of the scientific community under study.” As a response to this “subjective reading” problem and to Valle’s observation (i.e., in order to validate our own reading interpretation), we asked for the cooperation of “specialist-informants/subject-matter specialists”, a practice highly recommended in all kinds of LSP-related discourse analysis (e.g., Selinker 1979). We thus quite frequently held informal discussions with and sought, when necessary, the advice of the two previously mentioned medical researchers whose specialist insight into usage helped us classify the AC encountered per category (see below) whenever we had a doubt in that respect.

Since we were concerned with the repertoire of rhetorical strategies used by French scientists to express their AC, the linguistic realizations of the statements which reflected a discrepancy between the stance of a writer and that of an identified fellow scientist — or that of the scientific community as a collective entity — were recorded in each one of our 90 sample texts. The AC thus recorded were divided into 2 broad categories according to their level of directness/indirectness — or involvement/detachment (Chafe 1982).

a) Direct AC (or straightforward, overt “attack”): a strong, unmodulated assertion to which the writer fully commits him/herself, i.e., s/he

takes full responsibility of the truth of the propositional content of the utterance (ex. 1 and 2 below).⁵

1. – Le traitement proposé par Monsieur Després, et qui consisterait à cautériser dès le début, *est totalement inutile et inacceptable.* (1881)
2. La seule classification de Durie et Salmon (1978) *n'est plus actuellement suffisante* pour apprécier de façon fiable le pronostic du MM (myélome multiple) (1989)

b) Indirect AC (a covert, subdued or “polite” AC): the writer’s commitment to the truth of the proposition is mitigated in one of two ways: a) through the use of hedging devices (ex. 3); b) by what I will refer to a “thematization shift”, a procedure that consists in shifting the responsibility of the AC away from the writer to some inanimate facts (e.g., a result, a conclusion as in ex. 4):

3. Il y a un point essentiel que M. Maisonneuve semble perdre de vue (1850).
4. Le premier rapport de Mellstedt, publié en 1979, était encourageant. Cependant, nos études ultérieures *n'ont pas confirmé* ces premiers résultats. (1979)

The number of direct and indirect AC was recorded in each article and then calculated for each one of the nine 20-year-periods. The frequency of occurrence (expressed as percentages) of direct and indirect AC with respect to the total number of AC recorded in each 20-year-period and in the whole corpus⁶ was then calculated. The data thus obtained were analyzed using non-parametric X² test for contingency tables to determine whether statistically significant differences were put forward with respect to the **evolution** of the 2 previously mentioned **AC categories over time**. Alpha value was set up at $p < .05$. Finally, in order to enhance the internal validity of the present study and to follow Connor’s sound advice that “researchers need to provide objectivity in their analyses through interrater reliability” (Connor, 1996: 165), the data were recorded and analyzed by one of our subject-specialists in a sample of 10 medical articles. Interrater reliability was .86.

⁵ The year that appears at the end of each example refers to the year of publication of the paper from which the example was drawn; the italicized words/expressions correspond to direct AC, and the underlined ones to indirect AC.

⁶ If, for example, a criticism was directed at Maisonneuve (1966) several times in the same paper, this was recorded as one (1) AC only.

4. Quantitative results

4.1. Overall distribution of AC (in the whole corpus)

As can be seen on Table 1, a total of 277 AC was recorded in the French corpus as a whole (an average of 3 AC per article). These were distributed as follows: 249 direct and 28 indirect AC, the former accounting for 89.9% and the latter for only 10.1% of the total number of AC recorded in the whole corpus. In other words, direct AC significantly outnumbered indirect AC ($p = .0001$).

Now, if we examine our quantitative results per 20-year period — as shown in Figure 1 which displays the evolution (expressed in percentages) of direct and indirect AC per 20-year period—, it can readily be seen that the 185 period studied can be divided into 2 distinct Blocks, the 1910's representing the cutting-of period when indirect AC started a slow but continuous ascent: Block A which covers 100 years (1810–1909), and Block B that covers the remaining 85 years (1910–1995). Let us now analyze more closely the evolution of the direct/indirect AC ratio over time (Table 1 and Figure 1).

