If-conditionals in medical discourse: From theory to disciplinary practice

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Abstract

If-conditionals are a highly valuable resource in academic discourses, whether spoken or written, as they can be used to hypothesise, hedge, manage interaction with the addressee, and promote or on the contrary circumscribe the scope of research claims. This article analyses how if-conditionals are brought into play in three genres of medical discourse: research articles, conference presentations, and editorials. These corpus- and genre-based usages are contrasted with what is predicted in the theory on conditionals and in the explanations learners are likely to have met. Our results indicate that if-conditionals are used, both formally and functionally speaking, in very specific ways in the highly focussed, purposeful disciplinary genres. Previous exposure to and training in the use of this common syntactic pattern does not always prepare learners for this reality of discourse practice. A more genre-sensitive approach to the teaching of syntax in the EAP classroom is therefore advocated.

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1. Introduction

If-conditionals are a potentially highly valuable resource in academic discourse: the inherent non-assertiveness of conditional clauses means that they can be used for hypothesising and hedging, for envisaging alternatives and conceding competing points of view (Declerck & Reed, 2001); the role of if as a space-builder (Dancygier, 1998; Fauconnier, 1994) enables the author to set up an alternative argumentative space within which to manoeuvre and situate the research claim; while the constructional if P, Q 2 pattern can be exploited to establish causal links or specify the precise conditions under which the research was carried out.

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2 Following the conventions adopted in much of the literature on if-conditionals, we will refer to the subordinate if-clause as the P-clause and the main clause as the Q-clause.
This great versatility and wealth of values and meanings is not, however, reflected in the way the structure is generally presented to learners. In EFL manuals and pedagogical grammars conditionals are often taught via decontextualised examples and over-simplified rules with an emphasis on verb morphology. Three types of conditional are usually identified in which the verb forms index increasing degrees of hypotheticality: (1) present + future; (2) past + ‘conditional’; (3) past perfect + ‘conditional’ perfect. The initial position of the if-clause is systematically presented as the default option, and scant attention is paid to the actual discourse functions of conditional constructions and their role in building up an argument.

The additional emphasis found in English for science and technology (EST) textbooks on the so-called conditional ‘0’ sequence of if present + present is arguably helpful, but relating such sequences to the expression of timeless scientific laws (if you heat water, it boils) or unduly emphasising the logical deductive functions of if-conditionals in science is restrictive and may even be misleading about disciplinary practices. In medicine, establishing such timeless laws is well-nigh impossible, as “findings are often inconclusive and interpretations uncertain” (Webber, Snelgrove, & Mungra, 2001, p. 400). Reasoning is inductive rather than deductive, and observation-based, with conclusions and claims grounded in statistical probabilities (Horsella & Sindermann, 1992).

Restricting conditional meaning to degrees of hypotheticality, isolating only a very limited number of tense sequences, and ignoring discipline-specific forms of argumentation gives an impoverished picture of discourse practice. Any NNS researchers relying too strongly on the above sequencing and explanations are therefore likely to experience a great discrepancy between their previous linguistic exposure to this structure and its uses and values in the highly focussed, purposeful disciplinary genres. This can be expected to lead to difficulties for them both in decoding actual usage — reading research journals or listening to research communications in their field — and in producing discourse that is rhetorically appropriate (Rowley-Jolivet & Carter-Thomas, 2005).

To address these difficulties, our study aims to examine how, and why, if-conditionals are actually used in the discourse of a specific discipline, medicine. A first step was to investigate the applicability of existing typologies in the literature on conditionals.

2. Theoretical background

The extensive literature on conditional constructions indicates the importance accorded to these meanings and forms by a broad range of researchers. Numerous typologies have been proposed by philosophers, linguists and grammarians, based on logical or truth implications (Lewis, 1976), on the conceptual domains or worlds to which the content of the conditional refers (Sweetser, 1990), on semantic distinctions (Comrie, 1986), clause ordering (Ford & Thompson, 1986) or on verb morphology and tense sequencing, as in the traditional and pedagogical grammars mentioned above. None of these typologies, however, seemed to be entirely suitable for our data.

Classifications of conditional constructions revolving solely around issues of logic and truth are difficult to apply to naturally occurring text. Many uses of conditionals that are unambiguous for speakers in context do not necessarily obey the principles of formal logic, while conversely examples of correct conditional reasoning given in Truth-Functional theory, such as If Paris is the capital of France, (then) two is an even number, are often intuitively unacceptable.

