TESI DI DOTTORATO

‘GOOD VS. BAD’ IN RESEARCH ARTICLE ABSTRACTS
A CORPUS-BASED ANALYSIS

CANDIDATA
dott. ssa Amelia Maria Cava

RELATORE
dott. Marco Venuti

COORDINATORE
prof.ssa Gabriella di Martino

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Departing therefore, I reasoned with myself: I am wiser than this man, for it appears that neither of us know anything beautiful or good; but he thinks he knows something, although he knows nothing; whereas I do not know anything, neither do I think that I know. Hence in this trifling particular, then, I appear to be wiser than him, because I do not think I know what I do not know.

(Plato's Apology)
To Mom and Dad
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Introduction

This dissertation aims at providing an account of evaluation in research article abstracts that combines Corpus Linguistics with Discourse analysis, trying to integrate a corpus-based research with a manual text analysis.

The main scope of the present investigation is to define the complex phenomenon of evaluation, especially Research-Oriented Evaluation\(^1\). My ultimate purpose is to see whether or not evaluation has a specific ‘trend’ in a specific niche of the scientific genre.

The starting point for this study is a simple consideration about genre and the phenomenon defined as ‘semantic prosody’. Louw (1993: 157) describes semantic prosody as “an aura of meaning with which a form is imbued by its collocates”. Evaluation is a phenomenon that is genre specific (cf. Hunston 1993, 1994) and the research article abstract is a genre that is evaluative per definition (cf. Bhatia 1993 and Swales 1990). As Mauranen (2004: 207) quoting Hyland suggests: “[...] evaluation is an interesting phenomenon, being a central aspect of what academics do. We do not get published if we only present results, we also have to evaluate”. Nevertheless, not all disciplines are evaluative in the same way, science is claimed to be objective and especially mathematics is the most objective subject according to Bazerman (1984). However, Hunston (1993, 1994) has demonstrated how experimental research papers are fully evaluative.

On the other hand, amongst several scholars, Sinclair and Stubbs have provided new insights into the existence of a collocational

\(^1\) The concept will be explained further in the Theoretical Background section.
behaviour characteristic of some words, defined as ‘semantic prosody’. Sinclair (1991: 112) has mentioned the tendency of the verb HAPPEN to be associated with ‘unpleasant things’, while Stubbs demonstrates that the English lemma CAUSE (both verb and noun) has ‘a strongly negative prosody’: “the most characteristic collocates include accident, concern, damage, death, trouble”. He continues:

It only rarely occurs with ‘positive’ collocates: cause for concern is very much more common than cause for confidence. Although many words seem to have such negative prosodies, some words, such as PROVIDE, have positive prosodies. For example, causing work usually means bad news, whereas providing work is usually a good thing. Typical collocates of PROVIDE are from the semantic fields of care, food, help, money and shelter. The most frequent object nouns are aid, assistance, care, employment, facilities, food, funds, housing, jobs, money, opportunities, protection, relief, security, services, support, training. (Stubbs 1996: 173-4.)

On the other hand, Sinclair himself for the analysis of affect claims that:

The semantic prosody of an item is the reason why it is chosen, over and above the semantic preferences that also characterize it. It is not subject to any conventions of linguistic realizations, and so is subject to enormous variation, making it difficult for a human or a computer to find it reliably. It is a subtle element of attitudinal, often pragmatic meaning and there is often no word in the language that can be used as a descriptive label for it (Sinclair 2004: 144-145).

It is the concept of semantic prosody that eventually has led me to think about evaluation and corpus linguistics as intrinsically associated. As a matter of fact, Sinclair argues (2003: 178) that:

A corpus enables us to see words grouping together to make special meanings that relate not so much to their dictionary meanings as to the reasons why they were chosen together. This kind of meaning is called SEMANTIC PROSODY. It has been recognised in part as connotation, pragmatic meaning and attitudinal meaning, but it rarely appears in reference works that do not derive evidence from corpora […] The recognition that semantic prosody is a constant feature of text is one of the most important contributions of corpus work so far […] [and] it is central to the creation of meaning.
One of the most frequent principles found in linguistics is the need for empiricism on the grounds that native speaker intuitions about one’s language are generally a poor guide to linguistic reality (cf. Sinclair 1991: 4), only a quantitative approach to a record of naturally occurring language can tell us information about the language with a degree of objectivity not available to the native-speaker intuitions. The observation and description of such prosodic features has only really become possible with the advent of corpora.

Sinclair has highlighted the importance of presence and absence of semantic prosody in discourse. As text linguists and rhetoricians know, the absence of, or silence concerning some textual aspect or form has important consequences for discourse meaning.

The present analysis, therefore, includes quantitative calculations of the distribution of evaluation, and qualitative comments on their discourse functions.

Nevertheless, the qualitative methods of discourse or textual analysis for investigating the rhetorical phenomenon of evaluation is obviously at odds with the quantitative methodology of Corpus Linguistics, which is best suited to describing the collocational and syntactic patterns of a given lexical item. If corpus methods are to be employed in a textual study, first it is necessary to decide which aspects of the discourse analysis approach can be best served by corpus analysis, and secondly to find a point of entry into the data.

Accordingly, in the present dissertation the starting point for the corpus-based approach is the lexical item, as defined by Sinclair (1991, 2004). Specific words, later on, defined as ‘research process words’ will be the point of entry for the study of evaluation in a niche of the scientific genre.
In the present investigation, the hypothesis to test is whether evaluated entities in research article abstracts ‘collocate’ with specific terms or group of terms. Further questions then suggest themselves: to what extent is this genre evaluative? Does evaluation tend to be positive rather than negative? How strong is its presence? Is it absolute? Or are we dealing with strong tendencies in collocation which can be in principle quantified? Evidently, there is a cultural but also rhetorical phenomenon which is so ingrained in the use of a specific language that it can be barely noticed until there is empirical evidence.

The structure of the dissertation is organised in chapters, sections and subsections. In detail, in the first chapter — the Theoretical Background — several issues are discussed such as the phenomenon of evaluation, Corpus Linguistics studies, mostly corpus-based studies related to this specific phenomenon, different genre theories and the structure of the research article abstract.

In the second chapter — Data and Methodology — it is defined the nature of the data, the three-fold methodology and how this is performed on the collected data.

The third chapter — Findings — is the core of the present dissertation, it is concerned with the analysis of the corpus. In detail, corpus methodology is used to investigate data, concordances and collocational tools are used to provide semantic profiles of specific words highlighting connotational differences, and discourse analysis is used to identify how evaluation is construed in these specific words.

Chapter four — Discussion — highlights differences and similarities within the two corpora.
Last, in chapter five — Conclusions — tentative conclusions are drawn from the investigation carried out in the present study.
Chapter 1: Theoretical Background

The purpose of the present study is to investigate and test the hypothesis of whether or not evaluation has a specific ‘trend’ in scientific research article abstracts.

Accordingly, the research background of the present investigation deals with three different kinds of studies: those dealing with Evaluation, with Corpus Linguistics, and those related to Move Analysis. The first two are intrinsically related because CL approaches have been taken into account as suitable examples of how the corpus methodology may be applied for investigating a rhetorical phenomenon. Furthermore, it is worth mentioning that text analysis, meant as investigation of single items in the text, combined with corpus analysis allows to fully understand the value of specific lexical items in the discourse.

1.1. Defining Evaluation

The rhetorical phenomenon of evaluation has been defined in various ways, simply Evaluation (Hunston and Thompson 2000), Appraisal (Martin 2000, White 2003), Stance (Biber and Finegan 1989, Hyland 1999) and Interpersonal Metadiscourse (Crismore 1989, Hyland 2000). Halliday (1994) in his distinction between modalization and modulation talks about the crucial role played by evaluation. However, “the general understanding seems to be that evaluation is ubiquitous, but that very
much work is ahead in clarifying the different kinds there are.’” (Mauraneen 2004: 214).

In the present study, the term evaluation is identified according to Thompson’s and Hunston’s definition (2000: 5):

Evaluation is the broad cover term for the expression of the speaker or writer's attitude or stance towards, viewpoint on, or feelings about the entities or propositions that he or she is talking about. That attitude may relate to certainty or obligation or desirability or any of a number of other sets of values. When appropriate, we refer specifically to modality as a sub-category of evaluation.

In the present thesis, to analyse the phenomenon of evaluation, a new framework is introduced as an alternative to and a synthesis of existing approaches especially Hunston (1993, 1994), Hunston and Thompson (2000) and Thetela (1997).

Evaluation is accomplished in different ways on the basis of various texts. It has been considered as a ‘product’ of discourse rather than a lexico-grammatical phenomenon (Hunt and Vipond 1986). Hunston (1993, 1994) suggests that evaluation is everything that helps or prevents to achieve goal in the scientific process.

In a genre such as academic writing, which builds knowledge claims, the central function of evaluation is to assess the degree of certainty that can be attached to each part of the argument. In experimental research articles the phenomenon of evaluation, as suggested by Hunston, is quite predictable because only certain features (e.g. experimental method, the author’s results and conclusions) can be evaluated and only in a certain way in terms of goal achievement or non-achievement.

Hunston, in short, (1993: 58) defines evaluation “as anything which indicates the writer’s attitude to the value of an entity in the text”. In many genres these attitudes are usually expressed as personal
judgements couched in attitudinal lexis. However personal, this assessment does not refer to a ‘personal’ value system but rather to an established or institutional one. This is particularly true of scientific writing. Therefore, recognising evaluation leads the reader to accept the value system of a well-defined discourse community.

The value system of the academic/scientific discourse community is thought to prefer impersonal discourse with no explicit evaluation (cf. Mauraneen 2002: 116); hence, according to Hunston (1993: 58), evaluation may be performed in non-personal, that is, metaphoric terms (cf. Halliday 1994) and expressed implicitly with non-human actors.

Rather than going into long descriptive details such as: ‘I gained these results in my study and on the strength of my data I suggest that...’ Hunston offers an example: ‘These results suggest that....’ in which these results encapsulate all the human effort gone into the research. She distinguishes three categories through which evaluation is implicitly manifested in the reporting of research. These aspects are summarised in the following point list (1993: 60):

- **Evaluation of status;**
- **Evaluation of value;**
- **Evaluation of relevance.**

*Status* reflects the writer’s degree of certainty and commitment towards the proposition s/he claimed. In addition, the writer’s choice of status bestows ‘thingness’ so that what the researcher claims may be considered as an object and may be further evaluated later. The evaluation of *status* takes place through the writer’s different commitment expressed, for instance, in terms of *known/unknown, certain/uncertain, probable/possible/unlikely.*
On the other hand, evaluation of value denotes quality on the good/bad scale. Academic or scientific writing works in the value system of ‘good research’, which means that even if the markers of attitudinal lexis (attributes such as good and successful) are missing, the writers’ attitudes to the value of their research are clear.

“Research articles often posit hypotheses whose value is then evaluated according to whether the hypotheses are supported or not” (Hunston 1993: 63). The evaluation of value usually takes place through lexis expressing accuracy, consistency, verity, simplicity, usefulness, reliability or importance, which renders the other language items traditionally regarded as evaluative redundant.

In scientific writing the expression of value is often inexplicit however we can perceive the good or bad as depending on the goal of the activity. Something that is good helps to achieve a goal, while something that is bad prevents or hinders the achievement of a precise goal.

Last, evaluation of relevance refers to the degree of significance or relevance of the argument in a research article which is transferred from one sentence to the others. Hunston defines relevance markers those metadiscursive clauses with a discourse-organizing function. These clauses thus “summarize the preceding or subsequent text and indicate its significance or relevance to the argument of the discourse and to the scientific community” (Hunston 1993: 65).

Accordingly, in scientific writing, evaluation of value is more likely to appear; thus evaluation is related to the writer’s judgement of the good or the bad aspects of the narrated topic. Evaluation can also be divided into explicit evaluation and implicit evaluation. The less noticeable evaluation is, the more likely it is to manipulate the reader.
In a genre, like research article abstracts where authors literally have to ‘sell’ themselves in order to get published, implicit evaluation is more likely to appear. However, the present analysis focuses on explicit evaluation and specifically on that evaluation related to the research process aspect of the study — *Research-Oriented Evaluation*.

Therefore, it is necessary to make a clear distinction between *Research-Oriented Evaluation* — ROE — and *Topic-Oriented Evaluation* — TOE —, as suggested by Tethela (1997). In detail, when we encounter the pattern: ‘X [the research] is seen [by the writer] as Y’ this is ROE. Besides, the difference between TOE and ROE can be sketched out as ‘the writer observing the world’ versus ‘the writer observing the research’. In the latter, the writer interacts with his/her discourse community by reporting his/her research or experiment. On the contrary, in the former the researcher observes the real world, and his/her point of view, even if evaluative, cannot affect the real world.

This feature implies that ROE engages the writer and the reader on an exchange and negotiation of perspectives, while in TOE the writer reports the ‘real word’ without building up justifications or interpretations.

For the sake of clarity, the following excerpt is an example of ROE from the *International Journal of Primatology*:

1. (POC) **theory** (Trivers, 1974) has stimulated controversy in evolutionary biology and behavioral ecology. The **theory** has been criticized by some primate behavioral researchers on both conceptual and empirical grounds. (From the abstract number 145 of the *International Journal of Primatology*)
In the above example a specific theory is evaluated in a negative way therefore the researcher clearly posits himself/herself against a precise research study.

On the other hand, in the following excerpt TOE is clearly identified:

2. **Adaptive advantages of killing** plausibly include eliminating resource competitors of females, and sexual selection on males. (From the abstract number 2 of the *International Journal of Primatology*)

As previously mentioned, the present study focuses on ROE. Evaluation is a multifunctional phenomenon because it can simultaneously be used to express the writer’s opinion, to construct relations between the writer and the reader, and to organize the text (cf. Thompson and Hunston 2000 and Thompson and Ye 1991). Drew (2004: 217) claims that:

> Academic writing is [...] unremittingly rhetorical as any other: no matter how technical and seemingly detached a scientific paper might be, its discourse is *designed* to persuade readers of the objectivity of its methods and the correctness of its findings.

Apparently, scientific knowledge is ‘naturally’ prone to be an evaluative and persuasive genre. However, since evaluation is not only a lexical phenomenon but it is built in the text and builds the text as means of cohesion, it is not always possible to tell whether a lexical item is evaluatively ‘positive’ or ‘negative’ without going back to the original text.

Thus, according to a Corpus Linguistics approach, collecting instances of the same word, phrase or construction for the purposes of quantifying evaluation frequency can cause a misinterpretation of the data; in addition, it can cause the risk of treating as equivalent instances words that, in fact, have quite different and perhaps opposite evaluative
values in different discourse contexts. It is often necessary to go back to the text itself, to do a textual analysis of the evaluative terms in order to understand whether or not these terms are evaluative. As Thompson (2000) argues it is necessary to see how the citations fit into the writer’s wider rhetorical purposes.

Generally, in Corpus Linguistics studies, precise linguistic phenomena under exploration – such as words or grammatical constructions – are usually abstracted from their contexts and they are quantified. The comparative distributional frequencies are the basis for assessing the pragmatic or rhetorical role played by those specific words or constructions. Nevertheless, a different way of approach would be more thorough by investigating, before coding and quantifying a given linguistic feature, how that feature works in discourse more generally, as well as in their particular textual interaction contexts. As a matter of fact, Drew suggests that: (2004: 221): “the aim should be to ground quantification [...] of linguistic selections and constructions, through qualitative analysis of discourse”.

Thus, it may result useful to analyse evaluation through a corpus-based approach and to keep in mind a robust theory regarding evaluation. This is the specific approach chosen for the purpose of the present dissertation.

In detail, each element in a sentence, working together with other subsequent elements, may play a significant role in construing evaluation in the text. These elements work in complementary ways, which are difficult to identify and understand by isolating and quantifying particular words or constructions. Evaluation is definitively hard to define a priori and even to capture in a corpus in a systematic way (cf.

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2 The definition of corpus-based studies will be explained further in the next subsection 1.2.
Romer forthcoming). Martin (2003: 177) states the case strongly: “we will never understand the function of evaluation in a culture if our studies are based, however quantitatively, on the analysis of ‘decontextualized’ examples”.

Similarly, Drew expresses his concern about how difficult it is to estimate the strength of evaluation, even when its direction is clear enough. Thus, Hunston's examples: *we are puzzled by*; and *we are at a loss to imagine* ... are both negative evaluations of the objects of the verbs but it is difficult to assess their relative critical strength.

If the field of investigation is evaluation in academic discourse, the relative strength of evaluative terms is an important dimension which, when is not directly measurable, is difficult to quantify. The statistical approach of Corpus Linguistics might usefully be combined with more thorough and systematic qualitative analyses of the texts in which certain linguistic phenomena occurred.

The investigation of a phenomenon like evaluative language unremittingly leads to investigate a well-defined scientific discourse community. Stubbs (1996: 20-21) claimed that:

> Texts […] comprise much of the empirical foundation of society: they help to construct social reality. And textual analysis is a perspective from which to observe society: it makes ideological structures tangible.

However, such a pattern is hard to recognize with a *naked eye*, on the contrary, it is observable only indirectly in the probabilities associated with lexical and grammatical choices across texts and corpora.

Evaluation shows ‘context-dependent polysemous functionality’ (cf. White 2001: 18). This suggests that evaluation can only be correctly understood and analysed when looking at the context. Linguistic means of evaluation are highly context-dependent; analysing the discourse
semantics of evaluation shows how it extends like a wave over the text and lends a specific ‘evaluative prosody’ to it (for the wave metaphor in connection with evaluation see Hunston 1994: 200).

Ultimately, a corpus linguistics approach ‘works’ better if combined with text analysis as suggested by Virtanen (forthcoming):

Studying entire texts in context is one of the *raisons d’être* of text linguistics and discourse analysis, and the context to be taken into account in such studies has expanded maximally over the past forty years […], it is the expanding notion of context that proves to be extremely problematic in corpus studies: co-text can be increasingly made available to analysts using modern software but the situated aspects of discourse constitute a real challenge.

Accordingly, Mauranen (2004:209) argues that:

Identifying evaluation in corpora is far from straightforward […]. Corpus methods are best suited for searching items that are identifiable, therefore tracking down evaluative items poses a methodological problem as soon as we want to step over the limits of the obvious.

Therefore in the present study, the methodology has been set in advance as a corpus methodology and evaluative lexis has been redefined only as research-oriented evaluation. Consequentially, in the present thesis text analysis and corpus linguistics work side by side in order to cover up qualitative and quantitative aspects.

1.2. Corpus Linguistics Studies

Studies discussed in this section are primarily corpus-based. As far as the definition of corpus-based is concerned, .Tognini Bonelli (2001: 66) suggests that:

[Researchers] adopt a ‘confident’ stand with respect to the relationship between theory and data in that they bring with them models of
language and description which they believe to be fundamentally adequate, they perceive and analyse the corpus through these categories and sieve the data accordingly.

Thus, in corpus-based studies generally the starting point is clearly defined in advance and the investigation is not likely to discover unexpected events.

On the other hand, in a corpus-driven approach specific evidence is provided by the corpus itself; the researcher posits himself in a more ‘neutral’ position and the methodological path can be described as “observation leads to hypothesis leads to generalisation leads to unification in theoretical statement” (Tognini Bonelli 2001: 85).

Many studies, to date, have used computer corpora to examine rhetorical phenomena in language. Many researches in linguistics have been concerned with evaluation especially in some areas of inquiry.

Evaluation/stance has been investigated widely and systematically in the context of English for Academic Purposes — EAP — (e.g. Bondi and Mauranen 2003, Tognini-Bonelli and Camiciotti 2004), and, under the name of appraisal, within Systemic-Functional Linguistics (e.g. Macken-Horarik and Martin 2003, Martin and White 2005).

Corpus studies in this area have to work in close cooperation with manual analyses of the data. The research process combines insights of the manual analysis with suggested search items for the corpus study. Once the corpus analysis has been conducted, then findings raise issues that are best inspected through close analysis of texts and discourses. As Virtanen (forthcoming) suggests methods from discourse analysis can easily cooperate with a corpus linguistics approach for investigations of discourse organization.
Corpus linguistics research can quantify certain linguistic realizations of stance as well as to identify key sites of stance construction. Hunston and Sinclair (2000) present examples of corpus-based research on evaluation, while Biber and Finegan (1989), Conrad and Biber (2000) and Bednarek (2006) present a combined approach for evaluation.

Most of these studies have looked at grammatical or lexical choice. Biber (1988) has used corpus data to investigate the relative involvement versus detachment combined with integration versus fragmentation of information, relating the findings to the text categorizations of standard corpora of speech and writing.

Still Biber (1998) has investigated four different genres: conversation, public speeches, news reports and academic prose, at lexical, grammatical and discourse level. Findings of this study showed that each genre has its own characteristics which distinguish it from the other genres. Stubbs (1996) has worked on corpus analysis and ideologically significant language use. Bamford (2005) has investigated the way in which academics express their position in argumentation by analysing expression of ‘certainty’ and ‘uncertainty’.

Biber et al. (2004) have investigated the possibilities of automatically identifying ‘vocabulary-based discourse units’ in academic discourse. From other studies of discourse organization, included Partington et al. (2004), it is possible to draw the conclusion that relatively restricted corpora are useful, and predetermined choices, combined with manual analysis, are crucial for the explanation of the findings in a research study.

Corpus-based investigations of evaluation can be found in Hunston (2004). Hunston investigates evaluation in texts from two perspectives: the text and the corpus. She aims at exploring the possibilities and limits
of corpus studies, in particular, stressing that findings from lexically oriented studies of text cannot be readily processed automatically in a corpus analysis of language use. She starts from the main assumption concerning some explicit form of evaluation, derived from corpus-based dictionaries, grammars and books of information about particular corpora, and then she proceeds with the description and interpretation of corpus evidence. Her conclusion is that “reliable automatic identification and quantification can be carried out on only a limited set of realizations of evaluation” (Hunston 2004: 186).

Methods that are common to all of the above studies are: the comparison of frequencies, and the analysis of the syntagmatic environment of key words. The basic software tool used to highlight typical collocational and syntactic patterns is the concordance programme. The study of collocation can reveal genre-specific patterns of written argument both within and across sentences. Hence, instances where a set of lexical key words systematically co-occurs with a set of argumentative connectors, within or across textual units of various sizes and in a particular order, can be called ‘textual collocation’ (cf. Hoey 2005). Besides, Sinclair (2004: 142) talks about ‘semantic preference’, as a regular co-occurrence of words that share some similarity of meaning, irrespective of whether they constitute Firthian collocations or colligations. It is worth mentioning that semantic preference leads to interesting discoveries in text and discourse linguistics particularly through a corpus-driven approach. Virtanen (forthcoming) suggests that: “Combining methods from corpus linguistics and discourse analysis [...] should smooth the way for a happy relationship between the two areas of study”.
However, while corpus linguists has often been primarily interested in describing what is there and what is not in a corpus, usually defined as the ‘counting’ aspect, the main aim of discourse analysis is to understand how discourse works. Nevertheless, the feature they share is the reliance on data, even though the size and type of data vary from individual texts in context to large decontextualized corpora, which has important implications for their status in the investigation.

Nonetheless, it is crucial to keep in mind one of the critiques against Corpus Linguistics, that is the static nature of the computerized data. On the one hand, these data have been collected with a preliminary purpose in mind especially in a corpus-based approach and these data represent a specific snapshot of language through time.

In the present study, corpus data are concerned with scientific language of research article abstracts; notwithstanding the ‘static’ aspect, these data will help to test a ‘dynamic’ hypothesis: the peculiarities of evaluation.

The study of corpora allows us to look beyond the recontextualized products and use them, to the extent that this is possible, as evidence for the multifaceted processes that have contributed to their construction in the first place. Starting from lexical items or grammatical tags corpus analysis assists in the investigation of patterns in a large body of data of text and discourse.

Starting elements in the analysis of the present dissertation are words or as Sinclair suggested lexical items. By using the lexical element word we imply the assumption that form and meaning are inseparable and that language and lexis are interdependent. “[…] there is no ultimate distinction between form and meaning […] [the] meaning affects the
structure” (Sinclair 1991: 6-7). In such a way, text analysis and corpus linguistics appear to be more related than ever

Accordingly, computer-assisted analysis of texts and corpora can provide new understanding of form-meaning relations. Corpora can be useful devices in order to investigate lexical phenomena as well as rhetorical ones. Corpus data can ideally also help us understand conventionalised and original phenomena which contribute to systematic variation within and across texts and discourses in given socio-cultural contexts and through time. As Sinclair (1987: XV) suggests: “Usage cannot be invented can only be recorded” The focus is on microstructure of text and macrostructure of value that in the present thesis means textual analysis leads ultimately to analysing evaluation.

1.3. Move Analysis Theories


Amongst these scholars, Swales made an important contribution to genre theory by suggesting that genres are located within their discourse communities. According to Swales discourse communities develop, use, and modify written genres in response to the recurrent rhetorical situations they face. These groups communicate their norms and values and conduct their affairs through the appropriation and use of particular forms of discourse. Each genre, according to Swales, is structured into moves. A move is evidence of a peculiarity in a precise part of the text.
Swales (1990), in his *Create a Research Space – CARS* – model for article introduction, points out three main moves that can be sketched out as (Adapted from Swales 1990: 141):

- **Move 1:** *Establishing a territory* - re-establishing significance of research field;
- **Move 2:** *Establishing a niche* - situating actual research in these terms;
- **Move 3:** *Occupying the niche* - showing how this niche will be occupied and defended.

Besides, he investigates the textual structure of research articles and comes up with the *Introduction, Method, Research and Discussion* — IMRD — structure. He claims that all the research papers are organized to this well-defined scheme. Unfortunately, theory is often quite distant from reality. Another scholar, dos Santos, has focused his interested on a niche of the academic genre: the researcher paper abstract. In particular he states that members of any discourse community communicate their contribution to the field by publishing relevant research papers. He claims that (1996: 483): “abstracts are an important site for the visibility of scientific endeavor in so far as it makes the research widely known, more discussed, and more influential”.

Dos Santos, in his research paper, has investigated the structure of 94 research article abstracts from linguistics starting his analysis by skimming each abstract focusing on the overall organization and trying to relate each sentence to Swales’ IMRD structure. The *move* has been chosen as the unit of analysis “a move has to be considered as a genre stage which has a particular, minor communicative purpose to fulfil, which in turn serves the major communicative purpose of the genre”. (Dos Santos 1996: 485). Dos Santos, in his analysis, came up with five moves:
- Move 1 – situating the research;
- Move 2 – presenting the research;
- Move 3 – describing the methodology;
- Move 4 – summarizing the results;
- Move 5 – discussing the results.

Each move, usually, has submoves according to the following table (1996: 485):

Move 1 — Situating the research
Submove 1 A - Stating current knowledge
and/or
Submove 1 B - Citing previous research
and/or
Submove 1 C - Extended previous research
and/or
Submove 2- Stating a problem

Move 2 — Presenting the research
Submove 1 A - Indicating main features
and/or
Submove 1 B - Indicating main purpose
and/or
Submove 2- Hypothesis raising

Move 3 — Describing the methodology
Move 4 — Summarizing the results
Move 5 — Discussing the research
Submove 1 - Drawing conclusions
and/or
Submove 2 - Giving recommendations

Table 1.1 Dos Santos’ pattern for research article abstracts

The initial move – situating the research – locates the research in terms of research field and topic. It provides orientation to the reader. The obligatory element in move 1 is submove 1A – stating current knowledge – because authors need to identify a precise field by stating a given topic. Sometimes, a recurrent device is to refer to previous
researches in that field, this is the purpose of the submove 1B – *citing previous research*. In a similar way, submove 1C – *extending previous research* – highlights the authors’ choice to proceed his/her research with current research trend. On the other hand, a more challenging aspect is carried on in submove 2 – *stating a problem* – where current knowledge is evaluated and usually it is shown that previous research studies in a precise field have not been successful yet or are still incomplete. This submove typically indicates a new direction for research, raising the concept of newsworthiness.

The second move – *presenting the research* – in a certain way, justifies the paper itself, providing its basic features and its main purpose. The second move can take a *descriptive* or a *purposive* form. In detail, submove 1 A – *indicating main features* – predictably enough, explains the structure of the article. It is worth mentioning that in this submove, the research article abstract may be considered as an integral part of the research paper according to the recurrent expression *this paper* or *this article* but on the other hand, it may be considered as standing apart, according to the other pattern *the paper* or *the study*. Submove 1B – *indicating main purpose* – explains the purpose of the paper. In submove 2 – *hypothesis raising* authors highlight their research hypotheses or questions. Due to the grammatical nature of the term HYPOTHESIS, in this category, use of modals is quite frequent.

In move 3 – *describing the methodology*, dos Santos (1996: 491) suggests that “when the abstract writer has completed the introduction of his/her research s/he then needs to offer some description of how the research was actually carried out.” This move indicates materials, subjects, instruments, all those elements necessary to perform a different type of experimentation. Very often, move 3 merges with move 2 either
partially or totally according to the phenomenon of *move embedding*. Thus, moves 2 and 3 may occur within the same sentence boundary, but on the other hand the order is reversed and move 3 may occur before move 2.

A possible explanation for such embedding and the reversed syntactical sequence of the initial moves may be that the author feels s/he has to compete for the attention of a busy readership, and that if s/he can not attract the interest of his/her reader in the first statement(s), that his/her case may be lost. (Dos Santos 1996: 492).

Move 4 – *summarizing results* – quite predictably, summarizes briefly the main findings of the research paper. It is worth mentioning that evaluation is very likely to appear in this category mostly because the author feels the urgency to highlight that his research was entirely worth reading. Besides, results are conveyed in a discoursal way very often rather than in a numerical more ‘statistical way’, in order to avoid turning-off a less statistically-proficient readership.

The last move is move 5 – *discussing the research*. This move is strictly related to the reported findings and generally has two submoves.

Submove 1 – *drawing conclusion*, answers the question ‘what do the findings mean?’ Usually, this submove presents verbs like *suggest, interpret* or *provide*. On the other hand, the submove 2 – *giving recommendations* briefly outlines suggestions for further studies or investigations. Besides, dos Santos highlights that sometimes the author may leave the reader guessing instead of providing him with hard facts.

In the end, dos Santos’ five-move scheme is a more articulated Swales’ structure wherein moves 2 and 3, the research and the methodology, are essentially obligatory. In particular, he highlights how different moves serve to generate different purposes and require different linguistic resources. It is worth mentioning that the analysis carried by
dos Santos raises several issues. First, apparently there is a mismatch between recommendation of technical writing and actual practice. Secondly, he claims (1996: 497):

[...] by providing research writers with a pattern that will help them to concisely organize and present their study, the proposed framework may force them to be more selective and straightforward in their thinking and writing, thus helping such scholars enter the mainstream of research debate.

A third issue concerns the genre-specific conventions in abstracts. In particular, move balance, move embedding and move reversal. Move balance is related to the apparent need of relevance that the writer has towards the length of each move; it works according to this equation: the longer the move is the more visible it will be. Move embedding as well as move reversal can be explained in terms of the author's need to give cohesion to the text. “By embedding moves within one another […] authors avoid the creation of a text whose sentences read like checklists”. (dos Santos 1996: 497).

After careful evaluation of the framework presented by these two authors, a combined approach of the two has been taken into account and these are the moves used for the investigation in the present study:

- Introducing topic;
- Stating a gap in knowledge;
- Stating the purpose of the study;
- Introducing methods;
- Claiming findings;
- Concluding remarks.
In the methodology section these categories will be explained further and applied to the investigated files of the corpus.

In sum, in this thesis, the characteristics of a very narrow genre, that of scientific abstracts, are explored on four different levels: textual, lexical, syntactic and discourse. In particular since lexis and grammar are closely related it is better to narrow down these aspects to three. Then, crucial aspects are: textual (move analysis), lexical (collocational analysis) and discourse (the phenomenon of evaluation). The hypothesis to test is whether is possible to find patterns, which could be used at a later stage to find similarities in the distribution of evaluation across the text in different moves.

1.4. Research Article Abstracts

In the academic discourse community, researchers feel the urgency to communicate new knowledge to the other members of their community. This communication can take place through various channels; usually these are: presentation of papers at conferences, participation in seminars and publishing in international journals of certain relevance. The last is undoubtedly the major channel of communication/visibility for the researcher, thus publishing a research article (RA) is an important step and has an enormous impact on academic communication.

Swales (1990:7), whose work is the most fully developed notion of discourse community as a construct which provides insight into the ‘socio-rhetorical’ activities of groups, claims that: “publication can be seen as documentary evidence that the writer qualifies for membership in the target discourse community”.

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The Research Article abstract (RAA) is a particular genre which has always aroused great interest due to the important role it fulfils for the scientific community. As regards its function, Bhatia (1993: 78) defines RAA as “a description or factual summary of the much longer report, and is meant to give the reader an exact and concise knowledge of the full article”.

On the other hand, Salager-Meyer (1990), Gibson (1993), and dos Santos (1996), among others, regard RAAs as independent genres with the explicit function of providing peculiar information about the content of the associated paper, thus indicating clearly to readers whether or not the full text merits their further attention. These authors put more emphasis on the evaluative aspects of the genre itself. Other authors (e.g. Graetz 1985, Kaplan et al. 1994) still put their emphasis on the summarising function of abstracts. Graetz claims that (1985: 125):

The abstract is characterized by the use of the past tense, the third person, passive, and the non-use of negatives .... It is written in tightly worded sentences, which avoid repetition, meaningless expressions, superlatives, adjectives, illustrations, preliminaries, descriptive details, examples, footnotes. In short it eliminates the redundancy which the skilled reader counts on finding in written language and which usually facilitates comprehension.

It is interesting to notice that at a superficial glance this is not entirely true and this aspect will be explained further in the ‘Discussion’ section. The crucial aspect to bear in mind is as Martin-Martin (2005: 5) suggests that:

In the process of publishing the results of research, abstracts constitute, after the paper's title, the readers' first encounter with the text, and it is here that writers have to show they have mastered the conventions (the textual organization and other rhetorical practices) that are favoured by the members of a specific disciplinary group.
Similarly, Hyland (2000: 63) states the case strongly “[abstracts can be seen as] a rich source of interactional features that allow us to see how individuals work to position themselves within their communities”.

Research article abstracts or research paper abstracts or simply abstracts play various roles: first they help the reader to ascertain the paper’s purpose, then they provide the reader with a preliminary overview of the research and, in some cases, if the reader has already read the paper, the abstract helps to remember the basic content. Therefore as dos Santos (1996: 483) suggests: “abstract are an important site for the visibility of scientific endeavor in so far as it makes the research widely known, more discussed, and more influential”.

Two main types of abstracts can be differentiated, on the basis of their function and structure, these are: indicative and informative abstracts. The former contain descriptive information on purpose, scope, or methodology, but no details of results or conclusions. On the other hand, the latter not only contain information on purpose, scope and methodology, but also results and conclusions crucial for the value of the entire research.

Furthermore, a clear distinction can also be drawn between conference abstracts and research paper abstracts, as they differ in terms of both function and audience; for further studies about this distinction see for example Lancaster (1991) and Pinto-Molina (1992). However, the common element to these different kinds of abstracts is that abstract is per se an evaluative genre as it needs first to persuade the reviewer to publish the paper and then to gain readers’ attention as the article is worth reading.

Other studies such as those by Myers (1990) have shown that before a research paper is published a great deal of negotiation on the precise
version of the work to be published goes on between authors, editors and referees. As a matter of fact, researchers must argue their case in front of the bar of the scientific community before their works can be taken up and accepted.

Myers (1985) argues that tension inherent in the publication of any scientific article makes negotiation between the writer and the potential audience essential. On the one hand, the researcher tries to show that s/he deserves credit for something new, while, on the other, the editors try to relate the claim to the body of knowledge produced by the community. Thus the focus may shift from the individual researcher to the entire research community. However, the claim must be both new and significant to be worth publishing; the writer cannot please the audience just by being self-effacing.

Abstracts have been also discussed and analysed in that literature aimed at helping authors with writing technical papers, just to mention a few: Cremmins (1982), Day (1989), and international organizations such as ISO and ANSI. Similarly, each scientific/academic journal very often presents its personal tips on how to write an abstract. Therefore, among the most common pieces of advice some expressions are quite often present such as: abstracts should be well written, brief, complete, and they should use clear words. However, theory is quite distant from practise and these tips are neither useful nor helpful.

As already mentioned, Swales (1990) considers the process of writing an abstract to be an obligatory step for gaining entry into the scientific community via a demonstration of increasing mastery of the academic jargon.

