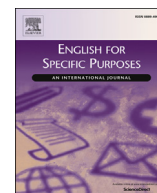




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# Persuasion strategies for demonstrating topic significance in reports of randomised controlled trials



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## 1. Introduction

Within the medical discourse community, randomised controlled trials (RCTs) are described as “the gold standard for evaluating interventions because of their ability to minimise or avoid bias” (Moher et al., 2010, p. 1). This description reveals two important points regarding the standing of RCTs in medical research and practice. First, it foregrounds their role as an ideal vehicle for knowledge extension and practice improvement. Second, it highlights *objectivity* and *ethics* as the positive attitudinal values attached to the activity of conducting RCTs. Therefore, medical research articles reporting on RCTs need to demonstrate that their research advances the medical community while reflecting the abovementioned communal values.

In the 1990s, the editors of top medical journals began expressing their growing concern over the lack of transparency in RCT reporting, which led to the creation of *The Consolidated Standards of Reporting Trials* (CONSORT) Statement (<http://www.consort-statement.org/>). The latest CONSORT 2010 Statement, which comprises 25 items covering the essential topics to be covered in an RCT report, is accompanied by a paper explaining and elaborating on the provided guidelines (Moher et al., 2010). Although this paper provides a strong rationale behind each item from a medical standpoint, it does not comment on the linguistic strategies that can be used to overcome the challenge of balancing objectivity and persuasion. The

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explanation of the introductory *Item 2a: Scientific background and explanation of rationale* is a case in point. According to Moher et al. (2010, p. 4), *Item 2a* requires trial justification so as to uphold the ethics of conducting an RCT. Be that as it may, there is no mention of how the readership can be persuaded of the trial's necessity despite the fact that justification means adopting an argumentative position (see White, 2003). Therefore, it remains unclear how objectivity should be maintained while expressing the attitudinal assessments characteristic of a persuasive discourse.

This study aims to fulfil this gap by investigating how the authors of clinical psychology RCT reports published in high-impact journals reconcile the requirement for objectivity with the need to justify and promote their research. The presented analysis is a part of a larger research project investigating a linguistic construction of a strong foundation for a new scientific contribution in clinical psychology. In its entirety, the project employs SFL genre theory (Martin & Rose, 2008) and discourse semantic systems of APPRAISAL, IDEATION, CONNEXION, and PERIODICITY (Hao, 2020; Martin & Rose, 2007; Martin & White, 2005) to explore RCT Introduction and Method sections. This paper, however, focuses on the findings of the APPRAISAL analysis of the *Topic significance* stage – identified as the opening stage of RCT Introductions – so as to explore the following questions:

- RQ1: Which persuasion strategies do RCT authors use to demonstrate topic significance?
  - RQ1a: At the level of discourse semantics, which APPRAISAL options are realised and how are they interconnected?
  - RQ1b: How are APPRAISAL options realised at the lexicogrammatical level?
- RQ2: How explicit are the identified persuasion strategies?
- RQ3: How do the identified persuasion strategies balance objectivity and promotion?

## 2. Background

Since the 1970s, three lines of genre inquiry – the New Rhetoric, English for specific purposes (ESP) and systemic functional linguistics (SFL) – have been exploring the construction, negotiation, and dissemination of reliable knowledge (Hyon, 1996). This section focuses on the relevant literature within the ESP and SFL traditions as they constitute linguistic approaches to genre (see Flowerdew, 2002).

Drawing upon the CARS model of RA Introductions (Create a research space, Swales, 1990, 2004), a number of ESP genre studies have explored the persuasive use of language in medical RA Introductions (see, e.g., Adams Smith, 1984; Malcolm, 1987; Millar, Salager-Meyer, & Budgell, 2019; Nwogu, 1997; Salager-Meyer, 1994). This has been a predominantly quantitative line of enquiry into linguistic features such as hedges, boosters, or strategic tense choice. It focuses on the presence and/or frequencies of the words and grammatical realisations found to be characteristic of a section/move. Its findings often include lists of common words and structural realisations, sometimes divided into a posteriori categories (e.g. *Specific Research Topic (SRT) hype* in Millar et al. (2019)). Although these studies have provided valuable insights into some of the established linguistic practices in RA writing, in-depth qualitative studies are yet to explore how these persuasion strategies function at the discourse level.

Arguably, a form-oriented approach to grammar has hindered the existing ESP research in two ways. First, the need for a posteriori functional categories has prevented the investigation of form-function interrelations in a systematic manner. For example, in their highly influential research on the use of hedges, Salager-Meyer (1994) and Hyland (1996, 1998) devise and employ their own classificatory labels. This is likely to complicate the comparison of subsequent ESP studies unless they follow the same annotation scheme. Second, grammatical categories operate at the clause level, which makes an investigation of meanings at the discourse level extremely challenging. As an illustration, it may be rather difficult to investigate the interaction of evaluative resources because the use of evaluation in one clause may 'colour' the reading of the following stretch of text as either positive or negative.

Compared to the ESP tradition, the RA genre has attracted relatively little attention in SFL research (see Hao, 2020; Hood, 2010; Humphrey & Hao, 2013). Be that as it may, Hood argues that an SFL approach to genre offers a more robust analytical framework since it is grounded in a functional language theory that allows for "the relationship between meaning and language (...) [to be] theorised rather than intuited" (Hood, 2010, p. 31). An SFL approach to the generic structure of RA Introductions will be reviewed in detail in Section 3.1.1. Furthermore, an increasing body of SFL research has demonstrated an enormous potential of the discourse semantic APPRAISAL system (Martin & White, 2005) as an analytical framework for a qualitative exploration of genre-specific persuasion. It has been applied across a variety of contexts, from wine appreciation (Hommerberg, 2011) and property advertising (Pounds, 2011) to creating a research space (Hood, 2010; Hood & Martin, 2005; Humphrey & Hao, 2013). The APPRAISAL system comprises three subsystems: ATTITUDE (dealing with feelings, judgements of people, and appreciation of things); GRADUATION (focusing on the amplification of attitudes); and ENGAGEMENT (indicating attitude sources).<sup>1</sup> The APPRAISAL system will be discussed in more detail in Section 3.2. Arguably, the benefits of using APPRAISAL stem from the facts that:

- it is an established analytical framework (i.e. systematic annotation scheme) located within a broader SFL theory detailing the interdependency between text and social context;

<sup>1</sup> This paper uses block letters to denote system names, which is a common practice in SFL (see Halliday & Matthiessen, 2014).