A major difficulty with other more functionally-oriented classifications of if-conditionals such as those of Athanasiadou and Dirven (1997) and Sweetser (1990) is that they are mainly based on decontextualised examples, and are as a result under-specified for disciplinary discourses. With some notable exceptions (e.g., Declerck & Reed, 2001; Ford, 1997), very few existing typologies are based on real data or corpora. As however Ford and Thompson rightly pointed out back in 1986:

Baseline data on what types of conditional occur and how they relate to their discourse contexts are essential if we hope to explain how conditionals are used rather than how we think they are used. (1986, p. 354, emphasis in original)

Moreover, to the best of our knowledge, few analysts tackling if-conditionals, apart from Facchinetti (2001) and Ferguson (2001), have touched upon the question of genre. Given the centrality of genre in ESP and EAP research and teaching, this lack of interest seems surprising (Swales, 1990). One of the basic postulates of a genre approach is that the communicative aims and context of the discourse impact on both the overall textual organization and the syntactic strategies adopted by writers and speakers.
While agreeing with these studies on the interest of a genre-based approach, we feel that a closer focus on the syntactic and pragmatic potential of the conditional structure, and how its multiple formal variants are used in disciplinary practice, provides a richer and complementary perspective on discourse use. Specific syntactic choices made by the speaker, and variations in the forms of these choices, can we believe directly contribute to the creation of argument. Through this focus on these various forms and functions of if-Conditionals, our aim is to show how this construction is wielded in each of the three genres examined in order to further their respective argumentative purposes. Such an approach will hopefully provide guidance both for EAP instructors and for novice or NNS medical researchers in using and understanding if-conditionals, and heighten their awareness of the context-sensitive nature of the small but powerful operator, if.

3. Data sample

We have therefore based our analysis of if-conditionals on a corpus of texts taken from one medical speciality, oncology, covering three genres: research articles (RA), conference presentations (CP), and editorials (ED).3 We are dealing with complete ‘text,’ rather than decontextualised extracts, where the individual conditional constructions collected are examined not only in relation to the surrounding co-text but also in relation to the overall rhetorical aims of the three medical genres.

An overview of the data sample is given in Table 1. The research articles subset comprises 30 articles from two leading international journals; all follow the IMRD4 format and can be considered as standard data-based medical RAs. The second subset, conference presentations, comprises 15 research talks delivered at an international conference, and the third, 74 editorials again from two leading medical journals. In order to limit the possible influence of cultural variables, only native English authors and speakers were included. Full details of the sample can be found in the Appendix.

Our study is concerned with if, the prototypical operator of conditionality in English and includes both the full if \( P, Q \) construction and elliptical \( P \)-clauses (such as if necessary), the latter being relatively common in the data. However, occurrences where the subordinate clause is a subject or object clause (and where if is the equivalent of whether) were excluded, as were occurrences of as if.

As Table 1 shows, if-conditionals vary considerably in frequency according to genre, ranging from only 1.06/1000 words in the RA to almost 4 times as many in the CPs (3.85/1000 words), with editorials falling in between. This distribution corroborates other studies which have found the structure to be more frequent in speech than in writing, both in general and in specialised discourses (Biber, Johansson, Leech, Conrad, & Finegan, 1999; Ferguson, 2001; Ford & Thompson, 1986).

4. Methodology

Our first major task was to identify the dominant rhetorical functions served by the if-clauses. No predefined analytical categories were used. Instead, the rhetorical functions proposed are based on the regularities observed in the data.5 Three macro-functions emerged from this process: Factual, Refocusing, and Discourse Management functions.

4.1. Macro-Functions

The Factuals category covers many of the features that have been called course of event, generic, or habitual conditionals in other approaches (Athanasiadou & Dirven, 1997; Ferguson, 2001). It is particularly relevant to scientific
discourse, which seeks to establish the facticity (Latour, 1987), or status as fact, of its statements about the natural world, by observing regularities and correlations, and by carefully defining the conditions under which the facts hold. In clinical medicine, an observational rather than a theoretical science, this is important in order to avoid over-generalisation and to enable the findings of different trials to be compared. Attribution to the Factuals category was based on a substitution test of if by whenever (if [whenever] X, Y), with the if-operator specifying the exact conditions under which the research was carried out, as in example (1):

(1) If 10% or more of the malignant nuclei were stained, the slide was scored as negative. (RA)

Our Refocusing category comprises occurrences which have a marked argumentative function. To make claims, without overstating, researchers constantly need to refocus the discussion, expanding or contracting the argumentative space. The if-operator creates manoeuvring room within some type of suppositional or speculative world, enabling for example the promotion of claims and the confrontation of different viewpoints. This category includes what have been traditionally referred to as ‘hypothetical conditionals’ in other approaches (Athanasiadou & Dirven, 1997):

(2) If we ever do get other agents which are effective drugs in colorectal cancer it may be possible to combine them at full doses with infusional 5-FU. (CP)

as well as forceful and more hedged arguments in recommendations (3) and concessive uses (4):