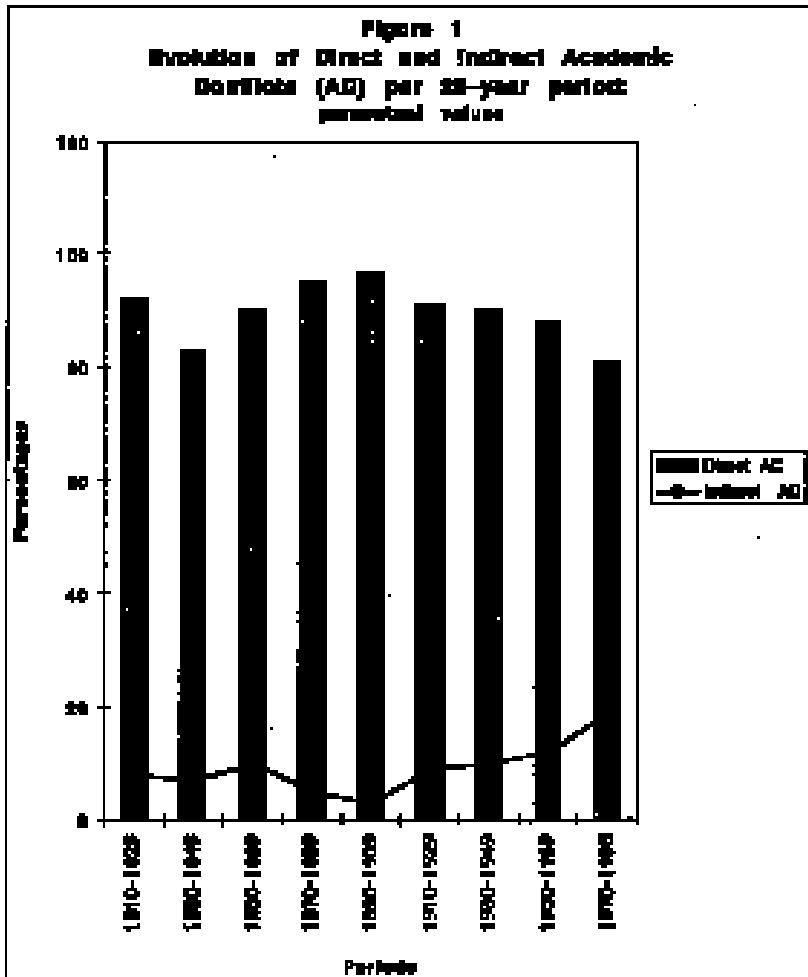
TABLE 1

GLOBAL and DIACHRONIC RESULTS

Direct and Indirect Academic Conflicts (AC) per Block and in the Whole Corpus: Absolute Values and Proportions

	DIRECT AC	INDIRECT AC	TOTAL
Block A (1810-1909) 100 years 50 texts	153 93.8%	10 6.1%	163 58.8%
Average number of AC per text	3	0.2	3.2
Block B (1910-1995) 85 years 40 texts	96 84.2%	18 15.7%	114 41.1%
Average number of AC per text	2.4	0.4	2.8
TOTAL in whole corpus	249 89.9%	28 10.1%	277
Average number of AC per text in whole corpus	2.7	0.3	3

NS: not statistically significant difference



4.2. Block-discriminated evolution

Block A (1810–1909)

Direct AC significantly outnumbered their indirect counterparts not only in each one of the 20-year periods of Block A (see Figure 1), but also in Block A as a whole. In fact, Table 1 indicates that direct AC make up 93.8% of the total number of AC recorded during that Block, and in-

direct AC only account for 6.1% of that total ($p = .0001$). Table 1 also shows that there was an average of 3 direct AC vs. .02 indirect AC per paper in Block A.