Sometimes scientists revise and modify their manuscripts considerably to get them published. The urgency to get published leads
the author in the choice of writing the abstract and subsequently the revising process.

Writing an abstract is not a trivial task at all, given that it does not allow redundancies and forces the writers to use a lot of compound words.

However, the conventions of the genre (RAA) are strong enough to override whatever differences there might be in the general discourse conventions of the language concerned. It is the genre that leads language choices. As we have already mentioned in the previous section, in RAA the pattern follows some sort of variation of the Introduction-Methods-Results-Discussion structure, whether these headings are explicitly given or not.

The structure itself can be defined as the problem-solution pattern (cf. Hoey 1983, 2001), in which sentence 1 poses the Situation, sentence 2 the Problem, sentence 3 the Response and sentence 4 the Positive Result. A clear example that has been numbered for convenience has been reported hereafter: 1) Primates’ DNA has been sequenced. 2) The technique is quite difficult. 3) The present paper investigates the DNA sequencing technique. 4) This new way of investigation sheds light on a pivotal topic.

This example has been invented *ad hoc* and every sentence clearly and explicitly corresponds to the problem-solution pattern elements, however the main intent is to highlight that the abstracts’ structure generally corresponds to this scheme. Nevertheless, if abstracts do not follow this structure, it may be because the authors do not consider the abstract to be particularly important, as a matter of fact, in many cases the abstract has been written just before submitting the paper. Moreover, in some cases the content of the abstract does not necessarily reflect the
content of the paper, as Cleveland (1983: 110) has remarked “authors as abstractors have been known to use their abstracts to promote the paper; this can create a misleading abstract and is unfair to the user”.

It is also worth mentioning that science and the means used by science (e.g. a specific genre) are intimately related. Thus, the patterns of discourse in science are provided by the pattern of argument in science, which is given by the structure of the discipline itself.

Studies about the development of the research article in physics over the years by Bazerman (1988) show that the process of development of this genre has been gradual and it has evolved over time in line with the needs of the scientists to convince their audience of the correctness of their point of view. The research article, therefore, does not reflect some sort of unchanging general nature of science but is a reaction to the changing needs of the article audience.

Since publishing is a way, as Swales suggested, to join the discourse community authors need to persuade and convince their audience about what they say. On the other hand, the scientific paper is an argumentative work designed to put forward the point of view of the authors by means of an articulated language.

As Halliday (1993) points out, in scientific texts, like for instance in scientific abstracts, lexical density is very high, this causes difficulties in reading such texts. By lexical density it is meant a measure of how much information there is in a particular piece of writing. Lexical density is defined as the number of lexical items as a proportion of the number of running words. (cf. Halliday 1989: 61-67).

Lexical words are perhaps more commonly known as ‘content words’ or ‘information words’. These are the words that carry information. In other words, lexical density refers to the proportion of
new and repeated words in a text. A text which has a low lexical density will have a relatively small number of different words which are often repeated. A text with a high lexical density will use a lot of different words.

Since a written text is planned and offers the possibility of re-reading, it has a much denser pattern of words, then it is more lexically dense.

According to Halliday (1985) spoken and written form of languages differs in the ratio of content words to grammatical or function words. Content or lexical words include nouns and verbs, while grammatical words include: prepositions, pronouns, articles, conjunctions, and finite verbs. Halliday found that in spoken language, lexical density tends to be around two lexical words per clause while it is significantly higher in written texts especially from science. For instance, samples from Scientific American may have a lexical density of 10-13 words, as in the following example with a lexical density of 10: *The conical space rendering of cosmic strings' gravitational properties applies only to straight strings.* (Halliday and Martin 1993: 76).

According to the style typical of scientific writing, the language should be objective, there should be no attitudinal language and the text should be fully free from personal judgements. This, not surprisingly, does not happen. As a matter of fact, Hunston (1983, 1993, and 1994) argues that one of the chief functions of scientific research articles is to persuade the reader of the validity of the writer’s claims, and to accomplish this purpose, the work of the writers and of other researchers is constantly evaluated along the text distribution. For instance, the claims restricted to data descriptions are not inherently scientific, they are the result of a process of negotiation, because ultimately research
article authors aim at publishing. As matter of fact, the same claim may be considered as a ‘well-defined’, a ‘highly significant’ or a ‘well-known’ observation, depending on the body of literature into which it is placed and the audience which is supposed to read it.

Academic writing is as rhetorical as any other genres, no matter how technical and apparently detached a scientific paper might appear, its discourse is designed to influence readers of the objectivity of its methods and the reliability of its findings. Hunston wants to contradict the general idea that ‘evaluation is personal and scientific writing impersonal, so that a research article cannot be evaluative’ (1983: 58).

In the present investigation, this statement is crucial but it needs a starting point, the starting point is the lexical item. On the one hand, lexical items, defined for the purpose of this thesis as ‘research process’ words, signal the specific phenomenon of evaluation; on the other hand, collocational analysis of these words sheds light on specific linguistic patterns. The framework for measuring and analysing peculiarities of the research articles abstracts will be provided in the next section ‘Data and Methodology.’
Chapter 2: Data and Methodology

2.1 Methodology

In the present section the methodology adopted, a three-fold approach, is explained in detail.

The methodology used for the present dissertation is a combined approach of methods from Genre Analysis, Corpus Linguistics and Discourse Analysis. These three disciplines, as mentioned in the Theoretical Background section, focus on different aspects in language but they are closely related to each other.

Genre Analysis, evidently, focuses on genre, Corpus Linguistics adds emphasis on real data while Discourse Analysis studies language in use and language in social context. The derived methodology consists of three phases. First, research article abstracts are analysed according to their structure. This first phase is based on move analysis. Secondly, collocational analysis is performed on investigated words by means of WordsmithTools 4 in order to identify recurrent pattern. Third, precise fragments of text, in the vicinity of the investigated words, are used to analyse evaluation.

Nevertheless, although these phases appear to be well defined they are performed according to a chronological order just for convenience. On the contrary, these steps do not have precise boundaries but are quite fuzzy and strictly connected to each other. Each phase of the methodology is further described in three subsections thus, there is: the Move Analysis, the Research-Oriented Evaluation Analysis and, the Collocational Analysis subsection.
Nevertheless, first details about the corpus are provided for describing the collected data.

### 2.2 Data

In order to analyse the structure of scientific research article abstracts, a corpus of abstracts has been built. It consists of 1035 abstracts with about 190,000 words\(^3\). For research in corpus linguistics this may seem a very small corpus, especially in comparison with the BNC, 100 million word collection of samples of written and spoken language from a wide range of sources, designed to represent a wide cross-section of British English from the later part of the 20th century.

However, building a corpus of abstracts, especially transforming a non compatible format (PDF format) in a format (plain TXT format) readable by concordancing programmes is a very time-consuming activity. Given the small size of abstracts, usually less than 250 words, but sometimes even less, a time span of five years has been taken into account.

However, as Hunston and Sinclair (2000) have pointed out, small corpora are not necessarily bad; in some cases a small corpus is the right choice. The analysis presented in this dissertation required a lot of human input, and therefore its size has to be kept down to make the analysis possible. Nevertheless, whenever possible, automatic processing has been used.

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\(^3\) In Corpus Linguistics words are usually divided in type and token. The latter indicates a word occurrence while the former indicates a word form. In the present corpus, as a whole, there are 183,799 tokens and 12,104 types.
The corpus (about 190,000 words) is made up of research article abstracts from two international scientific journals: 360 texts from *The International Journal of Primatology* (hereafter IJP) and 675 from *Mathematics and Computers in Simulation* (hereafter MCS)\(^4\). The time span taken into consideration is from 2000 to 2005.

No conditions have been imposed on abstracts’ place of publication or the authors’ mother tongue. However, the quality of English is high enough to meet the journal’s requirements for being published. Presumably, the standard of English used by both journals is the international English considered as a *lingua franca* or English for academic purpose EAP (cf. Seidlhofer 2001, Meierkord 2002, and Mauranen 2003). Nevertheless, the native or non-native speaker aspect would have better reflected the use of English in the scientific research community.

The two journals are from rather different scientific fields. The *International Journal of Primatology* brings together laboratory and field studies related to primate biology and the conservation of primates and their habitats. *Mathematics and Computer in Simulation* publishes articles on specific applications of modelling and simulation in science and engineering, with relevant applied mathematics, the general philosophy of systems simulation, and their impact on disciplinary and interdisciplinary research.

As the American National Standard for Writing Abstracts — ANSI Z239.14-1997 — suggests: “an abstract is an abbreviated, accurate representation of the contents of a document, preferably prepared by its author(s) for publication with it”.

In the present investigation, an abstract consists of:

\(^4\) IJP has 85,571 tokens while MCS has 98,181.
- Title;
- Text of the research article abstract;
- Keywords.

Authors name and affiliations have been deleted because not considered relevant for the scope of the present study. It is worth mentioning that nowadays, the practice of using keywords in an abstract is common and absolutely vital because of today's electronic information retrieval systems. Titles and abstracts are filed electronically, and keywords are put in electronic storage. When people search for information, they enter keywords related to the subject, and the computer prints out the titles of articles, papers, and reports containing those keywords. Thus, journals request abstracts to contain keywords about what is essential in an article, paper, or report so that someone else can retrieve information from it.

In the present investigation, keywords have not been deleted because even though they do not contribute to the analysis they may be taken into account for further studies.

In the *International Journal of Primatology* it is specified that length of abstracts has to be less or equal to 250 words with 4-5 keywords. In detail:

The Abstract and main text should be written in active voice throughout, i.e. employ I/we in relating what you did, observed, etc. Every sentence should have an explicit subject; if you were the actor, use I or we as appropriate for the number of actors. Use last names of authors or field assistants if you wish to signal individual observers who conducted specific components of your study versus the collective we throughout the text. FAILURE TO USE ACTIVE VOICE REQUIRES RETURN OF THE MS TO THE CORRESPONDING AUTHOR FOR AMENDMENT AND MIGHT
On the other hand, details about the structure of the abstracts of the journal *Mathematics and Computers in Simulation* are provided in the following description:

A concise and factual abstract is required (10-20 typed lines). The abstract should state briefly the purpose of the research, the principal results and major conclusions. An abstract is often presented separate from the article, so it must be able to stand alone. References should therefore be avoided, but if essential, they must be cited in full, without reference to the reference list. Keywords: Immediately after the abstract provide a maximum of five keywords, avoiding general and plural terms and multiple concepts (avoid, for example, and, of, etc.). Be sparing with abbreviations: only abbreviations firmly established in the field may be eligible. These keywords will be used for indexing purposes. (From *Mathematics and Computers in Simulation*)

It appears quite clear that IJP focuses on the content and the actor of the research while MCS focuses on the IMRD structure of the research. However, in both cases these norms do not provide efficient help for writing abstracts because most of the time, abstracts are not well structured.

In the IJP corpus, the average length in words is between 200 and 250 but there are extreme cases like 347_IJP that has 377 words and 3_IJP that has 88 words. These two borderline cases show that even though norms about layout exist these are not observed *verbatim*.

In the MCS corpus average length is lower, about 150 words with a minimum of 49 words in 520_MCS and a maximum length of 266 words

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[^5]: http://www.springer.com/uk/home/life+sci?SGWID=3-10027-70-355705840&detailsPage=contentItemPage&contentItemId=142956&CIPageCounter=CI_FOR_AUT HORS_AND_EDITORS_PAGE0 (viewed on 25 July 2007);

[^6]: http://www.elsevier.com/wps/find/journaldescription.cws_home/505615/authorinstructions (viewed on 25 July 2007);
in 123_MCS. However, abstracts in IJP and in MCS can be both defined as informative rather than descriptive abstracts. The main distinction between informative and descriptive abstracts is that the latter do not provide results, conclusions, or recommendations so that readers have to read the entire paper to find out the author’s results, conclusions, or recommendations. Whereas, an informative abstract, as its name implies, provides information from the body of the study — specifically, the key facts and the conclusions. To put it another way, this type of abstract summarises, or should summarise, the key information from every major section in the body of the research paper. MCS focuses, due to the topic itself, more on the methodology for instance on how precise algorithms are applied to different analysis. Sometimes results are not mentioned because the use of that precise methodology is the result itself.

On the other hand, IJP covers up an umbrella topic because it is concerned with different disciplines such as: Anatomy, Ethology, Cognition, Ecology, Conservation, Genetics, Evolution, and, Physiology. IJP is more similar to soft science therefore it shifts focus between methodology, in the case of social learning, to relevant results, in the case of molecular biology. As a matter of fact, social learning results deal more with animal behaviours rather than with number or other more ‘numerical’ results. On the other hand, molecular biology provides more countable results dealing with numbers and DNA distribution.
2.3 Move Analysis

The present investigation uses an approach to move analysis that is a combination of Swales and dos Santos theories. The refined categories are listed according to the following table:

- Move 1 – *Introducing topic* – provides the general context and situates the specific field of the research;
- Move 2 – *Stating a gap in knowledge* – claims a specific subject that needs to be investigated and a gap in knowledge;
- Move 3 – *Stating the purpose of the study* – claims what the study is about and the aim of the investigation;
- Move 4 – *Introducing method* – provides methodology carried out in the investigation;
- Move 5 – *Claiming findings* – summarizes findings and results;
- Move 6 – *Concluding Remarks* – discusses conclusions and further hypotheses of the study.

Table 2.1 Moves structure used in the present research study.

After defining these categories, move analysis procedure consists, practically, in reading abstracts carefully at least twice, and classifying each sentence against those moves.

Abstracts from IJP have been read also by a researcher biologist, while abstracts from MCS, due to time constraints, have not been analysed by someone else. Particularly, in MCS language is clumsier, due to the topic of hard science. Nevertheless, when the topic is hard to pin down, title is a useful device in order to shed light on the subject of the abstract.

After reading the titles, first move to identify is Move 3 then Move 1 and then the remaining four. Not all these moves are always present, neither they are so well-defined, nor they occur according to the established order.
As previously mentioned, in the Theoretical Background section, the phenomenon of *moves embedding* occurs very often, thus the same move can present methodology and results at the same time.

Abstracts are manually tagged because automatic tagging, even though possible in theory, is hard to put into practise. Semantic tagging and semantic annotation (cf. McEnery and Wilson 1996) are not hard to realize but automatic taggers and parsers have limited accuracy while manual annotation is only limited by the person-time available.

In short, tagging is a way to classify certain entities in written or spoken text. The tagging process consists of two steps:

1. Identifying the instances that shall be classified (tagged);
2. Classifying (tagging) these instances by assigning certain categories.

The categorisation is different depending on what type of material is to be tagged. One of the categorisations that first came to mind, because is very common in Corpus Linguistics, is part-of-speech (POS) tagging. That is: a specific entity (word) in a context (sentence) is to be marked with its POS tag. A POS tag can be, for example, ‘N’ for noun.

Software like CLAWS, a part-of-speech tagger elaborated at the University of Lancaster, works perfectly fine for the issue of syntactic tagging. However, in the present investigation the focus is on move structure and unfortunately, this is not as easy as syntactic categories to predict. It can be defined *a priori* with a high percentage of certainty, but careful reading is the best way to label different sentences. In the present study, tagging elements consist of basic Extensible Markup Language – XML. This markup language has been designed to describe data and to focus on what data are; in the present thesis, basic XML is structured according to the following table:
Tagging elements consist of basic Extensible Markup Language. This is a very essential structure but it is important that once a tag is open it has to be closed properly, according to the ‘grammar’: `< ></ >`. In addition, every file is identified (as ‘head’) with a number and the acronym of the journal, according to specific strings like `<abstract id: 1_IJP >` or `<abstract id: 1_MCS>`, they stand respectively for file number one of *The International Journal of Primatology* and file number one of *Mathematics and Computers in Simulation*. Titles and keywords have also been tagged.

Tagging performed in this research study can be defined as ‘Problem-oriented tagging’ (cf. de Haan 1984). This implies that the corpus has been annotated, according to a personal form of annotation, (but clear enough to be easily replicable) tagging is oriented particularly towards a specific research goal, in the present investigation the goal is move analysis. As previously mentioned, manual annotation is a very time consuming activity therefore the corpus has been annotated only partially. In particular, files that have been annotated are only those where ROE appear to be present, because collocation analysis is performed only in those fragments of texts where research-topic evaluation is present either as implied or clearly expressed\(^7\).

\(^7\) It is important to bear in mind that the focus of the present dissertation is on ROE and not on evaluation in general. In particular, the investigation analyses how ROE is distributed intra-text (in the different moves of the same text) and inter-text (in texts from different corpora).
This tagging procedure is applied to plain text files. Once the file has been tagged, it is saved as UCS/Unicode Transformation Format—8-bit—UTF-8. This new file extension is an encoding that suits XML requirements and lets the page to be browsed easily. As a matter of fact, the last step of the tagging procedure is to open the file by a browser, either Internet Explorer or Firefox Mozilla. The following picture clearly shows a file tagged and browsed:

```
<abstract id='15_MCS'>
  <p>A general circulation model of the atmosphere using the full-Galerkin method</p>
  <p>Keywords: Galerkin method; Atmosphere; General circulation model</p>
  <p>A general circulation model using a full-Galerkin method is developed for the simulation of atmospheric climate and variability.</p>
  <p>Two variants of the Galerkin method, the spectral-transform method and the finite-element method, are used in this model for the horizontal and vertical representation, respectively.</p>
  <p>The baroclinic dynamics of this model are examined by performing linear normal mode and nonlinear lifecycle calculations of baroclinic waves.</p>
  <p>The results suggest that the finite-element method resolves the vertical structure of the baroclinic normal mode better than the finite-difference method.</p>
  <p>The generation, propagation, and decay of baroclinic waves are well simulated in this model.</p>
  <p>A long-term integration was carried out with a zonally symmetric forcing applied to the GCM.</p>
  <p>The simulated climate with a flat topography and that produced in the model hemisphere with an idealized mountain are compared.</p>
  <p>The results suggest that the presence of mountains does not alter the meridional structure of the zonal mean circulation.</p>
  <p>Comparisons of these time-mean statistics to observed winter time statistics in the real atmosphere indicate that this GCM produces a reasonable general circulation of the atmosphere.</p>
</abstract>
```

Figure 2.1 An example of a tagged file

The tagged file above is 15_MCS from the journal Mathematics and Computers in Simulation. In the upper left corner there is the identity code of the file and then tags are respectively: title, keywords, purpose of
the study, methodology, findings, methodology again, findings again and in the end the final tag is the conclusion section.

Apparently, ‘introducing topic’ and ‘stating gap in knowledge’ moves are missed. Furthermore, it is worth mentioning, that method and findings sections are spread across the text.

The only practical problem to cope with while tagging is that hard science uses technical jargon as well as complex symbols like ‘<’ and ‘>’ these respectively means inferior to and superior to, but unfortunately XML, HTML and SGML use the so-called ‘entity references’ for symbols which are outside the standard alphabet. XML in particular recognizes the above mentioned symbols as an opening tag without the closing tag e.g.: ‘/>’. Therefore, in the text these symbols have been spelled out literally in order to avoid the mismatching.

2.4 Research-oriented Evaluation Analysis

As already noticed, the methodology consists of three phases. In detail, the second phase of the investigation is the collocational analysis. The main aim is to investigate the collocational behaviour of particular words (words which typically co-occur) that will be defined, later in this section, as research process words\(^8\). These words are: analysis/es, data, evidence/s, finding/s, investigation/s, method/s, methodology/ies paper/s, procedure/s, research/es, result/s, study/ies, and theory/ies.

However, before starting phase 2 and running concordances on these words, it is necessary to define which aspect of evaluation will be taken into account and how research process words have been chosen.

\(^8\) The selection criterion will be explained further in the present subsection.
As already noticed in the Theoretical Background section, the main assumption is that genre and evaluative lexis are strictly related and dependent on each other. Hunston (1993) suggests that “evaluation is genre specific” and Mauranen (2004) that “evaluation is ubiquitous” In addition, it is necessary to bear in mind the distinction between research-oriented evaluation — ROE — and topic-oriented evaluation — TOE — as suggested by Thetela (1997). In ROE, the researcher plays an active role in reporting his/her own research or experiment. In TOE, the researcher observes the real world, and his/her point of view is neutral, and cannot affect the real world.

In the following extracts, examples of both ROE and TOE are proposed to highlight the main difference, respectively the former excerpt is from the *International Journal of Primatology* while the latter is from *Mathematics and Computers in Simulation*, evaluative attribution is in italics, whereas the evaluated entity is in bold face:

1. I provide the *first comprehensive data* on the composition and mineral content. (From file number 5 of the *International Journal of Primatology*)

2. The *proposed method* is *computationally efficient* and is *suitable* for on-line implementation. (From file number 484 of *Mathematics and Computer in Simulations*)

In the above extracts both *method* and *data* are evaluated. These two words belong to the research process aspect of the investigation, therefore they signal research-oriented evaluation.

On the other hand, TOE is realised in the following examples, where italics indicates evaluation related to the investigated topic:

3. *Adaptive advantages of killing* plausibly include eliminating resource competitors of females, and sexual selection on males. (From file number 2 of the *International Journal of Primatology*)
Individuals with more prognathic faces and taller mandibular corpora have greater physiological cross-sectional area (PCS) and hence force values... This positive allometry counters the less efficient positioning of masticatory muscles in longer-faced macaques. (From file number 9 of the *International Journal of Primatology*)

What is evaluated in the former fragment is the subject matter of the study and not the research carried out in the study.

The analysis in the present thesis will focus specifically on ROE. Refining the aim, the purpose of the present investigation is to analyse those peculiarities related to evaluative lexis in a specific genre. Thus, it is necessary to find an appropriate way in order to pick those stretches of text that, in research article abstracts, represent aspects of the research process.

My starting point is the move analysis. Move analysis is an efficient way in order to define what the topic of specific parts in the text is. Therefore it can be easily established what part of the text is either *Introduction*, or *Gap in knowledge*, or *Purpose of the study* or *Method*, or *Findings* or *Conclusion*. These categories are not watertight and sometimes they might overlap. However, it is worth mentioning that these different parts of the text show frequent use of specific words like *analysis*, *analyses*, *data*, *evidence/s*, *finding/s*, *investigation/s*, *method/s*, *methodology/ies*, *paper/s*, *procedure/s*, *research/es*, *result/s*, *study/ies* and *theory/ies*.

These words belong to the concept of process in Hallidayan terms (cf. Halliday 1994:109) especially the material ‘process of doing’, although the logical elements *actor*, *process* and *goal* are, in a way, present altogether just in the words themselves.

To be more precise, in the Hallidayan example *the lion caught the tourist*, the *lion* is the actor, *caught* is the process and the *tourist* is the
goal. The words previously mentioned (analysis, data, method etc.) have always the same actor (the researcher) and encapsulate the action. As a matter of fact, in a study the research process implies that the researcher analyses and investigates data (that have been previously collected) by a viable method for a specific purpose. Then, s/he will obtain evidence and findings that make up a theory that, eventually, will allow the researcher to write significant results in a paper.

Accordingly, these words can be defined as research process words, because they emphasize the research process aspect in the text of research article abstracts.

Nevertheless, it is worth mentioning, that these research process words appear to be very frequent in the wordlist of both corpora. Thus, intuition leads me to think that running concordances on these terms may help to understand which words occur very frequently when research-oriented evaluation is construed. In such a way, research-oriented evaluation can be finally identified.

2.5 Collocational Analysis

The second phase of the present investigation is the collocational analysis. The analysis of collocational patterns in both corpora is performed by means of WordsmithTools 4 (Scott, 2004). As a matter of fact, the main aim is investigating the collocational behaviour of words which typically co-occur with the research process words.

WordSmith Tools has been used to investigate how words are used in the two corpora, because words enter into meaningful relations with other words around them. This software is an integrated suite of
programs for looking at how words behave in texts; it has several tools, however in the present analysis important functions are *WordList* and *Concord*. *WordList* creates word lists, ordering them by frequency and alphabetically. *Concord* locates all references to any given word or phrase within a corpus, showing them in standard concordance lines with the search word centred and a variable amount of context at either side. Analysing concordance data is the most detailed part of the corpus study. Running concordances by means of concordance programmes like *Wordsmith Tools*, *Concapp*, *Antconc* or *Concgram* implies that examples of the investigated word appear in a format known also as *KeyWord in Context* or KWIC. As Tognini-Bonelli (2001: 3) suggests “[a] corpus, examined at first in KIWIC format […], is read vertically, scanning for the repeated patterns present in the co-text of the node”. The ‘node word’ or keyword is displayed in the centre with a small amount of context on each side. Sinclair (1991) suggests that:

The length of citation could be counted by character (as in KIWIC) or by word, or by finding punctuation marks to identify sentences or by a whole range or more sophisticated criteria. (1991: 43)

In the present study, single words are located in a context of minimum of five words to the right and to the left — +5L or +5R — this is the standard for length of citation, as suggested by Sinclair (2004:141) because collocation is “the co-occurrence of words with no more than four intervening words”. However, as a word or a phrase is studied it may become clear that more context is needed.

As a matter of fact, in the present investigation usually longer stretches of text are analysed in order to fully understand the phenomenon of evaluation. Since the present dissertation investigates the use of specific nouns, these are first sorted by words on the left that
premodify the noun and then first and second words to the right. Afterwards, these words are analysed in detail. For instance, the following concordance lines of the word method, in the IJP corpus, display the node word aligned in the centre as blue and the first word that occurs to the left of the node word is marked as red:

Figure 2.2. Concordance lines of the word method in IJP

In the previous concordance lines, from a superficial glance there is little or no surface regularity. The concordance alphabetized to the left does not show any immediate patterning of word co-occurrence, or collocation but on the contrary illustrates that method is more likely to be premodified either by an adjective or by a noun rather than by the determiner the or this. This process is very much ‘bottom-up’, “from the observation of the most immediate and repetitive pattern to hypothesis and generalization” (Tognini-Bonelli 2004: 17). Of course, once the concordance lines format is displayed, the researcher has to focus on the procedure of investigation. Mahlberg (2005: 54) suggests that:

Repeated patterns are indication of the relationship between meaning and form. However, identification of groups of words that function together as a meaning of unit is not straightforward.
This is why we cannot study patterned data in a corpus without keeping a theory in mind. Sinclair (2004: 2) claims that:

The advantage of a robust and popular theory is that it is well tried against previous evidence and offers a quick route to sophisticated observation and insight. The main disadvantage is that, by prioritizing some patterns, it obscures others.

The present study is primarily a corpus-based study because the starting point is the investigation of precise words defined by specific criteria as research process words (Halliday 1994). On the other hand, the wordlist of both corpora shows that these research process words appear to be amongst the most recurrent words. This aspect is worth mentioning because frequency in the wordlist can be used as a control element for the corpus-based approach.

However, it is important to emphasize (cf. Tognini-Bonelli 2004) that corpora, especially self-made corpora, are meant to provide evidence for precise hypotheses. Either a top-down or a bottom-up methodological approach can, also, provide the same evidence but by means of different procedures. The same corpus can serve different purposes. Corpora can be distinguished according to the function they have and the insights they can offer for different linguistics enquiries. This is not the appropriate section to provide further information about this issue, nevertheless it is important to highlight that the methodology of a corpus-based approach leads the research in a way different from a corpus-driven approach.

As a matter of fact, the corpus-based methodology is in part automatic because the computer carries out a relatively simple matching and counting exercise and shows a list of recurrent structures. On the other hand, it may omit information that cannot
be found by this method. Therefore alongside with the automatic aspect of frequency of co-occurrence generated by computer software alone there is the need of a complementary methodology performed by the human researcher, that is the interpretation of the data the ‘reading concordances’ procedure (cf. Sinclair 2003). This aspect is more related to the discourse analysis aspect of the research study.

The corpus-based approach is a method that uses an essential corpus as an inventory of language data. From this repository, appropriate material is extracted to support intuitive knowledge, to verify expectations, to allow linguistic phenomena to be quantified, and to find proof for existing theories or to retrieve illustrative samples. It is a method where the corpus is interrogated and data are used to confirm linguistic pre-set explanations and assumptions. It acts, therefore, as additional supporting material. Tognini-Bonelli (2001: 66) suggests that:

In this case, however, corpus evidence is brought in as an extra bonus rather than as a determining factor with respect to the analysis, which is still carried out according to pre-existing categories; although it is used to refine such categories, it is never really in a position to challenge them as there is no claim made that they arise directly from the data.

Although by this approach pre-existing categories cannot be challenged and it cannot provide for unexpected findings, it is undoubtedly useful when there is a precise hypothesis to test. As a matter of fact, the present corpus has been investigated having in mind a precise set of words, and has been searched for samples to either invalidate or verify and quantify a precise assumption. However, sometimes eliciting response from the corpus and incorporating them into the paradigmatic description appear
to be uncertain. Introspection plays a pivotal role for the interpretation of textual evidence, for the analysis of collocation results and for the identification of lexical relations.

After running concordances, and careful reading stretches of texts to understand whether research or topic-oriented evaluation is realized; the investigation proceeds with collocation analysis in those fragments of texts where only ROE is present either as implied or clearly expressed.

The main purpose of the investigation is to find recurrent patterns for each research process word and to verify whether or not all the investigated words share common patterns. In detail, recurrent verbs, adjectives or any relevant grammatical structure are investigated if they appear with a certain recursiveness. For instance, if we refer to the file tagged 15_MCS on page 42 it is interesting to notice that evaluation is construed in the ‘claiming findings’ section of the abstract, it refers to the investigated word results and the recurrent pattern is: the results suggest.

More excerpts provide more complex structure and pattern, but another important criterion for the analysis is the ‘semantic preference’ as defined by Sinclair (2003: 178) “sometimes in the structure of a phrase there is a clear preference for words of particular meaning”. This implies that concordance lines will be inspected also for looking at words or phrases that are semantically similar. The focus is on repeated events rather than on single occurrences, because as Sinclair (1996: 78) suggests:

This initial state does not mean that unique one-off events are necessarily ignored but rather they cannot be evaluated in the absence of an interpretative framework provided by repeated events.
Thus, language patterns usually are taken into consideration if they occur at least twice. When a reliable description of regularities is assembled then it is possible to build up generalizations and read those against former theories.

In the present study, the focus is on the distribution of evaluation across the text and on evaluation as a phenomenon characterised by recurrent patterns.

When the term pattern is used it is meant that the starting point of the analysis is the item, the lexical item under investigation, and then the analysis goes to the environment of the item, that is the pattern where the item appears to be. In this way, excerpts are grouped first according to the rhetorical phenomenon of evaluation, either positive or negative. Then semantic preference controls the collocational and colligational pattern, and finally extracts are grouped on the basis of grammatical construction. For instance, if we refer again to the excerpt number 1 on page 44:

1. I provide the **first comprehensive data** on the composition and mineral content.

In this extract, the lexical item is *data*, positive evaluation is construed by the positive adjectives *first* and *comprehensive* and ultimately these adjectives will be present somewhere else referring to other research process words.

Further details about how the methodology works will be provided in the Findings section.

As I tried to explain in the present chapter, the methodology is a 3-phase methodology and even though these three phases appear to be independent they are absolutely connected to each other. The
chronological order is first move analysis and then ROE analysis, as displayed in the following figures:

![Figure 2.3 An example of Move analysis](image)

The figure above shows how each sentence is labelled with a move. While in the next one ROE is identified against precise sentences.

![Figure 2.4 an example of ROE analysis](image)
However, it is important to bear in mind that the methodology shows very often a sort of overlap of the three phases, this because it is supported by theories coming from Corpus Linguistics and Discourse Analysis. As Sinclair (1997: 29) suggests: “the main organizing procedures for composing utterances are subliminal and not available to conscious introspection”, and intuition works with viable theories at the same time.

While elaborating an appropriate methodology for the present dissertation, several issues have been raised. Amongst these, one concerned with evaluation is particularly worth mentioning.

The list of lexico-grammatical elements that can be used for evaluation is endless, grammatical categories are represented mainly by adverbs and adjectives but also by adjuncts, verbs and nouns. However, it would be pointless to take a list of possible evaluators as a starting point for investigating evaluation, basically because in a corpus linguistics study this analysis might result to be very time consuming and also because checking what evaluators occur in the corpus, would only provide a limited perspective on the evaluation present in this corpus.

In addition, it has already been mentioned that evaluation is genre specific therefore adjectives like beautiful or ugly will never appear in a scientific genre like research article abstracts, therefore even the non-occurrence will be not useful for the entire research.

Hunston (1993) suggests that in scientific texts precise adjectives may be explicitly evaluative such as: significant, important, fundamental, crucial, marginal and so on.

At an earlier stage, the present thesis was meant to focus on these polar adjectives. However, since the main scope is to focus on research-
oriented evaluation and not taking into consideration topic-oriented evaluation, this methodological approach would have been misleading.

Furthermore, there are no existing large-scale corpora that are suitable just for ROE analysis. The only reference corpus quite useful might result to be the academic register of the BNC written part. Amongst several scholars, Stubbs (cf. 1997: 107, 111) emphasises the need to compare features of texts with language norms, and suggests using a corpus for this purpose. He also stresses the necessity of using a large body of data, so that reliable generalisations can be made about typical language use.

However, to my knowledge there are no existing corpora that would have been suitable for my purpose. The only other alternative, to design a large-scale corpus myself, would have been far too time-consuming. In view of these issues I decided upon a smaller corpus as a basis for my analysis, even though this may mean that the conclusions are not always statistically definite and wholly representative of scientific research article abstracts discourse as a whole. The major structural categories proposed in the present dissertation collocation, colligation, semantic preference and semantic prosody will assume a rather central role in the language description of scientific research article abstracts.
Chapter 3: Findings

3.1. Analysis of the research process words

In the present section the research process words (RPWs) will be analysed in detail in the two corpora. As already mentioned in the methodology section, the investigated words are listed in the following table:

<table>
<thead>
<tr>
<th>SINGULAR RPWS</th>
<th>PLURAL RPWS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis</td>
<td>Analyses</td>
</tr>
<tr>
<td>Evidence</td>
<td>Evidences</td>
</tr>
<tr>
<td>Finding</td>
<td>Findings</td>
</tr>
<tr>
<td>Investigation</td>
<td>Investigations</td>
</tr>
<tr>
<td>Method</td>
<td>Methods</td>
</tr>
<tr>
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<td>Methodologies</td>
</tr>
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<td>Paper</td>
<td>Papers</td>
</tr>
<tr>
<td>Procedure</td>
<td>Procedures</td>
</tr>
<tr>
<td>Research</td>
<td>Researches</td>
</tr>
<tr>
<td>Result</td>
<td>Results</td>
</tr>
<tr>
<td>Study</td>
<td>Studies</td>
</tr>
<tr>
<td>Theory</td>
<td>Theories</td>
</tr>
</tbody>
</table>

Table 3.1. RPWS grouped by word forms.