(3) Such an eventuality [outlawing all cloning] must be avoided if potential advances in medical research are not to be substantially harmed. (ED)

(4) Thus, even if nonsurgical treatment could achieve similar high rates of local tumor control, distant metastasis would still be the dominant limitation. (RA)

In the Discourse Management category we have classified occurrences which provide readers and listeners with guidance about the author’s intentions and the development of the text. The P-clause instructs the audience on where to direct their attention, but thanks to the non-assertive value of if, these instructions are non-face-threatening, and act as polite directives:

(5) Now if we go to patients who experienced mucositis toxicity… (CP)

Discourse Management functions are used for topic-marking or topic-shifting as in (5) above and in the conference context also for semiotic management: inviting the audience to focus on the visual channel (if you look at the number of patients that were treated…) or for making slide requests (if I could have the next slide please).

4.2. Other features

This classification into three macro-functions was then complemented by an analysis of various textual and linguistic features. All the occurrences were classified according to the order of clauses within the conditional construction, the verbal forms of the P/Q clauses, and in the RA the location of the occurrences within the IMRD sections. It is well-known that there is indeed a strong correlation between the frequency of certain linguistic features and the section of the text (Adams-Smith, 1984; Hyland, 1998). We were therefore interested to see whether this was also the case with conditionals.

The question of clause ordering is crucial in all three genres as from an information structuring perspective, the initial section of the sentence will usually be the site of what the enunciator intends to be interpreted as given or topical information. In a conditional construction, an initially occurring if acts as a signal to the receiver to provisionally accept a set of circumstances denoted by the P-clause as backdrop to a new state of affairs expressed in the Q-clause.

(6) If one accepts these treatments as valid, major changes in the management of cancer patients with peritoneal seeding must be considered. (ED)
In (6) the reader is first invited to view the treatments previously described as a valid procedure, before envisaging the changes recommended in the Q-clause.

Past linguistic research has tended to consider this initial positioning of the if-clause and post-positioning of the main clause as the default ordering, or even as a language universal (cf. Comrie, 1986 and the provocative title of Haiman’s 1978 article ‘Conditionals are topics’). Any non-initial positioning of conditional clauses has been regarded as a very marked choice and frequently even ignored in subsequent analyses. In one of the few data-driven studies focusing on conditional ordering in English by Ford and Thompson (1986), initial P-clauses represented 77% of written occurrences and 82% in spoken data. Likewise in many grammar manuals, although the final positioning of the P-clause is acknowledged, initial positioning is presented as the norm. No attention is usually paid either to if-clauses which appear inside the main clause, as in *The diameter of the lesions, if they’re adenomas, tends to be bigger* (CP). Ferguson (2001) makes no reference to such a positioning and Ford and Thompson (1986) voluntarily exclude such sentences from their analysis.

Given the argumentative importance of information structuring, we therefore investigated whether any preferential ordering could be discerned in our medical data, and if so, whether motivated explanations could be proposed that could act as guidelines for text producers. All the occurrences were classified according to three possible positions of the P-clause: initial, medial, or final.

Initial: *If we want to optimise patient accrual, we need to better understand the resources issue required to properly conduct clinical trials.* (ED)

Medial: *The diameter of the lesions, if they’re adenomas, tends to be bigger.* (CP)

Final: *The regimen was repeated after 28 days if the patient had recovered from all toxic effects.* (RA)

The verbal forms of the P and Q clauses likewise provided us with essential information. It was important not only to see to what extent the traditional EFL paradigm based on the three canonical tense sequences was reproduced, but also to examine any major differences in the verb sequences preferred in the three datasets. Specific attention was also paid to the use and distribution of modal forms, another important resource in many genres of academic discourse (Gotti & Dossena, 2001), particularly in medicine (Vihla, 1999).

5. Results

5.1. Verb patterns

The frequency of the canonical tense sequences in our data is shown in Table 2.

When all three datasets are combined, these sequences account for only 14.7% of the total 442 occurrences in our data. All three medical genres reveal, on the other hand, a rich variety of verb combinations. The most frequent of these are given in Table 3.

5.2. Clause ordering results

The initial positioning of if-clauses, although dominating overall (initial 59%, medial 8%, final 33%), can only be considered as the default position in the case of the CPs (initial: 75.7%) (Table 4).

In the two written medical genres, if-clauses are fairly evenly split between initial and non-initial positioning, with slightly less than 50% of initial positioning in the RAs and slightly over 50% in the editorials. The emphasis in the
literature on the initial positioning of *if*-clauses seems therefore to be rather misleading and masks these important distributional differences. Although rarely mentioned, medial positioning of *if*-clauses figures in all three genres and in the conference presentations accounts for 11% of occurrences.