Block B (1910–1995)

As we said before, from the 1910's on (see Figure 1), indirect AC started exhibiting what could be qualified as a continuous —although slow— ascent. Indeed, during the 1910–1929 period, indirect AC make up 9% of the total number of AC recorded during that 20 year-period; they then slowly increase to 10% (1930–1949), 12% (1950–1969) and finally to 19% (1970–1995). Nonetheless, in each 20 year-period, indirect AC were always much less frequent than their direct counterpart. Indeed, as Table 1 shows, in Block B direct AC significantly ($p = .0001$) outweigh indirect AC (84.2% vs. 15.7% respectively of the total number of AC recorded in Block B). Table 1 also shows that the average number of direct AC per article was 2.4 vs. 0.4 for indirect AC.

Block A vs. Block B

Although the overall frequency of direct AC decreased from Block A to Block B (93.8% vs. 84.2% of the total number of AC recorded in Block A and B respectively), the difference was not found to be statistically significant. Conversely —and here lies, we believe, the most interesting quantitative finding displayed on Table 1— the overall frequency of **indirect** AC significantly increased from Block A to Block B. Indeed, Table 1 shows that their frequency is much greater in Block B —where they make up 15.7% of the total number of AC recorded in that Block— than in Block A —where they only account for 6.1% of the total number of AC recorded in that Block. The difference between these two figures was found to be significant ($p = .03$).

In other words, although the frequency of indirect AC has always been very low when compared to that of direct AC over the whole period studied, our quantitative findings clearly indicate that indirect AC are much more frequent in medical articles published in the 20th century (especially from the 1970's on) than they were in articles published between 1810 and 1909.

5. Discussion

5.1. Overall quantitative results (1810–1995)

Our overall (i.e., not Block–discriminated) quantitative findings have clearly put forward that direct AC are much more frequent than indirect AC not only in the whole corpus but also in each Block (they throughout the period studied account for over than 80% of the total number of AC recorded). By contrast, indirect AC were found to be very rare over the 185 year studied. These 2 findings hence support Motchane’s (1990) and Régent’s (1994) position according to which French scientists uphold an **authoritative** and **categorical** behaviour from the very beginning of their papers:

“Dès le début, l’auteur français se montre catégorique et prescriptif. ... Dans les conclusions, l’auteur français, en position dominante, garde son autorité. Il se pose en détenteur du savoir Ceci est très fréquent en français où les auteurs ne ménagent pas leur peine pour faire la leçon à leurs collègues. On peut parler de stratégies de condescendance ... Il est rare que des stratégies aussi explicites soient utilisées en anglais. Les marques que l’on peut observer en anglais sont plutôt du registre de l’innuendo.” (Régent 1984: 58)

Along the same lines, the overall very low frequency of indirect AC reported in the present paper is in agreement with previous research that argues that French academics are not prone to modulate their discourse, at least not as much as English academics do (see the absence of blunt criticism in Anglo–American academic prose alluded to in the *Introduction* of this paper). This even led Sionis (1997: 211) to refer to the “exaggerated self–confidence of French academics” who therefore sound arrogant to Anglo–American scientists (for a discussion of the pedagogical implications of such an observation, see Crosnier 1995, Birsh–Bécaas 1997 and Zambrano 1999).

Our global results thus confirm the fact that courtesy and tactfulness are eminently cultural manifestations (Kreutz 1997 and Kreutz and Harres 1997, Ventola 1997), and that it is possible to identify national academic styles that can be traced back to different intellectual styles and attitudes towards knowledge and learning which, as Clyne (1981, 1987) puts forth, are passed on from generation to generation through the education system and are deeply embedded in cultural and rhetorical assumptions about what material may be presented, how it is to be

organized and how it may be presented in a maximally acceptable way (Motchane 1990, Birch Becáas 1997).

We will now focus our attention in the remainder of this paper on the analysis of the qualitative/rhetorical evolution of direct and indirect AC.

5.2. Qualitative evolution of Direct AC

Before getting to the heart of the matter regarding the qualitative evolution of AC over the 185 years studied, I would like to point out that AC — as most pragmatic textual features — cannot always be isolated or identified as individual words or phrases because they are built into the text structure as a whole. However, for lack of space, I cannot but illustrate the various points I present and discuss in the remainder of this paper with examples taken out of their broader contextual environment. I thus hope that they will be conspicuous enough so as to support my arguments.