- its ATTITUDE/GRADUATION/ENGAGEMENT types can be adjusted in terms of their delicacy; and
- it distinguishes between inscribed and invoked attitude.

To theorise the link between social context, discourse, and grammar, SFL uses a stratified model of language in context, which revolves around the concept of “interstratal realisation”:

Realization is a kind of re-coding like the mapping of hardware through software to the images and words we see on the screen of our computers. Another way of thinking about this is symbolization ... Symbolizing is an important aspect of realization, since *grammar* [emphasis added] both symbolizes and encodes *discourse*, just as *discourse* both symbolizes and encodes *social activity* (Martin & Rose, 2007, pp. 4, 6).

For instance, APPRAISAL is concerned with evaluative language patterns at the level of discourse semantics (for a comprehensive account of SFL, see Halliday & Matthiessen, 2014 (lexicogrammar); Martin & Rose, 2007 (discourse semantics)). However, a stratified framework of meaning resources allows the identified evaluative meanings to be discussed with reference to the lexicogrammatical patterns realising them as well as the social values and relationships they symbolise.<sup>2</sup> Furthermore, using broad a priori categories ensures consistency and allows for replication and comparative studies. At the same time, the possibility to gauge coding delicacy provides the researcher with enough flexibility to conduct an in-depth investigation within a particular discipline. For instance, an SFL study of biology RAs has developed more delicate categories of ATTITUDE to investigate the field-specific evaluation of biological phenomena (see Hao & Humphrey, 2012). Finally, a distinction between inscribed and invoked attitude is of great interest to ESP research since different levels of explicitness may position the reader to perceive a text as more or less objective. In the case of RA Introductions, SFL research has shown that graduating non-evaluative lexis (e.g. a *global issue* or *little research*) plays a crucial role in flagging different kinds of ATTITUDE, thus warranting new research (Hood, 2010; Hood & Martin, 2005; Humphrey & Hao, 2013).

In summary, lexicogrammatical strategies have been explored in a number of quantitative ESP studies on medical RAs, including RCTs. Be that as it may, there is a lack of qualitative ESP research adopting a function-oriented approach. Simultaneously, an emerging line of SFL research has shown the applicability of SFL genre theory and APPRAISAL in exploring genre-sensitive language use. Therefore, this study wishes to contribute to the scholarship on RA communication by using APPRAISAL to analyse persuasion strategies for demonstrating topic significance in clinical psychology RCT Introductions.

### 3. Dataset and method

#### 3.1. Dataset

As an SFL approach to discourse semantics involves a fine-grained and labour-intensive study of linguistic features, the quantity and quality of data needs to be chosen carefully and strategically to “balance the productivity and labour in the qualitative and systemic exploration” (Hao, 2020, p. 49). To ensure the representativeness, quality, and comparability of data, this research project only considered the RCT reports that:

- were published between 2016 and 2018 in one the four highest ranked medical journals (2017 rankings, [www.jcr.clarivate.com](http://www.jcr.clarivate.com)):
  - o NEJM – New England Journal of Medicine (impact factor: 79.26)
  - o The Lancet (impact factor: 53.25)
  - o JAMA – Journal of the American Medical Association (impact factor: 47.66)
  - o BMJ – British Medical Journal (impact factor: 23.56)
- report on an RCTs testing the effectiveness of treatments for depression, anxiety, or related psychological disorders such as post-traumatic stress disorder (PTSD) or body dysmorphic disorder (BDD); and
- adhere to the CONSORT Statement.

In total, 15 RCT reports were identified and given unique codes combining the journal name – NEJM, LANCET, JAMA, or BMJ – and a number (see Appendix A in supplementary data). The decision to focus on the topics of depression and anxiety was influenced by that fact these psychological disorders remain some of the largest health problems worldwide. Several systematic reviews have indicated that mental and substance use disorders are the leading cause of the global burden of disease in terms of years lived with disability (YLDs) (e.g. Vigo, Thornicroft, & Atun, 2016; Whiteford et al., 2013). It has also been revealed that depressive and anxiety disorders represent the main culprits, accounting for 55.1% of total YLDs attributed to the above-mentioned health issues.

Due to the relatively small size of the dataset, some concerns may be raised by quantitative researchers regarding the generalisability of its findings. It must be highlighted, however, that this study has adopted a qualitative methodology which

<sup>2</sup> SFL perceives grammar and lexis as two poles of the same cline (see Hasan, 1987).

puts emphasis on the depth rather than breadth of its analysis. To reiterate, the study aims to understand the linguistic strategies used by RCT authors to demonstrate topic significance in introductory sections. Its ultimate goal is to use the understanding gained through qualitative inquiry to outline pedagogical implications.

### 3.1.1. The 'Topic significance' stage

To further elaborate on the nature of the data used to answer RQs 1–3, this section positions the *Topic significance* stage within the SFL framework. Being prescribed by the scope of this paper, this discussion is limited to the points essential for understanding and interpreting the results presented in the subsequent sections.

Within SFL, genre is defined as “a staged, goal-oriented, purposeful activity” in which language plays a crucial role (Martin, 1984, p. 25; Martin & Rose, 2008, p. 6). From an SFL point of view, it is important to reiterate the realisational dialectic that exists between social context and language. More precisely, SFL finds genres to be realised at the level of register comprising field (i.e. topic), tenor (i.e. participants), and mode (i.e. language role). In turn, register is realised by making choices from discourse semantic systems that deal with experiential content (IDEATION, CONNEXION), interpersonal relations (APPRAISAL and NEGOTIATION), and textual organisation (PERIODICITY and IDENTIFICATION) (see Martin & Rose, 2007). Lastly, the choices made at the discourse semantic level are realised by lexicogrammatical units such as clauses or word groups. Thus, each generic stage can be defined as a sum of experiential, interpersonal, and textual meaning patterns.

In SFL studies on the RA genre, RA Introductions have been found to be construed by an embedded research warrant genre (Hood, 2010; Humphrey & Hao, 2013). Here, the concept of genre embedding can be perceived as analogous to that of embedded clauses in lexicogrammar (i.e. a unit functioning as a part of another unit at the same or lower rank) (see, e.g., Szenes, 2017). In a research warrant genre, there are three generic components that report on: (i) the object of study; (ii) the existing literature; and (iii) the research being reported. The boundaries between these components are indicated by shifts in field.