5.3. Distribution of functions

As Fig. 1 illustrates, there are very striking differences in the distribution of functions among the three genres. In the RA, the high proportion of Factuals (68% of occurrences) contrasts particularly vividly with the low proportion of Factuals in the editorials (10.5%). The similarities noted above with regard to clause positioning in the two written medical genres therefore are not at all reflected in the functional use made of these structures. In the editorials, on the contrary, the overwhelming majority of occurrences (87.7%) fall in the Refocusing category.

In the conference presentations, a different picture altogether emerges. The Discourse Management function, practically absent in the other genres, accounts for 31% of the occurrences in the CPs. The influence of the oral mode would appear to be decisive here. The remaining occurrences are fairly evenly split between the Refocusing and Factual functions.

The inter-relation and distributional variations of the verb sequencing, clause positioning and rhetorical functions of *if*-clauses would thus seem to be extremely complex. In the following sections we will show how a genre-sensitive approach to the data can provide a more focussed account of how *if*-conditionals are used in practice.

6. The RA profile

The medical RA presents a very specific profile of use, both formally and functionally. What are often considered as the prototypical hypothetical or predictive functions of *if*-conditionals are in fact far from ‘typical’ in this genre, and the three canonical verb sequences are extremely rare. Of the three genres, the RA is the one with the smallest number of canonical forms: 5.9%. There are practically no Type 1 or Type 3 sequences and only a handful of Type 2. Initial
if-clauses are likewise in a minority. If-conditional use in the medical RA is instead characterised by Factual functions, past tense verb sequences and finally-positioned $P$-clauses — features intricately bound up with the communicative and rhetorical aims of the genre.

6.1. Preferred function: factuals

Discourse Management functions of if-conditionals are conspicuously absent in this dataset. As all the medical RAs follow the standardised IMRD format, there is little need for any extra meta-discursive signals to guide the reader through the article. Refocusing functions, enabling researchers to expand or contract the argumentative space, only account for a just under a third of the occurrences (32%). Factual conditionals (68% of occurrences), are therefore by far the preferred function. This can be related to the need to establish ‘facticity’ (cf. Section 4.1) in medical research and to detail the precise conditions under which the research was conducted. It is important for RA authors to justify various conditions concerning eligibility criteria for patients involved in trials (7) or to define the conditions under which the treatment decisions can be considered as valid (8). Such examples as these account for 57% of the total occurrences:

(7) Patients were eligible if there was evidence of spread of tumor to regional lymph nodes. (RA-Method)

(8) The dose of paclitaxel was reduced by 20% if the patient had Grade 4 neutropenia that lasted $>5$ days. (RA-Method)

The preference for Factual functions is also reflected in the distribution of if-conditionals over the IMRD sections of the articles (see Table 5).

There are twice as many occurrences in the Methods part as in the Discussion section (56% and 27% respectively). In the medical RA, a sharp distinction is maintained between research data and its interpretation, with the Methods and Results sections being essentially informative and descriptive, and the Introduction and Discussion sections more polemical and argumentative (Nwogu, 1997; Salager-Meyer, 1994). Although there is some slight overspill, the distribution of occurrences across the sections corresponds closely to these communicative functions: the Methods and Results sections contain the more numerous Factual if-conditionals, and the Introductions and Discussion sections, the less frequent Refocusing ‘argumentative’ conditionals.\(^5\)

\(^5\) This distribution appears however to be largely language and culture specific. An analysis of si-conditionals in French research articles revealed a different distribution (Carter-Thomas, 2007).
6.2. Preferred forms

The majority of Factual if-conditionals in the RA involve the past + past pattern. This is once again very different from what is predicted in the literature on conditionals. Whilst it is true that the potential importance of factual conditions in scientific texts is often addressed in EST manuals, reference is invariably only made to factual conditions in the present, expressing some type of generalisation. In the medical RA, on the contrary, factual conditions refer overwhelmingly to specific decisions or pieces of research accomplished by the authors, rather than to the statement of any general timeless truths.

(9) Patients were defined as ‘downstaged’ if the final pathologic stage was less than the preoperative ultrasound stage. (RA-Method)

Representing 51.2% of occurrences, this is the most frequent verb sequence altogether in the RA. The second most frequent form, and one also little mentioned in the literature is that involving various types of truncated verb sequence (14.2% of the occurrences). In the RA, conciseness is at premium and the use of reduced verb forms allows the writer to achieve a greater economy of style:

(10) (adjuvant therapy allowed if >6 months since completion) (RA-Method)

The elliptical Q-clause and the replacement of the verb in the P-clause by the mathematical symbol represent a considerable gain in concision compared to the full conditional sentence.