The above list shows different lemmatised forms (i.e. result and results) although different word forms of the same lemma are not always present. When different word forms are not mentioned the explanation is because either there are no other word forms in the wordlist or because no evaluation has been retrieved. For clarity’s sake the following table displays the frequency of the RPWs in the singular and plural form in the IJP and in the MCS corpora and whether or not ROE is connected to these words:
<table>
<thead>
<tr>
<th>Research Words</th>
<th>Process</th>
<th>IJP Freq.</th>
<th>MCS Freq.</th>
<th>IJP ROE</th>
<th>MCS ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis</td>
<td>63</td>
<td>212</td>
<td>3 (2+, 1-)</td>
<td>25+</td>
<td></td>
</tr>
<tr>
<td>Analyses</td>
<td>38</td>
<td>14</td>
<td>4 (3+, 1-)</td>
<td>2+</td>
<td></td>
</tr>
<tr>
<td>Data</td>
<td>182</td>
<td>193</td>
<td>27 (15+, 12-)</td>
<td>11 (9+, 2-)</td>
<td></td>
</tr>
<tr>
<td>Evidence</td>
<td>67</td>
<td>15</td>
<td>25 (14+, 11-)</td>
<td>12 (10+, 2-)</td>
<td></td>
</tr>
<tr>
<td>Evidences</td>
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<td>1</td>
<td>0</td>
<td>1+</td>
<td></td>
</tr>
<tr>
<td>Finding</td>
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<td>19</td>
<td>0</td>
<td>2+</td>
<td></td>
</tr>
<tr>
<td>Findings</td>
<td>49</td>
<td>4</td>
<td>15 (12+, 3-)</td>
<td>4+</td>
<td></td>
</tr>
<tr>
<td>Investigation</td>
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<td>24</td>
<td>1+</td>
<td>0</td>
<td></td>
</tr>
<tr>
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<td>6</td>
<td>4</td>
<td>1+</td>
<td>1+</td>
<td></td>
</tr>
<tr>
<td>Method</td>
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<td>5 (4+, 1-)</td>
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<td></td>
</tr>
<tr>
<td>Methods</td>
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<td>220</td>
<td>4+</td>
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<td>1+</td>
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</tr>
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<td>2+</td>
<td>1+</td>
<td></td>
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<td>9+</td>
<td></td>
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<td>11 (8+, 3-)</td>
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<td>Researches</td>
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<td>0</td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>31</td>
<td>31</td>
<td>1+</td>
<td>12 (9+, 3-)</td>
<td></td>
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<tr>
<td>Results</td>
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<td>16+</td>
<td>49 (46+, 3-)</td>
<td></td>
</tr>
<tr>
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<td>111</td>
<td>9 (8+, 1-)</td>
<td>12 (10+, 1-)</td>
<td></td>
</tr>
<tr>
<td>Studies</td>
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<td>22</td>
<td>11 (7+, 4-)</td>
<td>4+</td>
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</tr>
<tr>
<td>Theory</td>
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<td>94</td>
<td>2+</td>
<td>7 (5+, 2-)</td>
<td></td>
</tr>
<tr>
<td>Theories</td>
<td>5</td>
<td>4</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.2. RPWs and ROE frequency in MCS and in IJP

The present table shows, on the one hand, the frequency of the research process words in singular and in plural form, on the other, the research-oriented evaluation frequency when it occurs. The symbol + stands for positive evaluation while the symbol – stands for negative evaluation. In particular, it is worth mentioning that the word form researches does not occur in both corpora, while methodologies does not occur in the IJP corpus but occurs only once in the MCS as an evaluative term. Theories does not occur in the IJP corpus while occurs in the MCS but it is never

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9 ROE is calculated here on raw data. Later on in the dissertation, in the ‘Discussion section’ ROE distribution will be normalised.

10 In the present study author’s statements about the inefficacy of his/her own study or about other authors’ studies are considered as signals of ‘negative evaluation’.
evaluated. *Evidences* occurs only once in both corpora but it is evaluated only in the MCS corpus, like *finding*. On the other hand, the word *investigation* is evaluative only once in the IJP corpus and last the term *procedures* occurs only in the MCS corpus but it shows no signs of ROE. As far as the other research process words are concerned, not surprisingly, they are mostly evaluated as positive rather than negative terms. Further details about the analysis of every word are provided in the following subsections.

Investigation of the single words is based on collocational analysis performed by means of *WordSmith Tools*. Each RPW is analysed from a rhetorical and grammatical point of view, to explain evaluation and recurrent grammatical and lexical patterns.

However, considering both corpora as a unique corpus of academic texts (research article abstracts) may show some interesting elements. As a matter of fact, the RPWs, at least most of them, appear to be very frequent in the wordlist of both corpora. This aspect may not appear very relevant in a ‘corpus-based study’, however it can be defined as a control element for the scientific rigour of the corpus-based methodology.

<table>
<thead>
<tr>
<th>Number</th>
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<th>Frequency</th>
</tr>
</thead>
<tbody>
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<td>Study</td>
<td>240</td>
</tr>
</tbody>
</table>

*Table 3.3. Top 100 RPWs in the wordlist of both corpora*

The table above lists the top recurrent 100 words of the research process words in the wordlist of both corpora.
As already mentioned in the methodology section RPWs are defined as such because they highlight the research process aspect in scientific studies. Words do not function in isolation but are co-selected with other words to produce meaning (cf. Hunston and Francis 1998; Partington 1998; Sinclair 1991 and, Stubbs, 2001), these words are the starting point for the present investigation; if we pay attention to the previous table some of them appear to be recurrent in the singular form or in the plural form however, aiming at a more complete picture, different forms are also taken into account, albeit they are not as frequent as the previous words, especially for the words: studies, result and papers.

Furthermore, it is worth mentioning that finding and findings are semantically similar to results\textsuperscript{11} and they appear to be very present in the abstracts’ moves, therefore they have been taken into account as well. One of the RPWs procedure may be considered as a synonym of method and research and investigation as synonyms of analysis. Therefore these terms have been taken into consideration although they are far away from the first 100 occurrences in the wordlist.

Two other interesting terms that occur quite often in the structure of the move analysis are: theory and evidence, these terms are strictly connected with the research process activity intended as mental process, thus they have been taken into account, although they are not present in the first 100 occurrences.

Corpus Linguistics investigations, like some of the analyses, previously mentioned in the Theoretical Background section, work on sample or partial parts of the corpus and then they make up generalizations, based on the principle that words are not purely

\textsuperscript{11} In the present study the term ‘semantic similarity’ refers to the definition of RPWS provided by the dictionary.
independent entities in that they derive their meaning in association with other words in the co-text. The following bar charts show the occurrence of the RPWs per word forms in both corpora.

**Figure 3.1. Singular RPWS in IJP and in MCS**

**Figure 3.2. Plural RPWS in IJP and in MCS**
In this chapter each word illustrated in the previous figures is analysed in its context in order to retrieve ROE and any relevant pattern. However, if corpus linguistics is considered as an investigating procedure of text fragments then evaluation is hard to identify because it cannot rely on text fragments. Therefore, context taken into account during the collocational analysis goes beyond the standard +5L and +5R, because linguistic means of evaluation are highly context-dependent.

For the purpose of the analysis, several excerpts, numbered chronologically, are then displayed where evaluated entities and research process words are in bold face while the ascribed value is underlined. As previously mentioned, in the methodology section, each extract is identified by the file number and the acronym of the journal i.e. IJP and MCS. Interesting and recurrent patterns will then be grouped and explained further in the discussion section.

3.1.1. Analysis in IJP

In the IJP corpus, the RPW analysis occurs 63 times but it is evaluative only 3 times, 2 times in a positive way and once in a negative way.

As a general rule of layout, in all the extracts reported, the RPW and the evaluated entity are in bold face while the evaluative attribution is underlined; file number and acronym of the journal are in brackets.

In the following extract number 1 analysis is positively evaluated because it provides an insight:

1. **Analysis** of the studbook provides an insight into the genetic diversity and demographic stability of the registered population. (52_IJP)
In the second excerpt, positive evaluation is realised by means of the positive adjective *accurate* that premodifies *analysis*:

2. in order to achieve accurate analysis of census data. (272_IJP)

On the other hand, in the example number 3 negative evaluation is construed in the construction: *little attention was given to...analysis technique*, however, although negative evaluation is first introduced, in the second sentence positive evaluation is construed as following: *...highlight the importance*

3. We compared our findings with those from an earlier study of similar species in Gabon, where little attention was given to the home range analysis technique. Together with studies of lemur spatial systems they highlight the importance of considering the method of home range analysis when it is to be applied to understanding social systems. (300_IJP).

It is worth mentioning, that this device of introducing evaluation first in a negative way and then hedging and turning it into a more positive one is quite recurrent, as the investigation will show along the collocational analysis.

**3.1.2. Analyses in IJP**

On the other hand, the plural word form *analyses* occurs 38 times and it is evaluative 4 times, 3 times it is positively evaluated while only once is slightly negatively evaluated.

4. Carefully integrated analyses of behavior, demography, and genetics among red howlers provide an independent example of how kin selection shapes social organization and behavior. 142_IJP

5. Results of the different analyses are mutually supportive and provided useful information for monitoring bodily condition and diseases. 313_IJP
In detail, positive evaluation is realised according to the following pattern:

*Analyses + provide + object*

Specifically, the analyses of something in particular (a behavior or different aspects) provide *independent example* or *useful information* for better understanding the main scope of the research study.

This pattern of positive evaluation is realised similarly in the following extract:

6. Our **results** indicate the **importance** of microhabitat **analyses** for the understanding of distribution patterns of species and for **successful** conservation planning. (169_IJP)

As a matter of fact the previous line may be paraphrased as ‘the analysis of microhabitat provides important results for understanding’. Thus, positive evaluation is signalled by the positive words *importance* and *successful*.

On the other hand, the following extract number 7 has, at first sight, slightly negative evaluation.

7. Previous molecular **analyses** have not adequately addressed the issue. To better understand the evolutionary history of these primates, we sequenced and subjected to phylogenetic **analysis** a 3.1 kb of 2 loci (TSPY and SRY) from the non-recombining portion of the Y-chromosome. (161_IJP)

Negative evaluation is signalled in the sentence *analyses have not adequately addressed the issue* but on the contrary, the construction *to better understand* introduces positive evaluation related to the analysis carried on in the present research study.
3.1.3. **Data in IJP**

The word *data* occurs 182 times in the IJP corpus. Positive evaluation is present in 15 of the 182 examples, while negative evaluation occurs in 12 examples. In the following extracts positive evaluation is realised:

8. I provide the first comprehensive *data* on the composition and mineral content of exudates eaten by saddleback (*Saguinus fuscicollis*) and mustached tamarins (*S. mystax*) and assess Garber’s (1984; 1993) hypotheses on the potential nutritional *importance* of exudates in the diet of tamarins. (5_IJP)

9. My *research* provides experimental observational *data* to complement field *data* and to *better* characterize the diets and food preferences of the African apes. (111_IJP)

10. Studies of sympatric species can provide *important* *data* to define how dietary and habitat requirements differ among them. (94_IJP)

The recurrent pattern may be summed up in these terms:

Someone or something (*I, my research or studies*) *provide/s data* about something else or for accomplishing (or not) a specific purpose.

The entity that provides the *data* is either abstract or concrete but when the entity is abstract (i.e. *research*) it is premodified by the personal adjective *my* that highlights the presence of the doer (the researcher). Furthermore, the word *data* is premodified by adjectives like *first, comprehensive, important* or *experimental and observational*. Intuitively, these are all polar adjectives with positive semantic prosody. *Experimental and observational* may be interpreted also as positive because they are ‘provided’ by the researcher with the main aim to *better characterize*, thus, connotation is evidently positive.

In the following fragment number 11 the cluster: *provide* co-occurs with *the first*. Here the actor of *providing* is none of the above mentioned subjects but on the contrary, the object *data* actually do the action.
However, *data* is premodified by the personal adjective *our* that implies the presence of the researcher.

11. Our *data* provide the first detailed information on the endocrine characterization of the ovarian cycle in *Pygathrix nemaeus* and *suggest* that social changes have the potential to impair ovarian function, likely as a result of increased activation of the HPA-axis due to stressful situations. However, because of relatively small sample size, particularly concerning the latter finding, more *data* are needed to confirm these results. (261_IJP)  

However, it is worth mentioning that although positive evaluation is introduced explicitly and is supported by the verb *suggest*, in the very last sentence: *more data are needed to confirm these results*, evaluation is negative. Furthermore, this is the very concluding sentence in the abstract. Thus the conclusion is definitively more hedged.

On the other hand, positive evaluation is construed in the two following examples:


13. We *present new data* on body weights of *Avahi* which, together with previously available body weights, *provide additional evidence* for recognizing eastern and western woolly lemurs as two distinct species. (45_IJP).

The sentence *we present new data* shows the active role played by the researcher in presenting positive *data*. In the example number 12 positive evaluation is slightly construed in the expression of carrying further comparative studies in the second stretch of the text. While in the example number 13 both the previous mentioned clusters and the second sentence *provide additional evidence* are fully positive evaluated.

In the five following examples positive evaluation is realised and although these do not seem to have in common the same pattern they certainly have structure similarities:
14. [Analysis of the studbook] also yields **invaluable data** on patterns of fertility and mortality occurring under the prevalent management conditions. This information is equally **relevant** to **research** and to captive management. (52_IJP).

15. **Sufficient data** are now available from both nuclear and mitochondrial sequences to examine relationships among and within the major groups of living primates.(48_IJP).

16. The genetic **data** are **consistent** with polygynmonandry as are the field observations. (1_IJP).

17. I outline the model and review **relevant data**. (139_IJP).

18. We collected **systematic data** on the home range and day ranges of one group of 57–63 muriquis (Brachyteles odelling hypoxanthus). (178_IJP).

19. and initiation of observational **research** with habituated individuals to acquire **critically important data** on their habitat ...(318_IJP).

In detail, the r RPW **data** is pre- or post-modified by the adjective: **invaluable, sufficient, consistent, relevant, systematic** or **critically important**. Whether these adjectives are in a premodifying or predicative position they have always positive evaluation. Basically, these adjectives share a core meaning that is making **data** more useful for the researcher in order to get results.

It is worth mentioning, that in the example number 14 once evaluation is introduced in the first sentence then is carried on in the second sentence as in the sentence: **this information is equally relevant to research**.

Positive evaluation is still realised in the following examples:

20. These **data support** other suggestions of African apes sharing a frugivorous adaptation.(111_IJP).

21. These **data may help** to interpret how the smaller-bodied guenons are able to consume a higher percentage of fiber than that of chimpanzees, a specialized frugivore. (55_IJP).
22. Via experimental data, we show that sooty mangabeys are effective sentinels for ground predators. (115_IJP).

In the first two excerpts data co-occurs with the verb support and help. These two verbs may be grouped semantically and, of course, have positive evaluation.

On the other hand, the last excerpt is very articulated:

21. The data not only extend our knowledge on the reproductive physiology of lemurs but also show that more studies on other lemur taxa are needed to provide a broader basis for interspecific comparison. (249_IJP).

As a matter of fact, the first sentence shows positive evaluation but it is introduced by the negative adverb not only, while in the last part negative evaluation is realised in the sentence: more studies are needed to provide.

In the following examples negative evaluation is construed according to different patterns:

22. Studies of primate community structure increase our understanding of behavior adaptation and evolution. However, there are few biogeographic data on specific composition and association patterns in primate communities. (19_IJP).

23. Few data exist on how primate populations return to regenerating tropical forests. (82_IJP).

24. Few data exist regarding long-term changes in primate populations in old growth, tropical forests. In the absence of this information, it is unclear how to assess population trends efficiently and economically. (15_IJP).

25. Very little data allow one to test conclusively this prediction, as well as some other significant predictions. Overall, there is ample evidence for the role of KS in shaping mother-offspring interactions in various areas. (60_IJP).

26. Very little data have been reported in prosimians. (286_IJP).

In detail, data is modified by a negative quantifier either, few or little. In examples number 22, 23 and 24 verbs are either to be or to exist which are semantically similar. In the last examples number 25 and 26, verbs
are different however both sentences may be paraphrased in this way: very little data exist to test conclusively this prediction and very little data exist in prosimians. The meaning is not entirely the same but the sense is pretty similar, as already happened in other examples, in examples number 22, 24 and 25 evaluation is rather circular. In 22 the first sentence introduces positive evaluation while the second is rather negative. On the other hand, in the example number 24, both the first and the second sentences show negative evaluation. In the example number 25 the first sentence construes negative evaluation while the second one is positively evaluated.

Negative evaluation is realised in the following examples according to a recurrent negative pattern.

27. The data do not support the hypothesis that females GG-rub to reconcile conflicts, to reduce tension during feeding, to signal social status, or to attract mates. (251_IJP).

28. However, the data do not clearly indicate how constraints on access to partners might have operated. (12_IJP).

29. However, the data on the seasonal variation in the amount consumed do not support the hypothesis that exudates are. (5_IJP).

In particular the recurrent negative pattern is: data do not support or data do not indicate. The two verbs are not semantically distant, particularly to support co-occurs with hypothesis despite the fact that to indicate does not. However, although these verbs belong to different groups and are not interchangeable, as a matter of fact, indicate is an existence verb (Biber et al. 1999: 383) while support belongs to the group of verbs of ‘effort, facilitation or hindrance’ (Biber et al. 1999: 743), they are still semantically similar.

On the other hand, the other following excerpts show negative evaluation but at a superficial glance, there is no recurrent pattern:
30. These results contrast with data from the wild. Wild bonobos tend to have higher reproductive success, a higher fertility rate and a shorter interbirth interval than wild chimpanzees. (293_IJP).

31. Although the observations are congruent with my hypothesis, we need more data to test it. (195_IJP).

32. Several factors complicate the inference of such a connection, including anecdotal or incomplete dietary data from field studies and allometric effects on skeletal form that may have little to do with diet per se. (98_IJP).

However, evaluative sentences like: these results contrast with data, we need more data to test it and incomplete dietary data complicate may be paraphrased respectively as data are not sufficient to test these results, data are not sufficient to test it and data are not sufficient to make the analysis easy. Accordingly, the core meaning is pretty the same although realised in different ways.

3.1.4. Evidence in IJP

The RPW evidence occurs 67 times in the IJP corpus and it is evaluative 25 times, 14 times is positively evaluated, while 11 is negatively evaluated.

In the three following extracts the word evidence is positively evaluated by the adjective new.

33. Since the announcement of the monkey’s probable extinction (Oates et al., 2000), new evidence from forest in the extreme southeast of Ivory Coast suggests that a handful of individuals have remained undetected to this point. I discuss the evidence—a tail, a skin and a photograph—and results of accompanying surveys. (320_IJP).

34. I review new evidence on origins and adaptive radiation of Malagasy lemurs, a remarkably diverse group containing 13% of living primate species. (48_IJP).
Although howlers have been traditionally considered to be pacific, showing one of the lowest rates of aggression among primates, new evidence is emerging to question this image. We present data on injuries in Mexican mantled howlers (Alouatta palliata mexicana) in relation to different sociecological parameters.

The premodifier new modifies evidence, evaluating it as more useful for the purpose of the study. There are different constructions around new:

- new data suggest, have been reviewed (for a precise purpose) and are emerging to question something. It is worth mentioning that in examples number 33 and 35 once evaluation is introduced in the first sentence then it is carried on in the second sentence.

On the other hand, in the five following extracts evidence co-occurs with provide construing positive evaluation.

36. The results provide evidence that ovarian function in mature subordinate females might be affected by the reproductive condition of the dominant female. (79_IJP).

37. We provide evidence that these papers can provide valuable information on the function of the primate motor cortex and on recovery of behavior after brain lesions, and are also useful for sharpening the questions posed by more. (164_IJP).

38. We present new data on body weights of Avahi which, together with previously available body weights, provide additional evidence for recognizing eastern and western woolly lemurs as two distinct species. (45_IJP).

39. However, these two options to KS cannot account for the existence of unilaterally altruistic interactions among kin, which provide, therefore, the best type of evidence to test KS. (60_IJP).

40. In addition, I recorded not one instance of intragroup aggression in 16,710 activity scan samples, providing preliminary evidence that intragroup contest competition may be rare or absent among guerezas at Kakamega. (76_IJP).

What provides evidence, according to the previous examples are either concrete or abstract entities such as results, we, data, options and activity. As already noticed, abstract entities represent, very often, the research activity and also the researcher. In rhetoric, this phenomenon is
called ‘metonymy’ that is the substitution of one word for another word with which it is associated. Furthermore, evidence is premodified by the adjective additional, or by the best type or by preliminary. The first two adjectives are positive evaluative while in the last one evaluation is less evident. In addition the modal may provides a slight level of uncertainty. However, preliminary usually characterises something that takes place at the beginning of an event therefore the general meaning is quite neutral, in the example number 40 since preliminary co-occurs with provide and evidence its value is definitely more positive than neutral.

Positive evaluation is still carried on in the extract number 41 with the verb support that is semantically similar to the verb provide.

41. I also examine whether available primate evidence supports various hypotheses concerning mate choice refined modern studies. (143_IJP).

Positive evaluation is construed in the two following extracts, where the RPW evidence is premodified by the adjectives positive and strong.

42. We must account for the fossil record because it is positive evidence. (340_IJP).

43. These contrasting patterns of mitochondrial and Y-chromosome DNA, evaluated in the context of the evolutionary consequences of macaque sex-biased dispersal, present strong evidence for contemporary hybridization between Macaca fascicularis and Mmulatta. (107_IJP).

Furthermore, it is interesting to notice that the verbs account for and present are semantically similar.

Positive evaluation is still carried on in the two following extracts, where the research process word evidence co-occurs with the lemma review (both verb and noun):

44. I review recent evidence of predation and antipredator strategies among primates. I describe patterns of antipredator behavior and attempt to explain the variation among primate taxa and among antipredator strategies. (138_IJP).
The review revealed some evidence of population-left sided cradling in great apes but little consistency in bias was found among Old and New World monkeys. Very little data have been reported in prosimians. (286_IJP).

According to the Collins Cobuild Dictionary ‘if you review a situation or system, you consider it carefully to see what is wrong with it or how it could be improved’. Thus albeit the general meaning is neutral, in the example number 44 it is quite positively evaluated because recent evidence allows the researcher to go on and describe patterns of antipredators.

On the other hand, the fragment 45, at first glance, appears to be slightly negative but on the contrary positive evaluation is construed in a reverse way through the negation of a negative evaluated sentence, because evidence gives little consistency to be biased on.

On the other hand, negative evaluation is construed in the five following extracts, where the RPW evidence is premodified by no and co-occurs with there was/is.

Contrary to a previous report by Izawa and Bejarano (1981), there was no evidence for the presence of the two populations of Saguinus mystax that they reported, or that Lagothrix occurs in the Pando. (20_IJP).

Although there were several hamadryas-like one-male units OMUs within the group, there was no evidence of a hamadryas multilevel society. (289_IJP).

The largest number of recorded observations are in the foraging context, wherein contrary to expectations, there is no evidence for female chimpanzees exhibiting more innovation than males. The study is the first extensive investigation of behavioral innovation in primates and provides evidence that much individual variation in the propensity to innovate can be explained in terms of sex, age, and social rank. (87_IJP).

There was no evidence for consolation—affiliative contact initiated by an uninvolved third party, directed towards victims of aggression—in either group when all affiliative behaviors were considered. (63_IJP).

There was no evidence of rearing effects on handedness in either colony. We discuss the overall results in the context of the evolution of handedness in
relation to increasing motor demands as manifest in variation on grasping behavior. (303_IJP).

Accordingly, the recurrent constructions are:

There is no evidence for
There is no evidence of
There was no evidence for

In addition, it is worth mentioning that the first three extracts 46, 47 and 48 introduce concessive construction by the adjuncts contrary to or although. This device highlights that despite ‘initial results there is no evidence’, thus negative evaluation is even reinforced. Moreover, in both examples number 48 and 50 evaluation is circular, as it happens very often, it is construed in the first sentence and then carried on in the second.

Negative evaluation is still realised in the two following extracts.

51. our data provide no evidence for polyandry and are inconclusive with respect to extragroup paternity. Nevertheless, noninvasive multilocus genotyping methods will resolve these questions when longer-term studies of entire populations are undertaken. (1_IJP).

52. Male and Female Reproductive Success in Macaca sylvanus in Gibraltar: No Evidence for Rank Dependence. (350_IJP).

As previously noticed the RPW evidence is premodified by no and specifically in the first extract negative evaluation is reinforced by the verb provide and by the vicinity of negative expression: inconclusive data.

On the other hand, in the example number 53, although there is no apparent relevant construction it is worth mentioning that this stretch of text is the title of the abstract, and it is quite surprising that negative
evaluation is clearly stated in the title, the very first line that the reader is supposed to pay attention to.

Likewise, negative evaluation is still present in the five following extracts, where the research process word evidence is premodified by no or by little and co-occurs with we/I found.

53. We found little evidence that males in polyandrous groups exercised a mating monopoly over the female and no evidence for overt competition between polyandrous males. (262_IJP).

54. We found no evidence for social learning when comparing the technical variants used by the mother and her offspring. (104_IJP).

55. We found no evidence for sympatry between Saguinus tripartitus and Saguinus fuscicollis, with the former being restricted to the north bank and the latter to the south bank of the Río Curaray. (109_IJP).

56. We found no evidence for the use of seasonally distinct home ranges—commuters—, and only some subadult males may have been transients—wanderers—without a stable home range. (90_IJP).

57. I found no evidence that Ta can be used to predict whether mouse lemurs will remain normothermic or enter torpor. (97_IJP).

Accordingly, the constructions are:

We found little evidence that
We found no evidence for
I found no evidence that

The subject is either the pronoun I or we that stands for the presence of the researcher or the group of researchers that have carried on the study.
3.1.5. Findings in IJP

In the IJP corpus findings occurs 49 times. The word is positively evaluated 12 times while negatively evaluated 3 times. On the other hand, no evaluation has been found for the singular word form.

The three following extracts present positive evaluation:

58. Our findings confirm that in the evolution of the Indridae, Avahi laniger first emerges, then Indri and Propithecus share a common trunk. (44_IJP).

59. Our findings thus confirm the existence of reconciliation in chimpanzees, which show one of the highest conciliatory tendencies among primate species. (100_IJP).

60. Our findings corroborate food preference studies and nutritional analyses of wild gorilla foods indicating that they prefer sugary foods and readily consume ones containing moderate levels of tannins. (112_IJP).

In detail, the recurrent pattern is the RPW findings modified by the personal adjective our and followed by the verb to confirm or to corroborate. These two verbs are semantically pretty similar. According to the Collins Cobuild Dictionary: “to corroborate something that has been said or reported means to provide evidence or information that supports it”. On the other hand, to confirm is similar to support. While, the personal adjective our stands for the evident presence of the researcher.

Positive evaluation is still carried on in the two following extracts:

61. Our findings have implications for further investigations of social communication and cognition in orangutans. 126_IJP

62. Our findings have implications for theories of the acquisition of complex manual skills in great apes and for the flexibility of great ape mental skills. 128_IJP

In these excerpts, the expression our findings co-occurs with have implications for. Evaluation is accomplished in a positive way because if
there are some prospective studies it does imply that findings are good enough to be supportive for further studies.

In the three following extracts, findings co-occurs with consistent showing positive evaluation:

63. Our results are consistent with previous findings at the same and neighboring forest sites that southern muriquis have a consistently frugivorous diet when inhabiting less disturbed habitats, but contrast with previous observations on opportunistic frugivory in muriqui populations inhabiting fragmented forests. (348_IJP).

64. The findings are consistent with predictions that calls are likely to be associated with copulation with preferred males and the risk of sperm competition. (328_IJP).

65. The new sample showed significant population-level right handedness, which is consistent with previously published findings in the Yerkes chimpanzees. (204_IJP).

In particular, the recurrent pattern is to be consistent with. In the example number 63, both the RPWs results and findings are connected by the adjective consistent construing positive evaluation, however in the second sentence, introduced by the adversative conjunction but, evaluation appears to be more negative because of the verb contrast.

In the following extracts, positive evaluation is accomplished in different ways.

66. Grooming reciprocity has been demonstrated for captive chimpanzee males, but the Ngogo findings are the first demonstrations of reciprocity in wild communities. (11_IJP).

67. Conservation efforts aimed at protecting Ateles, one of the Neotropics most endangered genera, will also benefit from the findings presented in this paper. (21_IJP).

68. We compared our findings with those from an earlier study of similar species in Gabon, where little attention was given to the home range analysis technique. Together with studies of lemur spatial systems they highlight the importance of considering the method of home range analysis when it is to be applied to understanding social systems.(300_IJP).
The core meaning in all previous examples is about what *findings* can do and can be easily paraphrased by these sentences: *findings are the first demonstrations, findings will be a help* and *findings highlight the importance*. These sentences have in common the idea of how valuable findings are.

In addition, in the example number 68 evaluation is rather circular, as a matter of fact, in the first sentence the expression: *where little attention was given*, apparently introduces negative evaluation but on the contrary it points out that *our findings* are better because they are more complete. This concept is furthermore supported by the expression: *highlight the importance*.

In the next example number 69, the word *findings* still introduces positive evaluation but by means of a negative construction: *the findings are not only important for... but also suggest*.

69. The *findings are not only important* for understanding the extent of human influence while conducting *research* on wild gorillas but also *suggest* the need for caution when interpreting results from non-habituated gorillas. (233_IJP).

Once again, evaluation is rather circular and is reinforced by the second sentence, furthermore the entire stretch of text is the concluding part of the research article abstract.

On the other hand, in the three following extracts negative evaluation is construed, *findings* is premodified by *these* or *our* and followed by a negative verb such as *obligate, contrast* or *fail*, according to the following patterns:

*These findings obligate*

*Our findings contrast*

*Our findings fail*
70. These **findings** oblige a renewed consideration of the nature and function of territoriality in primates. (180_IJP).

71. Our **findings** contrast with reports of intragroup male behavior in Costa Rican howlers.(234_IJP).

72. Our **findings** fail to support the maternal investment hypotheses and instead **suggest** that reproductive termination in this population of Japanese macaques is most closely associated with enhanced longevity and its repercussions.(55_IJP).

In detail, example number 70 is the conclusion section of the abstract and it suggests negative evaluation towards previous studies about territoriality in primates rather than negative evaluation towards the present study carried by the researcher. In the example number 71, evaluation is construed similarly. Likewise, in the last extract number 72 the sentence: **findings fail to support** a well established hypothesis in favour of another one clearly construes negative evaluation. Last, it is worth mentioning, that this sentence is the closing section of the research article abstract; quite surprisingly, the very end of the abstract is a negative statement.

3.1.6. **Investigation** in IJP

The word **investigation** occurs 10 times in the IJP corpus, however, only once it is positively evaluated.

As a matter of fact, in the following excerpt, **investigation** is premodified by two positive adjectives **first** and **extensive**

73. The study is the **first extensive investigation** of behavioral innovation in primates and provides evidence that much individual. (87_IJP).
As already noticed, in the scientific field the adjective *first* is not neutral but rather positive, furthermore the construction *provide evidence* adds more positive evaluation to the entire extract.

3.1.7. **Investigations** in IJP

The plural word form *investigations* occurs 6 times, but it is slightly positive evaluated only once. In detail, the word *investigations* is positively evaluated due to the good *findings* as reported in the following excerpt:

74. Our findings have implications for further *investigations* of social communication and cognition in orangutans. (126_IJP).

In other words, ‘further investigations are worth to be carried due to relevant findings’; however, evaluation is more implied rather than openly expressed.

3.1.8. **Method** in IJP

The RPW *method* occurs 15 times in the IJP corpus, it is positively evaluated 4 times and only once is slightly negative. In the three following examples *method* is positively evaluated:

75. The *results* indicate that phylogenetic effects influence the scaling of sexual size dimorphism, and that the statistical *method* used has a large impact on the interpretation of this biological relationship. We discuss issues involved in applying these statistical *methods* in detail. (153_IJP).

76. Such logistic *difficulties* have led to plant material being collected in a variety of fashions, and it is not known how variation in collection *method* might
influence our understanding of the chemical basis of dietary selection. (185_IJP).

77. Use of this **method** to detect changes in health, when employed together with behavioral observations, may also provide important insights into the potential effects of self-medicative behaviors. (313_IJP).

In detail, the pattern is:

- **method used** has a large impact on the interpretation
- **method might influence** our understanding
- **method... may also provide important insights**

The three excerpts analysed provide the core meaning that: **method promotes comprehension**, this is a pretty positive statement. Two important aspects are worth mentioning. First in the example number 75 there is the phenomenon of evaluation circularity, in the first sentence results indicate, evaluation is suggested, then in **method used has a large impact on the interpretation** evaluation is openly shown and then in we discuss...methods in detail it is implied again.

On the other hand, in the example number 76, positive evaluation is construed in the second sentence and it is even stronger due to the **difficulties** present in the first sentence; however the use of the modal **might** tries to tone down the impact of positive evaluation a bit. Similar toning down occurs in the last extract number 77, signalled by the expression: **method... may also provide important insights**.

On the other hand, the following extract is rather longer because evaluation is quite spread across the text:

78. Kernel **analysis** gave more **reliable estimates** of home ranges than the minimum convex polygon **method** used in **many studies** of nocturnal prosimians...We compared our findings with those from an earlier **study** of similar species in Gabon, where **little attention was given** to the home range analysis technique. Together with **studies** of lemur spatial systems they **highlight the importance** of
considering the **method** of home range analysis when it is to be applied to understanding social systems. (300_IJP).

The first sentence introduces positive evaluation: *analysis gave more reliable* in comparison with the second sentence: *method used in many studies... where little attention was give*; in the latter negative evaluation is signalled. Then in the last section, positive evaluation is construed again in the sentence: *findings highlight the importance*.

### 3.1.9. Methods in IJP

The word *methods* occurs 28 times in the IJP corpus. It is evaluated in a positive way only 4 times, as shown in the four following extracts:

79. **Nevertheless**, noninvasive multilocus genotyping **methods** will resolve these questions when longer-term **studies** of entire populations are undertaken. (1_IJP).

80. **A standardization of collection methods** is **greatly needed** to allow for direct comparison among **studies**. (185_IJP).

81. **These methods** **provide** a practical means of distinguishing between cryptic species, whether in the field, in captivity, or, in the case of volar pads, of preserved specimens. (28_IJP).

82. **These methods** have been applied with **great success** to determine familial relationships and, on a smaller scale, relationships among lineages and social groups, and the redefinition of the interface between social behavior, social structure and population genetics. (282_IJP).

Positive evaluation is realised in the following constructions:

- **methods will resolve**
- **a standardization of collection methods is greatly needed**
- **methods provide**
- **methods have been applied with great success**
The overall positive meaning is pretty similar to the one encountered with the singular word form *method*. Although, at a superficial glance there is no recurrent pattern, these stretches of text provide the essential positive meaning that: *methods are useful and efficient.*

3.1.10 *Methodology* in IJP

The word *methodology* occurs 2 times in the IJP corpus but only once can be labelled as positively evaluated. In particular, although evaluation is not attached to the word itself, the context is positive, as shown in the following extract:

**83.** This *study*, conducted with a different captive group, is the *first* to use the revised *methodology* with chimpanzees. (100_IJP).

As a matter of fact, the *study* (positively evaluated as *the first* in its field) uses a revised *methodology*. Even though *revised* may not sound as an openly evaluative adjective, usually researchers revise something in order to improve it or make it more suited for their purposes, therefore a ‘revised methodology’ is definitively a better methodology.

3.1.11. *Paper* in IJP

The word *paper* occurs 5 times and only once it is evaluative.

The following example number 84 is positively evaluated because the word *paper* shows the *importance of a well-managed studbook*.

**84.** This *paper* illustrates the importance of a well-managed studbook to the long-term captive management of an exotic species: Microcebus murinus. (52_IJP).
According to the *Collins Cobuild Dictionary*, a *studbook* is a written record of the breeding of a particular horse, especially a racehorse. In this case it refers to primates and it is specifically an investigation about a particular primate. The stretch of text is definitively positively evaluated due to the word *importance*.

### 3.1.12 Papers in IJP

The investigated word *papers* occurs 5 times in the IJP corpus. However, only in 2 extracts evaluation is realised. In the following excerpt, evaluation is rather positive because *papers* is modified by the positive adjective *important*:

85. Many contemporary investigators are unaware of the *important papers* involving lesions of the primate primary motor cortex published prior to those revealed by a computer search of the literature (i.e., papers published prior to about 1966). (164_IJP).

However, it is worth mentioning that in the sentence ‘the lack of awareness in many researchers’ increases the importance of the papers, construing positive evaluation.

On the other hand, the following stretch of text introduces positive evaluation in a different way.

86. We *provide evidence* that these *papers* can *provide valuable information* on the function of the primate motor cortex and on recovery of behavior after brain lesions, and are also *useful* for sharpening the questions posed by *more refined modern studies*. (164_IJP).

In detail, the sentence: *We provide evidence that these papers can provide valuable information* is positively evaluated but the modal *can* slightly decreases positive evaluation according to the recurrent
phenomenon of *hedging*. This phenomenon as Hyland (1998: 1) suggests refers to “any linguistic means used to indicate either a) a lack of complete commitment to the truth value of an accompanying proposition, or b) a desire not to express that commitment categorically”. It is interesting to notice how evaluation is realised in a circular way, a sort of crescendo built up by means of the following terms: *we provide evidence, these papers can provide valuable information, [these papers are] useful and more refined modern studies.*

As already mentioned, evaluation is not only a lexical phenomenon, the context plays a pivotal role in recognising it.

### 3.1.13 *Procedure in IJP*

*Procedure* occurs 2 times in the IJP corpus and only once it is positively evaluated.

87. We tested 7 experimentally naïve long-tailed macaques (Macaca fascicularis) to assess the validity of the apparatus and the testing procedure. (181_IJP).

In detail, evaluation is construed in the sentence: *to assess the validity of the apparatus and the testing procedure.*

### 3.1.14 *Research in IJP*

The word *research* occurs 37 times in the IJP corpus, but it is positively evaluated only 8 times.