The first component (henceforth the *Topic significance* stage) aims to describe and ascertain the importance of the “entities and/or activities that constitute [the field of] the object of study [emphasis added]” (Hood, 2010, p. 121). In this project, *Topic significance* focuses on experiential content and evaluation pertinent to depression/anxiety issues (the objects of study). As far as textual organisation is concerned, thematic choices (i.e. initial clausal positions) include disorder-related entities and activities (e.g. *depression, symptoms, treatments*).

In the second component (henceforth the *Evidence* stage), the object of study continues to be built, but the focus shifts towards a *general field of research*, which deals with “the entities and activities to do with the process of enquiry and knowledge building” (Hood, 2010, p. 121). In this project, *Evidence* deals with description and assessment of the official guidelines, trials, and/or systematic reviews concerned with the effectiveness of treating the disorder under investigation. When it comes to experiential content, this stage elaborates on different aspects of the existing research (e.g. size, scope, findings) to contextualise the trial. From an interpersonal perspective, it promotes and/or challenges different lines of enquiry (see also “burnishing” and “tarnishing” strategies in Humphrey & Hao, 2013). Textually, a field shift is reflected in the writer’s decisions to give thematic prominence to the field of research (e.g. *a recent trial, in two surveys*) rather than the object of study.

The final research warrant component (henceforth the *Response* stage) shifts the focus from a general to a *specific field of research*. In this project, *Response* is used to introduce the writer’s RCT as a logical course of action based on the importance of the object of study and the nature of the existing field of research and its findings. At the level of discourse semantics, this stage gives thematic prominence to the reported RCT and includes experiential content expressing its scope, objectives, and/or hypotheses with no evaluation.

(1) Body dysmorphic disorder (BDD) is a psychiatric *disorder* characterised by a pervasive preoccupation with perceived defects in physical appearance accompanied by avoidance and time consuming *compulsive* behaviours, such as mirror gazing and excessive camouflaging to hide perceived defects.<sup>1</sup> If left untreated, this is a chronic and unremitting *disorder* that is associated with functional *impairment* across multiple life domains, relatively high rates of psychiatric admissions to hospital, substance dependence, and suicidality.<sup>2-4</sup> Although the disorder is often undetected and underdiagnosed within the mental health services,<sup>5,6</sup> epidemiological studies show that it is a common *mental health problem*, with a prevalence ranging from 0.7% to 2.2% in the general population.<sup>7-10</sup> It is common for those with body dysmorphic disorder to seek non-psychiatric care, such as dermatological treatment or plastic surgery, in an attempt to “fix” the perceived defects; however, such interventions rarely work and can lead to a *deterioration* of symptoms.<sup>11,12</sup> (BMJ-1)

To illustrate the scope of this paper and introduce its formatting conventions, the excerpt below shows a typical Topic significance stage found in the dataset:

In example (1), Topic significance focuses on the disorder under investigation, *body dysmorphic disorder*, which can be seen in the thematic (i.e. initial) clausal elements (*BDD* and its anaphoric references: *the disorder/this/it*). [Martin and Rose \(2007, p. 191\)](#), argue that “the main recurrent choice for Subject/Theme (...) gives us our basic orientation to the field [topic] for this phase of discourse.” As far as experiential meanings are concerned, this stage focuses on describing *BDD* in terms of its: (i) symptoms/effects (e.g. *preoccupation, functional impairment*); (ii) prevalence (*0.7% to 2.2% in the general population*); and (iii) common treatments (*non-psychiatric care*).<sup>3</sup> To demonstrate topic significance, the author often opts for appraising the experiential content as Targets (henceforth, marked as boxed text) by using Appraising (henceforth, marked as **italicised bold text**) and/or Graduating items (henceforth, marked as underlined text). These strategic choices for evaluation represent the focus of this paper (henceforth, marked as **bold font**).

### 3.2. Analysis

As an analysis of evaluative language entails a qualitative analysis of text in context, the APPRAISAL analysis of the identified Topic significance stages was performed manually. Following [Martin and White \(2005\)](#), the investigation involved coding for the three interrelated aspects of evaluation:

- ATTITUDE – feelings, the appreciation of things, and judgement of people's behaviour;
- GRADUATION – the amplification/downscaling of phenomena or sharpening/softening their experiential boundaries; and
- ENGAGEMENT – sources and positions acknowledged in the discourse (monoglossia vs heteroglossia).

Depending on the experiential content being evaluated (i.e. Target), a distinction can be made among the three kinds of ATTITUDE: **appreciation**, **judgement**, and **affect**. This is illustrated in the following example:

(2) It [Body dysmorphic disorder] is a common **mental health problem**. (...) There is a lack of **trained** therapists. (...) Many people with body dysmorphic disorder report that one important reason for not seeking treatment is related to *feelings of shame*. (BMJ-1)

In example (2), the noun group *mental health problem*, functioning as a lexicogrammatical Value, inscribes **appreciation** of *body dysmorphic disorder* as a non-human entity. Furthermore, the adjective *trained*, functioning as a lexicogrammatical Epithet, inscribes **judgement** of *therapists* as human entities. Lastly, the noun group *feelings of shame*, functioning as a lexicogrammatical Token in the embedded clause, inscribes **affect** felt by *many people with body dysmorphic disorder*. As can be seen, ATTITUDE, which can be either positive (+) or negative (–), is a discourse semantic category which can be realised differently at the lexicogrammatical level. In the entire dataset, (i) (+/–) **judgement** is nearly always targeted at investigators' competence in RCT Method sections; (ii) (+/–) **appreciation** is the predominant ATTITUDE type throughout RCT Introduction and Method sections; and (iii) (+/–) **affect**, which targets patients, is rare. Therefore, the analysis presented in this paper mainly focuses on (+/–) **appreciation**.

All kinds of inscribed ATTITUDE can be amplified or down-scaled by using GRADUATION. In the above text, for example, the adjective *common* **quantifies** *mental health problem*. Similarly, graduating devices can invoke – that is, flag – ATTITUDE by targeting non-evaluative lexis. **Quantifying** *camouflaging* as *excessive* is a good case in point. If an activity is excessive, the reader is positioned to read this as either (–) **appreciation** of the activity or (–) **judgement** of a person performing the activity. GRADUATION resources are of great importance to researchers as they represent more implicit tools for evaluation ([Hood & Martin, 2005](#)). Although the GRADUATION sub-system allows for graduating **force** and **focus**, this section only discusses **force** due to the scope of this paper.