A further specificity of the RA, and one also not predicted by the literature, concerns the preference for final positioning of P-clauses. This choice would seem to a great extent too influenced by genre considerations. Most Factual conditionals involve post-posed P-clauses, particularly those related to methodology and treatment decisions, as in (9) and (10) above. In such examples the various criterial uses of P-clauses often seem better suited both cognitively and discursively to final positioning. The particular research decisions are presented before the operational definitions specifying the criteria applicable to these decisions.

7. The CP profile

In many respects, conference presentations are close to research articles within the genre network of the research world — presentations often lead to research articles and vice versa. In this process of recontextualisation, however, the different epistemological status, communicative context, and semiotic affordances of each genre lead to considerable differences in the scientific content, in the packaging of information (Carter-Thomas & Rowley-Jolivet, 2001) and hence in the role and frequency of certain syntactic patterns. If-conditionals are a case in point: not only are the three rhetorical functions distributed very differently in the two research genres, but the influence of the spoken mode makes itself strongly felt in the formal features of the if-construction.

7.1. Distinctive function: discourse management

As can be seen from Fig. 1, our three macro-functions are fairly evenly distributed in the CP (Refocusing 28%, Factuals 41%, and Discourse management 31%). As in the RA, the prototypical hypothetical and predictive functions of if-conditionals are little exploited. Factual conditionals however are less common than in the RA (CP 41% vs. RA 68%). This can be attributed to the different communicative aims and discourse conventions of the two genres. Conference audiences come to hear breaking news and ‘hot off the press’ results (Rowley-Jolivet, 2002; Swales, 2004); the
established protocols are therefore quickly glossed over by speakers, resulting in much shorter Methods sections — the sections where the majority of Factuals occur.

The function that marks the real specificity of the CP genre, accounting for nearly a third of occurrences (31%, 47 occurrences), is Discourse Management. As mentioned above, there is no call for this function in the highly standardised medical RAs. In the talks, however, speakers have much more latitude as to how to structure their presentation. They therefore need to guide their audience through the talk by signposting its structure, chunking it into manageable segments and marking topic boundaries. If-conditionals are one of the preferred ways of doing this, as they enable the speaker to redirect the audience in a polite way; in Rilling's (1996) study of university lectures, of the nine most frequent 4-word topic shifters, 4 are if-conditionals. A typical example from our data is:

(11) *Now if we want to change gears a minute, we've talked about liver metastases…* (CP)

A further reason for the large number of discourse management if-conditionals is that scientific speakers need to manage concurrently two kinds of semiotic spaces — the verbal space, or spoken commentary, and the visual space, or what is projected onto the screen. They therefore need to signal to the audience when to focus on the visual channel. If-conditionals again have the advantage of giving a suitably polite directive, unthreatening to the listener’s negative face, when “telling the audience what to do” (Thompson, 1997, chap. 4):

(12) *If you take a look at the median palliative index…* (CP)

All these Discourse Management uses have received little attention in the literature on conditionals.

7.2. Preferred forms: the influence of mode

The lack of the three canonical forms in the CP, as in the RA, can again be explained by the rhetorical aims of medical research discourse. While more frequent in the CP, they still only represent 13.8% of the total (see Table 2) and no occurrences of Type 3 were found. This widely-taught form, which enables the speaker to envisage the possible consequences of counterfactual situations, appears to be largely irrelevant to the argumentative needs of medical research communication — indeed, the researchers would be doing themselves a disservice if they opened up other hypothetical spaces in which a different set of results might have been obtained, or a different approach seen to be more valid than the one they in fact chose. Alternatives which are likely to cast serious doubt on their claims are hence downplayed.

Many of the other formal features that emerge as characteristic of the CP, however, appear to be strongly influenced by the fact that it is a spoken, not a written genre. A clear example of this is clause positioning. The CP is the genre with the highest percentage of initial and medial clauses (75.7% and 11.2% respectively), and the lowest proportion of final positioning (13.1%). In real-time processing it is important for speakers to first provide the background for the assertion in Q, by specifying under which conditions it holds, in order to avoid misinterpretation and back-processing by listeners. They also need to focus the listener’s attention on the referents needed in the subsequent discourse. This ‘presentational’ function of initial if-clauses comes across clearly in many occurrences in the data:

(13) *If we look now at the plasma concentrations measured in the patients versus the days on therapy with the drug, we can see that in no case were plasma levels over 125 nanograms per milliliter.* (CP)

Although initial positioning is generally presented as a global norm across speech and writing, we have seen that this does not apply in the case of the RA, and would therefore argue that the question of mode plays a predominant role.