In the four following extracts it co-occurs with the verbs *provide, support, have enabled* and *benefit* establishing positive evaluation.
88. My research provides experimental observational data to complement field data and to better characterize the diets and food preferences of the African apes. (111_IJP).

89. Modern tools of paleoecological and ecomorphological research have enabled researchers to reconstruct the lifeways of extinct species more thoroughly than ever before. (332_IJP).

90. These interrelated research activities should contribute to effective management for conservation, provide baseline information to support current efforts to expand the boundaries of the national park, and guide potential future establishment of corridors between the major forests known to support mangabey groups. (318_IJP).

91. Our survey indicates that the scientific understanding of many aspects of primate social learning relevant to conservation, including its function, learning spatial route plotting, food and sleeping site location, predator avoidance and detection, and the effect of model and tutee status, would benefit from greater research. (125_IJP).

In detail, in the example number 88, the sentence: My research provides...to better characterize construes positive evaluation. In the example number 89 research have enabled...more thoroughly than ever before is even more evaluative than the former ‘provide’ construction. In the example number 90 the positive meaning is still supported by the verb provide and support. On the other hand, in the first sentence, the modal expression should contribute to effective (positive evaluation) has a common ground with the modal expression in the example number 91 would benefit from. In particular, the last stretch of text can be paraphrased as: research would promote the scientific understanding, therefore evaluation is still positive.

Similarly, in the following two extracts positively evaluating constructions are research is necessary to investigate and research is urgently required

92. The results are consistent with ones for other folivorous primate populations. Further research on habitat requirements of Indri and availability in
Betampona is necessary to investigate the possibility of translocating Indri from nearby forest fragments into Betamona. (333_IJP).

93. We explain why we have adopted our taxonomic treatment and give particular attention to cases where more research is urgently required and in which systematic changes are most likely to be made. (239_IJP).

Both these expressions carry on positive evaluation that has been previously introduced in the first sentences. In details, in the example number 92 evaluation has been introduced in the sentence: the results are consistent while in the example number 93 in the sentence: give particular attention.

On the other hand, evaluation is slightly implied rather than openly expressed in the following excerpts:

94. We suggest directions for future research, particularly in regard to primate temperament as an evolved trait with consequences for fitness. (208_IJP).

95. We offer suggestions for future conservation research and consider strategies to conserve forested national parks based on experiences gained over 30 yr. (317_IJP).

Both expressions: we suggest directions for future research and we offer suggestions for future research share a common pattern that intuitively highlights that future research is necessary for achieving positive results, in these cases evaluation is slightly toned down.

3.1.15. Result in IJP

The investigated word result occurs 31 times in the IJP corpus, however only once it is evaluated in a positive way:

96. the result raises interesting questions about diffusion of behavior between neighboring chimpanzee communities. (255_IJP).
In detail, a specific result raises interesting questions about a precise topic; nevertheless, this extract signals more topic-oriented than research-oriented evaluation.

3.1.16. Results in IJP

The RPW results occurs 137 times in the IJP corpus, it is positively evaluated 16 times. In the following examples positive evaluation is realised according to the linear pattern: results + have + implications

97. Results of this study have implications for improving conservation management for the langurs. (311_IJP).

98. These results have important implications for future primate conservation policy. (17_IJP).

In detail, the evaluated sentences are: results have implication for improving and results have important implications.

At a superficial glance, evaluation appears to be topic-oriented rather than research-oriented, especially in the construction: for + noun; however, it is ROE, because it is clearly stated that these results will contribute to something in favour of the topic: conservation management or primate conservation policy. It is necessary to bear in mind that the research study is expected to be successful due to positive results.

In the four following examples positive evaluation is still present but rather implied according to the recurrent pattern: premodifier + results + are consistent with

99. Our results are consistent with previous findings at the same and neighboring forest sites that southern muriquis have a consistently frugivorous diet when inhabiting less disturbed habitats, but contrast with previous observations on
opportunistic frugivory in muriqui populations inhabiting fragmented forests. (348_IJP).

100. The results are consistent with ones for other folivorous primate populations. Further research on habitat requirements of Indri and availability in Betampona is necessary to investigate the possibility of translocating Indri from nearby forest fragments into Betampona. (333_IJP).

101. These results are consistent with the hypothesis of spatial facilitation and illustrate the fact that spatial context can be an overwhelming variable that should not be neglected in behavioral research dealing with instrumental tasks. (95_IJP).

102. There is no significant association between female rank and matrilineal inbreeding. Our results are consistent with the hypothesis that different degrees of kin relatedness are discriminated by individuals with respect to mate choice. (120_IJP).

Premodifiers are our, the or these. Only in the case of the personal adjective our the presence of the researcher is clearly stated and accordingly the human effort for accomplishing specific results is signalled. However, it is worth mentioning that positive evaluation, implied in the first sentence, slightly changes into more negative evaluation in the second sentence according to the following constructions: but contrast with previous observation..., further research is necessary to investigate, that spatial context... should not be neglected. On the contrary, the last example number 102 shows a slightly negative evaluation in the first sentence and then a more positive one in the second part of the sentence.

All the examples previously analysed, according to textual organization represent the conclusion section of the abstract.

In the five following fragments results is positively evaluated according to the following patterns:

Our results indicate the importance
Our results are the first
Our results confirm
Our results suggest
Our results support

103. Our results indicate the importance of microhabitat analyses for the understanding of distribution patterns of species and for successful conservation planning. (169_IJP).

104. Our results are similar to those found a decade earlier in the same population and to other studies of space use in apes but are the first to include significant temperature effects. (71_IJP).

105. Our results confirm the challenge hypothesis (Wingfield et al., 1990). (298_IJP).

106. In contrast to other studies, our results suggest that the presence of white facial markings, and possibly also of white hands and feet and of a bright corona are primitive gibbon traits. (174_IJP).

107. Our results support the argument that variation in gorilla diets mostly reflects variation in vegetational composition of their habitats. (355_IJP).

As we may intuitively predict results is very likely to co-occurs with our and this is an easy way for implying the researcher’s presence apart from the use of the personal pronouns I and we. The sentences: our results indicate the importance and our results are the first are semantically pretty similar, they are also quite interchangeable and signal positive evaluation. The other verbs – confirm, suggest, and support – can be grouped together as communication verb cf. (Biber et al. 1999: 361, 362). Albeit the third verb support belongs to the group of verbs of ‘effort facilitation or hindrance’ (cf. Biber et al.1999: 743), however, in this extract it is pretty similar to suggest.
Positive evaluation in the three following examples is more implied rather than openly manifested, according to the following pattern:

premodifier/determiner + provide + noun + further explanatory sentence:

108. The **results** provide **evidence** that ovarian function in mature subordinate females might be affected by the reproductive condition of the dominant female. (79_IJP).

109. These **results** provide guidelines for the use of line-transect censuses and underscore the importance of protecting large blocks of forests for primate conservation. (15_IJP).

110. These **results** reject the **hypothesis** that arm protraction is a function of branchsize, but provide stronger **support** for the notion that branch size influences elbow flexion, shoulder height, and peak substrate reaction forces in some primates. (221_IJP).

It is worth mentioning that positive evaluation in all these examples is construed by means of the verb to provide that carries a positive semantic prosody. This observation is suggested by Stubbs (1995) that claims that the verb to provide has a positive semantic prosody because it has amongst its typical collocates words such as: care, help, relief and support.

However, in the last extract evaluation is even more positive because in the first sentence, the negative statement expressed by the verb reject, is then followed in the last sentence by the verb provide that, as already mentioned, has a positive semantic prosody. As far as the textual organization is concerned, all the three examples belong to the **conclusion** section.

Positive evaluation is still carried on in the following examples:

111. The **results** permit us to understand more fully the relationships of digestive processes to adaptation and dietary flexibility in the wild and to inform the development of dietary recommendations to improve the well-being of captive gorillas. (266_IJP).
112. These results fit those expected if limits on available grooming time cause males to have a loyalty problem as the number of potential grooming and alliance partners increases practice. (11_IJP).

In these fragments, crucial evaluative expressions are: results permit, results fit those expected. In particular, the general meaning is that these evaluated results allow the researcher to go a step further in his/her research study.

3.1.17 Study in IJP

The investigated word study occurs 129 times in the IJP corpus but it is evaluated only 9 times. In the two following examples, study is positively evaluated. In detail, it is premodified by two positive terms: detailed and fruitful.

113. We present a detailed study of gazing and eye morphology—exposed sclera and surrounding features—in orangutans. (126_IJP).

114. Primatology in China started in 1862, but fruitful study began only in the 1950s. (277_IJP).

The other following extracts not only evaluate study in a positive way but also share a common pattern in the sentence: this study is the first.

115. This study is the first to examine the ranging behavior of the more terrestrial L’Hoest’s monkeys. (75_IJP).

116. This study, conducted with a different captive group, is the first to use the revised methodology with chimpanzees. (100_IJP).

The cluster this study is present in the two following extracts as well:

117. The results of this study emphasize the existence of specific and individual differences in food-sharing behavior, which must be taken into account in explaining its importance in the reproductive strategies of the Callitrichidae. (61_IJP).
118. Results of this study have implications for improving conservation management for the langurs. (311_IJP).

It is worth mentioning that this study is very likely to co-occur with results and is positively evaluated by the verb emphasize and have implications.

Positive evaluation is still realised in 32_IJP and 83_IJP by means of the verb to support.

119. Over all our study supports the idea that cross-specific social facilitation is an important consequence of mixed-species groups of Saguinus. (32_IJP).

120. My prediction was supported in only one of the three study groups. (83_IJP).

However, in the example number 119 positive evaluation first introduced by support is also signalled by the adjective important.

Only in example number 121 the word study is evaluated in a negative way:

121. Common marmosets are omnivorous primates with a highly diversified diet. There is no study describing if and how the diet is learned. Infants get their first bits of solid food from other monkeys in the group, which suggests that they may need an introduction to food items by older individuals before including them in their diet. (252_IJP).

In particular the construction introduced by no study highlights the lack of any studies in a specific field; accordingly evaluation is rather implied than clearly signalled. In addition, it is worth mentioning that this construction introduces the ‘stating gap in the knowledge’ move.

In this fragment, a preliminary observation may be drawn that is when negative evaluation is expressed about other authors’ studies than this statement is followed by positive evaluation referred to the author’s research study. This linguistic device adds more emphasis to the author’s research itself.
3.1.18 Studies in IJP

The RPW *studies* occurs 89 times in the IJP corpus, is fully evaluated 11 times, 7 times as positive and 4 times as negative.

In the following extract number 122 the investigated word *studies* is positively evaluated as in the sentence: *studies increase our understanding.*

122. *Studies* of primate community structure *increase our understanding* of behavior, adaptation, and evolution. (19_IJP).

Likewise, the four following extracts show a similar recurrent pattern: *few studies + have + past. part.:

123. These findings have been associated with reproductive competition and dispersal events. However, the few *studies* dealing with intragroup aggression have not fully explored the effects of food availability on aggression or the relationship between age and aggression. (202_IJP).

124. Although secondary sexual adornments are widespread in male primates, few *studies have examined* female choice for these characters. (327_IJP).

125. The feeding ecology of the Atlantic forest marmosets (Callithrix spp.) in southeastern Brazil is poorly known, and few *studies have focused* on buffy tufted-eared marmosets, Callithrix aurita. (24_IJP).

126. This might be attributed to the fact that few *studies have taken ultimate approaches* using mechanistic correlates of fitness (net energy gain) or lifetime reproductive success to measure consequences of feeding competition. (139_IJP)

In detail positive evaluation is construed in the following sentences: *few studies have explored/ have focused/ have examined / have taken ultimate approaches.* However, the core meaning shared by all these excerpts is that ‘few studies have investigated a precise topic’ not because this topic is not worth of any investigations, but on the contrary,
it is. Accordingly, on the one hand, evaluation is slightly negative because apparently there have been not enough studies about this precise topic but on the other hand, it is also positive because all these excerpts introduce the topic that will be further explored in the research article. Nevertheless, it is worth mentioning that, as happens very often, evaluation is not only a lexical phenomenon but it is construed in the structure of the discourse. (cf. Thompson and Ye 1991).

The concept of worthiness and positive evaluation is still carried on in the following extract where the pronoun ours stands for the researcher’s presence, the ‘doer’ of one of the few studies.

127. Ours is among the few studies showing a decrease, albeit selective, in aggressive behavior during a situation of space restriction. (224_IJP).

In the following examples number 128 and 129 the expressions future studies will require more detailed information and more studies are needed to provide highlight the crucial concept that further studies are necessary to accomplish a specific knowledge.

128. Future studies will require more detailed information on vegetation, diet and ranging patterns to interpret fully intraspecific variation in population demography and social structure in the Udzungwa Mountains. (296_IJP).

129. The data not only extend our knowledge on the reproductive physiology of lemurs but also show that more studies on other lemur taxa are needed to provide a broader basis for interspecific comparison. (249_IJP).

Both constructions connote studies with a similar meaning and particularly, evaluation is slightly negative especially because it appears in the concluding section of both abstracts, thus it adds more emphasis to the necessity of further researches.
On the other hand, negative evaluation is still realised in the example number 130 where apparently *further studies* do not support the research background.

130. Although some nonhuman anthropoid primates of China — Gigantopithecus, Sivapithecus, Ramapithecus and Lufengpithecus — have been suggested as the direct ancestors of human beings, the discovery of more specimens and *further studies* do not support these suggestions. (278_IJP).

It is worth noticing that the adjective *further* share a similar meaning with *more* and *future* and this stretch of text also occurs in the concluding remarks section of the research article abstract.

Negative evaluation is expressed in the following extract but despite the previous example with the same pattern, here the sentence *a few studies* is not considered enough to test a hypothesis efficiently.

131. Although this model has received wide acceptance, tests of it are based on *a few studies* of species that have similar ecological requirements and social organizations, and there are reasons to question the widespread acceptance of the assumptions underpinning it. (29_IJP).

Last, in the following extract evaluation is but rather implied than expressed positively, even though the verb *instigate* has a rather negative connotation.

132. *Future instigated studies* on primate social learning would be most informative for reintroduction if they included ecologically valid tasks presented to similarly composed social groups, one of which functioned as a control, i.e., without being exposed to a model. (125_IJP).

3.1.19 Theory in IJP

The RPW *theory* occurs 16 times in the IJP corpus but only twice it is positively evaluated like in the example number 133:
133. POC theory has enhanced our understanding of the dynamics of parent–offspring relationships in many animal species, and it is very likely that future studies of primates will continue to benefit from using POC theory as an explanatory framework. (145_IJP).

Positive evaluation is construed in the structure: theory has enhanced our understanding and it is slightly reinforced by the last modalised sentence will continue to benefit from using POC theory.

Similarly, in the other extract number 134 positive evaluation is realised:

134. Our observations are consistent with current theory on the effect of habitat degradation and hunting on primates, but the relative effects of the 2 factors could not be differentiated. (296_IJP)

The sentence: our observations are consistent with current theory can be paraphrased as: theory supports our observations in order to make more explicit the positive evaluation.

Despite the singular word form, the RPWtheories occurs five times in the IJP corpus but in no case it is evaluated.

3.2.1. Analysis in MCS

In the MCS corpus, analysis occurs 212 times, it is positively evaluated 25 times. In most of the cases, analysis presents some recurrent patterns.

In detail in the two following excerpts, the first construction is: analysis + is preferable.

135. This fact supports the conclusion that GFFP analysis is preferable to WOS in cases where both are applicable. (296_MCS).

136. The mathematical analysis approach is preferable but in most cases not applicable. (20_MCS).
According to Biber et al. (1999: 673) *preferable* is listed in the group of ‘affective or evaluative adjectives’. In the example number 135 ‘GFFP’ and ‘WOS’ are both algorithms and the former is preferable to the latter, therefore one entity is positively evaluated in comparison with another one.

On the other hand, in the example number 136 only one entity is evaluated as *preferable*. The second evaluative pattern in the five following examples is: premodifier + *analysis* + *for/of*

137. *rigorous analysis* is given for the numerical stability. (136_MCS).

138. And we thus proposed an *efficient analysis* algorithm for analyzing the stability. The *effectiveness* of the proposed *method* is illustrated by the numerical examples. (286_MCS).

139. This framework allows a *comprehensive analysis* of various bifurcations leading to transitions from one type of coherent structure to another as the system parameters are varied. (95_MCS).

140. *Detailed analysis* of our *data* shows several features consistent with a recent dislocation unbinding theory of laser induced melting. (310_MCS).

141. The *paper* also *provides a novel analysis* of four risk ratings using univariate and multivariate volatility models for nine East European countries. (126_MCS).

All the premodifiers are positive evaluative adjectives: *rigorous, efficient, comprehensive, detailed, novel*. As a matter of fact, *analysis* is for something or it is of something, either ways it is positively evaluated. However, when the ‘what’ (of) is specified then the ‘aim’ (for) is not mentioned. *Analysis* is either a subject or an object and it co-occurs with different verbs: *give, propose, allow, show* and *provide*. In detail, *show, provide, and give* belong to the group of activity verbs, *propose* is a communication verb while *allow* is a verb of facilitation or causation.
However, despite belonging to different categories, propose and allow, at least in these extracts, are semantically similar to provide.

In addition it is worth mentioning that in the example number 138 evaluation is first introduced and then carried on in the second sentence: the effectiveness of the proposed. Similarly, in example number 140 evaluation is carried on in the second part of the extract, in the sentence shows several features consistent, where consistent is a positive evaluated adjective.

In the last extract 141 evaluation is first introduced by the sentence the paper also provides and then carried on in the construction a novel analysis.

The concept of newness just introduced by the adjective novel is still carried on in the three following extracts, where analysis co-occurs with new. Even though, at a superficial glance, there is not a well-defined pattern, the vicinity of new to the investigated word analysis suggests how the ‘newness’ is helpful in the research process.

142. A new approach related with group analysis and hodograph type transformation for constructing exact solutions. (94_MCS).

143. The paper discusses these broader issues and limitations of econometrics and offers some thoughts on new practical possibilities for data analysis in the absence of good theory models for trends. (129_MCS).

144. As far as we know, the kind of analysis here proposed is entirely new. No precise mathematical theorems are demonstrated but we give enough numerical evidence to support the conclusions. (99_MCS).

Analysis in the following example appears to be modified in a negative way by the adjective poor:

145. In [Feistauer et al., Numerical analysis of problems with non-linear Newton boundary conditions, in: Proceedings of the Third Conference of ENUMATH?99, p. 486], numerical experiments prove that this decrease is not the result of a poor analysis, but it really appears. (389_MCS).
However, the core meaning of the extract is not entirely negative but there is more a negative topic-oriented evaluation. As a matter of fact, the researcher determines the value of an event occurred during an experiment when he has detected an error that was not caused by a poor analysis.

In the three following extracts the recurrent pattern is: premodifier + analysis + is + premodifier + noun:

146. An excellent method to deal with stochastic variables is Monte Carlo analysis. (277_MCS).

147. The performance analysis of network architecture is a very crucial factor in designing multiprocessor systems. Very often, simulation is the only feasible method because of the nature of the problem and because analytical techniques become too difficult to handle. (20_MCS).

148. Backward error analysis for PDEs, or the method of modified equations, is a useful technique for studying the qualitative behavior of a discretization and provides insight into the preservation properties of the scheme. (92_MCS).

In detail, the excerpt 146 has to be read in the reverse way, as: Monte Carlo analysis is an excellent method to deal with stochastic variables. Thus, the noun that modifies analysis is not evaluative per se but specifies the typology of the analysis that has been performed. On the other hand, all the premodified nouns in predicative position are definitively evaluative, these are: excellent method, a very crucial factor, and useful technique. It is worth mentioning that evaluation is still carried on in the second sentences. As a matter of fact, in the example number 147 evaluation is expressed in the line: simulation is the only feasible method, while in the example number 148 evaluation is carried on in the line: provides insight.

Similarly, positive evaluation is still carried on in the following example where analysis is defined as essential
149. Our analysis has been performed by computer algebra tools which proved to be essential. (178_MCS).

On the other hand, in the two following extract the verb illustrate implies positive evaluation. However, although the verb is the same, in both extracts the evaluative construction is rather different, as shown in the following examples:

150. In addition, based on analysis and insight into the correlations between dimensions of the Halton sequence, we illustrate why our algorithm is efficient for breaking these correlations. (63_MCS).

151. Sensitivity analysis of the integrated model illustrates the response of the integrated model when assessing those land and water policy options selected for analysis, and highlights the plausibility of the model results and limitations in applying the model as a decision support tool for policy analysis. (100_MCS).

In detail, in the example number 150 by means of an analysis and insight, researchers can illustrate the reason why the result is so efficient. On the other hand, the structure of the second extract number 151 works in a rather different way. First: a specific analysis illustrates a specific response this sentence is quite neutral but afterwards, in the second sentence: this analysis highlights the plausibility of results and limitations in applying the model as a decision support tool for policy analysis, here evaluation is not implied any longer; on the contrary, the analysis is claimed to be a decisive tool to understand pros and cons of the research study. Therefore in the example number 151 positive evaluation is first slightly implied then expressed but still mitigated by the word limitations.

In the following extract analysis is positively evaluated; crucial is the role played by the verb show, and the recurrent pattern is: analysis shows or by means of analysis it is shown/ we show.
152. Our analysis and numerical experiments show that the proposed schemes are stable and produce highly accurate solutions. (474_MCS).

153. Applying the Von-Neumann stability analysis method we show that the proposed method is unconditionally stable. (59_MCS).

154. In fact, it is shown that the convergence and stability analysis is robust under random structural perturbations. The presented conditions are easy to verify, algebraically simple, and computationally attractive. (197_MCS).

155. The theoretical analysis of the execution time shows that the algorithm is highly efficient for coarse-grain parallel computer systems. (367_MCS).

It is worth mentioning that examples number 152 and 153 share the same adjective stable, this adjective, in the scientific field, implies definitively positive evaluation because if an analysis performs ‘stable results’ it entails that the analysis is successful and can be successfully reproduced.

Moreover, positive evaluation is supported by all the adjectives: stable and accurate, robust and efficient. It is worth mentioning the use of manner adverbs like highly and unconditionally which intensifies the meaning of the adjectives like for instance in the case of: highly efficient, unconditionally stable and highly accurate. Last, it is remarkable the structure of the second sentence in the example number 154 where conditions are easy to verify, algebraically simple, and computationally attractive. Evaluation is certainly developed according to a crescendo and especially the last expression computationally attractive is quite not-scientific, as a matter of fact it is a hapax legomena\(^\text{12}\) in the MCS corpus and this cluster never appears to be present in the written academic part of the British National Corpus (BNC). However, it is an interesting case of how an adjective — attractive — usually referred to humans is here combined with numbers in a positive way.

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\(^{12}\)The term hapax legomena refers to a word form that occurs once only in a set derived from a concordance.
Positive evaluation is still construed in the two following extracts:

156. Box-Jenkins univariate time series analysis facilitates an understanding of tourist arrival patterns. (120_MCS).

157. Sensitivity analysis and field data interpretation are used to define the important hill slope properties. (106_MCS).

The positive meaning is that a precise analysis allows comprehension, the constructions are clearly shown in the following sentences: analysis facilitates an understanding and analysis and... are used to define the important. The adjective important undoubtedly carries a positive connotation and is also present in the following excerpt:

158. The importance of country risk analysis is underscored by the existence of several prominent country risk rating agencies, which combine a wide range of qualitative and quantitative information. (126_MCS).

However, here it is worth mentioning that instead of the adjective important there is the noun importance. In this example, a precise analysis is premodified in a positive way as the importance of country risk analysis and it is subsequently positively evaluated by the past participle underscored. Thus, positive evaluation is first introduced by the importance and then carried on by the verb underscore.

3.2.2. Analyses in MCS

The word analyses occurs in the MCS corpus 14 times. However, it is worth mentioning that the lemma represents the plural form of analysis but also the singular form of the verb analyse. In the present study, only analyses as noun is taken into account. It occurs 10 times and only twice it is slightly evaluative, as reported in the following excerpts:
159. The gained results widen the possibilities for analyses of the models being considered. (626_MCS).

160. Policy makers in Australia have been relying on such bibliometric information and analyses in making funding decisions and encouraging the development of research potential and strengths. (105_MCS).

In the former, positive evaluation is triggered by the past participle gained and the construction: widen the possibilities. Evaluation is quite implicit rather than openly expressed, however the connotation is undoubtedly positive.

Similarly, in the latter fragment, evaluation is still triggered by two expressions: have been relying and encouraging the development. As in the former example, evaluation is not openly related to the word analyses however the overall meaning of the sentence is positive.

3.2.3. Data in MCS

The investigate RPW data occurs 193 times in the MCS corpus and it is evaluative 11 times, twice is negative and 9 is positive.

In the three following examples, evaluation is realised according to different constructions with the verb to provide. The common element to all the different constructions is the ‘Problem-Solution pattern’ (as defined by Hoey at pag. 30 in the ‘Theoretical Background’ section) in which negative evaluation is accomplished in the sentence: data does not provide a satisfactory answer to the problem. The ‘Problem-solution pattern’, as already noticed usually consists of four elements followed in the end by the positive evaluation of the response. In the following
excerpt there is no positive response because there is a clear negative assessment.

161. **Increasing** the number of conditioning **data** does not provide a satisfactory answer to the problem. (9_MCS).

On the other hand, in the example number 162 the verb *provide* realizes a positive evaluative construction in the sentence: *provide strong support*. However, it is worth mentioning that the initial positive evaluation decreases according to a *diminuendo*, because first *data provide strong support* but then *tend to have a higher innovation rate and is in line with other studies reported in the literature* (that implies no strong originality in the research process). On the other hand, in the last sentence the final claim is made up with due caution: *these initial results require further exploration*.

162. The **data provide strong support** for the idea that smaller enterprises (whether measured by number of biotech graduates or by biotech expenditure) *tend to have a higher innovation rate and is in line with other studies reported in the literature*. However, *these initial results require further exploration*. (115_MCS).

Similarly, in the next example positive evaluation is realised by the verb *provide*, in particular in the following expression: *provides the accuracy*. In this case evaluation is even stronger because of the positive term *accuracy*.

163. **The model** testing performed in two subcatchments, where the modelled stream flow was compared with the measured **data**, *showed* that the first pass approach algorithm *provides the accuracy* of 13-17% of the relative error for the monthly time step. (452_MCS).

Like the previous excerpt, in the following extract, although the investigated word *data* does not express evaluation directly, positive
evaluation is present in its vicinity and it is realised by means of the comparative construction: **appear equally accurate but more reliable**

164. Not surprisingly, in the case of a relatively **limited experimental data** (10 experiments in various operating conditions), **models** that include more process knowledge **appear equally accurate but more reliable** than the neural network. (544_MCS).

Differently, in the two following excerpts, **data** is premodified by the adjective **new**.

165. This paper analyses results from an investigation into the determinants of biotechnology innovation in New Zealand using a **comprehensive new data** set. (115_MCS).

166. Moreover, the algorithm exhibits a strong learning capacity with instant embodiment of **new data** which makes it **suitable** for tracking of fast-changing systems. (305_MCS).

**New**, in the scientific field is not as neutral as it may result in a sentence like: *Sam bought a new shirt*; in the scientific genre the ‘newness’ entails a new orientation and a more helpful trend in research studies.

In the four following excerpts, positive evaluation is construed:

167. Considering the importance of **data** transferring between different grids, we present a **simple but powerful** interpolation scheme using radial basis functions (RBFs) to accomplish such task in both 2D and 3D. (506_MCS).

168. The coefficients of the original **data** are considered **significant** if they are not belong on the above mentioned interval. (293_MCS). [sic.]

169. The approximations of the **data** are **very good**, but some model parameter values were not in agreement with those reported in the literature. (541_MCS).

170. The quantity of **data** (expressed by means of the number of experimental data points) as well as the positioning of these data in time have a **substantial influence** on model parameter uncertainty. This has implications for optimal experiment design. (277_MCS).

The recurrent pattern is: **the + noun + of + data**. In detail, in the first extract 506_MCS, **data** is positively evaluated because of the vicinity to the positive evaluative noun **importance**. Furthermore, evaluation is
carried on in the two following sentences: *we present a simple but powerful interpolation scheme and to accomplish such task*. In the former, positive evaluation is supported by the adjectives *simple but powerful*, while in the latter the verb *accomplish* implied to succeed in doing something. In the example number 168 evaluation is supported by the adjective *significant* while in the example number 169 evaluation is expressed by the comparative *very good*. It is worth mentioning that both these examples present a slight decreasing evaluation in the secondary sentences. As a matter of fact, in the former there is the negative sentence: *if they are not* and similarly in the latter there is the negative sentence: *but some model parameter values were not*. The negative *not* reduces evaluation in the first place. On the other hand, positive evaluation is carried on in the example number 170 in the expression *have a substantial influence*; in the scientific context influence is intended not as a neuter word but on the contrary as carrier of positive influence.

### 3.2.4 Evidence in MCS

The word *evidence* occurs 15 times in the MCS corpus and is evaluated 12 times, 10 times it is positive and 2 times negative. *Evidence* is a very articulated term. According to the *Collins Cobuild Dictionary* “Evidence is anything that you see, experience, read, or are told that causes you to believe that something is true or has really happened”. In the scientific field *evidence* is *per se* a lexical item with a positive semantic prosody. Positive evaluation is realised in the following extract:
Substantial empirical evidence of nonlinearities in economic time series fluctuations has been reported in the literature. (127_MCS).

The construction: evidence has been reported in the literature, implies that precise evidence is relevant for the research study.

On the other hand, the recurrent pattern: evidence shows something is displayed in the four following extracts:

172. The empirical evidence shows that the permanent component of the conditional variance is a relatively smooth movement except for a fairly sharp shift which began in 1997. (198_MCS).

173. There is a considerable amount of experimental evidence that unequivocally shows that there are fluids whose viscosity depends on both the mean normal stress (pressure) and the shear rate. (391_MCS).

174. In this paper, we present empirical evidence and analytic analysis of the -shell error in some simple boundary value problems for the Laplace and Poisson equations and show that the error associated with the -shell is O(), for small . This fact supports the conclusion that GFFP is preferable to WOS in cases where both are applicable. (296_MCS).

175. Monte Carlo evidence is provided to show that the latter appears to be a more important characteristic of BVARs in experiments using a 4-equation cointegrated system. (455_MCS).

In detail, the recurrent pattern explains that specific evidence is the result of an important step of the research process, therefore positive evaluation is fully accomplished. It is worth mentioning that in the example number 173 the adverb unequivocally construes further positive evaluation. On the other hand, in the example number 174, as very often happens, positive evaluation is gradually built up: first researcher presents empirical evidence then evidence shows and in the last sentence evaluation is realised by means of the comparative construction this fact supports the conclusion that GFFP is preferable to WOS. A similar role
is played by the construction *more important* in the example number 175 that adds emphasis conveying further positive evaluation.

In the following two excerpts the recurrent construction is: *evidence presents or is presented*.

176. this paper presents evidence consistent with the theory that future changes in the economic environment firms face do have an impact on the current retail price of gasoline. Some evidence is also presented that suggests the behaviour of retail prices has changed over the time period being examined. (451_MCS).

177. Evidence is presented to suggest that the relaxation of the restrictions governing the underwriting operations of Japanese banks was associated with a significant fall in spreads in both. (122_MCS).

In detail, in the example number 176 positive evaluation is marked by the adjective *consistent* and then carried on by a precise construction with the verb *present* that collocates with the verb *suggest*, likewise, in the latter excerpt 177.

In the following extract the verb *suggest* still construes positive evaluation:

178. The empirical evidence suggests technological catching up by Singapore to the USA. (459_MCS).

On the contrary, negative evaluation is realised in the following extract:

179. However, the evidence is not overwhelming and further work is required both in terms of data used and types of tests employed. (465_MCS)

In detail, the negative construction *is not overwhelming* combined with the sentence *and further work is required* implies that *evidence* is not enough. The lack of further information causes the research to be incomplete especially because this statement appears in the ‘concluding remarks move’ of the RAA.

Similarly, slightly negative evaluation is carried on in the following extract:
180. No precise mathematical theorems are demonstrated but we give enough numerical evidence to support the conclusions. (53_MCS).

The initial sentence introduced by no sets the reader in a disappointed attitude but this unmatched expectancy is compensated by the positive sentence we give enough numerical evidence to support the conclusions. Similarly, still positive evaluation is highlighted in the following extract introduced by the adjective very important in the second sentence

181. Evidence is given for the fact that taking space into account indeed has an influence on the behavior (coexistence/extinction) of the populations, which is very important in the field of predictive microbiology, where microbial safety is of major interest. (610_MCS).

Briefly, at first sight there is no negative construction such as no evidence or any negative semantic preference but in very few examples. Therefore, on the whole the word evidence is used as a positive evaluative word.

3.2.5 Evidences in MCS

The word form evidences occurs only once in the MCS corpus and it implies slightly positive evaluation supported by the sentence to show the success, as in the following extract:

182. Also provided are some evidences which show the success of the algorithm. (25_MCS).
3.2.6 *Finding in MCS*

The investigated word *finding* occurs 19 times in the MCS corpus but 15 times is a verb. The present investigation will focus only on *finding* as a noun, in particular, it occurs 4 times as a noun and only twice is evaluative. Despite this feature in the MCS corpus, apparently in the IJP corpus *finding* is always a noun. In the following extract, *finding* is mentioned twice:

183. Less predictable is the remarkable *finding* that these coupled, non-linear, time dependent equations are conformally mappable and this *finding* enables solutions to be obtained easily for both upercritical and subcritical flows. (43_MCS).

First, *finding* is evaluated by means of the construction: *less predictable is the remarkable*. In detail, the positive adjective is supported by the comparative construction. Second, *finding* is positively evaluated in the last sentence: *this finding enables solutions to be obtained easily*. As, already seen in most of the previous extracts, evaluation is slowly built up trough a crescendo.

3.2.7 *Findings in MCS*

The plural word form *findings* occurs 4 times in the MCS corpus and is always positively evaluated.

In the following extract positive evaluation is accomplished by the expression *are consistent with*:

184. These findings are consistent with the soliton hypothesis made by Zhou et al. (354_MCS).
As a matter of fact, if findings are consistent with a specific hypothesis it does imply that these findings have been successfully achieved and the goal of the research has been accomplished.

Evaluation works in a similar way in the extract number 185:

185. An excellent agreement is found between the simulation results and the experimental findings concerning the dependence of the failure process upon the length of the metallic line. (308_MCS).

As a matter of fact, it is introduced by the adjective excellent and then since results conform to the expected findings it entails that the goal of the research has been fully accomplished.

In the following extract evaluation is modalized by the construction should be physically reasonable:

186. Correspondingly, the findings obtained by any modelling approach should be physically reasonable but one should be aware that their information content only resides in the general behaviour of the calculated results and their orders of magnitude. (598_MCS).

The modal verb with the positively evaluated adjective construes positive evaluation in the above extract.

On the other hand, in the following excerpt evaluation is slightly implied:

187. We present a theoretical analysis and verify these findings on the experimental test-bed. (510_MCS).

Particularly, evaluation is construed in the sentence: researchers present an analysis to test their findings. Predictably enough, these findings are positive otherwise there should be no logic reason to write a paper about them!
3.2.8 *Investigation* in MCS

The word *investigation* as singular word form occurs 24 times in the MCS corpus but it is never evaluated. However, it is worth mentioning that while looking for ROE, *investigation* appears to be very present in the title of the abstract rather more than in the body of the text of the research article abstract.

3.2.9 *Investigations* in MCS

The RPW *investigations* occur 4 times However, this word is slightly evaluated only once in a positive way as in the following excerpt:

188. A System for Doing Mathematics by Computer, Addison-Wesley, Reading, MA, 1988], which allows to model mechanical systems, conduct qualitative investigations and solve some problems of both rigid body mechanics and some classes of electric circuits. (517_MCS).

In detail, in the above extract, *these investigations* are qualitative and are positively evaluated because they *solve some problems*.

3.2.10. *Method* in MCS

*Method* occurs 522 times in the MCS corpus. It is by far one of the most frequent words among the RPWs. However is fully positive evaluated only 47 times.

In the seven following excerpts, positive evaluation is construed:
This paper describes the Cartesian cut cell method, which provides a flexible and efficient alternative to traditional boundary fitted grid methods. (364_MCS).

Unlike traditional methods, the proposed scheme provides a very efficient method to solve the ADR equation for any value of the grid-Péclet number. (61_MCS).