<sup>3</sup> Note that the writer uses the epidemiological studies to demonstrate the importance of seeking BDD treatments (i.e. the object of study) rather than contextualise their trial by promoting and/or challenging a particular line of scientific enquiry (i.e. the field of research).

To upscale or downscale **force**, authors may opt to

- **intensify**
  - **quality** (e.g. debilitating);
  - **process** (e.g. most readily enters); or
  - **modality** (e.g. often);
- **quantify** entities with reference to
  - **amount** (e.g. excessive camouflaging);
  - **distribution: time** (e.g. time consuming behaviours) / **distribution: space** (e.g. global burden); or
  - **proximity: time** (e.g. recent study) / **proximity: space** (e.g. US residents) if an article has been published in an American journal such as JAMA or NEJM).

As illustrated in the above examples, **intensification** can be achieved through either modification or infusion. In other words, a Graduating item can modify its Target (e.g. *most readily enters*) or **intensification** may be subsumed within the Target's meaning (e.g. *debilitating* = very weakening; *often* = more likely than sometimes). Furthermore, **intensification** can be realised via **quantification** of nominalised qualities or processes (e.g. *excessive camouflaging* → *camouflage excessively*).

Lastly, authors can choose to phrase any proposition, be it attitudinal or not, as **monoglossic** or **heteroglossic**. Monoglossic propositions represent bare **assertions** that do not acknowledge any alternative voices within the discourse (see example 3).

(3) BDD is a psychiatric disorder. (BMJ-1)

The assertions in RCT Introductions are almost invariably accompanied by text-external references appearing in footnotes (e.g. *BDD is a psychiatric disorder ...*<sup>1</sup>), which indicates the existence of the voices agreeing with the author, that is 'co-voicing' (White, personal communication). This study will refer to such **monoglossic** propositions as **reinforced assertions**. It is important, however, to emphasise that not every citation leads to a **reinforced assertion** for it is possible for a reference to simply refer the reader to an external source for further information.

When introducing alternative voices, the author may choose to either **contract** or **expand** the dialogistic space.

(4) Epidemiological studies show that it is a common mental health problem (...).

Non-psychiatric care can lead to a deterioration of symptoms. (BMJ-1)

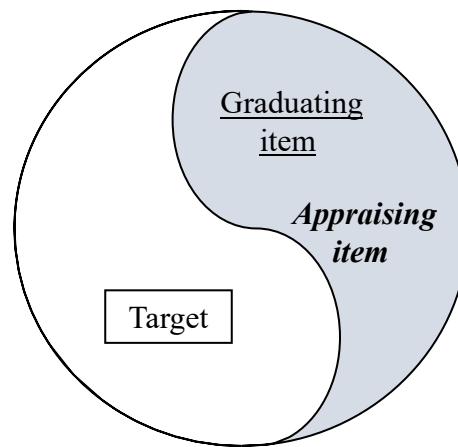
In example (4), extra-vocalisation and the projecting verb *show* are used to acknowledge and downplay any sources that disagree with the *epidemiological studies* (i.e. **contract** the dialogistic space). Furthermore, the modal verb *can* is employed to **expand** space for an alternative that *non-psychiatric care* may not *lead to a deterioration of symptoms*. Although Martin and White's (2005) system includes more delicate options of **heteroglossia**, these will not be further discussed as it is the **monoglossic** propositions that account for the vast majority of ENGAGEMENT realisations in the *Topic significance* stage.

The entire APPRAISAL analysis was positioned in relation to the meanings likely to be decoded by a member of the medical scientific discourse community. Although the APPRAISAL system provides the researcher with a principled way of coding, it is essential that the reading position is stated as it may influence coding decisions (Hood, 2010). For instance, academic community members may read the phrase *relatively few case studies* as invoking a negative evaluation of the existing research due to the generalisability of small-scale studies. Defining one's reading position is also critical for applying APPRAISAL in the analysis of specialised discourses that draw upon attitudinal lexis to create axiologically charged terminology (hereafter 'axi-tech'). For instance, criminal offences (e.g. *murder* or *rape*) represent axi-tech in legal discourses, which means that they may invoke (–) **judgement** despite not expressing feelings per se (Martin & Zappavigna, 2016). Similarly, the medical terms for disorders (e.g. *depression* or *PTSD*) and specialists (e.g. *psychologist*) can be considered medical axi-tech since they may invoke (–) **appreciation** and (+) **judgement**, respectively.

As illustrated in Figure 1, this paper uses yin-yang symbols to outline the interactions between interpersonal and experiential language meanings. To be specific, these illustrations express the interplay between evaluation (Graduating/Appraising items) and the targeted experiential content (Targets). In SFL, the yin-yang metaphor is often employed to



visualise the interaction and complementarity between different language resources (see, e.g., Hood, 2010; Martin & White, 2005; Szenes, 2017). To showcase the emerging patterns of evaluation, several system networks of interdependent yin-yang symbols were also created. To facilitate a discussion of these patterns, individual yin-yang (Y) symbols were numbered (Y1, Y2, and so on).



**Figure 1.** Visualising the interaction between Appraising/Graduating items and their Targets.

Approximately three months after the original coding, the entire dataset was re-coded using the UAM corpus tool (<http://www.corpustool.com/>). Although there were no additional coders involved in this study, the use of APPRAISAL system enabled a highly principled analysis (for coding and subjectivity in APPRAISAL analyses, see Hood, 2010, pp. 74–75). Due to the relatively small sample size and a qualitative nature of this inquiry, this decision was not motivated by the intent to perform a statistical analysis characteristic of larger corpus-based studies. Instead, the UAM software had been chosen because it allows the input of customised SFL-based systemic options as the annotation scheme and provides an adequate interface for an in-depth qualitative interpretation. Here, ‘customised’ refers to the level of delicacy of the systemic options required for conducting this particular study. To be specific, the customised annotation scheme made the re-coding process more efficient, while the interface made it possible to manipulate the visual representation of the performed coding using particular colours and fonts. In turn, this facilitated a comparison between the first and second rounds of coding (91% instances in agreement) with a view to re-examining the identified patterns.