5.2.1. Early direct AC (Block A: 1810–1909)

The main qualitative features of the French direct AC recorded in Block A were not only their highly personal character, but also their offensive and scathing tone of voice. The following examples give plentiful evidence of the unrestrained — sometimes biting and sarcastic (ex. 5 below) — character of these early AC, of the writers' affective involvement and of a strong authorial presence (what Atkinson called “authorial persona”).

5. *Lisfranc avait réussi à réduire une luxation qui datait de 4 mois. Une heure après, nous allâmes voir le malade: il était mort.* (1850)
6. *Pour vous prouver l'inanité de la proposition de M. Pellarin, je n'ai qu'à vous dire quel a été en 1865, en France et en Algérie, le mode de généralisation de cette maladie dans l'armée.* (1866)
7. *Les expériences de M. Colin ont été mal faites. Ces expériences n'ont aucune valeur.* (1881)
8. *La “bouche d'argent”, dûe à l'invention de Brasseur ou de Billot, et l'instrument en bois dont se servait Belhomme sont complètement abandonnés aujourd'hui. Non seulement ces appareils ne peuvent rendre aucun service, mais la violence qu'ils exigent peuvent devenir dans certains cas la cause d'accidents regrettables, tels que les fractures de dents.* (1898).

We even recorded an example (ex. 10 below) where the offense was so great that only the initial letter of the criticized doctor's surname was provided:

9. *La patiente se rendit ensuite à F., chez le sieur S...., un de ces nombreux charlatans qui exploitent la bêtise humaine à l'abri de nos lois.* (1888).

Examples 5–9 above illustrate how 19th century scientists overtly criticized their colleagues on various grounds (poorly carried out experiments, disagreement as to methods/procedures used or type of treatment administered, etc.) by fully committing themselves when denying the reported propositions. Moreover, these examples beautifully demonstrate the provocative, highly polemical, acrimonious and personal (almost face to face) and dialogic fashion in which 19th century French scientists used to convey their disagreement, a manner which could then be assimilated to that adopted by English-speaking scientists today when taking a critical stand in private or orally (Dubois 1981, Gilbert and Mulkey 1984, Basturkmen 1999, Jacoby and McNamara 1999)⁷.

Quite frequently too at that time were AC directed not towards a precisely identified individual (or group of individuals who could be seen as characters in a narrative; examples 5 to 9 above), but to the scientific community as a collective entity — what Valle (1999: 91) refers to as “non-citational attribution”; most of these, as examples 10 to 12 below illustrate, used to challenge a method, a treatment or a commonly held belief/ concept.

10. *D'autres praticiens, parmi lesquels on rencontre malheureusement des noms célèbres, malgré tout ce que l'on savait sur le sel métallique, l'ont administré à des doses effrayantes dans de nombreux cas.* (1828).
11. *J'ai moi-même pendant longtemps tenu en grande vénération ce concept défendu par de nombreux collègues. Mais enfin, j'ai vu tant de fois et de si près ses défauts et sa fragilité, que je me vois contraint de l'ébranler.* (1850).

⁷ I allude to “English-speaking scientists” only because the observation mentioned refers to an English-speaking environment. It is very likely that the same remark would apply as well to a French-speaking context, but, as far as I am aware, it has not been formally reported in the literature.

12. D'après M. le docteur Béard, cette maladie serait une conséquence pathologique des chatouillements; elle résulterait d'une singulière habitude propre aux habitants de ce pays de se chatouiller les uns les autres dans les bois. *Le bromure de potassium, recommandé par nombre de mes collègues, a été employé chez ces malades sans aucun succès.* En réalité, aucune médication n'a réussi. (1881).

As can be observed, the tone of voice of these “anonymous” or more “general” AC is somewhat less adversarial than that of personal direct AC, although the writer, as was the case with the personal direct AC, here too takes total responsibility of his confrontational stance.