This numerical experiment shows that the split-step Fourier method provides highly accurate solutions for the GNLS equation and that the fourth-order scheme is computationally more efficient than the first-order and second-order schemes. (188_MCS).

The numerical results indicate that the numerical simulations are satisfying and the mathematical models are reasonable. The discontinuous Galerkin method is efficient. (572_MCS)

Besides, alternative approaches for linear parameter system model reduction as well as a more efficient method for nonlinear parameter system model reduction are proposed in this paper. (137_MCS).

This method is computationally very efficient using the fast Fourier transform. (93_MCS)

Both the RK method and LSODI are capable of solving the system of ODEs in the standard two-step method. The RK method is found to be the most efficient even though it requires comparatively smaller time steps to yield accurate solutions. The LSODI solution of the general ODEs representing the reaction step was found to be extremely time consuming without any significant gain in accuracy. [ordinary differential equations] (24_MCS).

In detail, the word method co-occurs with the adjective efficient as shown in the sentences: the method is a flexible and efficient alternative, a very efficient method to solve, the method computationally more efficient, and the most efficient method. Moreover, in the first three examples method co-occurs with provide, and as we have already noticed, to provide supports a positive semantic prosody. As noticed in the Introduction, by the term semantic prosody we refer mainly to Sinclair (1991) claiming that the connotative meanings of words can be coloured by the collocates they attract, (e.g. set in collocates with negative words such as rot, decay etc.). The positive adjective, efficient
increases its ‘value’ by means of the intensifiers: more, very and the most in the following excerpts: 191, 193, 194 and 195.

Furthermore it is worth mentioning how positive evaluation is realised in extract number 192 according to a ‘cause-effect’ pattern, in the structure of the following sentences: results are satisfying and the mathematical models are reasonable; this is why the Galerkin method is efficient.

On the other hand, in the last extract 195 the superlative the most efficient is slightly diminished by the subordinate clause introduced by even though, accordingly, this entails that the method requires something else to be really efficient on its own.

In the three following examples, positive evaluation is construed in the cluster: effective method.

196. In order to find an effective method for nonlinear channel blind equalization, here, the equalizer based on RBF networks which is constructed from channel output states instead of the channel parameters is considered. (483_MCS).

197. The reactive power optimization is an effective method to improve voltage level, decrease network losses and maintain the power system running under normal conditions. (146_MCS).

198. The results reveal that the method is very effective and convenient. (60_MCS).

It is interesting to analyse the second extract number 197. In detail, evaluation is signalled by the term optimization, carried out by the cluster effective method and then by the verb to improve. In the last extract number 198, evaluation is reinforced by the quantifier very and by the adjective convenient. Similarly, the concept of ‘effectiveness’ is still carried out in the following example where method is premodified by new and postmodified by effective.

199. ...the new method can improve the performance of both convergence and results’ precision. Tested by IEEE-30, the new method provided in this paper
is proved effective and practical in the optimization of shunt capacitors and tap position of load-ratio voltage transformer. (146_MCS).

In the same way, the concept of ‘newness’, as positive evaluation, is realised in the nine following excerpts, where the word method is either innovative or new:

200. Jorgenson and Fraumeni’s method is innovative in that it simplifies the estimation process, as well as taking into account the potential value of current schooling in addition to that of past schooling. (121_MCS).

201. The new method simplifies the procedure of solving the TS-fuzzy-model-based dynamic equations into the successive solution of a system of recursive formulae. (133_MCS).

202. A new method is given to optimize parameters in dynamical systems by supplementing conventional methods with a procedure of contractive mapping. (223_MCS).

203. A new method of exact linearization is proposed that includes transformations used earlier. (524_MCS).

204. By some numerical examples we will illustrate the feasibility of this new method. (209_MCS).

205. Numerical results show that the new method is able to sift out the mode mixing part of the data from the original signal and retain the useful information. (66_MCS).

206. In this paper, a new method is presented that offers efficient computation of Linear Prediction Coefficients (LPC) via a new Recursive Least Squares (RLS) adaptive filtering algorithm. This method can be successfully used in speech coding and processing. (235_MCS).

207. This paper describes a new method for the construction of generator sets for higher-rank rules that is based on techniques. (648_MCS)

208. The new method has potential applications in further multi-dimensional nonlinear wave simulations. (136_MCS).

In detail, these examples can be analysed according to different recurrent patterns. In particular extracts number 200 and 201 share the concept of ‘newness’ expressed in the former by the adjective innovative while in
the latter by the adjective *new*, then both co-occurs with the verb *simplify*, according to the sentence: *the new method simplifies something*.

Then in extracts number 202 and 203 the *new method* either *is given* or *is proposed* and positive evaluation is increased in each examples by positive terms such as *optimize* and *exact*.

In extracts number 204 and 205 something *illustrates* or *shows the new method* and positive evaluation is increased by terms such as: *feasibility*, or *is able to sift out and useful*.

In the two examples 206 and 207 like in 199, the recurrent pattern is: *this paper provides, describes or presents a new method*. Thus, *this paper* co-occurs with *new method*. This implies that positive evaluation of the *new method* is completely spread across the entire *paper*. Moreover, it is worth mentioning that positive evaluation in extract number 206 is first introduced by *new* premodifying *method* then is carried on by the adjective *efficient* and last by the adverb *successfully*.

In the last extract number 208 *new method* is positively evaluated further by the prospective structures realised by means of the terms *potential* and *further*:

On the other hand, in both the following examples the RPW *method* is premodified by the adjective *proposed* and co-occurs with the noun *effectiveness*, construing positive evaluation.

**209.** The *effectiveness* of the *proposed method* is illustrated by the numerical examples. (286_MCS).

**210.** An illustrative example is given to show the *effectiveness* of the *proposed method*. (480_MCS).
Similarly, in the two following examples *efficiency* is a recurrent term and co-occurs with the cluster *proposed method* and with the verb *illustrate*.

211. The reported speed-up and parallel efficiency well illustrate the parallel features of the *proposed method* and its implementation. (367_MCS).

212. The present paper predicts the system performances for any combination of levels of the control factors by using the main effects of the control factors according to the principles of a *robust design method*. The optimal design can then be obtained. A practical case study from an integrated-circuit packaging company illustrates the *efficiency and effectiveness* of the *proposed method*. (144_MCS).

In detail in extract number 211, positive evaluation is construed in the sentence: *efficiency well illustrates the parallel features of the proposed method*, while in extract number 212, the evaluative construction is: *a circuit illustrates efficiency and effectiveness of the proposed method*. In the latter excerpt evaluation is gradually build up across the text, first is introduced by *robust design method* and then carried on in the second sentence.

In the same way, in the following example positive evaluation is realised:

213. Applying the Von-Neumann stability analysis method we show that the *proposed method is unconditionally stable*. By conducting a comparison between the absolute error for our numerical results and the analytic solution of the modified Burger’s equation we will test the *accuracy* of the *proposed method*. (59_MCS).

In detail, evaluation is introduced by the cluster *unconditionally stable* and then by the sentence *we will test the accuracy of the proposed method*. Although in the last sentence evaluation is rather implied than clearly signalled, *accuracy* is positive rather than negative and the neuter word *testing* is intended as a positive term in the sentence *positive testing*.
the accuracy because if the testing would have gone wrong it would be not worthy mentioning in the research study.

A similar positive structure appears in the following excerpt where method co-occurs with accuracy and provide:

214. The CESTAC method is a Monte Carlo method which uses DSA and provides the accuracy on any computed result with a high probability. (582_MCS).

On the other hand, in the three following examples, the cluster is once again: proposed method and it is fully positive evaluated:

215. The study also indicates that the proposed method has the potential to solve a wide range of inverse identification problems in a systematic and robust way. (527_MCS).

216. The proposed method is computationally efficient and is suitable for on-line implementation. (484_MCS).

217. Compared with Chen’s blind Bayesian DFE, the proposed method presents better convergence performance with less computational complexity. (559_MCS).

In detail, positive evaluative sentences are: proposed method solve problems in a systematic and robust way, proposed method is computationally efficient and is suitable for on-line implementation and the proposed method presents better convergence performance with less computational complexity.

On the other hand, it is worth mentioning that in the extract 218, positive evaluation is still construed but the construction is slightly different; the cluster is not proposed method but proposed is in a predicative position as in the sentence: a new method is proposed.

218. A new algorithm based on the decomposition method is proposed. The new algorithm improves the decomposition method in terms of both generality and efficiency. It is shown to be suitable for the signed and unsigned magnitude number systems on a computer, and to require fewer numbers of arithmetic operations than the decomposition method. (472_MCS).
It is worth mentioning that the subject is an ‘algorithm’ based on a ‘specific method’. Furthermore, the two sentences build up evaluation gradually; first positive evaluation is introduced by the adjective new, then it is signalled by the verb improve and the adjective suitable and afterwards, the very last sentence fewer numbers of arithmetic operations than the decomposition method classifies this method as a very efficient one.

In the following extract evaluation is still positive and it is signalled by the expression: method continues to perform well.

219. There are also cases in which the MI method continues to perform well, while it is impossible to achieve the desired accuracy with PSOR within a decent time interval. (668_MCS).

On the other hand, in the following examples, evaluation is rather implied than fully explicated. In detail, it is claimed that a specific method is needed. The past participle: needed apparently implies that this method suits precise purposes and it is useful.

220. Therefore, a good automatic adaptive recognition method is needed. The new adaptive Morse code recognition method introduced in this paper consists of five separate processes. (608_MCS).

In the two following excerpts positive evaluation is still accomplished by means of two positive adjectives: reliable and excellent.

221. Their training is performed off-line, which ensures a reliable method with false alarm avoidance. (429_MCS).

222. An excellent method to deal with stochastic variables is Monte Carlo analysis. (277_MCS).

On the other hand, in the two following excerpts, titles of the abstracts, evaluation is rather implied than clearly expressed.

223. A simple method for computing the entropy of the product of general fuzzy Intervals. (511_MCS).

In detail, method is premodified by the terms simple and improved and although the overall meaning is not fully evaluative per se, due to their textual position (the research article abstract title) they appear to have a more positive connotation.

In the six following examples positive evaluation is realised and the general meaning is: ‘the method is something good’:

The very nature of the problem is such that the Monte Carlo simulation is the only appropriate and suitable method of solution. (598_MCS).

Since a sparse oct-tree is constructed for a specific viewpoint the method is best suited to situations where an image is to be generated from one viewpoint. (287_MCS).

The simulation model is a proven tool in solving nonlinear and stochastic problems and allows examination of the likely behavior of a proposed manufacturing system under selected conditions. However, it does not provide a method for optimization. (144_MCS).

The method is computationally attractive, and applications are demonstrated through illustrative examples. (562_MCS).

Backward error analysis for PDEs, or the method of modified equations, is a useful technique for studying the qualitative behavior of a discretization and provides insight into the preservation properties of the scheme. (92_MCS).

An important feature of the method we present lies in its validity for arbitrary real closed fields, thus it is well suited to handle, at least locally, parametric linear complementarity problems. (571_MCS).

In particular, positive sentences are: it is the only appropriate and suitable method, this method is best suited, a proven tool in solving, the method is computationally attractive, it is a useful technique, well suited to handle. All these expressions are fully positive evaluated.
On the other hand, in the three following examples comparative structures expressed by *higher, more advantageous* and *better* contribute to positive evaluation very much:

231. Moreover, the **method** is experimentally verified to have **higher sensitivity than conventional ultrasound.** (247_MCS).

232. We find the set of conditions for which each **method** is **more advantageous than** the other. (674_MCS).

233. The **results** suggest that the finite-element **method** resolves the vertical structure of the baroclinic normal mode **better** than the finite-difference method. The generation, propagation, and decay of baroclinic waves are well simulated in this model. (15_MCS).

Last, in the following excerpts, positive evaluation is signalled by the positive adverb *successfully*:

234. This **method** **can be successfully used** in speech coding and processing. (235_MCS).

235. This **method** works **successfully** when the solution is located in the interior of the parameter space. (663_MCS).

### 3.2.11 Methods in MCS

The research process word **methods** occurs 220 times in the MCS corpus and is positively evaluated 28 times.

In the following five excerpts **methods** has in common the adjective **efficient** or the adverb **efficiently**:

236. Global sensitivity indices for rather complex mathematical models **can be efficiently computed** by Monte Carlo (or quasi-Monte Carlo) **methods.** (651_MCS).

237. [...] combine different **efficient** models and **methods** for timing analysis of single processes. (217_MCS).
238. The problem of identifiability of parameters has hardly ever been considered in the case of uncontrolled systems whereas many efficient methods have been developed for controlled systems. (535_MCS).

239. Efficient implementation methods are suggested. (323_MCS).

240. CALS is a combination of symbolic and numeric methods, which is very well suited for efficient solving of complex problems. (32_MCS).

All these excerpts construe positive evaluation and a positive semantic prosody.

On the other hand, the concept of ‘efficiency’ expressed by the adjective effective is present in the following extract implying positive evaluation:

241. Strong-stability-preserving (SSP) time discretization methods (also known as total-variation-diminishing or TVD methods) are popular and effective. (355_MCS).

In the two following excerpts the construction is similar:

242. Comparison shows that combining components in the frequency domain has advantages in accuracy and efficiency in many practical cases. Methods of finding model poles and residues and ways to avoid numerical difficulties with poles. (42_MCS).

243. In this article we present a knowledge-based system (KBS) that combines advantages from both methods. (251_MCS).

These two excerpts have in common the word advantages. However positive evaluation is also signalled by other words like accuracy and efficiency.

On the other hand, the two following extracts construe positive evaluation around the verb provide:

244. The Monte Carlo methods provide a possibility for improved sub-optimal Bayesian estimation. (650_MCS).

245. This paper describes the Cartesian cut cell method, which provides a flexible and efficient alternative to traditional boundary fitted grid methods. (364_MCS).
The excerpt number 245 has also the word *efficiency* which supports positive evaluation.

Positive evaluation is still present in the following extract:

246. By combining numerical and **analytical methods** we prove the existence of partially synchronized states for systems of three and four oscillators. (601_MCS).

The sentence *we prove the existence* although at a superficial glance may appear neutral is, on the contrary, quite positive in terms of ‘goal-achievement’ provided by the group of researchers.

Positive evaluation is then related to the concept of ‘newness’ present in the four following extracts

247. Recent hybrid-Monte Carlo **methods** designed for high dimensional simulation will be discussed. (645_MCS).

248. This paper is devoted to the presentation of new **meshless methods** based. (592_MCS).

249. A **new method** is given to optimize parameters in dynamical systems by supplementing conventional **Methods**. (223_MCS).

250. However, research has shown that there is a need for new **methods** to collect calibration and validation data in order to validate. (110_MCS).

In detail, adjectives like *new* and *recent* combined with expression like *given to optimize* construe positive evaluation. Similarly the concept of ‘newness’ is expressed in the following excerpt:

251. The aim of this paper is to review and discuss the most challenging **aspects** of the particle-based **methods** for simulation of charge transport in semiconductor devices. (313_MCS).

However, instead of the adjective *new* there is the more articulated construction: the **most challenging aspect**.
On the other hand in the three following excerpts it is clearly shown the problem-solution pattern, as defined in the section about research article abstracts structure on page 29:

252. The considered methods are applied to the solution of selected model problems as well as to a large scale problem arising from assessment. (379_MCS).

253. This algorithm employs finite element methods and iteratively solves smaller subproblems with good accuracy. (630_MCS).

254. Numerical results indicate that the present method can solve some large-scale problems that are difficult for the previous methods. (223_MCS).

255. But unfortunately, almost all the methods from the ART class give satisfactory results only in the case of consistent problems. (275_MCS).

As a matter of fact, all these excerpts have in common the same words or the same semantically associated words like: solve, solution, problem, and results. The main aim of these constructions is to add emphasis on the positive evaluation of the methods.

Similarly, the following extracts construe positive evaluation around the same adverb successfully

256. In the context of non-linear dynamics, next neighbor prediction methods have been successfully applied to univariate time series. (8_MCS).

257. Such huge computational tasks can successfully be treated only if: (i) fast and sufficiently accurate numerical methods are used and (ii) the models can efficiently be run on parallel computers. (278_MCS).

This positive adverb supports positive evaluation.

In the next extracts, positive evaluation is realised in a rather different way by means of un/conventionality:

258. Furthermore, the method will be seen to be more competitive (in terms of numerical stability) than some well-known methods in the literature. (566_MCS).

259. These applications are too massive and inter-related to be built, verified, tuned and maintained by conventional methods. (625_MCS).
260. Although many methods have been proposed to deal with this task, none of them are suitable for any time series series present conflicting results. (54_MCS).


Although, at a superficial glance there is no recurrent pattern, specific words are semantically related to the concept of conventionality and unconventionality like: well-known, more competitive, conventional, and, traditional. Accordingly, those methods that are less conventional result to be more useful in the research study.

Ultimately, positive evaluation is construed through the concept of importance expressed in the three following excerpts, two of these come from the same abstract:

262. The new constraint-solving methods derived from these techniques help designers in gaining important insights during engineering design. (182_MCS).

263. The evaluation results have illustrated these constraint-solving methods are useful for gaining insights that help designers in making informed design decisions. (182_MCS).

264. An assessment of such intervention methods has clinical importance. (440_MCS).

In detail, positive evaluation is based on expressions like important insights, insights, and importance.

3.2.12. Methodology in MCS

The term methodology occurs 17 times in the MCS corpus and it is evaluated in a positive way 7 times.

In the three following excerpts evaluation is positive:
265. In particular, a new concept of coordinate cointegration is introduced and some 
new econometric methodology is suggested for analyzing trends and co-
movement. (129_MCS).

266. In this paper, a novel approach to immune model-based fault diagnosis 
methodology for nonlinear systems is presented. (191_MCS).

267. An efficient methodology of estimation of parameters in the diffusion 
coefficient of the stochastic differential equation (SDE) is presented in this 
work. (29_MCS).

In detail, the recurrent pattern is:

\[ A + \text{adj} + \text{methodology} + \text{is} + \text{illustrated/suggested} \]

Positive evaluation is realised due to the positive evaluative adjectives: 
new, novel and efficient. However, despite the quite regular construction 
occurring in excerpts number 265 and 267, in example number 266 the 
premodification of the RPW methodology is more articulated as in the 
sentence: a novel approach to immune model-based fault diagnosis 
methodology. The long sequence of words is defined as positive by 
means of the adjective novel.

Similarly, in the following excerpt evaluation is positive

268. The methodology is illustrated with a simple lettuce growth model.
(269_MCS).

However, although the ‘is + past participle’ construction is still present, 
positive evaluation is signalled by the expression with a simple [...] 
model.

In the two following extracts, methodology is either suggested or 
proposed.

269. Many examples are presented to illustrate some theoretical considerations and 
to show the efficiency of the suggested methodology. (421_MCS).

270. The obtained results show that the proposed methodology provides an 
effective and useful tool for reservoir operation. (159_MCS).
In excerpt number 269 the core evaluative sentence is *examples show the efficiency of the suggested methodology* while in excerpt number 270 is *methodology provides an effective and useful tool*. However, despite being subject or object *methodology* is always positively evaluated.

Positive evaluation is still expressed in the next example construed especially in the sentence *methodology appears well suited*:

271. The incremental unknown *methodology appears well suited* to capture the turbulent behavior of the flow whose small eddies (16_MCS)

### 3.2.13 Methodologies in MCS

On the other hand, the term *methodologies* occurs only once in the MCS corpus and it is slightly evaluated:

272. The integration of these two *methodologies* for the multi-objective optimization has become an *increasing interest* (421_MCS).

In detail, positive evaluation is construed in the sentence: *the integration of these two methodologies has become an increasing interest.*

### 3.2.14. Paper in MCS

The term *paper* occurs 341 times, it is one of the most recurrent words in the MCS corpus, it is positively evaluated 24 times and evaluation is construed in different ways.
In the five following examples *paper* co-occurs with: *in this*\textsuperscript{13}, *in present*, or *in the*, as shown hereafter:

273. **In present paper**, a simple approach is proposed for some particular models of interval uncertainty. *This method gives an optimal interval solution* without linear programming and is tractable for moderate-size problems. (218_MCS).

274. It is expected that the results discussed *in the paper* would enhance our understanding of various forms of count data originating from primary health care facilities and medical domains. 102_MCS.

275. **We address in this paper** the efficient estimation of sensitivity coefficients by Monte Carlo simulations. 661_MCS.

276. **In this paper**, we present new optimal fourth-order SSPRK schemes with mild storage requirements and up to eight stages. 355_MCS.

277. **In this paper**, we present a new approach for the parallel generation and partitioning of unstructured 3D Delaunay meshes. The new approach couples the mesh generation and partitioning problems into a single optimization problem. (642_MCS).

278. **We present in this paper** a new approach that uses visual information to anticipate that a door has to be crossed. 412_MCS.

In examples number 273 and 274 once established that something is happening in the paper, evaluation is expressed in a positive way according to two different constructions: *a simple approach is proposed* and *the results discussed in the paper would enhance our understanding*. It is worth mentioning how evaluation is hedged in excerpt number 274 due to the modal *would*, while in excerpt number 273 positive evaluation is triggered by: *a simple approach* and then reinforced by the following sentence *this method gives an optimal interval solution*.

Furthermore, in excerpts number 275, 276, 277, and 278 the cluster: *in this paper* co-occurs with *we address* or *we present*. Evaluation is positive, because when the subject is clearly expressed very rarely negative evaluation occurs.

\textsuperscript{13} The cluster *in this* appears also to be a collocate of *paper*.
The recurrent pattern in these excerpts is: *in this paper* + *we* + *present/address* + *adj* + *noun*. *In this paper* can be in the first position of the sentence or after the verb; positive evaluative adjectives are *efficient* and *new*, while nouns are *estimation, schemes*, and *approach*. It is worth mentioning that these nouns refer to abstract entities however, they play an important role in the research process in terms of general scheme and expectancy.

On the other hand, in the two following excerpts, the cluster: *in this paper* appears in the vicinity of the words *results* or *conditions*:

279. The results reported *in this paper* are a powerful support to the famous argument of the biological wave about the popular growth of bacteria based on lab-observation in ecology. (132_MCS).

280. *In this paper*, a sufficient condition is proposed to analyze the robust stability of the discrete-time LQG system under linear time-varying structured parameter perturbations. (237_MCS).

In detail, in example number 279 results are *a powerful support* therefore they are positively evaluated, while in excerpt number 280 evaluation is rather implied than clearly expressed according to the sentence: *a sufficient condition is proposed to analyze the robust stability*.

On the other hand, in the three following examples the recurrent pattern is: *In this paper* + *a* + *adj* (*new/novel*) + *noun* + *is presented*

281. *In this paper*, a novel approach to immune model-based fault diagnosis methodology for nonlinear systems is presented. (191_MCS).

282. *In this paper*, a new method is presented that offers efficient computation of Linear Prediction Coefficients (LPC) via a new Recursive Least Squares (RLS) adaptive filtering algorithm. This method can be successfully used in speech coding and processing. (235_MCS).

283. *In this paper*, a new approach for robust fault detection based on fuzzy parity equations is presented. (467_MCS).
In the examples above, the noun, either *approach* or *method*, co-occurs with the adjectives related to the concept of ‘newness’, like *new* or *novel*, contributing to positive evaluation.

Similarly, in the following excerpt the pattern has only a different verb *has been developed*, and evaluation is still positive.

284. **In this paper**, a new model structure for the simulation of steam soil disinfection processes has been developed. (261_MCS).

In the two following examples from the same file 144_MCS; the recurrent pattern is: *the present paper*.

285. **The present paper** predicts the system performances for any combination of levels of the control factors by using the main effects of the control factors according to the principles of a robust design method. The optimal design can then be obtained. (144_MCS).

286. **The present paper** proposes to solve the multiresponse simulation-optimization problem by a multiple-attribute decision-making method. (144_MCS).

Although, evaluation is rather implied it is definitively more positive and is expressed by the verbal structures: *predict* and *propose to solve*. Intuitively, it is more likely that *the paper predicts* something ‘useful’ for the research and that the ‘solution’ the paper finds is useful and efficient, paraphrasing the sentence: *the present paper proposes to solve*.

In the three following examples, the recurrent pattern is again *this paper*:

287. **This paper** gives explicit results that simplify the implementation of the method. (502_MCS).

288. **this paper** presents evidence consistent with the theory that future changes in the economic environment firms face do have an impact on the current retail price of gasoline. Some evidence is also presented that suggests the behaviour of retail prices has changed over the time period being examined. (451_MCS).

289. **this paper** tests the significance of speculators and their contributions to describing weekly volatilities across a series of currency, metals and commodity markets. (112_MCS).
Evaluation is explicitly positive and supported by the following sentences: *this paper gives explicit results, presents evidence consistent and tests the significance.*

On the other hand, positive evaluation is construed in the following examples

290. [...] the paper presents a new arithmetic based on a hybrid method of chaotic particle swarm optimization and linear interior point. (146_MCS).

291. The paper presents a simplified mathematical model of the interaction between the urine flow and the male urethra and bladder. (365_MCS).

292. The paper aims at an effective description of microscopic traffic model of urban district and the analysis and problem solving of traffic congestion based on actual data. (444_MCS).

293. The paper contains an exhaustive do-it-yourself description of the programming philosophy of MILONGA, of the development of its compiler, of the operational semantics of its run-time system and of the implementation of a couple of fundamental computer algebra procedures in this language. (434_MCS).

The recurrent pattern is: *the paper* + activity verbs (cf. Biber et al. 1999). These activity verbs show visual evidence and they are: present, aim at an effective description, contain, they are followed by positive adjectives and a noun. Positive adjectives are: new, simplified, and effective.

In the last two excerpts, paper is introduced after an adjunct (furthermore and for this reason) and is followed by an activity verb prove or provide; these verbs give explicit evidence that the research study is going to the right direction:

294. Furthermore, the paper proves that we can get a better improvement of performance when choosing proper numbers of fuzzy rule on FDA. When setting up the FDA, we use efficiency indicator of target tracking performance improvement to avoid the burden of complicated computation. (13_MCS).

295. For this reason, the paper provides a qualitative comparison of country risk rating systems used by seven leading rating agencies. The paper also provides a novel analysis of four risk ratings using univariate and multivariate volatility models for nine East European countries. (126_MCS).
3.2.15. Papers in MCS

The RPW papers occurs only once and it is positively evaluated in the following excerpt:

296. Since the publication of my original papers more than 10 years ago, it has been shown. (590_MCS).

Positive evaluation is construed by means of the adjective: original and the impersonal construction: it has been shown. However, it is worth mentioning that although evaluation may appear quite implicit, the impersonal construction clearly provides positive evaluation.

3.2.16. Procedure in MCS

The RPW procedure occurs 31 times and is fully positive evaluated only 9 times. It is worth mentioning that evaluation is not clearly expressed most of the time but in cases when adjectives are in predicative positions.

In the two following extracts the recurrent pattern is procedure + is proposed/outlined.

297. ... a procedure for indirect identification of friction force is proposed and the results obtained from the procedure are experimentally validated. (409_MCS).

298. In this paper procedure is outlined for the selection or development of a model to be used to assist in locating and designing tree belt plantations on hillslopes. Sensitivity analysis and field data interpretation are used to define the important hillslope properties and processes occurring at a field site in southern New South Wales. (106_MCS).
In detail, in example number 297, positive evaluation is construed more in the second sentence than in the first one. The construction *results experimentally validated* expresses positive evaluation in a clear way.

In excerpt number 298, evaluation is still rather implied, like the previous excerpt, since the *procedure is outlined* this implies that the procedure is worth describing because it is ‘useful and successful’. On the other hand, in the second sentence *the sensitivity analysis and field data interpretation* are two concepts relevant for the investigation and connected to the significant aspect of topic-oriented evaluation in the sentence *the important hillslope properties*. As already mentioned the present dissertation focuses on ROE rather than on TOE however, in this extract ROE and TOE are unequivocally connected because only a skilful procedure can investigate important aspects of a precise topic.

On the other hand, in the two following extracts, *efficiency* and *effectiveness* of the *procedure* establish positive evaluation:

299. Numerical experiments are presented to demonstrate the accuracy of the finite difference scheme and the *efficiency* of the proposed computational *procedure*. (539_MCS).

300. The *effectiveness* of the *procedure* is also demonstrated through the computer simulation. It is seen that the characteristics about linear and nonlinear system model can be efficiently shown through the computer simulation. (641_MCS).

It is worth mentioning that in both extracts, *procedure* co-occurs with *demonstrate*. Evaluation is first introduced in the former example by *accuracy* and then carried on. Similarly, in the latter excerpt evaluation is first introduced by *effectiveness* and then carried on by the adverb *efficiently*.

On the other hand, in the three following extracts, no regular pattern occurs, however all these excerpts present positive evaluation:
301. This paper establishes a clear procedure for the variational problem solution via Haar wavelet technique. The variational problems are solved by means of the direct method using the Haar wavelets and reduced to the solution of algebraic equations. (294_MCS).

302. It extends to quantum transport the Monte Carlo procedure that proved to be very successful for the study of semiclassical transport. (628_MCS).

303. The above procedure has been shown to facilitate the simulation of the temperature distribution in the rolling tire. (195_MCS).

The linguistic elements that gloss the RPW procedure as evaluative are: a clear procedure, the Monte Carlo procedure that proved to be very successful and the above procedure has been shown to facilitate. All these elements respectively express that: ‘the procedure is clear’, ‘the Monte Carlo procedure is very successful’ and ‘the procedure facilitates’.

In a similar way, positive evaluation is realised in the two following extracts in the constructions: this procedure performs better and a special procedure

304. This procedure performs better. (456_MCS).

305. The algorithm is basically a finite difference method but with a special procedure for marching forward in time. The accuracy of the scheme is ensured as the system is proved to satisfy certain conserved quantities. (225_MCS).

It is worth mentioning that especially in the excerpt number 305 positive evaluation is first introduced by the expression a special procedure then is carried on by the word accuracy and by the expression is proved to satisfy.
3.2.17. *Research* in MCS

According to the *Collins Cobuild* dictionary, *research* is one of the 700 most common words in English. This RPW occurs 32 times in the MCS corpus and is evaluated 11 times.

Apparently, there are no recurrent patterns but usually the term is more evaluated in a positive rather than in a negative way. In detail, in example number 306 positive evaluation is rather implied than expressed explicitly according to the sentence *it is important that the model structure... while avoiding problems*:

306. When selecting or developing a model to use for *research* it is important that the model structure and complexity meet the objectives of the research while *avoiding problems* from over parameterisation. (106_MCS).

Similarly, in excerpt number 307, *research* co-occurs with *important* again as in the sentence *represent an important task in nanotechnology research*.

307. These objects are already grown experimentally in laboratories and studies of their properties *represent an important task in nanotechnology research*. (252_MCS)

In the following extracts, positive evaluation is still construed:

308. The *research* also *comments on the utility of the data* to address the requirements of the recreational behaviour simulator, an agent-based modeling framework which has been used extensively for national park management. (110_MCS).

309. In recent years, *research* in nonlinear time series analysis *has grown rapidly*. Substantial empirical evidence of nonlinearities in economic time series fluctuations has been reported in the literature. (127_MCS).

In detail, evaluation is realised in these sentences: *research comments on the utility of the data research and has grown rapidly*. In the former
positive evaluation is highlighted by the term *utility* while in the latter by the verb combined with the adverb.

On the other hand, in the three following extracts positive evaluation is rather implied than clearly expressed.

310. This *research* aims at overcoming the above difficulties by applying techniques of Gröbner basis (GB) and quantifier elimination (QE). (182_MCS).

311. I describe some of the common themes of *research* in this field and recall some significant events in its evolution. (602_MCS).

312. The *research* work described aims to bring about savings in construction and running costs by automating the design process and removing unnecessary conservatism from the design process. (19_MCS).

In detail in excerpt number 310 since the *research aims at overcoming the above difficulties* this implies that the research is good and useful. On the other hand, in example number 311 *research* co-occurs with some significant events, while in the last excerpt the two sentences: *aims to bring about savings* and *removing unnecessary conservatism* provide positive evaluation on the whole.

In the following extract evaluation is positive but still rather implied and it is expressed by the verb *investigate*.

313. In this *research*, the sensitivity of microbial growth model parameter distributions with respect to data quality and quantity is investigated. (277_MCS).

The verb *investigate* involves investigation in the scientific field and if something is worth investigating it entails that it is interesting and remarkable.

In the three following excerpts, negative evaluation is slightly realised.
314. However, research has shown that there is a need for new methods to collect calibration and validation data in order to validate spatial/temporal simulation models. (110_MCS).

315. Computers have always been well-used tools but in the beginning only the science counted and little credit or significance was attached to any computing activities associated with scientific research. (627_MCS).

316. These are combined with the research objectives to identify the model requirements for further study on tree belt plantations. (106_MCS).

At a superficial glance, there is no recurrent pattern, however, there is a semantic aspect common to all these excerpts, that is a ‘lack of something’ leads to a negative evaluation, this aspect is explained by the following sentences: there is a need for new methods little credit or significance and for further study.

3.2.18. Result in MCS

Result occurs 31 times in the MCS corpus. It is evaluated 12 times, 9 times as positive ad 3 times as negative. The present investigation focuses on result as a noun and will not take into consideration result as a verb. In the two following excerpts evaluation is positive and the pattern is: article + premodifier + result + show + that-clause:

317. The simulation result shows that the single-term Haar wavelet method (STHW) is better than the classical Runge-Kutta fourth-order method (CRK). (292_MCS).

318. The simulation result shows that the whole computation time can be reduced to one tenth of the well-known Runge-Kutta-Fehlberg approach, while the accuracy is nearly the same. (597_MCS).
In example number 317 positive evaluation is first introduced by the verb *show* and then carried on by the comparative construction. On the other hand, in excerpt number 318 positive evaluation is first introduced by the verb *show* and then carried on by the adjective *well-known* and by the modal construction *can be reduced*.

In the three following extracts negative evaluation is realised. Although apparently there is no recurrent pattern, however, modal constructions are the common element.

319. However, it is also known that higher order kernels can inflate the variance which may cause the result that the mean squared error with very high order kernel becomes larger. (111_MCS).

320. On the other hand, interval computation gives a guaranteed interval containing the result but this interval may be in some cases useless because much too wide. (582_MCS).

321. In contrast to all other cases, when the initial condition has sufficiently large energy no global existence result is known for the DSII equation, in the focusing regime. Our preliminary computations indicate in this case the possibility that the solution blows up, hence that no global existence result can hold. (82_MCS).

In excerpt number 319 negative evaluation is expressed by the sentence: *which may cause the result; cause* is the negative trigger modalised by *may*. Similarly, in example number 320 negative evaluation is expressed by the sentence *may be in some cases useless*, the adjective *useless* signals negative evaluation and the sentence is still modalised by *may*. In the last excerpt, negative evaluation is expressed in the sentences: *no global existence result is known and no global existence result can hold*. In this case, the negative trigger is the premodifier *no global* before *result*. In the last example, negative evaluation is modalised by the modal *can*. 
Similarly, in the extract number 321 positive evaluation is modalised in
the sentence: *which can be easily obtained.* The positive adverb *easily*
contributes further to the positive semantic prosody of the sentence.

322. The **result** is an analytic approximation to the final solution *which can be easily
obtained* by using any commercial symbolic processor. (403_MCS).

Likewise, the adverb *very well* construes positive evaluation in the
following excerpt:

323. The **result** of computer simulation matches the **result** of field measurement
*very well.* (555_MCS).

In the two following extracts, positive evaluation is expressed by the
adjectives *surprising* and *correct*, that premodify **result**.

324. This is a **surprising result** as the country risk literature asserts that increases in
risk ratings are noticeably influenced by higher economic growth rates, and
vice versa. (116_MCS).

325. In these initial channel estimates, the best one which has converged toward the
**correct result** in some degree must exist. (559_MCS).

On the other hand, in the two following experts, positive evaluation is
expressed by positive terms such as: *effectiveness* and *accuracy*.

326. A numerical example and simulation illustrates the **effectiveness** of the
proposed **result**. Compared with the existing results, these results are less
conservative. (230_MCS).

327. The CESTAC method is a Monte Carlo method which uses DSA and **provides
the accuracy on any computed result** with a high probability. (582_MCS).

In detail, the recurrent pattern shows that these positive nouns co-occur
with **result** premodified by an adjective: *effectiveness/accuracy +
premodifier + result*. Accordingly these are the sentences: *effectiveness
of the proposed result* and *accuracy on any computed result*. On the
other hand, negative evaluation is construed in the following extract
particularly in the expression *poor analysis*. However, it is worth
mentioning that the overall meaning of the sentence is rather positive than negative, as expressed in the second positive sentence: *it really appears*

328. [...] numerical experiments prove that this decrease is not the result of a poor analysis, but it really appears. In our paper, we give a brief of the results. (389_MCS).