#### 4. Results and discussion

To demonstrate topic significance, the ATTITUDE and GRADUATION analysis of the dataset has revealed that RCT writers combine Graduating items with evaluative as well as non-evaluative lexis. As far as ENGAGEMENT is concerned, this stage is largely **monoglossic** comprising **reinforced assertions**.

To underline the importance of testing the effectiveness of interventions in treating a psychiatric disorder, RCT authors tend to combine three distinct persuasion strategies:

- saturating a negative prosody of the disorder under investigation;
- graduating the affected population; and
- invoking an amplified negative evaluation of a commonly sought intervention (i.e. the ‘slingshot’ strategy).

##### 4.1. Saturating a negative prosody of the disorder under investigation

Targeting the disorder under investigation using amplified negative Appraising items has emerged as a complex persuasive strategy, potentially involving multiple layers of evaluation. Modelled upon the analysis of the 15 sampled RCT reports, Figures 2 and 3 illustrate the process of saturating the negative prosodic value of a disorder identified in this study.

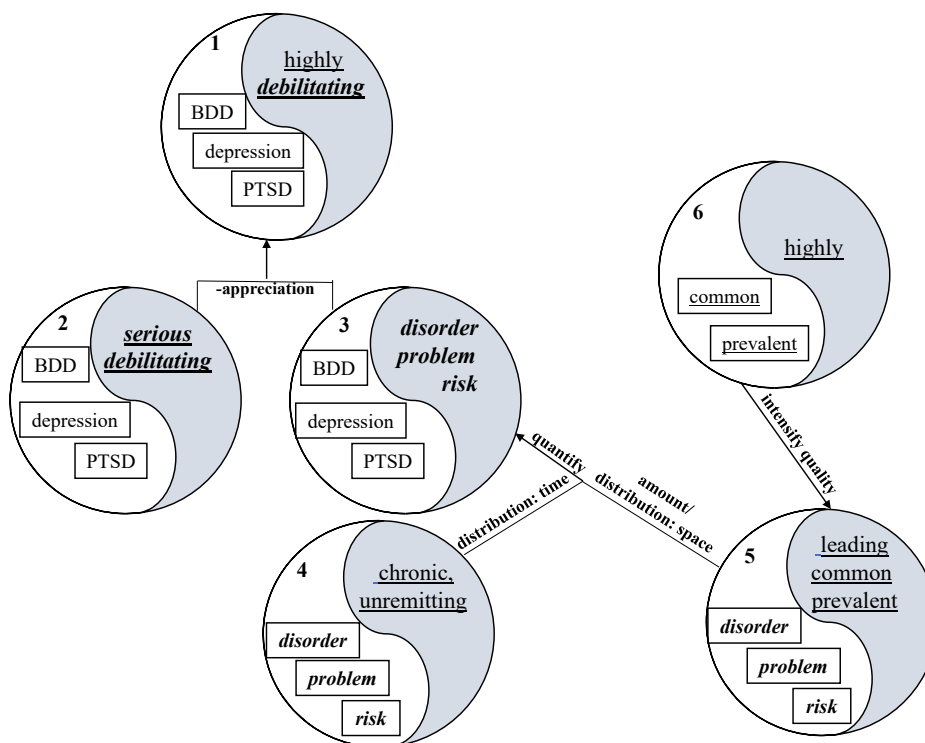


Figure 2. Saturating a negative prosody of a disorder via intensification and quantification.

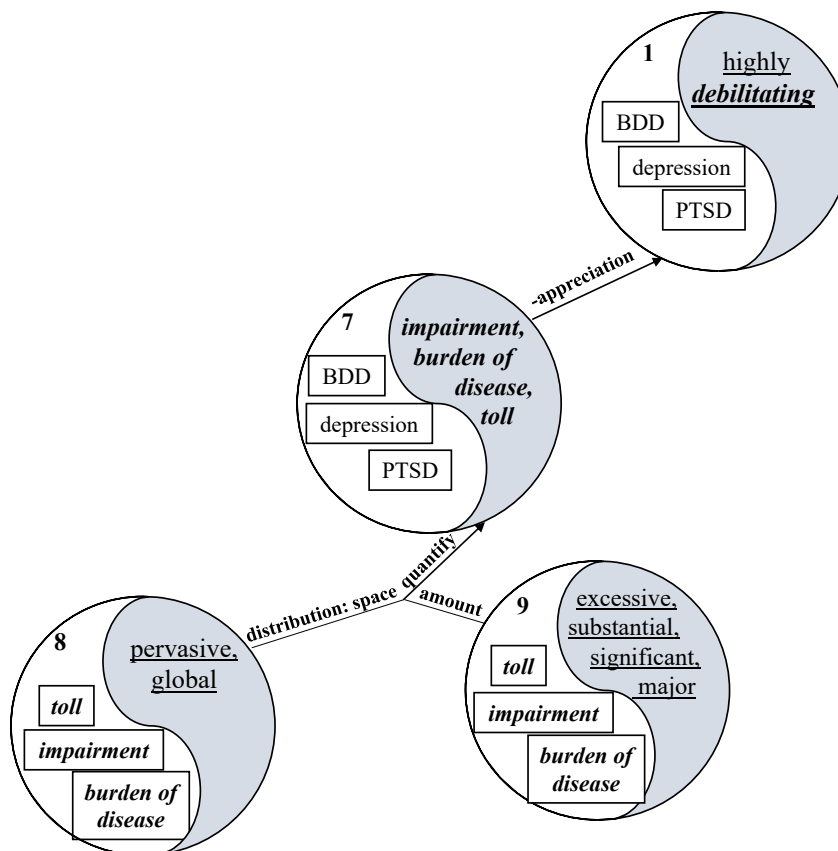


Figure 3. Saturating a negative prosody of a disorder via causality.



In the dataset, the up-scaling of evaluation is achieved through either infused **intensification** or different means of **quantification** resulting in modified **intensification** (see Figure 2). For instance, the adjective *debilitating* (= *very weakening*) amplifies an inscribed (–) **appreciation** of the disorder through infused **intensification** (Y2). Alternatively, the nominal Appraising items targeting the disorder (Y3) can be **quantified** via pre-modification. In the dataset, adjectives such as *chronic* or *common* can be used to **intensify** a *disorder*, *problem*, or *risk* by **quantifying** them in terms of **distribution: time** (Y4) and **amount/distribution: space** (Y5), respectively. These adjectives can be further pre-modified by an adverb such as *highly* to increase **intensification** (Y6).