Other AC directed towards the scientific community as a whole were also used to describe a “gap” in the literature (ex. 13 below), but these were much less frequent at that time because scientists did not feel the need (as they do today, especially in the Anglo-Saxon world) to create a research space for themselves. As Bazerman (1988) explains when referring to 19th century academic discourse —but his remark seems to apply as well to its French counterpart— in the 1800's, the literature was used to draw lines and marshal forces rather than construct an edifice beyond the immediate claim.

13. J'ai fait bien des recherches pour m'assurer si la maladie dont je vais tracer l'histoire a été observée et décrite. Jusqu'à ce jour, elles ont été infructueuses. Je n'ai rien trouvé de décrit et de précis à cet égard dans les auteurs français et latins de ma bibliothèque. *Il m'est difficile de penser qu'une maladie aussi simple n'ait pas été observée et décrite avant moi.* (1830).

It should be reminded at this point that most of what was published in early 19th century medical journals were printed versions of talks delivered on subjects of interest to fellow physicians which mainly remained at the level of the anecdotal, i.e., histories of particular and generally unusual cases — what Biber (1988) labeled “involved production” and Atkinson (1996: 359) “the rhetoric of immediate experience” — rather than the accumulation of series of cases examined to reach general principles. The manifestation of professional arrogance (especially well illustrated in ex. 5 to 9 above) could perhaps be considered as a reflection of the essentially narrative, oral and anecdotal status of these early texts whose prominent authors/actors were probably not much concerned about the rhetorical impact, personal offense or possible threat their critiques could engender! This remark lends support to Skelton's obser-

vation (1997: 52) regarding 19th century *British Medical Journal* articles, according to which truth–value judgments were strongly associated with the first person pronoun “I” that proves an “overt arrogation of responsibility”. It would thus seem that this “overt arrogation of responsibility” when taking a critical stand is a rhetorical hallmark of 19th century medical writing and, I would venture to posit, perhaps of 19th century academic writing in general.

It is interesting to note that, contrary to early direct English AC (cf. Salager–Meyer 1999), 19th century French AC were not prefaced by lukewarm or “pre-mitigating” (Valle 1999: 29) epithets of politeness and praise, referred to in the literature as “courtesy markers” (Valle 1991, 1993; Atkinson 1996) or “manners of dispute” (Shapin 1984). Such epithets—that were used by British scientists to provide a note of profound deference towards the criticized fellow—were notoriously absent from the “negative” context of French direct AC. No genteel or gentlemanly conduct, no elaborate politeness from 19th century French scientists who rather proved to be pitiless towards the addressees they disagreed with! One example only (underlined utterance of ex. 14 below) of a somewhat condescending attitude towards a colleague who, apparently, was on the wrong track, could be found in our corpus:

14. Malgré ses défauts, cette méthode fut suivie par Kramer, Riedel, Véring et Itard.... Rosenthal, de Berlin, opéra une véritable confusion. Tout ceci démontre de la manière la plus concluante l'inanité de la classification proposée par Hubert–Valleroux qui s'ajoute à celle de Curtis, de Whright et de quelques autres tout aussi peu sérieuses. Nous ne saurions admettre les divisions de Hubert–Valleroux Comment se fait-il que ceci ait été complètement négligé par M. Hubert–Valleroux? ... C'est fort de cette conviction que nous lui avons dit la vérité tout entière (à M. Hubert–Valleroux) car il nous semble de ceux à qui elle est dûe parce qu'ils sont dignes de l'entendre. (1894)

Such courtesy markers were quite frequently used, however, but in “positive” contexts of praise, e.g.,

15. Je demandai donc à M. Paul Blondeau, *pharmacien très distingué*, de m'aider de ses lumières et de sa science (1866).
16. M. Scoutetten, *un savant du plus grand mérite et des plus justement honoré et estimé*, est parvenu à démontrer que les bains de Pennès exercent deux actions: l'une dynamique, l'autre excitante (1867).