The relative frequency of medial positioning in the CP also seems to be due to on-line processing factors. Speakers on occasion interrupt the current syntactic construction so as to insert in mid-sentence, almost as an afterthought, an if-clause which clarifies the condition governing the assertion in Q:

(14) *This tumor is very amenable if it's a carcinoma by biopsy to local excision.* (CP)

This type of syntactic improvisation would of course be ironed out during the writing process.
The choice of verb tense for the if-clause can likewise be explained to a large extent by mode. Almost two-thirds (62.3%) of if-clauses in the CP are in the present, which contrasts strongly with the verb sequences that dominate in the RA (see Table 3). This very high proportion can probably be related to the real-time delivery of the talk, and also to the need to manage the different semiotic parameters of this multimodal genre. The most common pattern is present + present (29.6%). The function generally attributed to this pattern in EST manuals is that of stating general scientific laws; in the medical CP, however, it is used to describe regular clinical practice, the presentation of personal experience and know-how being a typical feature of the genre:

(15) *If we see a change in the size of course to enlarged, that gives us concern.* (CP)

The second largest sequence, present + modal (19.7%) also refers primarily to regular clinical practice but statements are hedged, reflecting the inherently probabilistic basis of medical knowledge:

(16) *If a patient has an early failure from a low anterior resection, they may be able to be retrieved by resection.* (CP)

These two sequences combined account for half the occurrences.

Two other patterns characteristic of the CP, although seldom pointed out to learners, are the Q-less P-clause and the present + past pattern. The Q-less P-clause, used for slide requests (*If I could have the next slide please?*), although syntactically incomplete is not pragmatically incomplete in this context, as Ford points out:

A “main” clause seems to be unnecessary (...) with the if-clause alone becoming a conventional format for proposing another’s action. (1997, p. 405)

The present + past sequence is used in the CP with the specific role of semiotic management:

(17) *If you look at the crossover versus the non-crossover group, there was a doubling of survival.* (CP)

This sequence enables the speaker to manage a smooth transition between the current enunciative space of the talk (the polite invitation in the present tense to look at the slide), to the research or content space of the results obtained in the past (*there was a doubling...*).

8. The editorials profile

Of the three genres examined the editorial is the one where discourse practice concerning both the form and function of if-clauses corresponds the most closely to what is predicted in the ‘theory’ on conditionals. The prototypical hypothetical conditionals, much discussed in the linguistic and philosophical theory, are a prominent feature. The almost total absence of Discourse Management functions (1.8%) can be linked to textual characteristics of the genre: editorials are short (usually one page), and rarely contain tables, figures or separate sections, obviating the need for discourse management devices. The relative scarcity of Factuals (10.5%) is due to the fact that as editorials do not report primary research results, they have little need for this function which serves primarily to describe methodological or treatment decisions. The few Factuals that do occur are used to establish correlations, indicating that editorials are concerned with making generalisations and overviews rather than specifying the conditions of a particular piece of research.

8.1. Preferred functions: argumentation and refocusing

The immense majority of if-clauses in the editorials are used are for Refocusing functions, expanding or contracting the argumentative space, in some type of speculative or hypothetical world (87.7%). Within this category, hypotheses and predictions are by far the preferred sub-function; representing together 71.3% of occurrences (see Table 6). What is often considered in the literature therefore as the core function of if-clauses, whether using the canonical forms or other verb patterns, is very well-represented in the editorials.
The frequency of hypotheses and predictions can be directly related to the argumentative objectives of the genre. Editorials address controversial issues or confront sets of results by different research teams which give rise to diverging interpretations. Hypothetical if-clauses enable the writer to bring these other voices into the text:

(18) If the results reported by Mellado et al are observed by other investigators, it is possible that detection of CMC could direct selection of high-risk patients for high-dose interferon therapy. (ED)

This importance of refocusing in this genre also explains the proportion of canonical verb sequences found. Such sequences represent overall 21.6% of all occurrences, a higher figure that that of the two research genres (RA: 5.9%; CP: 13.8%). Type 1 canonicals are primarily used to make predictions about the consequences of current, generally undesirable, states of affairs in a socio-political or legislative medical world, rather than about particular pieces of research:

(19) If the lack of charity regulation in Scotland is allowed to persist, future scandals... will inevitably occur. (ED)

Unlike the areas of investigation into the causes of disease, or diagnosis and treatment, where 100% certainty is much more difficult, or even impossible to attain in clinical medicine — and where pronouncements are therefore often highly hedged — in the economic or legislative domain medical writers feel confident enough of causal relations to use predictive if-clauses. The greater frequency of canonical 2 and 3 in the editorials, expressing varying degrees of hypotheticality, can be related to the main objectives of the genre:

Editorials present the writer’s opinions and may discuss polemical issues (...) they are a channel for subjecting the importance of new findings to discussion, the writers using certainty and likelihood expressions to give more weight to their opinions. (Vihla, 1999, pp. 108, 112)

Type 3 canonical is, as noted above, practically never used in the two research genres, as it could seriously undermine researchers’ claims. Editorialists, in contrast, are not defending their own research claim. Counterfactuals enable them to express criticism of others’ work, or regret that a certain avenue was not explored:

(20) In the context of previous trials in solid tumors that have failed to demonstrate an effect of maintenance therapy on survival, one needs to consider the question of what the likely outcome would have been if the primary end point of this study had been survival, and the study had been continued despite the emergence of a statistically significant difference in progression-free survival. (ED)

In (20) the editorialist criticises the study, which was stopped too soon to provide data on survival — the primary end-point in oncology — and relativises its positive results.