3.2.19. Results in MCS

In the MCS corpus the investigated term *results* occur 249 times and is evaluated 49 times, 46 times it is positively evaluated and 3 times it is negatively evaluated. It is, by far, one of the most recurrent words in the RPW group. For the present analysis *results* is investigated as plural form of the word *result* thus third singular person of the verb will be not taken into account.

In the four following excerpts *results* co-occurs with the adjective *accurate*.

329. The conventional Monte Carlo approach to integration and simulation is a useful alternative to analytic or quadrature methods. It has been recognized through theory and practice that a variety of uniformly distributed sequences provide more accurate results than a purely pseudorandom sequence. (665_MCS).

330. Empirical tests performed with Genz’s test function package show that cubature rule based algorithms can provide more accurate results than quasi-Monte Carlo routines for dimensions up to $s=100$. (312_MCS).

331. It is shown that, for the linear case, including both terms (reaction and diffusion) in the computation of the new grid gives more accurate results and is more correct than just including the diffusion term. (298_MCS).

332. A simple and effective algorithm based on Haar wavelet is proposed to the solution of linear stiff problems in this paper. And it can integrate the stiff equation with very accurate results for any length of time. (292_MCS).
In detail, in examples number 329 and 330 the recurrent construction is: *provide more accurate results than*; this is a comparative construction and evaluation is positive due to the adjective *accurate* and the verb *provide*. In excerpt number 331 *accurate results* co-occurs with *give* and with a comparative construction again. In excerpt number 332 *results* still co-occurs with *accurate* but is modified by *very* therefore but similarities in meaning with previous excerpts there is no evident recurrent pattern.

In the next excerpt number 333 the word *results* does not co-occur with *more accurate* but with *much better*. However, it is evident that *more accurate results* and *much better results* are semantically pretty similar:

**333.** The results indicate that the extended Kaczmarz algorithm gives *much better results* than the other two. (275_MCS).

Furthermore, like the previous example number 331, in the excerpt number 333, *results* co-occurs with the verb *to give*.

Similarly, in the following excerpts, instead of the adjective *accurate*, two different adjectives construe positive evaluation: *effective* and *efficient*:

**334.** Also, our numerical *results* indicate that these schemes can be used as *effective* tools for the numerical investigations of the solutions of general Sine-Gordon equations. (586_MCS).

**335.** The *results* indicate *efficient* concentration of X-ray beams by all of these capillaries. (222_MCS).

Similarly, in the following excerpts instead of the adjective *accurate* there is the noun *accuracy*:

**336.** We validate our theoretical work with a number of experimental *results*, demonstrating both *accuracy* and *stability*. (669_MCS).
337. Experimental results on real and simulated data are given to demonstrate their accuracy. (272_MCS).

338. The results of numerical experiments are presented and the accuracy and the central processor (CPU) times needed are reported. (399_MCS).

In detail, in excerpts number 336 and 337 the word results co-occurs with experimental and accuracy and with the verb demonstrate. Similarly in example 338 results is modified by numerical experiments that is pretty similar to the adjective experimental and the construction: the results of numerical experiments are presented follows the pattern: premodifier + results + are + past participle.

In the next excerpt 339 instead of accuracy there is the term efficiency that can be considered semantically very close. As a matter of fact, according to the Collins Cobuild dictionary “if someone or something performs a task, for example hitting a target, with accuracy, they do it in an exact way without making a mistake”. Similarly, “efficiency is the quality of being able to do a task successfully, without wasting time or energy”.

339. In Section 2, we will explain how we prepared the numerical experiments, show the results and discuss its efficiency. (306_MCS).

On the other hand, the following examples show negative evaluation only in two cases but with interesting constructions.

340. Although many methods have been proposed to deal with this task, none of them are suitable for any time series and sometimes when applied to the same time series present conflicting results. (54_MCS).

341. The results presented here lead to no support for exogenous growth models as an explanation of the growth process in New Zealand. (465_MCS).

In the former results is premodified by the negative adjective conflicting. However, negative evaluation has already been signalled by the
expression: *none of them are suitable* referred to different methods. Similarly, in the latter negative evaluation is introduced by the construction: *the results presented here lead to no support.*

Likewise, slight negative evaluation is construed in the following extract:

342. However, these *initial results* require further exploration. (115_MCS).

Although, the adjective *initial per se* is not negative, it is quite restricting and negative evaluation is construed in the sentence: *require further exploration.*

Positive evaluation is still expressed in the next three excerpts according to the following pattern: positive adj + *results*:

343. This paper gives *explicit results* that simplify the implementation of the method. To show the numerical behavior of the proposed method, the simulation results of an example are presented. (502_MCS).

344. To date, most development efforts have been experimental with *good results* being achieved. (598_MCS).

345. The analysis of the error estimates leads to *interesting results*. (389_MCS).

In detail, *results* is modified respectively by *explicit, good* and *interesting*. *Explicit* is the only adjective, among the three, that is less positive and more neutral, however in example number 343 the sentence is furthermore positively evaluated by the following ‘that-clause’: *that simplify the implementation of the method* that is positive due to the verb *simplify*.

Similarly, positive evaluation is realised in the two following excerpts:

346. Numerical *results* are presented to *illustrate the robustness* of the proposed scheme. (61_MCS).
347. The numerical results for a Newtonian fluid are found to be consistent with those of the literature and highlight singularity effects. (430_MCS).

Although, at a superficial glance there is no recurrent pattern, a closer inspection shows that the term results is premodified by the adjective numerical. In excerpt 346, positive evaluation is construed in the term robustness while, in excerpt number 347 the adjective consistent slightly signals evaluation.

On the other hand, in the following examples the recurrent pattern is: numerical results indicate that.

348. The numerical results indicate that the numerical simulations are satisfying and the mathematical models are reasonable. The discontinuous Galerkin method is efficient. (572_MCS).

349. The numerical results indicate that the proposed technique indeed locate a high quality optimal solution. (143_MCS).

350. Numerical results indicate that the present method can solve some large-scale problems that are difficult for the previous methods. (223_MCS).

However, in all the above examples positive evaluation is not construed in the first sentence but is introduced afterwards in the ‘that-clause’ with different expressions, respectively: satisfying and ... reasonable, high quality optimal solution and can solve some large-scale problems.

In the two following examples, the pattern numerical results + show + that is similar:

351. Numerical results show that the new method is able to sift out the mode mixing part of the data from the original signal and retain the useful information. (66_MCS).

352. Numerical results showed that the model’s reliability and convergency are fairly good. (512_MCS).
In the former, positive evaluation is construed in the expressions: *the new method* and *is able [...] retain the useful information*, while in the latter in the expression: *reliability and convergency are fairly good*.

Likewise, in excerpt number 353 instead of the verb *show* it is present the verb *illustrate* followed by the positive evaluative term *usefulness*:

353. Numerical results illustrate the usefulness of these new figures of merit. (662_MCS).

Positive evaluation is still expressed in the two following excerpts by the constructions: *numerical results ... provide a reasonably* and *numerical results shed light*.

354. Numerical results obtained by implementing the last algorithm prove that this shape optimization techniques provide a reasonably smooth free boundary. (583_MCS).


In the following excerpt the passive construction make evaluation quite inexplicit:

356. The validity of the model assumptions is established by comparing numerical results with experimental data. (260_MCS).

However, if we paraphrase the main sentence as: ‘the comparison between numerical results and experimental data establish the validity’, then the excerpt is positively evaluated.

In the following extract evaluation is positive:

357. … choosing the right numerical strategy is very important to avoid misleading results. (80_MCS).

The cluster *very important* provides the positive meaning.
On the other hand, in the three following examples positive evaluation is quite straightforward:

358. The present results are in satisfactory agreement with the exact solutions. (479_MCS).

359. The obtained results demonstrate a superior tracking performance of the BMM PDA algorithm. (650_MCS).

360. The obtained results show that the proposed methodology provides an effective and useful tool for reservoir operation. (159_MCS).

In detail, evaluation is signalled by the construction: the + present/obtained + noun + verb + positive adjectives + noun (satisfactory agreement or superior tracking performance or an effective and useful tool). Results is premodified by the cluster the present or the obtained, in this case these two adjectives are pretty similar because they both imply that these results are the final outcome of the research study. However, evaluation is clearly construed afterwards in the positive adjectives in predicative position. Furthermore, it is worth mentioning that in excerpts number 359 and 360 results co-occurs with the verb demonstrate or show that are semantically similar.

In the following examples positive evaluation is expressed by polar adjectives such as good, important, effective and convenient, and significant.

361. The results reveal good performances in all the different situations taken into account. (29_MCS).

362. The results reveal that insiders’trading volume play an important role in the dissemination of private information to the investing public. (128_MCS).

363. The results reveal that the method is very effective and convenient. (60_MCS).

364. An efficient optimization technique is applied for constructing a solution. The results show that a significant heat input reduction can be achieved with only a small increase in fuel consumption. (46_MCS).
365. The results indicate that the extended Kaczmarz algorithm gives much better results than the other two. (275_MCS).

366. The results illustrate good agreement between both simulated and experimental results. (406_MCS).

367. The results, which are valid for search spaces of arbitrary dimensions, are illustrated on a simple three-dimensional example. (138_MCS).

368. The results reported in this paper are a powerful support to the famous argument of the biological wave ... (132_MCS).

The RPW results is modified by the determiner the and co-occurs with the verb reveal, show, indicate or illustrate. The last three verbs can be easily grouped together semantically. In addition, it is worth mentioning that in excerpt number 368 results does not co-occur with none of the above mentioned verbs but, on the contrary, it co-occurs with the auxiliary to be, however positive evaluation is still present and expressed by the adjective powerful.

In the three following excerpts evaluation is construed in a positive way but apparently there is no recurrent pattern.

369. The results extend and improve the earlier publications. (56_MCS).

370. Compared with the existing results, these results are less conservative. (230_MCS).

371. From these results, we are also able to make some general and important remarks concerning the validity and utility of the found variational soliton solutions. (87_MCS).

In excerpt number 369 positive evaluation is explicated by two verbs: extend and improve. In examples number 370 and 371, results is premodified by these and positive evaluation is expressed by the absolute comparative less conservative, by the polar adjective important and by two positive words, semantically associated: validity and utility.
On the other hand, in the following extract evaluation is positive but also limited:

372. But unfortunately, almost all the methods from the ART class give satisfactory results only in the case of consistent problems. (275_MCS).

As a matter of fact, the first sentence is introduced by the adjunct but unfortunately because although results is premodified in a positive way by satisfactory these results can be ‘satisfactory’ only in the event of a precise problem.

In the following excerpts, positive evaluation is construed in different ways:

373. The fuzzy logic approach to this measurement problem involves several subjective judgements, but our results are quite robust to these choices. (457_MCS).

374. Our results provide insights into how the complexity of the solutions to a broad range of macroeconomic models increases with the dimensionality of the models. (101_MCS).

375. Our results show that we can achieve nearly perfect equi-distribution of mesh elements over the processors, while maintaining reasonably good separator size, all while improving the quality of the mesh ...(642_MCS).

376. Our results point the way to a common combinatorial and data structure well-suited for a physical modelling computer algebra ... (673_MCS).

Results is premodified by our but apparently there are no other recurrent patterns. However, in the first two examples, the cluster: our results is the active subject of the positive evaluation as in the sentence: our results are quite robust or our results provide insights. While the last two constructions are more complex such as: our results show that we can achieve nearly perfect equi-distribution and our results point the way to a common combinatorial and data structure well-suited.

Last, in the following excerpt number 377 evaluation is more implied than clearly expressed:
Modern computers produce large volumes of simulation results so quickly that their management becomes a formidable task. (189_MCS).

As a matter of fact, the adjective formidable in formidable task construes a positive semantic prosody in the vicinity of the word results.

3.2.20. Study in MCS

The RPW study occurs 111 times in the MCS corpus. However, it is worth mentioning that it is a verb 5 times. For the purpose of the present investigation only occurrences as a noun will be taken into account. Study is fully evaluated 12 times, it is positive 10 times while negative only once. In the following excerpts positive evaluation is realised.

An application study shows the simplicity of the observation scheme and the correctness of the results under practical circumstances like the existence of model uncertainties. (139_MCS).

In addition, the study shows the effectiveness of the FETD to simulate the CARI modality. (247_MCS).

Two major conclusions are drawn from this study: firstly, it demonstrates the suitability of the formulated discrete-time analogues as mathematical models for stable encoding of associative memories associated with. (18_MCS).

In detail, the recurrent pattern is: study shows/demonstrates + positive evaluated nouns. Positive sentences are: study shows the simplicity and the correctness, the study shows the effectiveness, the study demonstrates the suitability.

Similarly, in the two following excerpts the pattern is: study + shows/indicates + positive evaluative that-clause.
The results of the study show that five models perform well in simulating recharge to a level consistent with spatial variability over a scale of a few metres. (445_MCS).

The study also indicates that the proposed method has the potential to solve a wide range of inverse identification problems in a systematic and robust way. (527_MCS).

The sentences that construe positive evaluation are: study show that five models perform well and study also indicates that the proposed method has the potential to solve in a systematic and robust way.

On the other hand, in the following excerpts, positive evaluation is realised but there is no recurrent pattern:

Thus, study tests, the accuracy of a well-known radiation model for plastic tunnel greenhouses. (548_MCS).

One particularly important study relates to the informational role that insiders’ transaction volumes have on trading activity in the equity market. (128_MCS).

Our numerical study of the model system clearly establishes that spatiotemporal chaos arises in the presence of only two unstable modes.(635_MCS).

In detail, positive evaluation is signalled respectively by the noun accuracy, the adjective important and the adverb clearly.

Positive evaluation is still realised in the two following excerpts where study is not the subject like in the previous extracts but occupies different positions in the sentence. Positive evaluation is realised by the adjective useful and the sentence to provide a new tool

This algorithm is useful in the study of the growth factor for Hadamard matrices, which is a very interesting unsolved problem in the area of Numerical Analysis. (183_MCS).

This paper outlines one component of a study being undertaken to provide a new tool for integrated management of dryland salinity, a major environmental problem in Australia. (109_MCS).
On the other hand, negative evaluation is highlighted in the following excerpt:

388. Further study is still necessary to make the model applicable to complete days and throughout the season. (260_MCS).

Evaluation is slightly negative, because the expression further study is still necessary implies that the study is incomplete and the goal of the research study has not been accomplished yet.

3.2.21. Studies in MCS

The investigated word studies occurs 22 times in the MCS corpus, it is a noun 19 times; in the present analysis only studies as a noun will be taken into account.

This word is positively evaluated only 4 times. Unfortunately, there is no recurrent pattern to highlight; however it may worth pinning down just some features in the next three excerpts:

389. Over the past decade, numerous studies have debated the usefulness of insider trading. One particularly important study relates to the informational role that insiders’ transaction volumes have on trading activity in the equity market. (128_MCS).

390. Acoustic studies were made using the highly accurate finite element parabolic equation (FEPE) acoustic model applied to the initial soliton state data generated by the Lamb model. (354_MCS).

391. Simulation studies are used to investigate the efficacy of the suggested scheme. (415_MCS).

The word studies is likely to be premodified by adjectives acoustic or numerous or by a noun simulation. Furthermore studies co-occurs with
words that semantically are pretty similar such as *usefulness, accurate* and *efficacy.* All these terms share the same positive semantic prosody.

Similarly, in the following excerpt there is positive evaluation

392. These objects are already grown experimentally in laboratories and *studies* of their properties *represent an important task* in nanotechnology research. (252_MCS).

As a matter of fact, positive evaluation is construed in the sentence: *studies of their properties represent an important task.*

### 3.2.22 Theory in MCS

The RPW *theory* occurs 94 times in the MCS corpus but is evaluated only 7 times, it is evaluated positively 6 times while negatively only once. In the following excerpts positive evaluation is realised:

393. The behavior of the system is *consistent* with the predictions of the KTHNY *theory.* (310_MCS).

394. Nonlinear stability *theory* has predicted that interactions between different instability modes can play *an important role* in that transition. (359_MCS).

In detail, the investigated word *theory* is likely to be premodified by nouns: the acronym *KTHNY* (that refers to the dislocation-unbinding theory of melting that was developed by Kosterlitz, Thouless, Halperin, Nelson, and Young) and the expression: *nonlinear stability.* However, positive evaluation is signalled in excerpt number 393 by the adjective *consistent* and in example number 394 by the expression *important role.* Furthermore, in both extracts different word forms of the lemma
PREDICTION (both verb and noun: predicted and prediction) highlight positive expectancy.

On the other hand, in the next excerpt positive evaluation is signalled by the expressions: for solving problems and could be successfully.

395. First steps towards numerical methods for solving NSCL-problems could be successfully done by means of this general theory and will be presented in this paper. (372_MCS).

In the next extract number 396 positive evaluation is implied rather than clearly shown as in the sentence: explicit proof of a simple time-step propagation scheme is given. In this case, the adjective simple suggests positive evaluation.

396. An explicit proof of a simple time-step propagation scheme is given in the framework of basic probability theory. It can be used in Monte Carlo simulations solving the Boltzmann transport equation. (327_MCS).

On the other hand, in excerpt number 397 the sentence: provide more accurate results construes positive evaluation and the second sentence the improvement in accuracy builds positive evaluation further, according to the recurrent phenomenon of evaluation circularity.

397. It has been recognized through theory and practice that a variety of uniformly distributed sequences provide more accurate results than a purely pseudorandom sequence. The improvement in accuracy depends on the number of dimensions and the discrepancy of the sequence, which are known, and the variation of the function, which is often not known. (665_MCS).

On the contrary, negative evaluation is construed in excerpt number 398:

398. The paper discusses these broader issues and limitations of econometrics and offers some thoughts on new practical possibilities for data analysis in the absence of good theory models for trends. (129_MCS).
Negative evaluation is realised in the sentence: *in the absence of good theory.*

On the other hand, in the last excerpt, positive evaluation is signalled because of the contrast between two polar adjectives *linear* and *non-linear:*

399. subsequently, the *linear theory* breaks down a *nonlinear* phenomena such as wave breaking and reflection result. (616_MCS).

The plural word form *theories* occurs 4 times in the MCS corpus but in none of them explicit or implicit evaluation is signalled.
Chapter 4: Discussion

4.1 ROE distribution in the two corpora

The present section aims to highlight similarities and differences between the two corpora, as relevant findings have been provided after analysing each research process word in the IJP and in the MCS corpus. Observations, in particular, are concerned with recurrent patterns, and ROE distribution.

In the IJP corpus the lemma ANALYSIS (both singular and plural) collocates with the verb provide and construes most of the time positive evaluation. The verb provide is an ‘activity verb’ according to Biber et al. (1999) and it occurs more than 300 times per million words in the academic register. Besides, it occurs most commonly with an inanimate subject in academic prose. Furthermore, in the IJP corpus the lemma appears to be not very likely to collocate with positive adjectives but in the case of accurate.

On the other hand, in the MCS corpus, the words analyses and analysis appear to be positive evaluation triggers. In detail, analysis co-occurs with verbs such as show, provide, give, propose and allow. As already mentioned (cf. Biber et al. 1999), show, provide, and give belong to the group of activity verbs, propose is a communication verb while allow is a verb of facilitation or causation. However, despite different category propose and allow, at least in the analysed fragments, are semantically similar to provide. Furthermore, analysis in the MCS corpus is very likely to be premodified by positive evaluative adjectives like: rigorous, efficient, comprehensive, detailed, important, novel, and new. Moreover, positive evaluation is supported by other adjectives
combined together like: *stable and accurate, robust and efficient*. It is worth mentioning, however that when negative evaluation is signalled the word *analysis* collocates with the adjective *poor*.

The RPW *data* in the IJP corpus is almost equally evaluated in a positive and in a negative way. *Data* is very likely to be premodified by polar adjectives, with a positive semantic prosody, like: *first, comprehensive, important, invaluable, sufficient, consistent, relevant, systematic* or *critically important*. In the IJP corpus, *data* collocates with the verb *provide* while it co-occurs with the verb *support* and *help*. On the other hand, negative evaluation is construed in sentences like: *data do not support* or *data do not indicate* and also when *data* is pre-modified by the negative quantifier *few* or *little*.

In the MCS corpus the RPW *data* is positively evaluated most of the time. Likewise IJP, in MCS *data* is very likely to collocate with the verb *provide* realizing positive evaluative constructions in sentence like: *provide strong support and provides the accuracy*. In MCS, *data* is often premodified by the adjective *new*. The adjective *new* as defined by Biber et al. (1999) is a ‘time adjective’ but in the scientific field its connotation is definitively more evaluative. Furthermore, *data* co-occurs with *importance* that has a positive semantic prosody.

The RPW *evidence* is very often positively evaluated in the IJP corpus. It is very likely to be premodified by the adjective *new* and other positive adjectives like *positive* and *strong*. *Evidence* co-occurs with the verb to *provide* construing positive evaluation. On the other hand, negative evaluation is construed when the word *evidence* is premodified by *no* like in the sentences: *there is no evidence for*/*of or we found little evidence that* and *we found no evidence for*. 

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The lemma EVIDENCE (both singular and plural) in the MCS corpus is positively evaluated most of the time. There are not many recurrent patterns; however, it is worth noticing that evidence co-occurs with show, present and consistent with.

In the IJP corpus the RPW findings, the plural word form of the lemma FINDING, is mainly evaluated as positive. It usually co-occurs with our and the verbs confirm and corroborate, that have a positive semantic prosody. Furthermore, positive evaluation is construed in the recurrent pattern to be consistent with. On the other hand, negative evaluation is construed, when findings is premodified by these or our and followed by verbs such as obligate, contrast or fail, that have a negative semantic prosody.

The lemma FINDING (both singular and plural word form of the noun) barely shows evaluation, probably because stating a positive opinion about the results of a research study is not very appropriate in terms of scientific accuracy and objectivity. It is worth mentioning that apparently in the IJP corpus, finding is always a noun and when the lemma is positively evaluated it co-occurs with three positive adjectives: first, extensive and further.

The RPW finding in the MCS corpus is positively evaluated but there are very few examples and no recurrent patterns. On the other hand the plural form of the lemma, shows positive evaluation and co-occurs with the expression are consistent with and the adjective excellent.

The lemma INVESTIGATION is barely evaluative in the IJP corpus. However, it is worth mentioning that the singular is likely to be premodified by the adjective first.

Similarly in the MCS corpus the lemma INVESTIGATION is hardly evaluative and there are no recurrent patterns. Absence of
evaluation may be due to the observation that stating a positive opinion about the investigation performed in a research study is not very appropriate in terms of scientific rigour.

In the IJP corpus the lemma METHOD (both singular and plural) is on the whole positively evaluated; but apparently there are no evident recurrent patterns.

On the other hand, the lemma METHOD in the MCS corpus is always positively evaluated and it is possible to find some recurrent features. In detail, it co-occurs with adjectives very similar, on the one hand these adjectives are efficient and effective, on the other, innovative and new. Method co-occurs with the verb provide or simplify, and illustrate or show. As previously noticed, these verbs are not semantically distant. Method also collocate with the cluster the proposed. On the other hand, methods is also likely to co-occur with adjectives like new and recent, and positive evaluation is construed around the adverb successfully. The construction robust design method is also worth mentioning, because the peculiar adjective robust previously co-occurred with analyses and later it co-occurs with method.

The word methodology in the IJP corpus is only once evaluated as positive therefore there are no recurrent patterns.

In the MCS corpus, methodology co-occurs with new, novel and efficient. Like method, methodology is very likely to co-occur with proposed.

On the other hand, in the IJP corpus the lemma PAPER is barely evaluated. However, it is worth mentioning that papers co-occur with provide accomplishing positive evaluation.

Whereas, in the MCS corpus paper is fully positively evaluated and it is very likely to co-occur with positive evaluating adjectives like
efficient, new, novel, simplified, and effective. Paper co-occurs with activity verbs that show visual evidence like: present, aim at an effective description, contain, or verbs with a clear positive meaning like predict and propose to solve.

The RPW procedure in the IJP corpus is barely evaluated. On the other hand, in the MCS corpus it is evaluated as positive, although evaluation is most of the time not clearly expressed. Procedure is likely to co-occur with positive noun like: efficiency, effectiveness, and accuracy and to co-occur with the verb demonstrate.

In the IJP corpus the word research is overall positive however there is no evident recurrent pattern.

On the other hand, the word research in the MCS corpus is more evaluated in a positive rather than in a negative way. Research co-occurs with important and with aim at.

In the IJP corpus the RPW results is fully evaluated as positive. Results is very likely to co-occur with expressions like: are consistent with, and also premodified by the personal pronoun our and followed by verbs like: confirm, suggest, and support. These verbs according to Biber et al (1999) are classified into different semantic domains, in particular confirm is a ‘mental’ or an ‘activity verb’, suggest is a ‘communication verb’ and support is a ‘verb of effort facilitation or hindrance’. Nevertheless, in this context they are used almost interchangeably. In addition, results is also likely to co-occur with the verb to provide.

Whereas, in the MCS corpus the RPW result does not present any recurrent patterns, however it realises mostly positive evaluation. In detail, result co-occur with show and positive adverb like easily and very well and positive noun like effectiveness and accuracy.
In the MCS corpus the RPW results is also mostly evaluated as positive. It is likely to co-occur with the adjective accurate, effective efficient, explicit, good, interesting, important, convenient, and significant. It is also likely to co-occur with the expression: are consistent with like other research process words. Furthermore, the word results is also likely to collocate with the verb provide and to co-occur with the group of verbs: reveal, show, indicate and illustrate. All these verbs belong to the ‘existence verb group’ (cf. Biber et al. 1999) but show is a ‘verb of communication’ and also indicate sometimes is grouped as a ‘verb of communication’. Therefore, all these verbs can easily be grouped into the same semantic domain especially in the scientific field. As Biber (cf. Biber et al. 199: 688) suggests these verbs deal with the ‘discovery and description’ domain and are very frequent in the academic prose.

The word study in the IJP corpus is mostly evaluated as positive, however, there are not many recurrent patterns but the peculiarity that study co-occurs with the first and the verb support.

The RPW studies also realises positive evaluation most of the time, in the IJP corpus it co-occurs very often with few and in particular the recurrent pattern – few studies + have + past participle – introduces the ‘gap in to knowledge’ move that adds positive evaluation to the research study.

The RPW study in the MCS corpus is most of the time positively evaluated, however, there are not many recurrent patterns. Study co-occurs with the positive evaluative adjective useful and with the verbs show, demonstrate and provide.

The plural word form studies does not present any relevant pattern in the MCS corpus, however, like the singular form it co-occurs with
words that are semantically pretty similar and share the same positive semantic prosody such as *usefulness, accurate* and *efficacy*.

Last, the word *theory*, on the whole, is definitively positive evaluated in both corpora but apparently there are no recurrent patterns. The only interesting aspect is that *theory* co-occurs with the expression *are consistent with* that is a recurrent pattern in the construction of other research process words. In addition, in the MCS corpus *theory* collocates with the lemma PREDICT (both verb and noun: *predicted* and *prediction*) showing expectancy and construing positive evaluation.

After analysing RPWs generalisations about ROE distribution have to be cautious due to the limited size of both corpora and also to the limited number of raw frequencies.

<table>
<thead>
<tr>
<th>RPWs</th>
<th>IJP ROE</th>
<th>MCS ROE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis</td>
<td>3 (2+, 1-)</td>
<td>25 (24+, 1-)</td>
</tr>
<tr>
<td>Analyzes</td>
<td>4 (3+, 1-)</td>
<td>2+</td>
</tr>
<tr>
<td>Data</td>
<td>27 (15+, 12-)</td>
<td>11 (9+, 2-)</td>
</tr>
<tr>
<td>Evidence</td>
<td>25 (14+, 11-)</td>
<td>12 (10+, 2-)</td>
</tr>
<tr>
<td>Evidences</td>
<td>0</td>
<td>1+</td>
</tr>
<tr>
<td>Finding</td>
<td>0</td>
<td>2+</td>
</tr>
<tr>
<td>Findings</td>
<td>15 (12+, 3-)</td>
<td>4+</td>
</tr>
<tr>
<td>Investigation</td>
<td>1+</td>
<td>0</td>
</tr>
<tr>
<td>Investigations</td>
<td>1+</td>
<td>1+</td>
</tr>
<tr>
<td>Method</td>
<td>5 (4+, 1-)</td>
<td>47+</td>
</tr>
<tr>
<td>Methods</td>
<td>4+</td>
<td>28+</td>
</tr>
<tr>
<td>Methodology</td>
<td>1+</td>
<td>7+</td>
</tr>
<tr>
<td>Methodologies</td>
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<td>1+</td>
</tr>
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<td>Paper</td>
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<td>24+</td>
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<td>1+</td>
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<td>Study</td>
<td>9 (8+, 1-)</td>
<td>12 (10+, 1-)</td>
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<td>4+</td>
</tr>
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<td>Theory</td>
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<td>7 (5+, 2-)</td>
</tr>
<tr>
<td>Theories</td>
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<td>0</td>
</tr>
</tbody>
</table>

Table. 4.1. RPWs ROE in IJP and in MCS.
The table above shows raw data of the occurrences of ROE for each research process words in the IJP and in the MCS corpus. The symbol + and – stands for positive and negative evaluation. It is interesting to compare ROE distribution between the two corpora. However, since these two corpora are different in size \(^{14}\), occurrences need to be normalised.

<table>
<thead>
<tr>
<th>RPWs</th>
<th>IJP ROE %</th>
<th>MCS ROE %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis</td>
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<td>10.61</td>
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<td>Studies</td>
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<tr>
<td>Theory</td>
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<td>7.31</td>
</tr>
<tr>
<td>Theories</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Table. 4.2. ROE normalised in IJP and in MCS.

\(^{14}\) The IJP corpus has 85,577 tokens, while the MCS corpus has 98,181.
The following figures clearly show the trend of ROE in percentage in both corpora:

![Graph showing ROE distribution of singular RPWs](image1)

**Figure. 4.1 ROE distribution of singular RPWs**

![Graph showing ROE distribution of plural RPWs](image2)

**Figure. 4.2 ROE distribution of plural RPWs**
ROE, quite unpredictably, appears to be more present in the MCS corpus, the journal concerned with mathematics rather than in the IJP corpus, despite Bazerman’s (1984) claim about mathematics as the model for scientific writing being more precise and clear in comparison with all other disciplines.

However, if we focus on the RPWs data, investigation, method, methodology, paper, procedure and theory these show more ROE in the IJP corpus in comparison with the MCS corpus. The total list of the RPWs counts 25 words, however, three words (procedures, researches and theories) show no evaluation in both corpora. Therefore, in IJP only 7 words carry more ROE. Thus it is clear to state that the distribution of ROE is about 32% in the IJP corpus while it occupies the remaining 68% in the MCS corpus.

![Figure 4.3. Overall ROE in both corpora](image)

A possible explanation for this result may be drawn, because during the move analysis some preliminary hypotheses have been formulated. In
detail, the extent to which evaluation is present in the texts examined, seems to depend on the nature of the topic under discussion. Therefore, the difference between the two sets of journals is crucial, as already noticed in the data section on page 34. Biology and Primatology are pretty similar to ‘soft science’ thus they are expected to be more evaluated than ‘hard science’ disciplines like mathematics, however, the maximum frequency of ROE *per* word is still present in the MCS corpus, for the words: *evidences, findings, methodologies and papers*.

IJP focuses on *methodology*, and *methodology* and *findings* coincide most of the time. In addition, IJP has very often the *gap in to the knowledge* move showing clear evaluation.

On the contrary, in MCS the language is very concise the *purpose of the study* is often not clearly stated. MCS abstracts do not have any *introducing topic* move, they focus on *evidence, findings* and *methodologies*. As already noticed, in the IJP corpus, the RPWs *investigation, method, methodology*, and, *procedure* are more evaluated in comparison with MCS and it is worth noticing that all these words are in the singular form. However, the plural form *methodologies* is definitively evaluated only in the MCS corpus.

As previously noticed in the Theoretical Background section (cf. Thetela 1997), in general in a research study the ‘method’ belongs to the ‘process aspect’ while ‘result, paper and, data’ highlight more the ‘product aspect’ of the study. Intuitively evaluation is expected to be more present in the ‘method’.

Another possible factor suggested by Thompson (personal conversation.) is what it might be called the ‘applicability’ of the disciplines: with Primatology, there is application to the concrete world of primates; but with Maths (especially with pure maths rather than
applied) the focus is more exclusively on theoretical research issues. For example, a ‘problem’ in Primatology might concern either how to measure primate populations (ROE) or disappearing natural resources for the primates (TOE), whereas in Maths the ‘problems’ are likely to be how to calculate a particular value or how to solve an equation (ROE).

In MCS, authors evaluate their methodologies on the basis of the novelty and its originality. In addition, they evaluate their methodologies on the extent to which they influence the course of science and the development of the disciplines of science. All authors are united in their emphasis on exploring common methodological concerns and providing a critical evaluation of central ideas from a methodological perspective.

In mathematics what counts are numbers and results are numbers, not surprisingly the word results in the MCS corpus is premodified most of the time by the adjective numerical.

In addition, the average length of MCS abstracts is definitely shorter than IJP abstracts, despite the norms provided by the publishers; therefore authors need a device to draw readers’ attention to the entire research paper, and eventually this device is provided by evaluation.

As Hunston suggests in a genre such as the experimental research article, the phenomenon of evaluation is quite predictable because only certain things (e.g. experimental method, the author’s results and conclusions) can be evaluated and only in a certain way in terms of goal achievement or non-achievement. Researchers evaluate the contribution of the various methods to central debates in the field as well as to theory building, they evaluate their findings through research and demonstration, and present their results to their discourse community through international journals and conferences.
4.2 Move structure in the two corpora

In the present subsection relevant information is provided about move structure in both corpora. In particular, from the analysis of ROE in both corpora interesting observations arise about the distribution of ROE in texts from different scientific fields (Primatology and Mathematics) and about the distribution of ROE in the different moves of the same text (i.e. intra-textual ROE distribution).

As previously mentioned in the methodology section, in each abstract, moves have been manually identified. Given the large number of abstracts in the corpus and the difficulty of manual annotation, only those abstracts in which ROE has been detected have been completely annotated. It should be pointed out that the annotation process is difficult and in many cases highly subjective. At present, the corpus has been annotated by only one person, the author, but in the future a semiautomatic procedure will be used supported by another person (possibly a maths expert) in order to compute the reliability of the annotation. During the annotation process, it has appeared quite clear that important moves (as the purpose of the study) were missing and also that the moves were not in logical order.

According to a chronological order, in an ‘ideal’ abstract, moves should follow this order, as already mentioned in the methodology section on page 39:

- Introducing topic: <I>;
- Stating the purpose of the study: <P>;
- Stating a gap in knowledge: <G_To>;
- Introducing methods: <M>;
- Claiming findings: <F>;
- Concluding remarks: <C>.
However, theory is quite distant from reality and the concrete structure of each abstract does not completely follow the pre-organised scheme.

The following pie-charts show the moves percentage that has been counted manually in the tagged files in order to illustrate differences in the structure of IJP and MCS:

Figure 4.4 Moves percentage in IJP

Figure 4.5. Moves percentage in MCS
The figures above show pretty similar moves distribution, in particular each colour is associated with a move and its tag, for instance ‘orange’ is the colour of the ‘concluding remarks’ move. It is worth mentioning that intra-textual moves distribution is quite uneven but inter-textual moves distribution is not so dissimilar, that is there are more or less the same percentage in both corpora. However it is relevant to notice that the ‘gap into the knowledge’ move appears to be present only in the IJP sub-corpus and that the concluding remarks’ move is doubled in the MCS sub-corpus. Nevertheless, further details about different moves structure are provided hereafter.

The *Introducing topic* section is supposed to provide the reader with some background information. Given the constraints on the size of an abstract, this move is not compulsory. Moreover, abstracts are written for relatively informed readers and therefore they should not provide too many background details. However, by analysing the abstracts in both corpora, the IJP corpus is more likely to have quite long introductions in comparison with the MCS corpus; in some cases in the IJP corpus, introduction covers up almost half of the abstract. Usually this section makes references to previous work using expressions like *previous work...has been documented, numerous studies have debated [...]*. ROE is pretty absent because most of the times there is topic-oriented evaluation like in this ‘introducing topic move’:

1. <I> Allogrooming contributes to the development and maintenance of social relationships, including those that involve alliances, in many primate species. </I> (12_IJP).