Apart from depicting a personal and direct way of presenting conflicting claims, examples 5 through 14 reflect an individually-, privately-, author-based and non-specialized medicine practiced by a small, non-professionalized and highly “visible” (Dudley-Evans and Henderson 1993) scientific community where physicians, especially those with a particular interest in the issues being discussed, were familiar with the authorities cited in scientific papers; perhaps, they even knew them personally. These examples also provide clear evidence of the on-goingness of scientific debate at that time, although this debate, as Gunnarsson (1994) remarked, was based more on the physician’s personal experience than on a body of “de-personalized” knowledge, accumulated over time through systematic and rigorous observation and experimentation.

Noteworthy in our results, finally, is the finding that in the 19th and early 20th century papers, the great majority of AC tended to appear in a diffused and unpredictable fashion throughout the article, i.e., contrary to what occurred in later periods (see V.2.2 below), they were not associated with any particular phase of the article. Then, 19th century French AC were potentially appropriate at any stage of the “unfolding drama” being reported or, as Skelton so vividly puts it (1997: 51) of the “*mise en scène*,” a rhetorical practice which, as we will see later, is unacceptable in today’s research article writing.

5.2.2. Later direct AC (Block B: 1910–1995)

The first and most important distinctive feature between earlier (Block A) and later (Block B) direct AC lies in the change in the tone of voice of the latter which, as examples 17 to 20 below illustrate, is less harsh and less arrogant, although the writer’s affective involvement in each case is undubitable:

17. *Les premières expériences de Donders furent effectuées sans le contrôle de l’éclairage focal, indispensable pour mettre en lumière une transparence parfaite.* (1912)
18. *Nonobstant ce détail, l’opération de M. Macnamara était excellente, bien qu’elle fut susceptible d’amélioration considérable* (1924).
19. *Je serais plus sûr de ces résultats statistiquement parlant si le nombre de cas présentés par J.L. Faure était plus considérable ... et si le 5.5% de mortalité opératoire que la statistique inflige à J.L.*

Faure ne reposait pas sur une seule mort. ... Si le professeur Hartman attachait plus d'importance à la statistique, il n'aurait pas tendance à revenir à sa colpo-hystérectomie (1933).

20. Tout en concluant à l'efficacité de l'acide sulfanilamide, *Helmolz*, de la Clinique Mayo, *ne fournit aucune statistique*. (1952)

As can be seen from the above examples, criticisms mostly refer to the inadequacy of a method/practice used by a clearly identified fellow scientist and/or to the lack of statistical data, the latter “flaw” being especially frequent in mid–19th century French medical papers.

The same qualitative remark applies as well to later direct AC that were directed towards the scientific community in general. These were either challenging a belief (ex. 21), expressing a knowledge gap (ex. 22 and 24), or criticizing poorly carried out or inconclusive research (ex. 23) and/or unfounded conclusions (ex. 25).

21. On a invoqué la persistance de germes dans la gorge. *C'est un argument qui ne tient pas devant les faits*. (1937)
22. Si nous étudions la littérature médicale sur le sujet, nous sommes surpris de trouver une *bibliographie à peu près inexistante*. (1938).
23. Des expérimentateurs ont tenté d'éclaircir l'étiologie obscure de cette affection maligne mais *rien d'absolu n'est sorti de leurs expériences*. (1938)
24. *La connaissance* de la nature du facteur *est encore incomplète*. Il y a *beaucoup de points obscurs* malgré les nombreux travaux faits dans ce domaine. (1959).
25. Il est donc abusif d'appliquer le terme de dépistage à la recherche optique de B.K. De tels rapprochements (avec l'examen radiologique systématique) *ne sont fondés ni dans les mots ni dans les faits*. (1969).

The second feature that distinguishes between earlier (Block A) and later (Block B) French direct AC refers to those AC that were recorded in articles published after the 1970's, more specifically to the way criticized sources were formally cited. Indeed, in the last 3 decades studied, the criticized authors' surnames started being mentioned into brackets (i.e., not integrated into the running text as earlier AC were)⁸ in the form of what Swales (1990) called “non–integral reporting” or

⁸ Valle (1999: 397) reports the same finding in her historical study of the life sciences of the ‘Philosophical Transactions of the Royal Society of London’.