Two other uses to which refocusing functions are put to in the editorials, functions which barely feature in the CP or RA, are for making recommendations and concessions. Concessive conditionals allow the editorialist to weigh up competing arguments or forestall possible objections, whilst still proposing a clear personal opinion:
(21) Even if health care providers are diligent in keeping current with genetic medicine, the interpretation of the results of genetic testing is often complex. (ED)

Recommendations likewise reflect the importance of opinion-giving in the editorials but indicate too their far more prescriptive tone compared to that of the RAs and CPs. Although the non-assertive value of if mitigates this advice-giving to some extent, the editorialist adopts on occasion a real position of authority towards his readers:

(22) If one accepts these treatments as valid, major changes in the management of cancer patients with peritoneal seeding must be considered. (ED)

This authority of the speaker over the addressee is a ‘felicity condition’ for the use of deontic modality which is of course prevalent in recommendations, with must the most frequent modal in Q, and with slightly more hedged recommendations using should, could or would.

8.2. Preferred forms and attitudinal marking

Editorialists are expected to take a stand on issues and to express more direct criticism than is customary in research genres. Whereas the hypothesis in (18) above is neutral, in many cases hypotheses in the editorials are attitudinally marked in some way (Rowley-Jolivet, 2007):

(23) After the serious limitations of this analysis are taken into careful consideration, the question remains: If a graft-versus-lymphoma effect does exist, why was evidence of it not observed in this analysis? (ED)

The author here is severely criticising the ‘analysis’ under discussion: not only is the co-text highly negative — the study has ‘serious limitations’ — but the emphatic auxiliary does in P, and the challenging question in Q cast serious doubt on the existence of the ‘graft-versus-lymphoma effect’ claimed by the authors of this analysis. By using the interrogative form in hypotheses rather than the usual declarative, the writer can question very effectively the assumptions made in the P-clause. The if P, Q? form is found moreover almost exclusively in the editorials (RA: 0 occurrence.; CP: 1 occurrence.; ED: 15 occurrences), as it would undoubtedly be considered too authoritarian or condescending in the research genres. As Hyland (2002) points out, questions exert a considerable degree of control over the reader and convey authority, as they are used by the author to lead the reader in the direction he wishes.

Two other patterns which reinforce the editorialist’s authority, and are also specific to a great extent to this genre are the If P, then Q and Q only if P patterns:

(24) If we do not have convincing evidence of antitumor response, then we have little to guide our vaccine development. (ED)

The if P, then Q construction is more categorical in tone than the simple if P, Q one, and implies a much more authoritarian writer stance. As Dancygier and Sweetser (1997) have argued, the presence of then in Q implies that P is the unique space in which Q is located or is valid, thereby excluding competing spaces and erasing the tentativeness usually associated with the P-clause. The construction with Q only if P likewise imposes a single interpretation on the reader, and positions the writer as someone licensed to make definitive statements which foreclose all the other possible options that the reader might be tempted to entertain:

(25) Diagnostic imaging will continue to play a vital part in cancer medicine only if sustained long-term investments are made. (ED)

To the best of our knowledge, the writer ethos implied by these three patterns: If P, Q?, If P, then Q and Q only if P, is not usually pointed out to learners.
Modal forms of all types in the $Q$-clause are also more frequent in the editorials than in the other two genres: 61% of $Q$-clauses contain a modal, compared to only 24% in the RAs and 41% in the CPs. Editorials in medicine, as Vihla (1999) has shown, are characterised by a much heavier use of both deontic and epistemic modals than medical RAs, a feature which she attributes to genre-dependent forms of argumentation. Whereas RA authors use ‘experimental justification’ for their arguments, basing their conclusions on empirical evidence, argumentation in editorials is ‘interpretative,’ relying on the writer’s personal interpretation and opinions. Recognizing these differences is important if novice researchers are to adopt the form of argumentation that will be accepted as valid by the target readership of a given genre.