However, sometimes ROE is also present like in this other ‘introducing topic move’ from the *International Journal of Primatology*:
2.  Important techniques include the polymerase chain reaction (PCR), where in exponential amounts of a target DNA sequence are produced via enzymatic amplification. (282_IJP)

The Introducing topic move, prepares the reader for the stating the purpose of the study section, this move is what the study is about. In this section, the problem which the paper deals with is expressed. There are cases when the problem is not clearly stated, however the reader can usually infer it from the introduction (previous move) and the gap in knowledge (following move). Albeit, the reader can guess the problem, it is not desirable to have an abstract without the purpose of the study especially because while scanning the abstract it is definitively helpful to have a clear purpose to follow to see whether or not it is worth reading the entire research paper. As already mentioned, MCS usually skips this move. Given the fact that there are often some very frequent patterns, this section can be identified relatively easily. Usually it is explicitly signalled by phrases like: we describe, we present, we discuss, this paper presents, the purpose of the present study, the aim of the present paper is, or more elaborated constructions like: techniques are proposed to solve.

The stating a gap in knowledge section usually introduces a gap into the knowledge by comparison with previous work highlighting, in an appropriate way, the weaknesses of previous approaches. In these moves, it is concentrated most of the negative evaluation that refers very often to previous research studies preformed by other authors. This move is used for stating problems like for instance in the following sentences: because of ...existing methods ...we propose ...or previous works have done but or relatively few studies. Usually adjuncts like however, unfortunately emphasise the weaknesses of previous works like in the
expressions: it is usually expected ... but ... or although ... have been traditionally considered or new evidence is emerging to question this image or few data exist regarding. In addition, a non-standard evaluative construction such as this study is the first to examine is quite recurrent, this construction becomes evaluative especially in the scientific field; in particular, the proposed investigation becomes the answer to the gap in the knowledge, or in other words the solution to the problem.

In the introducing method section of the abstract, the author explains how the problem is resolved. This section is very important for the reader because it enables to understand the kind of approach that has been used to solve the problem: the methodology. Methodology is crucial in research papers especially in hard science like mathematics. In the MCS corpus, most of the time, abstracts focus exclusively on methods section. In some cases it is quite difficult to make a clear distinction between the purpose of the study and the methodology because the focus of the abstract is just on the methodology. Some sentences from this section are marked overtly using phrases like: the approach described here uses, or this approach does need, the new method simplifies the procedure or the parametric model is derived ....

Some of the patterns used for stating the problem or the purpose of the study, also appear in the introducing method move (e.g. this paper reports on ... using an algorithm...); in this example, the phrase has a double role. On the one hand, it reiterates the problem, or states the problem if it has not been stated yet, and on the other hand, it explains the method. The method is the solution to the problem.

The claiming findings move provides findings and results of the study. Sometimes this move especially in the MCS corpus refers to the methodology itself and the way the methodology is carried out in the
experimental research study. This because, as already mentioned, the focus is on the methodology used to perform the research in the entire paper therefore results and method coincide. In the present dissertation, ROE is not likely to appear in this move, however frequent expressions that signal evaluation are: our results provide, our results show, preliminary findings show or results indicate.

The last move Concluding remarks is present most of the time and it provides conclusion to the abstract itself. Many scientific abstracts have a conclusion section in which the results of the method are placed in a broader context especially with regard to further studies or hypotheses. In many cases conclusions are spread across the text but quite often they are listed at the very end of the research article abstracts, as the concluding remark of the research paper. In the majority of cases, this move contains an explicit reference to the abstract like in the sentences: this work provides, these observations suggest, or more evaluative expressions like: in conclusion, this paper concludes, as a conclusion, we suggest directions for future research, the results permit us to understand more fully. It is frequent the use of adjuncts such as: therefore, as a result or negatively evaluated expressions like: although the observations are congruent with my hypothesis, we need more data to test it or more positively evaluated expressions like: these results are consistent with the hypothesis, or the results extend and improve the earlier studies. Furthermore, modality appears to be very frequent in this move especially because this is a more hedged section.

Last, in order to sum up previous observations presented in the discussion section, it is worth mentioning that the most recurrent words used to express ROE and that co-occurs with all the research process words are the adjectives: new, first, important, efficient, accurate, and
effective. On the other hand, the most recurrent verbs that usually co-occur with the research process words are: show, provide, support, and to be consistent with.

Furthermore, some single occurring words (hapax legomena) in the wordlist of both corpora are worth mentioning like the verb to corroborate. According to the Collins Cobuild English dictionary, in a formal register to corroborate something that has been said or reported means “to provide evidence or information that supports it”. Its semantic prosody is positive but it barely occurs in the entire corpus. In a similar way, in the academic written part of the BNC corroborate is at the 31,891 word position and occurs only 7 times. Therefore it is hard to generalise about evaluation and it is also hard to take for granted that words with a clear semantic prosody are picked more often than others in order to express evaluation, language is not always a predictable phenomenon.

Last, it is interesting that the adjective robust is used with a clear positive connotation like in the expression ‘robust design theory’. According to the Collins Cobuild English dictionary, the adjective robust has two meanings the former specifies that: “someone or something that is robust is very strong or healthy”. The latter indicates that “Robust views or opinions are strongly held and forcefully expressed”. In the scientific field, the second meaning overrides the first as element of a more scientific jargon.
Chapter 5: Conclusion

5.1. Conclusions of the research study

Part of the conclusion to this study has been covered by Chapter 4 through the analysis of the Move structure and the ROE distribution in both corpora. In the present chapter, I intend to summarise the work done on evaluation in this thesis and illustrate further applications for the study itself.

The present dissertation has attempted to answer the following research question: ‘What are the signals of Research-Oriented Evaluation (ROE) in research article abstracts?’

More specifically, the hypothesis to test has been whether evaluated entities in a specific genre ‘collocate’ with specific terms or group of terms.

It appears clear, as Sinclair (1991) has suggested in his definition of the lexical item, that pre-organised sets of nouns, adverbs and verbs co-occur with each other very often; in the present dissertation, it has appeared evident that some words and verbs are very likely to appear in the vicinity of the ‘research process words’ in order to build cohesion in research article abstracts. Recurrent terms related to evaluative lexis fall under the category of ‘Significance’, ‘Newness’, and ‘Usefulness’.

As already mentioned in the ‘Discussion’ section specific words used to express ROE and that co-occur with the RPWs are both adjectives and verbs. Amongst the former there are *new, first, important, efficient, accurate*, and *effective*, while among the latter the verbs are *show, provide, support*, and *to be consistent with*. 
The ROE-TOE distinction is based on the assumption that the scientific research paper has two main functions – simply reporting the phenomena in the natural world and negotiating the interpretation of such phenomena. Interpretation is generally referred to as the construction of knowledge (i.e. scientific facts and claims). Thus while the truth of the existence of the phenomena in the natural world cannot usually be challenged, the interpretation or value of such truth is negotiable. In a research paper TOE and ROE evaluate different entities – the former evaluates events and things in the natural world whereas the latter evaluates entities more specifically associated with the research world (i.e. methods, findings, theories, and so on). From this perspective, negotiation between the writer and other researchers takes place within ROE and not TOE.

Writing within a scientific genre implies respecting clear and hidden rules. The study of genre is, of course, a large and complex area. In the present dissertation I have dealt with abstracts in journal research articles as a specific genre or text type. I have attempted to develop a move analysis which reflects the characteristics of the genre itself. At the macro-level of the analysis, I have attempted an account of the discourse organization of research paper abstracts in the field of biology and mathematics. At the micro-level of the analysis, I have tried to explain and justify why abstracts are written in such evaluative way.

In this research study it is sufficient to acknowledge that the layout and style of an abstract identifies it as belonging to the area of ‘real science’ and, therefore, worthy of serious consideration by scientists. It also establishes the criteria by which the text will be evaluated, by implying other relevant goals, such, as accuracy.
As Hunston (1993, 1994) suggests the author presents him/herself as a researcher working towards the achievement of specific goals. The events in the research process are viewed in this light. Other participants in the text are presented implicitly as having goals of their own, which may have or not a bearing upon the scientist’s. On the one hand, research studies from other authors provide the grounds for implying negative evaluation on the other, they provide a better perspective for the author him/herself.

Evaluation in a specific genre, like the research article abstract, has a specific trend, peculiarities of this tendency can be noticed in the move structure of the abstract itself. As a matter of fact, evaluation is very likely to appear in the gap of the knowledge, in the introducing method and in the concluding remarks moves.

Second, it is apparent as Swales (1990) suggests that in writing the text the scientist hopes to achieve other goals, such as acceptance by the scientific community. These goals are not stated in the text, but the more admissible of them may be deduced as they are necessary for the interpretation of certain parts of the text. Once evaluation has been identified in a move it is more likely to appear in the rest of the text as well, as Thompson and Ye (1991: 367) report:

[Evaluation] may hold over relatively long stretches of text (including over a complete text); it is often cumulative rather than clearly signalled at any one point in the text; and it may be depend crucially on context (including position within the text).

Last, it is necessary to bear in mind, that any corpus data is only representative of itself and not of the entire universe of study. However, the analysis of a corpus, if assembled with a certain ratio, tends to strongly indicate certain trends in a specific variety of English.
Representativeness is a thorny issue in corpus linguistics in any case, and it might be more important to linguistic analysis to know the corpus that is used very well, and to interpret the results accordingly (cf. Mahlberg 2004).

Having suggested another way of looking at research-oriented evaluation and how it works in text, it is worth looking at the implications of this study.

The analysis carried out in the present dissertation has raised issues from the pedagogical point of view, that have some relevance to the field of English for Academic Purpose — EAP.

First, as Thetela (1997) suggests it is essential in the reading of an academic paper to understand the content but also the angle from which the writer wants that content to be interpreted and judged by his/her reader whether s/he is a newbie or a well-established member of the related discourse community.

Second the issue relates to the usefulness of a proposed schematic pattern as a pedagogic tool. As the awareness of the structure of a text has been shown to affect reading comprehension (Carrel, 1985), and as specialized genres may require special training to be learned (van Dijk. 1988), the proposed pattern for abstracts’ structure may present potential advantages for novice or non-native researchers struggling with research reported in English.

To help students recognize the evaluative aspect in a specific genre, it is useful for the EAP trainer to provide students with a pre-set of expressions and sentences like: numerous studies have debated, this paper presents, the purpose of the present study, new evidence is emerging to question this image or few data exist regarding; because value judgements in academic writing are basically constrained. This
awareness can be further reinforced by helping students in their reading to identify and separate the different moves of a research article abstract.

On the one hand, by providing writers with a pattern that will help them to conversely organize and present their study, the proposed framework may force them to be more selective and straightforward in their thinking and writing, thus helping such students enter the mainstream of research debate.

On the other, by giving readers an accurate picture of how information is typically organized in research paper abstracts in biology and mathematics, the suggested organization may allow faster and more precise critical readings where, for instance, a researcher may be interested in one aspect of research instead of another (e.g. conclusions or methodology).

Once students are able to separate the topic of the paper, from the findings and the purpose of the study, the next step is to use this competence to improve their own skills in writing a well-structured abstract and make them going beyond with their perspective research studies.

I would certainly wish to promote the need to incorporate corpus-based studies into educational materials, otherwise prescriptions run the risk of becoming obsolete, and students do not have the chance to learn real language in use. This is inspired by Sinclair’s dictum (Sinclair 1987: xv) that “usage cannot be invented, it can only be described” which supports the deliberate and programmatic substitution of invented data for observed data, and of the scientist’s own intuition for the reports of informants.
Bibliography


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**Webliography**


*The International Journal of Primatology:*


*Mathematics and Computers in Simulation:*

Appendices

Appendix 1. Concordance lines in the IJP corpus:

Analysis

N Concordance
1  Factor Analysis of Multiple Measures of Hand
2  (1-day party size) and performed an analysis of covariance, with observation
3  species in order to achieve accurate analysis of census data. KEYWORDS:
4  facilitate crosstudy comparison and analysis, effectively increasing sample
5  variation should be a goal of any analysis of comparative socioecology.
6  and video-taped trials for behavioral analysis. During exposures to the
7  Structure in Guyana: A Biogeographic Analysis Studies of primate community
8  I conducted a biogeographic analysis of the community structure of
9  Holm’s multiple hypothesis test; cluster analysis; parametric resampling
10  tests and 2. bootstrapped cluster analysis of a Mahalanobis generalized
11  a manner that facilitates comparative analysis across primate taxa. The
12  were extracted by principal component analysis from 15 different infant directed
13  System (GPS) over 6mo. The data analysis yielded the speed and
14  Sex, Age and Social Rank Differences Analysis of an exhaustive survey of
15  analysis and genetic distance analysis produced phylogenetic
16  Genetic Analysis of Group Composition and
17  Pan troglodytes; handedness; factor analysis; laterality; chimpanzee; Great
18  hand preference scores to a factor analysis. Five of the 6 tasks loaded on
19  Macaca cyclopis; food habit; fecal analysis; field observation.. a transect, fruit monitoring trails, fecal analysis, and tracing of the animal’s
20  in the macaque diets identified by fecal analysis and field observation are similar.
21  ( Macaca cyclopis) in Jentse via fecal analysis and direct field observation from
22  Taiwan, Assessed by Fecal Analysis and Behavioral Observation We
23  and gorillas. Detailed frame-by-frame analysis of videotapes from field and zoo
24  KEYWORDS: evolution; genetic analysis; reproductive success;
25  Behavioral and Hormonal Analysis of Social Relationships
26  Saguinus mystax via fecal hormone analysis. Firstly, we wanted to
27  Kinematic Analysis of Trunk-to-trunk Leaping in
28  (MCPs) versus only 28.4 ha via kernel analysis; the difference is statistically
29  ha via MCPs and 2.19 ha via kernel analysis; the difference is statistically
30  ranges for pottos and galagos. Kernel analysis gave more reliable estimates of
31  tree (Bombax malabaricum). Kinematic analysis revealed that they select
32
have biased the choices of material. Analysis of the episodes and first we conducted a microhabitat analysis and related it to specific area, and a forest fragment with mineral analysis of their foods to estimate the exotic species: Microcebus murinus. Analysis of the studbook provides an
We also conducted microscopic analysis of feces collected monthly. The DNA sequences using both parsimony analysis and genetic distance analysis macaque; microsatellites; paternity analysis; rank correlation; reproductive determined by genetic paternity analysis over a 13-yr period in the same the use of molecular phylogenetic analysis to reveal reproductive isolation in Body Mass: A Phylogenetic Analysis of Rensch's Rule in Primates present a multidisciplinary phylogenetic analysis of Propithecus supporting the and subjected to phylogenetic analysis #3.1 kb of 2 loci (TSPY and prosimians. Minimum convex polygon analysis tended to overestimate the of the days sleeping alone. Preliminary analysis of genetic population structure by urinary and fecal progestogen analysis. Rates of behaviors in both considering the method of home range analysis when it is to be applied to attention was given to the home range analysis technique. Together with Home Range Analysis of Perodicticus potto edwardsi We compared methods of home range analysis for 2 species of nocturnal variation and is similar to a recent analysis based on craniodental variation. decreased slightly. A multiple regression analysis showed that various fruits had controlled in a multiple regression analysis. Furthermore, the preference widely homogeneous distribution. RFLP analysis of whole mtDNA genome using determined gibbon choice. The analysis was stratified to account for cercopithecoid systematics include the analysis of quantitative and qualitative for such selectivity comes from the analysis of different types of monkeys in a Kenyan rain forest. The analysis focuses on the degree to which variation has become accessible to analysis. KEYWORDS: evolution; WORDS: intestinal parasites; urine analysis; Pan troglodytes; health inspection, parasitological and urine analysis in association with behavioral behavior; Callimico goeldii; video analysis; leaping; anatomy..
Analyses

N Concordance
1 141 for the B group. We performed all analyses at the dyadic level via
2 employed univariate and bivariate analyses, though a few investigators
3 had limited application since chemical analyses of food items is very
4 Results differed when we conducted analyses with traditional interspecific
5 proximity, and approach-leave/contact analyses in order to determine whether
6 orange carrot cucumber. Correlational analyses revealed that this preference
7 dysfunction. Results of the different analyses are mutually supportive and
8 in mixed-sex groups. Discriminant analyses showed that a high percentage
9 in zoos and research establishments. Analyses of the data do not bode well for
10 trails and monitored diet via fecal analyses and direct observations. During
11 and 2 m. We conducted frame-by-frame analyses of 122 leaps. The results
12 Results of the discriminant function analyses (DFA) do not find that Cebus
13 western Madagascar by genetic analyses using the mitochondrial
14 of the single male cranium. Genetic analyses of freshly shed hairs, collected
15 except trichomonads. Between group analyses revealed that the Ba’Aka had
16 in their social lives. Carefully integrated analyses of behavior, demography, and
17 significant. Neither MCP nor kemel analyses revealed a sex difference in
18 convex polygon (MCPs) and kemel analyses. Adult potto home ranges
19 minimum convex polygon; kemel analyses.
20 indicate the importance of microhabitat analyses for the understanding of
21 the tribe Papionini. Previous molecular analyses have not adequately addressed
22 We conducted multivariate analyses of 6 morphologically similar
23 with his initial findings, nutritional analyses show that the gums consumed
24 food preference studies and nutritional analyses of wild gorilla foods indicating
25 and feeding behavior with nutritional analyses of leaves and fruit from
26 marked subjects and genetic paternity analyses of a population in Kirindy
27 over a period of 7 yr. We used paternity analyses and female birth records to test
28 We used the results of phylogenetic analyses of relationships among spider
29 Our study extends quantitative analyses of insect-eating by gorillas
30 I used multiple and simple regression analyses to predict fruit feeding time and
31 lemurs and lorisiforms. DNA sequence analyses have also yielded a broad
32 displayed marked similarities. Analyses of grooming and proximity
Data

N Concordance
1 99 publications containing 130 data sets from 27 species of primates.
2 from the known populations as well as data collected ad libitum during the
3 Park, Uganda. We combined behavioral data on black-andwhite (Colobus
4 of Lemur catta. I collected behavioral data on 45 female Lemur catta at
5 2000. We collected 92 h of behavioral data in 76 sessions. The infants were
6 ecological flexibility, but behavioral data come from only a few mangabeys
7 Brazil. We collected behavioral data as all day follows, once a week and
8 However, there are few biogeographic data on specific composition and
9 groups, along with time budget data, to demonstrate that 1) baboons
10 many mammals (mainly primates) but data on postconflict behavior among
11 in the Dry Forest of Mayotte Captive data show that juvenile mammals usually
12 in Brazil. We obtained captive data by routinely weighing 138
13 are put in place immediately. Census data show that populations of the
14 to achieve accurate analysis of census data. KEYWORDS: orangutan (Pongo
15 Y-chromosome Data and Tribal Affiliations of
16 conservation. We compare census data and social group counts from two
17 location of their home ranges. Census data and morphometric measurements
18 Between 1997 and 2000, we collected data to evaluate the relationship between
19 to forest seasonality. We collected data over 12 mo in lowland dipterocarp
20 in 1996–1997 and 2003. We collected data on vegetation fragments and the
21 Yakushima Island, Japan. We collected data on their activity budgets,
22 other visible injuries. We also collected data on the demography, biogeography
23 species. In addition, we collected data on seasonal variation in dietary
24 Region of northern Borneo. I collected data on ranging behavior via scan
25 Bonobos (Pan paniscus) We collected data on parasitic prevalence and
26 female choice. We collected data on female sexual swellings, sexual
27 Forest We systematically collected data on feeding behavior for one group of
28 and Daytime Activities We collected data on diet and activity budget in a
29 choices and selection. We collected data on diet, including plant part, family,
30 a very long PC duration. We collected data on 2 captive groups of ring-tailed
31 SW Guangxi, China. We collected data in the central part of a group of
32 to 13 candidate males. We collected data for 19 females that had given birth
social or breeding status. We collected data during a 12-mo study on 2 groups of
Nature Reserve, China. We collected data during 2 winters from 1998 to 2000.
behavior toward mothers. We collected data by observing all individuals within a
we aimed to provide comparative data on the presence and relative
in the Yerkes chimpanzees. Combined data on the 2 chimpanzee colonies,
other species. We present comparative data for 11 groups from 3 sites in Costa
especially in India. We compared data on an isolated population of golden
provided complementary data sets. Males and females occupied
I provide the first comprehensive data on the composition and mineral
grey mouse lemur in 1994. It contains data on individuals in zoos and research
signals in different social contexts. Data from behavioral observations
discuss the contribution of cytogenetic data to studies of systematics,
China. We compared demographic data recorded in the group (and in its
we collected detailed demographic data on six bands at four sites in
a 12-mo period in 1999. We derived data on preferences for particular game
anecdotal or incomplete dietary data from field studies and allometric
demographic, behavioral, and dietary data for Abyssinian black-and-white
differ among them. I collected dietary data during a first yearlong comparative
in Kibale from published dietary data and our estimates of mineral
territory shift, and (6) travel distance. Data collection covered a period of 10
Uganda, and combine them with earlier data (Mitani and Watts, 1999, Am. J.
in Asia. Behavioral and ecological data suggest that the two-adult group or
hostile nature of intergroup encounters. Data collected on white-handed gibbons
behavioral observations and endocrine data to determine female reproductive
population dynamics. We evaluate data on primate abundance in light of
Coast’s Ta’i Forest. Via experimental data, we show that sooty mangabeys
Conservation and Census Methods Few data exist regarding long-term changes
and Capuchin Population Patterns Few data exist on how primate populations
than any other known community. Field data show that adult Ngogo males
The data are complemented by field data on the environmental contexts in
field to study in the wild. Limited field data have provided conflicting information
observational data to complement field data and to better characterize the diets
N Concordance
extent of tolerant gregarious foraging. Data on orangutans and chimpanzees
I combined morphological fruit data, phenological, and demographic
at Arashiyama, Japan We gathered data on the amount, composition, and
cytochrome b gene. Genetic data yield strong support for 2 of the 3
recent intergroup dispersal. Genetic data confirm Callithrix jacchus live in
by the dominant male. The genetic data are consistent with
We collected behavioral and hormonal data during 7 mo from the reproductive
and behavior via pre- and post-hurricane data was presented when hurricane Iris
species can provide important data to define how dietary and habitat
to acquire critically important data on their habitat requirements, diet,
of each fragment in order to relate injury data to them. We censused 333
population. It also yields invaluable data on patterns of fertility and mortality
and one-male units tended to be larger. Data from Eritrea suggest that these
to the ground, we analyzed ad libitum data from 5 study sites, covering 2
and New World monkeys. Very little data have been reported in prosimians. I
is no more profitable. Very little data allow one to test conclusively this
troops, I collected precise locational data with a differentially corrected
rufus. We collected scent-marking data on adult male Lemur catta at
separately for the paternal and maternal data sets show a Y-chromosome
are controversial. Molecular data indicate a phylogeny at odds with
with my hypothesis, we need more data to test it. KEY WORDS:
concerning the latter finding, more data are needed to confirm these results.
of Molecular and Morphological Data for Understanding Ateline
capturerecapture and morphometric data with detailed behavioral
in brown lemurs using morphometric data from 3 populations in southeastern
in Cebus capucinus Most data relating to aggressive and
Research Center We collected nesting data from 512 fresh nest sites, including
that are unclear. We present new data on hunting by chimpanzees at
of A. laniger. We present new data on body weights of Avahi which,
social groups for which observational data were available, together with
provides experimental observational data to complement field data and to
resources. Here, I report observational data from a wild population of hamadryas
N Concordance

on hamadryas baboons, to obtain data which will be integrated in a national
classified as folivores, yet 15 years of data on western lowland gorillas (Gorilla
Park, NE Argentina. We obtained data on six different groups (33
mountain gorillas. However, the lack of data from habituated groups prevents a
we make about the validity of data and the homology of observed
G. zanzibaricus is not supported by our data. The most likely alliance for
rule out local differences in ecology, our data suggest that social learning may
and with private individuals. Our data suggest that early rearing
from ascending the rank order. Our data suggest that in the absence of
of the Eastern Argentinean Chaco. Our data show that the area is highly
in fecal glucocorticoid excretion. Our data provide the first detailed information
groups plus extragroup copulations; our data provide no evidence for polyandry
and absence of mangabeys. Our data indicate that red colobus and Diana
archaeolemurids of Madagascar. Our data include dental use wear (examined
Park, S~ao Paulo, Brazil). Our data are from direct observation and from
the Cercopithecini than Papionini. Our data also support the hypothesis that
area and 2) to obtain fecal parasitic data on 3 groups of baboons to provide
further study. Nonetheless, preliminary data suggest that biomechanical
also compared preliminary data related to nutritional condition,
of the species, report preliminary data on its field biology and discuss
Amazonian Tropical Forest I present data regarding the diet and feeding
and chimpanzees. We present data on patterns of reconciliation in two
to question this image. We present data on injuries in Mexican mantled
for Callimico goeldii. We present data on group sizes, habitat utilization,
We pooled the results with previous data to show that abundance of red
new studies employing proportional data aimed at conveying input/output
Second, some studies have provided data suggesting that primate mothers
of primates and other mammals provide data suggesting that as substrate size
statistical reanalysis of biometrical raw data from calcaneal morphology recently
might have operated. Published data from a smaller chimpanzee
baboons to provide baseline reference data. We sampled individual baboons
I outline the model and review relevant data. There are 3 modes of feeding
N Concordance

129 to use the information to provide **reliable data on ovarian** cycle characteristics.

130 Beyond Seed Dispersal I report **data collected** on red-tailed guenon
131 We report on 14 years of **reproductive data** for semifree-ranging mandrills ( 
132 colonies and when interpreting research data. **KEYWORDS:** long-tailed
133 of canine development. The resultant data augment the known pattern of
134 We analyzed all-day focal **sampling data** from 7 females during the mating
135 classification of Landsat MSS satellite data. Hamadryas and olive baboons are
136 previously-published TSPY sequence data to identify synapomorphies useful
137 enhanced by DNA sequence data. **Sufficient data** are now available
138 based on DNA sequence data and using calibration dates derived
139 1999, and compared them with similar data collected 15 years ago when the
140 still tend to be based upon **simpler data** such as sizes of brains and brain
141 in several cercopithecine species. **Data on coalitions** at Ngogo support the
142 Cebus capucinus and other Species: **Data from Three Costa Rican Sites**
143 while immature. Using **studbook data**, we compared infant mortality in
144 Relevance of **Studbook Data to the Successful Captive**
145 species for which there are **sufficient data** to consider alone, there is a similar
146 by DNA sequence data. **Sufficient data** are now available from both nuclear
147 hypoxanthus We collected **systematic data** on the home range and day ranges
148 be 2,070 individuals in 59 groups. **The data suggest** that over a 7-year period
149 about every fourth night together. **The data suggest** that home ranges in
150 hypothesis (Wingfield et al., 1990). **The data suggest** that reproductive
151 exhibited higher cortisol levels. **The data suggest** that acquisition and
152 in totally unique contexts. Instead, **the data showed** that the contextual use of
153 of Asian and African Colobinae. **The data reinforce** the monophyly of the
154 and high in phosphorus. However, **the data** on the seasonal variation in the
155 male mating success was low. **The data on paternity** from the population,
156 gestation in the Lemuridae. **The data not only** extend our knowledge on
157 in temporary parties. However, **the data do not** clearly indicate how
158 establishments. Analyses of **the data do not** bode well for future of the
159 or at least reflects social bonds. **The data do not** support the hypothesis that
160 by aging. Taken together, **the data demonstrate** that the parameters of
Concordance

ranging patterns is detectable with the data available, which is likely a
enamel thickness, and d13C. The data are complemented by field data on
a social group of >500 individuals. The data are based upon 20-min focal
System (GPS) over 6mo. The data analysis yielded the speed and
Forest for 15 months. I compare these data with similar information collected on
foods containing tannins. These data support other suggestions of African
and saplings can occur. These data suggest that Strychnos mitis does
of cercopithecines. These data may help to interpret how the
known dominance styles, the Tibetan data generally fell within the range for
of genetic, behavioral and soft tissue data. This has placed museum curators
Impenetrable National Park, Uganda. I use data gathered during monthly farm
due to different sample sizes. I used data from the total available sample
species at 16 sites in Guyana. I used data from 1,725 km of line-transect
those exploited by generalists. I used data from 1,725 km of primate surveys
patterns than elsewhere. We used data collected on food supply and party
We examined spatial proximity using data on the distance from nearest
prefer brightly colored males using data on periovulatory sexual behavior
During the 11-yr period for which data are available, only alpha males
do Rio Grande do Norte colony and wild data via regular trapping of 243
to 5 yr. These results contrast with data from the wild. Wild bonobos tend to
I compared these observations with data from June, 1975. The core of Troop
Evidence

N Concordance

Currently, there is ample evidence for the role of KS in shaping body weights, provide additional evidence for recognizing eastern and
Avoiding Predators: Expectations and Evidence in Primate Antipredator Copulation Calls in Guinea Baboons: Evidence for Postcopulatory Female male together with circumstantial evidence suggest that Kasekela males of wild callitrichids provide conflicting evidence regarding polyandrous groups. in Eurasia. They have yielded critical evidence for the evolutionary history, are contradictory, cytogenetic evidence clearly appears to be better with Arboreal Monkeys: Experimental Evidence for the Effects of Reduced New Evidence for Leaf Swallowing and in auditory range for 155 min. Further evidence of gorilla presence included 8 in longitudinal behavioral studies, for evidence of gastrointestinal parasites. Biogeography of Dwarf Lemurs: Genetic Evidence for Unexpected Patterns in from female vaginas provides further evidence for sperm competition in of Multimale Breeding Groups: Evidence for Non-monopolizing obscure. Now there is growing evidence that mate choice decisions of the state. We collected indirect evidence of the presence of a second primate communication. There is evidence that some primate signals are reciprocity does not. However, there is evidence for a reciprocal relationship for polyandrous males. We found little evidence that males in polyandrous in Alouatta palliata mexicana: Evidence From Injuries, Demography, ascanius) and Strychnos mitis: Evidence for Plant Benefits Beyond Seed level remains to be clarified; more evidence from a large range of Asian repeatedly inferred from morphological evidence. However, some analyses from other primates. However, mounting evidence suggests that divergence Relationships of Lemurs I review new evidence on origins and adaptive of aggression among primates, new evidence is emerging to question this extinction (Oates et al., 2000), new evidence from forest in the extreme within the study area. Also, there is no evidence to suggest that the distribution between males and females. I found no evidence that Ta can be used to predict in the 7 study groups. There is no evidence that dispersal events were spectacled leaf monkeys. We found no evidence of redirection of aggression
grip preferences. There was no evidence of rearing effects on
in intact natal family groups showed no evidence of ovarian cyclicity. We noted
OMUs within the group, there was no evidence of a hamadryas multilevel
and Bejarano (1981), there was no evidence for the presence of the two
center of the study area. We found no evidence for the use of seasonally
J. Primatol. 15:367–371), we found no evidence for sympathy between Saguinus
consume the same fruits. We found no evidence for social learning when
in Macaca sylvanus in Gibraltar: No Evidence for Rank Dependence The
populations; our data provide no evidence for polyandry and are
monopoly over the female and no evidence for overt competition between
contrary to expectations, there is no evidence for female chimpanzees
uninvolved third parties. There was no evidence for consolation—affiliative
provide, therefore, the best type of evidence to test KS. But such evidence
under the scrutiny of multiple lines of evidence. KEY WORDS: paleoecology;
of archaeolemurids. Several lines of evidence converge to suggest that all
Molecular Evidence of Reproductive Isolation in
solutions, and acquisition patterns. Evidence derives primarily from
the fossil record because it is positive evidence. But we cannot control how
scan samples, providing preliminary evidence that intragroup contest
also examine whether available primate evidence supports various hypotheses
of Ferrier and Yeo (1884). We provide evidence that these papers can provide
GT and GRE. The results provide evidence that ovarian function in mature
innovation in primates and provides evidence that much individual variation in
in different contexts. The results provide evidence that, during communicative
increased with body size, providing evidence for vertical stratification within
male that sired them, thus providing evidence for a behavioral mechanism of
invariably formed a clade, showing evidence of very recent radiation. The
of primate societies. I review recent evidence of predation and antipredator
primates. The review revealed some evidence of population-left sided cradling
sex-biased dispersal, present strong evidence for contemporary hybridization
type of evidence to test KS. But such evidence is difficult to obtain because
populations. In this paper, I review the evidence of laterality in maternal cradling
interactions in various areas. But the evidence for kin-selected altruism
undetected to this point. I discuss the evidence—a tail, a skin and a
response. Over 2 years there was evidence of variation among time periods
Findings

N Concordance

1. in relative abundance. Additional findings indicate that different observers
2. (2000). Nature 405: 1055–1058. Both findings were, in fact, evident in earlier
3. diets. This result complements findings from previous studies of tooth
4. such restriction seems to confirm findings of chimpanzees under high
5. These results and earlier, conflicting findings on the association between
6. theoretical developments and empirical findings in the study of mate choice and
7. species. The results differ from findings in Amazonia where riparian
8. consumed material. To test our initial findings, we analyzed 18 samples from
9. tamarins. In accordance with his initial findings, nutritional analyses show that
10. capuchins, (Cebus capucinus). Major findings are that infants are significantly
11. in the wet season, 3–6 mo later. My findings support the major predictions of
12. of the availability of young leaves. My findings demonstrate that guerezas are
13. is generally supported in my findings, as two of the three groups
14. times in the 4 cercopithecines. My findings and other published digestive
15. this view is being challenged by new findings. The ability to recognize kin
16. chimpanzee males, but the Ngogo findings are the first demonstrations of
17. by the animal. We compared our findings with those from an earlier study
18. observations and compared our findings with the nutrient content of
19. support had no such effect. Our findings thus confirm the existence of
20. occurred between the two periods. Our findings suggest that the chimpanzees
21. than monogamous males did. Our findings suggest that the males in
22. first 6 mo of life was high (96%). Our findings suggest an environmental
23. gazing (between subjects). Our findings show that direct staring is
24. especially on Hainan Island. Our findings indicate that the species is
25. depression) in the captive subjects. Our findings have implications for further
26. to novel effector organs. Our findings have implications for theories of
27. lifetime reproductive success. Our findings fail to support the maternal
28. not lead to greater consumption. Our findings demonstrate that in closely
29. levels of tannins as palatable. Our findings corroborate food preference
30. copulated with estrous females. Our findings contrast with reports of
31. undetected by R-banding. Our findings confirm that in the evolution of
32. ignored the empty platform. Our findings are in agreement with the idea
Our results are consistent with previous findings at the same and neighboring
the reliability of previously published findings on hand preferences in
is consistent with previously published findings in the Yerkes chimpanzees.
compared them to previously published findings in captive chimpanzees at the
female. We therefore conclude that findings from captivity should be only
conspecifics were. We discuss the findings with respect to the ecology of
is also supported. Taken together, the findings suggest that female copulation
be attributed to forest structure. The findings suggest that the major part of
genera, will also benefit from the findings presented in this paper. KEY
and the days when they did not. The findings demonstrate that mate guarding
seasonality on group movements. The findings are not only important for
the number of copulating partners. The findings are consistent with predictions
members of neighboring groups. These findings obligate a renewed consideration
ripe fruits in secondary forest. These findings not only reflect the larger
siblings being more aggressive. These findings have been associated with
high interspecific variation. These findings demonstrate that vocal and volar
consistent with allelic trichromacy. Findings indicate the presence of an M/L

Investigation

by both experimental and comparative investigation. Somewhat more tenuous is
strike a compromise among functions. Investigation of the mate again, sperm
males. The study is the first extensive investigation of behavioral innovation in
KEY WORDS: direct olfactory investigation; seasonality; sexual
KEY WORDS: Lemur catta; olfactory investigation; scent-marking; ontogeny;
1999. Male direct and indirect olfactory investigation on females showed
than scent-marking. Moreover, olfactory investigation of conspecifics appeared
We analyzed the role of direct olfactory investigation in relation to seasonality,
On the whole, we found that olfactory investigation appears and matures earlier
craniodental variation. Results of this investigation suggest patterns of gene
Investigations

61 Concordance
1 ratio of protein-to-fiber concentration. Investigations have considered variation
2 group of them at Macarena Ecological Investigations Center, Meta, Colombia.
3 findings have implications for further investigations of social communication
4 and Seed Dispersal by Ateles spp. Investigations of coevolutionary
5 of brains and brain components. Such investigations, carried out over many
6 per capita/per year from weekly investigations on bushmeat available in