“non–integral non–reporting” citations, thus pointing to a progressive de–personalization or “objectivization” of medical discourse (ex. 26 below).⁹ The “*malheureusement*” of this last example underscores the writer’s affective involvement/state.

26. *Malheureusement, peu de ces équipes de recherche* (Plude 1990, Madden 1990) se sont intéressées à ce que sont les différentes formes d’attention en psychologie (1995).

It should finally be mentioned that the great majority of these later AC was confined to the introduction of contemporary research papers, more precisely in that sub-section Swales (1990) refers to as the “space creating” omission, pseudo-negational citations, a writerly strategy used to gain greater credibility for one’s own claims so as to increase the persuasive force of the text.

5.3. Qualitative evolution of Indirect AC

Our quantitative data indicated that indirect AC were very rare throughout the 185 years studied, but that they were more common in Block B than in Block A (15.7% vs. 6.1% of the total number of AC recorded in each Block respectively). In spite of their very low frequency, it is interesting to present and discuss the prevailing features of their rhetorical evolution.

5.3.1. Early indirect AC (Block A: 1810–1909)

Early indirect AC were mostly mitigated by means of private cognitive verbs such as *croire* and *penser* and semi–auxiliaries such as *paraître* et *sembler* that somewhat reduced the illocutionary commitment on the writers’ side, but still stressed that the disagreement was the writer’s personal view.

As was the case with direct AC, indirect AC were either directed to a clearly identified individual (ex. 27 to 29) or to the scientific community in general (ex. 30 and 31). Note the rhetorical question and the irony in example 27!

⁹ Where integral citations tend to foreground the author cited, non–integral citations place the author at the margin.

It should be pointed out that from the 1970’s on, non–integral reporting citations started being used for reference citing in general, i.e., whether the reference was negational or not.

27. M. Arnal a-t-il eu raison de donner à cette maladie le nom de “fièvre cérébrale?” Je ne le pense pas. Il a fait dans cette circonstance un étrange abus du mot fièvre cérébrale dont il a prouvé qu’il n’avait pas une idée bien claire. M. Arnal voit partout des eryzipèles. (1810)
28. Le procédé que je propose me paraît l’emporter sur celui proposé par M. Maisonneuve. (1850)
29. Mais je ne crois pas qu’il soit indiqué de toujours cautériser depuis le début, *comme le veut M. Deprès.* (1881)
30. L’action thérapeutique de la sclérotomie ne paraît pas suffisamment durable. *De nombreuses opérations nous ont laissé l’impression de son insuffisance lointaine.* (1900)
31. L’élimination du liquide intraoculaire me paraît encore inexactement interprétée. Je crois avoir démontré que — *en opposition avec la notion presque universellement admise de la filtration des parois vasculaires — le liquide intraoculaire est un produit de sécrétion de l’épithélium ciliaire.* (1909)

The writer’s involvement is, here too, very obvious, although, as we said before, his responsibility is somewhat downtoned by means of “impact–attenuating” hedging devices that make negative assertions less categorical (cf. Markkanen and Schröder 1997, and Duszak 1997 for some of the latest publications on the subject).

5.3.2. Later indirect AC (Block B: 1909–1995)

Later indirect AC were similar to earlier ones in the sense that most of them also resorted to hedges — these “sugar–coating” strategies (Meyer 1997: 21) that make statements ‘less negatable’ (Hübler 1983). — and were either directed to a clearly identified individual (ex. 32, 33 and 34) or an anonymous scientific community (ex. 35 and 36):

32. *Contrairement à ce qu’affirme Köllinger, nous croyons que le faisceau isthmique n’est qu’une formation accidentelle. Néanmoins, il est difficile de dire jusqu’à quel point Köllinger se trompe.* (1914)
33. Cette éventualité serait tout à fait plausible et l’observation de Schulmann et Solente pourrait effectivement faire penser à la prédominance d’un trouble nutritif. Or, *il ne me semble pas qu’il en soit ainsi.* (1937)
34. Certains auteurs, comme Lambert, prétendent avoir aussi supprimé les douleurs et les gas chez les opérés avec irradiation infra-rouges et ultra-violettes. (1938)