The negative prosodic value of the disorder can also be advanced through causality, that is by using the negative effects of a disorder to inscribe (–) **appreciation** (see Figure 3). These Appraising items include nouns such as *impairment*, *burden of disease*, *toll*, *disability*, *suicidality* or *maternal mortality* (Y7). The focus on more serious outcomes such as the possibility of permanent psychological/corporal damage and death can be perceived as an infused **intensification** of negative consequences. Simultaneously, these effects can be augmented via pre-modification, using adjectives such as *global* or *substantial* to **quantify distribution: space** (Y8) and **amount** (Y9).

Ultimately, the resulting evaluation of the *disorder* as *highly debilitating* and *prevalent* (Y1) undoubtedly translates into the immense significance of current research which tests the effectiveness of potential treatments. An illustrative example of the overall strategy can be found in the opening sentence of LANCET-1 (example 5).

- (5) Clinical depression is a common and debilitating mental health disorder, being the second largest cause of global disability.<sup>1</sup> (LANCET-1)

According to this proposition, not only does clinical depression considerably weaken (i.e. debilitate) mental functioning of many people, but many people around the world become disabled because they are clinically depressed. Thus, the reader is invited to conclude that testing potential treatments for clinical depression is extremely important and can have a significant impact on a global level.

Saturating a negative prosodic value of the disorder under investigation can be perceived as a predominantly implicit persuasion strategy. Save for a few Appraising items inscribing (–) **appreciation** (e.g. *debilitating*, *problem*, or *risk*), the experiential content consists of graduated medical axi-tech potentially invoking negative attitude. As already mentioned in Section 3.2, the medical community observes terms such as *depression*, *disorder*, or *impairment* as terminology rather than expressions of ATTITUDE. However, this paper argues that RCT authors can use Graduating items to flag and reclaim ATTITUDE from medical axi-tech with a view to persuading the readership of the importance of their medical research. For instance, tackling a health issue in an RCT is likely to be a requirement rather than a valid reason for publication – a ‘high impact’ paper should address a ‘high impact’ disorder. Similarly, there is a need to convince the policymakers such as the UK National Institute for Health and Care Excellence (<https://www.nice.org.uk/>) or the US Food and Drug Administration (<https://www.fda.gov/>) to re-examine current treatments. Therefore, the use of GRADUATION in the *Topic significance* stage can be interpreted as necessary due to the persuasive nature of trial justification.

#### 4.2. Graduating the affected population

Apart from invoking (–) **judgement** of people suffering from a disorder through (–) **appreciation** of the disorder-related effects (e.g. *impairment*, *disability*), the *Topic significance* stage employs different means of GRADUATION targeted at the affected population (see Figure 4).

To graduate the **amount** of the *affected population*, writers can use numerals or quantifiers/noun phrases to indicate precise or imprecise quantification (Y2). Furthermore, topic significance can be additionally amplified by using both **amount** (Y2-3) and **distribution/proximity: space** (Y4) items to modify the Target.

For instance, LANCET-2 and JAMA-1 graduate the affected population in the following manner:

- (6) (post-partum depression): 10–20% of all mothers who give birth in high-income and low-income countries worldwide. (LANCET-2)

- (7) (depression): 10.8 million US residents (JAMA-1)

Through pre-modification, *10–20%/all* and *10.8 million* are used to **quantify** the Targets *mothers/residents* in terms of **amount**. Simultaneously, the pre-modifier *US* and the Circumstance *in high-income and low-income countries* within the embedded clause functioning as the post-modifier **quantify** the same Targets in terms of **distribution: space**. While the **distribution: space** realisation in example (6) is comparable to the use of *global* **quantifying** the effects of a disorder, the *US* pre-modifier in example (7) appears to increase the relevance of current research by focusing on the precise location of its target readership. In other words, this Graduating item can also be interpreted as **proximity: space** for two reasons: (i) JAMA-

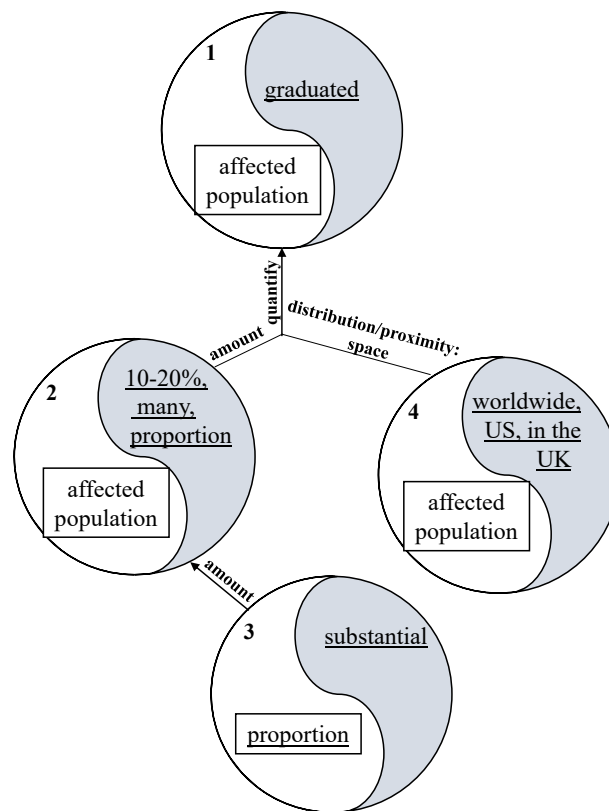


Figure 4. Graduating the affected population.

1 reports on an RCT involving US residents; and (ii) this RCT report has been published in the *Journal of the American Medical Association (JAMA)*. Similar strategies can be observed in BMJ-2 and JAMA-2:

(8) (depression): people with depression in the United Kingdom; (BMJ-2)

(9) (PTSD): 10% to 20% of military personnel returning from deployments to Iraq and Afghanistan. (JAMA-2)

The use of *the United Kingdom* in example (8) reflects the fact that BMJ-2, which has been published in the *British Medical Journal (BMJ)*, reports on an RCT involving patients in the UK. Likewise, since the war operations in Iraq and Afghanistan represent prominent US military engagements, the **quantification** of *deployments* with reference to these locations in example (9) is highly likely to raise the interest of the *JAMA* readership.