The position of if-clauses once again does not really reflect what is generally presented in the literature, where the emphasis on initial positioning appears far too simplistic. Although initial if-clauses slightly predominate (55%), the figures in the Editorials are much closer to those of the RAs (43%) than to those of the CPs (75%). The question of the mode would seem to be an essential factor. Although noted by Ford and Thompson (1986), this modal difference is however rarely mentioned in learner manuals. Some constructional patterns also entail a certain clausal position: in the if $P$, then $Q$ pattern the $P$ clause is always in initial position, whereas with $Q$ only if $P$ pattern, we have the opposite. Medial-positioned comments are also fairly frequent (8.7%) in editorials. An exaggerated emphasis on the so-called normal positioning of if-clauses can easily hide some of these important discourse features of the structure.

9. Conclusion

The comparison in this study of if-conditionals between the general theory and rather prescriptive rules found in learner manuals on the one hand, and specialised discourse practice on the other, has highlighted many important discrepancies between the two, both formally and functionally.

The picture of if-conditionals presented in EFL/EST manuals, with their emphasis on the three ‘canonical’ verb patterns, appears to be largely irrelevant to the research discourses of medicine — in both the RA and the CP, these canonical patterns represent only a fraction of all verb forms in if-conditionals. It is clear that any learner, led to believe that these forms are the norm, is ill-prepared for producing or processing if-conditionals in medical discourse. We would attribute this discrepancy to the lack of fit between the rhetorical aims of these research genres and the habitual semantics of the ‘canonical’ forms, namely prediction, supposition, and counterfactuality. Prognosis in medical research is fraught with uncertainty, making prediction extremely hazardous, and although a certain amount of hypothesising is in order, speculative forays into imaginary worlds would have little scientific weight. Furthermore, envisaging counterfactual alternatives would be counter-productive, for research papers “are not designed to promote an understanding of alternatives, but to foster the impression that what has been done is all that could be done” (Knorr-Cetina, 1981, p. 42, emphasis in original).

The only genre in which the canonical forms play a significant part is the non-research genre of the editorial, where they enable editorialists to fulfil their role of opinion-leaders by engaging in predictive, speculative or highly critical pronouncements on the socio-economic and legislative environment of medicine. Even here, however, as in the other two genres, other verb patterns overwhelmingly predominate.

Among these variants in verb patterns, each genre makes a different selection, depending on its particular objectives or semiotic features. In RAs, the dominant pattern is past + past, used to circumscribe the precise conditions under which the reported research was carried out. Truncated forms of if-conditionals are also frequent, as they satisfy the need for concision in this genre. In CPs, the influence of the spoken mode makes itself felt in the wide use of the present + present sequence, while the present + past pattern has a specific role in semiotic management. In editorials one finds attitudinally marked variants on the if $P$, $Q$ constructional pattern — if $P$, $Q$?, if $P$ then $Q$, $Q$ only if $P$ — which all imply an authoritarian stance towards the addressee, a writer ethos that would be unsuitable in research discourse but that is in line with the objectives of the editorial genre.

Another formal feature of if-conditionals, clause positioning, also reveals significant differences between discourse use and what the literature or teaching manuals predict. Initial positioning is as we have seen by no means the norm in either of the two written genres examined. On the contrary our research suggests that the initial positioning of the $P$-clause is more attributable to modal factors such as the constraints of cognitive processing in real time rather than being a characteristic feature of the conditional structure itself.

When the recurrent functions of if-clauses in medical discourse are considered, here again discourse practice exhibits very marked differences with traditional approaches. Each of the three genres makes preferential use of
a particular function: Factuals in the RA, Refocusing in editorials, and Discourse Management in the CP. These preferences are rhetorically motivated, in that they correspond in each case to the communicative and argumentative needs of the genre in question.

Teaching if-conditions across the board, or focussing on decontextualised logical and abstract meanings, without taking into account the specific needs of the genre, does not prepare learners well for coping with the reality of disciplinary discourse use. Incorporating, on the other hand, some explanations of the rhetorical potential of conditionals, within a generally more genre- and discipline-specific approach to English syntax, would prepare learners more fully for the reality of disciplinary discourse use they are likely to encounter.

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Appendix

The research articles subset comprises 15 RAs from the Journal of Clinical Oncology (2003) and 15 from the International Journal of Radiation Oncology (2003), chosen to reflect the same themes as the conference presentations.

The conference presentations were delivered at the First Annual European-American Conference on Gastrointestinal Oncology: Cancers of the Lower Gastrointestinal Tract, 22–24 Sept. 1994, Bordeaux, France. They were recorded on video tape and transcribed verbatim.

The Editorials subset is drawn from the Journal of Clinical Oncology (JCO, 2003) and The Lancet Oncology (LO, 2003–2004). JCO, published twice a month, has between 2 and 5 editorials per issue, whereas LO is published monthly and comprises a single editorial per issue.

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