35. On connaît la formule: “...” Nous y souscrivions bien volontiers, *mais nous ne pensons pas qu'on puisse réduire tout le problème à une conclusion aussi simple.* (1937)
36. La majorité des auteurs pensent que la maladie frappe surtout les muscles des ceintures, *bien qu'il ne semble exister aucun élément paraclinique qui puisse soutenir cette hypothèse.* (1975)

The use of the verb *prétendre* in example 34 above is interesting because it by itself implies a disagreement between writer and original researcher (see Leech 1983 and Thompson and Ye 1991 for a thorough classification of attitudinal verbs), thereby giving the reader a hint of the writer's attitude toward the propositional content of the utterance. As Swales and Feak (1995) point out when referring to Western academia, authors imply their attitude toward a source through the choice of reporting verbs.

One of the main difference between earlier and later indirect AC lies in that in the latter, writers' commitment can be further reduced by pretending that they are not putting forward the AC by their own accord, but that some non-human entity actually speaks for itself and compels them to disagree with some previous finding/conclusion/data. What we observe in examples 37 to 40 below, then, is a phenomenon which could be subsumed under the broad notion of 'shifting of responsibility' or of thematization from a personal agent — a writer/actor— to a “speaking fact” which becomes the agent and leads the writer, almost unwillingly, to the AC. Luukka and Markkanen (1997: 168) refer to this rhetorical means as a “sub-strategy of impersonalization” which is not uncommon in French medical papers published in the last two decades of the 20th century.

37. Bien que basées sur les mêmes principes que ceux de Bailliart, et poursuivies par des procédés analogues, nos recherches *ne nous ont pas conduits à des conclusions identiques.* (1920)
38. Les résultats pratiques de la réduction de l'acidité gastrique par les anti-acides *semblent un peu en contradiction avec nos connaissances* sur les relations hyper-acidité gastrique et ulcère. (1976)
39. La *divergence* entre nos résultats et ceux des auteurs japonais *est telle que l'on pourrait bien se demander s'il s'agit de la même maladie.* (1982)
40. En revanche, nos conclusions *contrastent* avec les conclusions de Garoux et al. (1985) ... Elles *contrastent* aussi avec l'hypothèse de Case (1985). (Example drawn from a paper published in 1995)

As we argued before, the linguistic realization of examples 37 to 40 above clearly gives the impression that the AC does not arise from a researcher in the flesh but from the outcome of research experiments which misled the criticized researchers. Research outcomes are then attributed a prominent thematic position, whilst the “authorial persona” (Atkinson 1996) pretends to remain unnoticed, detached and distanced in the AC background as if the AC uttered were beyond his/her control. In such a way, the intervention of the personal element is subtly denied in keeping with an ideal of (unreachable?) scientific objectivity, thereby displaying an essentially “object-centered rhetoric” (Atkinson 1996). We are quite far indeed from the author’s/actor’s “overt arrogation of responsibility” previously noted regarding 19th century direct AC. It is worthwhile mentioning that this observation has also been highlighted by Sarjala (1998) in her contrastive study of functions of references to previous research in Finnish/Anglo–American academic writing.

6. Conclusions

Our study clearly showed that direct AC are in general much more frequent than indirect ones over the 185 year-studied, although the latter started increasing, especially since the 1970’s on. Throughout the span analyzed, direct AC were found to be highly personal, polemical and writer/author responsible, underscoring the authoritative and categorical character of French-speaking scientists already mentioned— in very general terms, though— in the literature. Indirect AC, very rare throughout the period studied, were mitigated either by means of traditional hedging devices or through the use of the rhetorical writerly strategy of thematization shifting, that strategy being a distinctive feature of AC recorded in papers published during the last 2 decades of this century. Lastly, 19th and early 20th century AC were diffused throughout the article, whereas AC drawn from modern texts were found to be mostly confined to the most argumentative parts of research articles, i.e., introduction and discussion sections.

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