As illustrated in the above examples, graduating the affected population consists of previously published statistics, which makes this practice a highly implicit and nuanced persuasion strategy. To raise the significance of their research topic, RCT authors can select the figures that emphasise the disorder's: (i) global impact; or (ii) local impact dependent on the journal's place of publication and/or RCT participants' location.

#### 4.3. The 'slingshot' strategy

In the dataset, interventions are also used as evaluative Targets in order to indicate the significance of an RCT for the scientific community. In some cases, this is achieved by inscribing or flagging (+) **appreciation** of the intervention under investigation:

- (10) There is *interest* in the effectiveness and safety of new and nonpharmacologic treatments for depression. (NEJM-1)
- (11) Of the *clinically available*  $\alpha$ 1-adrenergic antagonists, prazosin most readily enters the central nervous system.<sup>9</sup> (NEJM-2)
- (12) (...) the need to develop *effective* treatments. (JAMA-2)
- (13) An estimated 10.8 million US residents may *benefit* from an alternative treatment each year. (JAMA-1)

Alternatively, the importance of further research can be raised by invoking an amplified (–) **appreciation** of a commonly sought intervention. Such persuasive manoeuvre will be referred to as the “slingshot” strategy (see Figure 5). The “slingshot” metaphor is used to illustrate a rhetorical move in which a prosodic value of an intervention is pulled into a positive direction by amplifying **force** only to be released by a concessive conjunction (e.g. *however*) and then used for **intensifying** (–) **appreciation** flagged by another Graduating item. In other words, the “slingshot” strategy uses **intensification** and **quantification** to heighten the expectations about the effectiveness of a treatment and then contrast these expectations with how ineffective the treatment is.

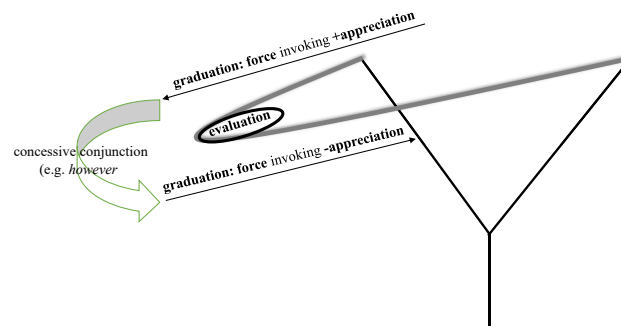


Figure 5. The ‘slingshot’ strategy.

In BMJ-1 Topic significance stage presented in Section 3.1.1., for example, the fact that *it is common* to undergo *dermatological treatments* or *plastic surgery* flags (+) **appreciation** of these interventions. Nevertheless, the subsequent use of the concessive *however* and *rarely* works transforms this information into a means for **intensifying** how detrimental these treatments can be:

frequent (common) non-psychiatric care + rare success/deterioration of symptoms = highly frequent problems associated with non-psychiatric care

Consequently, the fact that there are highly frequent problems associated with non-psychiatric care implies an increased importance of testing a psychiatric intervention in treating body dysmorphic disorder, which is the object of BMJ-1 RCT. In the “slingshot” strategy, typical Graduating items include frequency adverbs **intensifying modality** – e.g. *often*, *rarely*, and *usually* – in combination with **intensified** expressions of **quantification**. Arguably, the most representative example of this strategy can be found in example (14), extracted from the BMJ-2 report dealing with resistant depression:

- (14) People with depression in the United Kingdom are usually managed in primary care, and antidepressants are often the first line treatment. The number of prescriptions for antidepressants has risen dramatically in recent years in the National Health Service, increasing by 6.8% (3.9 million items) during 2014-15 (total 61 million items).<sup>2</sup> Many patients, however, do not respond to treatment. (BMJ-2)

In the first two sentences, numerous **quantifying** and **intensifying** items are used to build a picture of antidepressants as a highly effective treatment. If (i) antidepressants are *usually/often the first choice* for treating depression (**intensified modality**) and (ii) *the number of prescriptions has risen dramatically* (**quantified amount** + **intensified process**), it is reasonable to assume that the medical community has invested a significant amount of trust in the effectiveness of this treatment. Furthermore, the relevance of this invoked (+) **appreciation** for the BMJ readership and current research is indicated by increasing the spatio-temporal **proximity** of the data – *the United Kingdom/National Health Service* (**proximity: space**) and *recent years/during 2014–15* (**proximity: time**). Be that as it may, the sole purpose of such evaluative work is revealed in the final sentence. The use of concessive *however* indicates a shift in prosodic value of the treatment (positive → negative) and the evaluative **force** that was applied to invoke (+) **appreciation** is now used to amplify (–) **appreciation**. Moreover, augmenting **amount** in *many patients* introduces the last piece of **intensification**:

many patients resistant to antidepressant treatment + the number of antidepressant prescriptions has risen dramatically in recent years = the number of patients resistant to antidepressant treatment has risen dramatically in recent years

Therefore, it is the joint **force** of these opposing directions of evaluation that creates an image of tremendous significance of the object of the study – testing the effectiveness of treatments for resistant depression. As such, this persuasion strategy seems to be as implicit as that of graduating the affected population described in the previous section.

#### 4.4. Engaging with the medical discourse community – asserting the facts

As demonstrated in Sections 4.1 to 4.3., RCT authors tend to use evaluative couplings to highlight the significance of current study for the medical discourse community. Namely, the **ATTITUDE** and **GRADUATION** subsystems are used to evaluate the experiential content (i.e. Targets) – disorders and their symptoms/effects, affected population, and treatments.

As far as the **ENGAGEMENT** subsystem is concerned, RCT authors predominately use **monoglossic** propositions (72%) to communicate topic significance. This implies that the author wishes to assert the facts and generally does not anticipate disagreement on the reader's behalf. However, the citations of external sources indicate that these assertions need to be reinforced by existing research. The use of **reinforced assertions** is an essential part of all three strategies identified in this study because it allows the author to move from individual subjectivity to communal objectivity.

As shown in the “slingshot” strategy analysis, **heterogloss** is sometimes used to counter a positive evaluation of the effectiveness of common treatments. In these cases, the writers open and **contract** a dialogistic space by acknowledging a proposition that there is an adequate treatment before using a concessive conjunction (e.g. *however*) with a proposition that denies its validity. The room for a dialogue within the scientific community is also occasionally opened and **expanded** when proposing a solution. For example, (13) in Section 4.3 entertains the benefit of alternative treatments by using the modal verb *may*. By reviewing an alternative position on treating a disorder, the RCT report positions the reader to perceive the current study as more objective. In addition, both cases of **heterogloss** – countering and entertaining – indicate that an RCT needs to be conducted before the effectiveness of an intervention can be asserted as undisputed, thus promoting the reported RCT.

## 5. Conclusion and pedagogical implications

The **APPRAISAL** analysis presented in this paper has identified three largely implicit persuasion strategies for demonstrating topic significance in clinical psychology RCT Introductions: (i) saturation of an amplified (–) **appreciation** of the disorder under investigation; (ii) **quantification** of the affected population; and (iii) entertainment of (+) **appreciation** of the treatment under investigation or, in most cases, an amplified (–) **appreciation** of a commonly sought treatment via the slingshot strategy.

All three strategies have been found to include several instances of inscribed **ATTITUDE** expressed either adjectivally (e.g. *debilitating*), nominally (e.g. *burden*), or verbally (e.g. *benefit*). To a large extent, though, persuasion seems to be the result of Graduating items flagging **ATTITUDE** by targeting both evaluative and non-evaluative lexis via pre-/post-modification. In other words, the impact of the disorder under investigation is amplified by **intensifying modality** and **quantifying** the effects, population, and treatments in terms of **amount** and **distribution/proximity: space/time**. It is argued that the use of **GRADUATION** is justified and necessary to reclaim **ATTITUDE** from the medical axi-tech (i.e. terminology such as *disorder*) in a persuasive medical discourse such as an RCT Introduction.

In addition to adopting implicit persuasion strategies, RCT authors aim to reconcile the need for objectivity with that for promotion by using **reinforced assertions** and **heteroglossic** propositions. By using previously published statistics, RCT reports can position the reader to consider the Graduating items amplifying the negative impact of the disorder to be within the domain of communal objectivity. Similarly, by acknowledging the existence of alternative positions on effective treatment (i.e. absence of a unanimous support for one treatment), it is possible to express objectivity while opening a new research space.

To demonstrate topic significance objectively, RCT authors also appear to make strategic choices about the experiential content used to build the field of the object of study. For instance, an RCT report dealing with resistant depression can opt to focus on the information that indicates a low rate of success in the first course of treatment:

(15) Given that less than one-third of patients achieve remission with their first course of antidepressant pharmacotherapy,<sup>3,4</sup> ... (JAMA-1)

In example (15), the writer has deliberately included the findings of two studies (<sup>3,4</sup>) that underscore the importance of investigating resistant depression. In this case, the same lexicogrammatical item (*less than one third*) simultaneously builds the reader's knowledge on resistant depression and positions them to recognise the need for further research. Therefore, effective persuasive strategies can make use of carefully selected statistical data that can flag a positive attitudinal value towards their research.

The findings of this study carry important pedagogical implications. The study has shown that the RCT reports recently published in top medical journals use graduated language that in some cases may even be seen as hyperbolic (e.g. Millar et al., 2019). However, it is likely that warning novice researchers against the use of Graduating items in RCT reports for a fear of exaggeration will diminish their prospects of publishing a potentially high-impact medical research. Additionally, this study has demonstrated that a lexicogrammatical approach to teaching genre may be problematic because the same lexicogrammatical unit may construe different kinds of discourse meanings. Therefore, it is suggested that novice researchers be taught the identified strategies as a means for balancing objectivity and promotion in the introductory sections of their RCT reports. This can be achieved by using the teaching learning cycle, an SFL-based pedagogical tool originally developed for the English literacy programs in Australia (Martin, 2006; Rose, 2015; Rose & Martin, 2012; Rothery & Stenglin, 1994). The teaching learning cycle involves a joint deconstruction of authentic texts to model the construction of new texts.

In the case the strategies for demonstrating topic significance, educators could use published RCT Introductions for joint deconstruction. First, trainees could be asked about the purpose of RCT Introductions and the role of RCT reports in the medical community. This should start a conversation on the objectiveness and justification of trials, setting the context for exploring the linguistic features. Afterwards, a range of probing questions could be used to identify and discuss the use of APPRAISAL options characteristic of the persuasion strategies identified in this paper. For example, the trainees could be asked to highlight the words and phrases that reveal an explicit attitude towards the disorder and its effects or treatments. This would help locate the instances of inscribed (+) **appreciation** and open a debate on the explicitness of evaluation. Then, the educators could ask the trainees to underline the numbers and words/phrases indicating amount and think about what/who they quantify. Similarly, the trainees could be asked to underline text that refers to space (e.g. geographical terms) and/or time and contemplate on why the writer chose to include these particular instances (e.g. the US rather than the UK). Such activities would lead to the identification of Graduating items, which is necessary for discussing the three identified persuasion strategies. Furthermore, this would steer the conversation toward the fact that quantification needs to incorporate recent statistics that is relevant to the target audience in order to flag topic significance while maintaining objectivity. Lastly, the trainees could be asked to identify the instances of citation and circle the text indicating the frequency or possibility of something occurring or being true. This would facilitate a discussion on the importance of acknowledging alternative positions and supporting assertions with text-external references.

Following the joint deconstruction of a published RCT Introduction, the educators could assign the trainees to several groups and ask them to create an opening paragraph for an RCT Introduction demonstrating topic significance in order to justify a new trial. The groups would need to be provided with the context surrounding the hypothetical RCT report, including the information on the object of study (disorder/treatment, participants) as well as the target journal. Ultimately, the groups could share and evaluate the new texts in terms of their objectivity and persuasiveness.

Based on the outcome of this research, it is also recommended that further study be conducted on the use of axiologically charged terminology and strategically selected statistical data as a means for balancing objectivity and persuasion in medical research communication. This investigation could involve a larger and more diverse dataset of RCT reports. More precisely, the dataset could include RCT reports that: (i) focus on different objects of study (e.g. opioids or plastic surgery); and/or (ii) have been published in journals with varying degrees of impact.

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## Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.esp.2020.11.002>.

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