Method

N Concordance
1 depending on sequence and analytical method, but the results also gave strong
2 forest. We used a marked-nest census method to examine seasonal changes in
3 Application of a Marked-Nest Censuses Method to Examine Seasonal Changes
4 is not known how variation in collection method might influence our
5 11.3 days calculated by a conventional method, or 3.1 and 14.7 days by a
6 76 urine samples via a quick detection method to evaluate multiple parameters
7 agonistic con- flicts with the PC–MC method: we observed focal individuals for
8 and 14.7 days by a slightly modified method. The reproductive parameters of
9 we developed a 4-step noncorrection-method-type finger maze (4FM) based
10 alone, and that the antiphonal playback method provides yet another tool for
11 than the minimum convex polygon method used in many studies of
12 To develop an appropriate standardized method and to evaluate past research, it
13 dimorphism, and that the statistical method used has a large impact on the
14 the importance of considering the method of home range analysis when it
15 chimpanzee populations. Use of this method to detect changes in health,
Methods

273 Concordance

region of the reserve. We used 2 methods to calculate population density
independent, appropriate analytic methods should reveal subtle and
for Conservation and Census Methods Few data exist regarding
A standardization of collection methods is greatly needed to allow for
Primates; Rensch’s Rule; comparative methods; allometry; phylogenetically
ranging patterns. We compared methods of home range analysis for 2
other sites. Despite the use of different methods, the same species exhibited
but with different diets and different methods of food processing. Past
noninvasive multilocus genotyping methods will resolve these questions
surveys) and qualitative (interviews) methods. We recorded the red howler
few investigators used early multivariate methods. In mammals, these studies
is important to assess the reliability of methods used to analyze ranging
though when several optional methods were available, their balance of
sampling and ad libitum sampling methods. We determined the time
involved in applying these statistical methods in detail. KEY WORDS: sexual
Evolution 39: 783–791), I apply the methods to New World monkey
South America. We report here on the methods and drug dosages used to
at the Arnhem Zoo. Since then methods have been considerably refined,
that look almost identical. These methods provide a practical means of
and subsequently sequenced. These methods have been applied with great
subfamilies are the rule when these methods are applied. KEYWORDS:
probably result from more traditional methods of hygiene and lack of available
time. Therefore, we employed two methods to reduce this bias: (1) we
between results from the two methods in some of the finer details of
by the number of nest groups; the two methods gave similar results. We found
Methodology

1. N Concordance
   - group, is the first to use the revised methodology with chimpanzees. We
   - colonies of chimpanzees via the same methodology. Differences in hand

Paper

1. N Concordance
   - from the findings presented in this paper. KEY WORDS: phylogenetics;
   - perspectives and needs. The aim of this paper is to examine the impact of crop
   - of Grey Mouse Lemurs. This paper illustrates the importance of a
   - reported in human populations. In this paper, I review the evidence of laterality
   - in 3 of 4 capuchin species. In this paper, I analyze the effects of male

Papers

1. N Concordance
   - the 1950s. More than 2,000 academic papers have been published, covering
   - a computer search of the literature (i.e., papers published prior to about 1966). In
   - are unaware of the important papers involving lesions of the primate
   - (1884). We provide evidence that these papers can provide valuable information
   - here an annotated bibliography of these papers beginning with that of Ferrier and

Procedure

1. N Concordance
   - cluster analysis; parametric resampling procedure.
   - validity of the apparatus and the testing procedure. The most notable difference
Research

N Concordance

recommendations for conservation and research. KEY WORDS: colobus;
data on individuals in zoos and research establishments. Analyses of
medical treatment. All workers at research sites should be monitored and
should not be neglected in behavioral research dealing with instrumental tasks.
of human influence while conducting research on wild gorillas but also
biodiversity hotspots. Conservation research since 1997 has documented
offer suggestions for future conservation research and consider strategies to
cryptic genera for which continued research will surely reveal even more
paleoecological and ecomorphological research have enabled researchers to
of the most active fields in evolutionary research. After a brief overview of the
folivorous primate populations. Further research on habitat requirements of Indri
We suggest directions for future research, particularly in regard to primate
tutee status, would benefit from greater research. Future instigated studies on
 chimpanzees at the New Iberia Research Center, I observed that
captive colonies and when interpreting research data. KEYWORDS: long-tailed
community ecology. These interrelated research activities should contribute to
1998 and April 1999 at the Iyema research site, Lomako Forest,
of the African apes. During laboratory research at the San Francisco Zoological
Chimpanzees, and Humans at Mondika Research Site, Dzanga-Ndoki National
of western gorillas at the Mondika Research Site, Central African Republic
Gorilla Nest Construction at Mondika Research Center We collected nesting
attention to cases where more research is urgently required and in
fruit eaters than chimpanzees are. My research provides experimental
quality, and initiation of observational research with habituated individuals to
Thirty Years of Research in Kibale National Park,
it has been the focus of over 30 yr of research and has received considerable
method and to evaluate past research, it is necessary to understand
interpret this finding in light of previous research reporting that long-tailed
at the Yerkes National Primate Research Center. The new sample
Learning and Primate Reintroduction Research on social learning may be of
and forest and corridor restoration. Research should focus on traditional
catta) We conducted a long-term research project (1996–1999) on
has advanced considerably through research over the past half century.
increased significantly, partly due to research revealing specific subdivisions
This information is equally relevant to research and to captive management. I
dipterocarp forest in the Barito Ulu research area, Central Kalimantan,
and from Mpala Group, Mpala Wildlife Research Centre, Kenya. Lodge Group
Result

Concordance

of all ranks relatively equally. As a result, there were few rank-related cooperative relationships. As a result, the size of its grooming network than in other families. As a result, the Makand’e forest is subject to capuchin populations, probably as a result of their more seasonal colobine populations are limited as a result of the combined effect of the another group. The conflict was not a result of territorial defense or intergroup feeding on fruit probably changed as a result of seasonal availability, of habitat for Rhinopithecus bieti is a result of population growth of humans, to impair ovarian function, likely as a result of increased activation of the the highest mating success as a result of his high expenditure of time and change with temperature as a result of changes in energy required for conservation organizations. As a result, Kibale serves as a valuable case than reproductive females and as a result experienced more years of ignored the arrival of observers. As a result, daily path lengths were longer the diversity of feeding niches and result in a low incidence of polyspecific of Eulemur fulvus is the evolutionary result of female preference for brightly high levels of frugivory probably result from year-round availability of fruit distribution of Callimico goeldii may result from their restriction to forests that parasite levels of Ba’Aka probably result from more traditional methods of vulnerable. These factors should result in the disruption of the life cycle of differences in PCS among species result from differences in muscle mass and maintenance of oil palm uses, the result raises interesting questions about of intestinal parasites. This may be the result of the high proportion of swamp evolved in the human female as the result of selection for a postreproductive males furthermore seemed to be the result of mate competition. The high 1 and 19 is best explained as the result of a reciprocal translocation, which on reducing germination time. This result may be related to longer gut feed on harder or frugivorous diets. This result complements findings from encounters were more likely to result in the displacement of one group, The distribution patterns are thought to result from specialists using relatively (cf. KaopectateTM). An unexpected result, the relatively high nitrogen and
Results

N. Concordance
1. Plavcan and van Schaik (1992, 1994). Results from the indices of canine
   Information gleaned from adults results from efforts initiated by the
tail, a skin and a photograph—and results of accompanying surveys.
   R. bieti and R. avunculus) are. Results also indicate that 3
   there are discrepancies between results from the two methods in some of
   was well predicted by patch size. Both results highlight the independent nature
   which opponents first exchanged calls. Results suggest that competitive
   steepest slope (0.134) is for Catarrhini. Results differed when we conducted
   16S rRNA gave the most consistent results, while cytochrome b was least
   On the whole, we found that contrasting results were probably related to different
   on color rather than brightness cues. Results indicate that each male and one
   lateralized than females. We discuss results in the light of recent models of
   of urine that indicate organ dysfunction. Results of the different analyses are
   did not increase just before emigration. Results suggest that spatiotemporal
   reproductive biology. Our genetic results indicate that, as in other atelins,
   monkey fruit processing on seed fate. Results indicate that 83% of seeds spat
   were not otherwise essential habitat. Results of this study have implications
   overlap of 1.5 m. Virtually identical results for Balanites wilsoniana and
   hypothesis, in which infanticide results from overcrowding or recent
   the need for caution when interpreting results from non-habituated gorillas. KEY
   subjects and across object location. Results show that, according to the
   to a shortened cycle) over 54 months. Results from transverse experiments
   lemurs under natural conditions. My results showed that male and female
   to seasonal or scarce resources. My results indicate that wild spectral tarsiers
   might be a form of sexual coercion. My results indicate that female reproductive
   and eat young leaves and fruit. My results agree with reports on the
   affected estimates of primate numbers. Results indicate that two species, blue
   in female dominance status occurred. Results suggest that in addition to
   or group traditions. A comparison of our results with the diets of gorillas of the
   years after a major flowering event. Our results support the argument that
   food than when they were isolated. Our results suggest that: 1. juvenile common
   ears. In contrast to other studies, our results suggest that the presence of
may partly explain these patterns. Our results suggest that variation in plant
the number of floor nests. Our results suggest that providing adequate
short chirp calls. Our results suggest specific status for gray
undisturbed montane rain forest. Our results suggest a relationship between
within call types were apparent. Our results show that although a prosimian,
and phonotaxic techniques, our results show that cotton-top tamarins
of resources important for survival. Our results indicate the importance of
an additional pericentric inversion. Our results indicate that Pygathrix nemeus is
with average tree circumference. Our results indicate that Rhinopithecus
hominoid and Lufengpithecus. Our results indicate that both the upper and
the first 9 weeks of infant life. Our results indicate that the presence of
ages and in future generations. Our results indicate that early cohabitation is
the behavior of a focal group. Our results indicate that the langur groups
of tree in which a nest is built. Our results illustrate that the nest-related
is more important than tree size. Our results have at least three implications
breeding and nonbreeding males. Our results confirm the challenge hypothesis
unfavorable to monkey populations. Our results confirm that habitat mosaics may
a model integrating and interpreting our results as a function of the spatial and
social factors appear to play a role. Our results are similar to those found a
than mature leaves or flowers. Our results are consistent with previous
rank and matrilineal inbreeding. Our results are consistent with the
in either colony. We discuss the overall results in the context of the evolution of
density, and in Alouatta pigra results in a shift from single to multimale
Okavango Delta, Botswana We present results of a 10-year study of free-ranging
foraging strategy of a species. I present results from digestive passage
and Lepilemur edwardsi I present results from a comparative field study on
familiarity acquired during peer-rearing results in sexual aversion at maturity.
the specific lifestyles. Our most recent results demonstrate that chimpanzees
in the Kakamega Forest, Kenya I report results of a 4-year study, which profiles
groups; the two methods gave similar results. We found differences in number
distribution of injuries. Although some results suggest that food resource
is correlated with reproductive success. Results showed that numbers of
dimorphism are indicated by this test. Results of the discriminant function
that by removing pulp, a process that results in a reduction of fungal pathogen
not configurationally. We compare the results with those of previous studies
for the region and discuss the results with reference to previous studies
not be differentiated. We pooled the results with previous data to show that
rates on T levels, comparing the results with predictions of the challenge
during the phase of ovarian activity. The results suggest that, in contrast to most
the speaker. Collectively, the results suggest that whinnies are used
depression and pretraining. The results suggest that the 4FM is a
and clumped spatial distributions. The results suggest that woolly monkeys are
frequency of aggression received. The results suggest that the costs of estrous
during the low-fructing season. The results suggest that the fruit of Musanga
for the Papionini and Colobinae. The results suggest Allenopithecus and
only between GT and GRE. The results provide evidence that ovarian
produced in different contexts. The results provide evidence that, during
duration of canine crown formation, the results provide essential background
those of smaller-bodied hominoids. The results permit us to understand more
food to infants than mothers did. The results of this study emphasize the
presumed to affect fruit choice. The results of the independent regressions
characteristic that can strongly bias the results of quantitative comparisons
for Speciation in Ateles. We used the results of phylogenetic analyses of
patterns, and thus directly influence the results of nest surveys used to
by Saguinus oedipus. We report the results of an experiment designed to
and relative densities. We report the results of a survey conducted in 6 forest
Low Altitude Rain Forest. We report the results of a census of Indri indri
of indrid chromosomes. In general, the results obtained by chromosome
2, involved only the 3-act solution. The results indicated that the types of
analyses of 122 leaps. The results indicate that irrespective of
latitudes, but differ in forest type. The results indicate that the availability of
above the juveniles’ targets. The results indicate that the sole presence of
effect was independent from age. The results indicate that the possibility of
other groups, except Strepsirhini. The results indicate that phylogenetic effects
was directed up the hierarchy. The results indicate that although Japanese chimpanzees. We discuss the results in terms of the role of early because of high individual variation. The results have clear implications for the buffering gastric upset. We discuss the results from the viewpoint of several influenced searching for prey. The results emphasize the distinctly different methodological point of view, the results emphasize a well-known but and 6–7 generalist species. The results differ from findings in Amazonia third parties. This finding mirrors the results concerning reconciliation in a decrease in home range size. The results are consistent with ones for other intergroup transfer in mangabeys. The results also suggest that dispersing and analytical method, but the results also gave strong phylogenetic interbirth interval is ca. 18–20 mo. The results also confirm that females inflict injury upon them. Although these results support the coercion hypothesis, copper and manganese. These results suggest that despite their high a time frame of several weeks. These results suggest that mutualism plays a of their prebirth body weight. These results suggest that caring for infants is to these ecological variables. These results suggest that wooly monkeys in 300 mM fructose solutions. These results suggest that gorillas use be members of the opposite sex. These results suggest that bonds between the number of anestrous females. These results suggest that males tended to join ambient temperature decreased. These results suggest that energy requirements differ across the three periods. These results suggest that interactions with of thermoregulatory modulation. These results strongly suggest that, during the as substrate size decreased. These results reject the hypothesis that arm estimates of primate numbers. These results provide guidelines for the use of than in unimale groups. These results may be explained in terms of more data are needed to confirm these results. KEY WORDS: douc langur; and Pongo. Taken together, these results indicate that sexual differences in with the tendency to reconcile. These results indicate that spectacled langurs reconciliation. We discuss these results in light of recent theories badly damaged by baboons. These results have important implications for their grooming less equitably. These results fit those expected if limits on
of offspring surviving to 5 yr. These results contrast with data from the wild. These results contradict dietary learning by trial and combinatorial behaviors. These results are consistent with the effect on male grooming. These results and earlier, conflicting findings on females and resident members. These results agree with previous reports on statistical difference in weight. These results accord with previous reports of in the dryest zone. Possibly this results from fruit failure in years following based on craniodental variation. Results of this investigation suggest crown region. When combined with results on the rate and duration of canine

Study

are higher than at Kummer's (1968) study site in Ethiopia. Hamadryas trap locations 50 m apart over 2 study areas of ca. 25 ha each. The we analyzed ad libitum data from 5 study sites, covering 2 species and 5 ascanius). We established 4 study sites approximately 15 km apart in home ranges, and I expected that the 5 study groups would eat similar foods. dominance hierarchy among the 6 study males. All males copulated with and the number of adult males in the 7 study groups. There is no evidence that in different parts of their cage in a study of the spatial dependency of most folivorous primates. I conducted a study of the feeding ecology of two in Free-ranging Ateles geoffroyi in a study of the reproductive biology and not been reported for chimpanzees. In a study of captive, adolescent Uganda We previously reported on a study of 4 soils that chimpanzees of the increases during moonlit nights. A study I conducted at Tangkoko Nature volume was relatively high across study populations. Thus, sperm chrysomelas: A Behavioral Study We assessed the color areas. Although overlap zones between study communities mainly represented result, Kibale serves as a valuable case study with which to evaluate the factors strategies by the colobus as a case study of how a primate prey species post hoc among chimpanzee study sites made differences in the hierarchies among the chimpanzee study sites are affected by food
data during a first yearlong comparative study of wild groups of Callimico goeldii, western woolly lemurs. A comparative study of wild subjects and museum and definition confound cross-study comparisons. I introduce a on feeding invaluable. In the current study, we quantified energy contents of of gaze. We present a detailed study of gazing and eye
About half of the individuals in each study group initiated 74%–90% of all our findings with those from an earlier study of similar species in Gabon, where We conducted an experimental field study on wild groups of emperor present results from a comparative field study on the feeding behavior of the During a long-term field study on the behavioral ecology and and experiments from a 3-year field study of spider monkeys (Ateles National Park, Uganda: Diet Via a field study of chimpanzees (Pan troglodytes primate species. During a 4-mo field study of 12 females and 27 males, we revision of the genus. During a field study in southeastern Madagascar, we between the location of our field study and the origin of the respective group of Tonkean macaques. In a first study, immature subjects observed their in China started in 1862, but fruitful study began only in the 1950s. More is quite complex and requires further study. Nonetheless, preliminary data male behavior in Costa Rican howlers. Study males engaged in little or no censused Lemur catta within a 1 km² study area at Berenty Reserve, In addition, we conducted a year-long study of the ranging behavior of 3 groups and female rank via of a longitudinal study on 16 adult ring-tailed lemurs living Papio; human impact; longitudinal study...
attacked the target group. Our main study group was the target of such We collected data during a 12-mo study on 2 groups of moustached of ecology. I conducted an 18-mo study comparing the feeding ecologies of 23.5 years apart at the Ngogo study area in Kibale National Park, such as bush babies. However, no study included quantitative comparisons in Lemur catta are unknown, as no study had heretofore documented with a highly diversified diet. There is no study describing if and how the diet is Ecuador during a oneyear observational study and subsequently used molecular contributed to 1% of the diet. For one study group, the proportion of ripe fruit in not frequently entered by any other study group. Mean daily path length is 0 to 6 years and were members of one study group in which kinship relations to S. fuscicollis. Over all our study supports the idea that
Concordance

56 cf. canescens (Chrysobalanaceae). Our study on Alouatta belzebul discolor
57 increased significantly during our study, likely due to skewed sex ratio at
58 differences in these patterns among our study groups may reflect local variation
59 gorilla in Southeast Cameroon. Our study extends quantitative analyses of
60 quality and demography. Finally, our study demonstrates the importance of
61 and of hypotheses not tested in our study concerning female breeding
62 We proffer hypotheses based on our study and previous intertaxonal
63 of the entire group during the previous study, yet their day ranges are
64 During a 13-mo mark-recapture study individuals were trapped from May
65 group of Lemur catta, but a recent study on the same group indicated
66 mother and her offspring. In a second study, we recorded the techniques
67 was not apparent in the second study group. The modal party size for
68 I used information from a long-term study on 8 fork-marked lemur families in
69 of Arashiyama B Troop in a long-term study of sexual behavior in Japanese
70 relations were known from long-term study. Immatures often had their
71 parasites. The two objectives of the study were: 1) to compare parasites from
72 diagnosis within the 6 mo preceding the study. We compared villagers who had
73 insectivorous behavior of gorillas. The study suggests the existence of
74 The nest decay rate t recorded at the study site (average ± SD = 202 ± 151
75 of Hanuman langurs exist in the study regions. Due to local hunting
76 the irregular size fluctuations of the study population. Since many howler
77 population. Sex-ratios within the study population, in bands and also in
78 showed similar mean IFRs for the study periods. The mean IFR for each
79 individuals of both sexes. During the study period, spatially associated
80 and direct observations. During the study period, habituation progressed and
81 by woolly monkeys either during the study or during several preceding months
82 an artificial language as a tool for the study of spatial memory organization in
83 Trees, Time Periods, and Areas. The study of nutritional ecology has proven to
84 and empirical findings in the study of mate choice and review the
85 more innovation than males. The study is the first extensive investigation
that we captured and marked during the study. Intergroup transfers are 
introduction, and follow-up periods. The study included three different introduction 
were very low throughout the study. In the Musanga-dominated 
away from the river. We conducted the study in September–October, 2000, 
varied in nutritional content. During the study, I offered 2500 paired-food choices 
been underestimated for several of the study groups. Home range overlap was 
agonistic dominance hierarchy in the study group shows significant and strong 
behavior occurs. All 4 females in the study group participated in GG-rubbing, 
the southern dry forest of Mayotte. The study focused on activities and diets of 4 
monkey group in every month of the study. Both species were highly 
care patterns. Primates are ideal for the study as there is variation in infant care 
one in Northern Taiwan. Although the study areas differed dramatically in their 
Three distinct populations inhabit the study area. We recommend consolation 
a single 4-ha square in the center of the study area. We found no evidence for the 
The monkey population in the study area was reduced by 42% and 
made 10 parallel line-transects in the study area; they were 5-km long and 
density of chimpanzees in the study area both by the number of 
and Calithrix geoffroyi live in the study area. Although variable, primate 
a significant factor anywhere within the study area. Also, there is no evidence to 
the large groups increased. Within the study area, 5 social groups have been 
just given birth at the beginning of the study, and she gave birth 6 mo later. 
with gorillas in the 6 mo preceding the study (53.5%) to villagers who had no 
partial sequences employed in the study, 16S rRNA gave the most 
Colony of Apes The purpose of this study was to evaluate the reliability of 
interaction at the time. Overall, this study suggests that a star-shaped 
Forest Reserve, Rwanda. This study is the first to examine the ranging 
essential habitat. Results of this study have implications for improving 
than mothers did. The results of this study emphasize the existence of 
some gregarious nonprimates. This study, conducted with a different captive 
One male emigrated from each of three study groups, providing ideal 
was supported in only one of the three study groups. Males in two groups 
in availability of resources. To study the role of daylength on seasonal 
a Hurricane The opportunity to study the effects of a powerful hurricane 
kinds of models that could be used to study primate behavior and ecology: 
chimpanzees have proved difficult to study in the wild. Limited field data have 
it has become possible, to a degree, to study genetic variation as it relates 
entered on ,30% of a group’s total study days) of any one group were not 
Kenya I report results of a 4-year study, which profiles grooming partners 
underpinning it. Via a 2-year study, we explored determinants of 
and home range size. During the 3-year study, the gorillas ate 16 species of fruit 
lagotricha) based on a 12-year study of one group of them at Macarena 
We present results of a 10-year study of free-ranging gray-footed chacma 
fragments outside of Kibale, a 5-yr study revealed that human land-use 
and unlogged forests and a 10-yr study of forest dynamics showed that
Studies

N Concordance
rates of use of positional modes across studies. I also discuss the significance
to allow for direct comparison among studies. To develop an appropriate
in Guyana: A Biogeographic Analysis Studies of primate community structure
Aotus azarai azarai in Argentina Studies of infant development and
Night Monkeys Long-term behavioral studies require the permanent
involved in longitudinal behavioral studies, for evidence of gastrointestinal
and Ateles belzebuth belzebuth Studies of interspecific competition and
with estimates of gestation from captive studies. Low steroid concentrations from
tough foods. Preliminary captive studies have suggested that they may
Marmosets (Callithrix jacchus) Captive studies and occasional trappings of wild
as the day of birth. However, captive studies also indicate that weaning young
potentially very useful to conservation studies because they may offer an early
follicular phase of the menstrual cycle. Studies of mandrills support the
What Cytogenetic Studies May Tell Us about Species
and dominance relationships. Detailed studies of the patterning of altruistic
have been well studied but empirical studies regarding the dynamics of
are supported by a number of empirical studies of primates. POCtheory has
changes in the physical environment. Studies on primate responses to high
Congo, Laboratory of Human Evolution Studies, Faculty of Science, Kyoto
parts of the brain. Thus, evolutionary studies of many species and of whole
developmental and evolutionary studies implying a considerably greater
dyads. Ours is among the few studies showing a decrease, albeit
tests of it are based only on a few studies of species that have similar
might be attributed to the fact that few studies have taken ultimate approaches
Brazil is poorly known, and few studies have focused on buffy
are widespread in male primates, few studies have examined female choice for
and dispersal events. However, the few studies dealing with intragroup
Mato Grosso State, Brazil Prior field studies of Alouatta showed the highest
which is particularly beneficial in field studies. Fragments containing
or incomplete dietary data from field studies and allometric effects on skeletal
of more specimens and further studies do not support these
no relationship with elevation. Future studies will require more detailed
species, and it is very likely that future studies of primates will continue to
macaque males (0.31) versus that in studies on the other subspecies Macaca
tract visibly unchanged. Independent studies in two populations of
from greater research. Future instigated studies on primate social learning would
Saguinus fuscicollis and S. labiatus Studies of sympatric species can provide
foraging on thin branches? Laboratory studies of primates and other mammals
all the instigated social learning studies in primates published since 1950
Mahafaly Special Reserve, Madagascar Studies of prime diets usually focus on
convex polygon method used in many studies of nocturnal prosimians. Minimum
of Escape Opportunities Many studies have focused on the responses
posed by more refined modern studies. KEY WORDS: primary motor
In contrast, several recent molecular studies point to a closer relationship
of lemurs but also show that more studies on other lemur taxa are needed
in primates. Comparative morphometric studies, involving 31 species
show ovarian inactivity. However, most studies on callitrichid reproductive
major groups of living primates. Most studies have confirmed that lemurs
in fact, evident in earlier multivariate studies (Holloway, R. L. (1979). In Hahn,
Tools to Crack Open Nuts Naturalistic studies on tool use by nonhuman
variation in howler diets and new studies have shown higher frugivory for
New York, pp. 245–287). However, new studies employing proportional data
Markers Suitable for Noninvasive Studies of Guenon Hybridization We
expands the utility of noninvasive studies. KEYWORDS: TSPY;
a form of predator avoidance: numerous studies indicate that predation increases
derives primarily from observational studies of feeding behavior in free-ranging
above the ears. In contrast to other studies, our results suggest that the
Faculative Polyandry Studies of wild callitrichids provide
in the same population and to other studies of space use in apes but are the
and molecular phylogenetic studies of mouse lemurs (Microcebus)
as well as differences between other studies of fragmentation and ours
in a Modern Baboon Population Studies of cercopithecoid systematics
findings corroborate food preference studies and nutritional analyses of wild
the results with those of previous studies with other animal species and
fuscata and M. mulatta) Previous studies on nonhuman primate maternal
for infant survivorship. Previous studies on births in Alouatta caraya in
the results with reference to previous studies on Ateles and the importance of
complements findings from previous studies of tooth size proportion, and the
in canopy and food utilization. Previous studies of positional behavior in Ateles,
diet. In contrast to most previous studies of colobines, in which seeds
and compare them with previous studies in the Pando. Differences in body
with G. senegalensis Previous studies have shown the taxonomic value
Theory

N Concordance
1 as expected by reciprocal altruism theory. For these reasons, one should
2 observations are consistent with current theory on the effect of habitat
3 and between the forests to current theory on the effect of human
4 predicted by evolutionary game theory. KEY WORDS: baboons;
5 as the role of disease and life-history theory are integrated more fully into
6 Parent–offspring conflict (POC) theory (Trivers, 1974) has stimulated
7 activities is not incompatible with POC theory. Furthermore, the predictions of
8 will continue to benefit from using POC theory as an explanatory framework.
9 Furthermore, the predictions of POC theory are supported by a number of
10 a long period of dormancy, Darwin’s theory of sexual selection in general, and
11 be related to one another. Kin selection theory suggests that these males should
12 Value of Kin Selection? Kin selection theory (KS) is widely invoked to account
13 with the predictions of sexual selection theory. KEYWORDS: Eulemur fulvus;
14 tamarins in terms of sexual selection theory. KEY WORDS: scent marking;
15 to recipients, but costly to actors. The theory of kin selection, first articulated
16 biology and behavioral ecology. The theory has been criticized by some
Appendix 2 Concordance lines in the MCS corpus:

Analysis

N Concordance
1 analysis of discrete event systems by
2 analysis of coupled oceanographic and
3 analysis of an integrated model for
4 analysis of a bifurcation problem
5 analysis and parameter selection for an
6 analysis and optimization of inner
7 analysis and numerical simulation of
8 of partial differential equations. An analysis of the linearized KdV equation
9 present empirical evidence and analytic analysis of the -shell error in some
10 values can be estimated. Based on an analysis of the Fisher information matrix,
11 problems where the advanced analysis of microstructural properties is
12 Stopping rule This paper presents an analysis of an adaptive random search
13 simulations as well as with an analysis of a quasi-continuum,
14 especially during the design and analysis phase, are detailed. Finally, the
15 Geo-temporal tracking and analysis of tourist movement Keywords:
16 is introduced. For the simulation and analysis of the model the Design/CPN
17 Performance analysis In the design and analysis of discrete event dynamic
18 software; Algorithm design and analysis; Efficiency; Parallel and vector
19 Homogenization; Asymptotic analysis Two-scale convergence is a
20 Interval-based analysis in embedded system design
21 is investigated using Monte Carlo analysis. The proposed approach is
22 Carlo analysis Keywords: Monte Carlo analysis; Non-linear predictive growth
23 and quantity by using Monte Carlo analysis Keywords: Monte Carlo
24 with stochastic variables is Monte Carlo analysis. In this research, the sensitivity
25 by von Neumann?s classical analysis. Then, the adjustment
26 the Alps and the Jura. A cluster analysis for this data-set lead to 12
27 A cointegration analysis of annual tourism demand by
28 Operator splitting and commutativity analysis in the Danish Eulerian Model
29 Model Keywords: Commutativity analysis; Danish Eulerian Model;
30 are studied and their comparison analysis is presented. One of these
31 over F2 is linear, means for a complete analysis of the cyclic behavior of these
32 called independent component analysis (ICA), makes uses of statistical
33 This framework allows a comprehensive analysis of various bifurcations leading to
34 is also investigated. The correlation analysis shows that for most pollutants,
35 It turns out that the corresponding analysis necessarily involves interaction
Dynamic game; Parallel R&D analysis; Simulation tests
This paper on new practical possibilities for data analysis in the absence of good theory dividend announcements: An intra-day analysis Keywords: Earnings and
beams is steadily increased. Detailed analysis of our data shows several roles in the design, development, analysis and evaluation of computer treatments and the development, analysis, and applications of effective And we thus proposed an efficient analysis algorithm for analyzing the
Prior to simulation by the finite element analysis, two separate sets of testing, flow; Coulomb friction; Finite element analysis; Radioactive waste repositories
[Feistauer et al., On the Finite Element Analysis of Problems with Non-linear Finite-element analysis of frictionless contact problem
medium Keywords: Finite-element analysis; Laminated medium;
Sensitivity analysis of microbial growth parameter
Sensitivity analysis in the migration of
assumed to be equivalent to the EPC. Analysis of the behavior of the RD
General equilibrium analysis on arms exports to developing
An analytical mass balance error analysis shows that the proposed Hamiltonian PDEs; Backward error analysis Several recently developed
be a starting step towards a total error analysis of the numerical solution of split numerical simulations. Backward error analysis for PDEs, or the method of this paper we initiate a backward error analysis for PDE discretizations, in
Backward error analysis for multisymplectic
-Shell error analysis for "Walk On
Lyapunov stability theory is used for analysis of the system. A numerical is investigated. The FEM analysis of the problem is also
both a theoretical and experimental analysis of asymmetric stator and rotor and water policy options selected for analysis, and highlights the plausibility of is obtained, based on which further analysis is conducted to represent the path R&D approach: a stochastic game analysis Keywords: Dynamic game;
system of differential equations. Group analysis is applied to this system. New A new approach related with group analysis and hodograph type
similarity analysis; Linear harmonic analysis We use a multi-scale similarity microbiology in the context of hazard analysis and critical control points Simulation analysis of the effects of the
a subcritical Hopf bifurcation. However, analysis of the experimental data also
The analysis of neurologic studies using an
the coincidence degree and inequality analysis, the authors study further global
Interval analysis; Directed interval analysis; Stochastic methods for error
The algorithm set inversion via interval analysis (SIVIA) makes it possible to
3-4 Keywords: Bounded errors; Interval analysis; Nonlinear estimation; Robot
algebra, following the thought of interval analysis. First of all, we give the concept
interval arithmetic Keywords: Interval analysis; Directed interval analysis;
Performance verification; Interval analysis Complex multi-processor
containing random errors in the inverse analysis. Different functional forms,
to develop and run. The mathematical analysis approach is preferable but in
Unilateral shifts; Multiresolution analysis; Wandering subspaces
constructed through a multiresolution analysis, there corresponds a unilateral
subspaces to wavelet multiresolution analysis (MRA) will be discussed. .
resulted from a wavelet multiresolution analysis (MRA). The former has not been
by the notion of multiresolution analysis. In practice, however, one is
the Floquet discriminant. The Mel'nikov analysis yields explicit conditions for the
in order to develop a Mel'nikov analysis of the non-even chaotic regime.
Mel'nikov analysis of a symmetry-breaking
the NLS equation Keywords: Mel'nikov analysis; NLS equation;
The paper also provides a novel analysis of four risk ratings using
parameter estimation and the numerical analysis schemes.
value problem in 3D; Numerical analysis Outdoor high-voltage equipment
terms. In [Feistauer et al., Numerical analysis of problems with non-linear
classical problem in numerical analysis is considered, namely, to find
boundary value problem; Numerical analysis Droplets on insulators in
the mathematical and numerical analysis are also presented. .
problem in the area of Numerical Analysis.
of the accessibility and observability analysis for implicit ordinary differential
system. As far as we know, the kind of analysis here proposed is entirely new.
Comparative analysis of risk ratings for the East
Cointegration analysis of metals futures Keywords:
to the original. In addition, based on analysis and insight into the correlations
Conditioning analysis of separate displacement
and numerically. A consequence of our analysis is a class of spatially localized,
and solvability of the local system. Our analysis has been performed by
of the cell Reynolds numbers. Our analysis and numerical experiments
evaluation; Simulation The performance analysis of network architecture is a very
Timed Petri nets; Performance analysis In the design and analysis of
divisible load paradigm: performance analysis and simulation Keywords:
We present a performance analysis and experimental simulation
as a decision support tool for policy analysis.
this decrease is not the result of a poor analysis, but it really appears. In our
method The present analysis is an application of the
method comprises the probabilistic analysis and the simulation technique
Computer algebra; Qualitative analysis; Rigid body mechanics;
Computer algebra; Qualitative analysis; Rigid body mechanics;
of river flow. Water quality analysis is carried out using an artificial
need to be simulated for a realistic analysis of the parallel system. This
Carlo percolative approach to reliability analysis of semiconductor structures
circuits We present a reliability analysis associated with the electrical
nonlinear wave simulations. Rigorous analysis is given for the numerical
critical control points (HACCP) and risk analysis studies, stochastic models
sectors. The importance of country risk analysis is underscored by the existence
with the aim to support quantitative risk analysis can only deliver satisfying
of model variability on the safeguard analysis of gamma-contaminated truck
information content. Cross-sectional analysis shows that forecast errors and
policy options Keywords: Sensitivity analysis; Water resources; Integrated
Finite deformation; Sensitivity analysis; Updated Lagrangian
is examined in the view of sensitivity analysis. Two methods are compared:
useful for global sensitivity analysis. This paper presents a new
equations; Sensitivity analysis; Optimal control; Sequential
paper outlines results of a sensitivity analysis on a model developed to
other system components. Sensitivity analysis of the integrated model
incompressible inclusions. A sensitivity analysis of homogenized coefficients is
Carlo estimates Keywords: Sensitivity analysis; Monte Carlo method;
Radionuclide migration; Sensitivity analysis; Monte Carlo simulations;
experiments; Global sensitivity analysis; Machine learning; Wavelets
networks of realistic size. Sensitivity analysis is performed on randomly
system models. The sensitivity analysis involved running variables in the
plantations on hillslopes. Sensitivity analysis and field data interpretation are
years, research in nonlinear time series analysis has grown rapidly. Substantial Box-Jenkins univariate time series analysis facilitates an understanding of We introduce a qualitative similarity analysis, which yields relations between We use a multi-scale similarity analysis which gives specific relations Wavelets; Multi-scale similarity analysis; Linear harmonic analysis The study includes simulation analysis of the model. maps; Intelligent systems; Sound analysis Coughing is one of the most modes; Bifurcations; Linear stability analysis We present the similarities and CHAOS A nonlinear stability analysis using a multiple-scales Multi-estimation; Robustness; Stability analysis; Time-varying plants This paper Non-autonomous systems; Stability analysis; Thresholds; Dengue; of equations of motion, the stability analysis on the basis of an analytical The paper deals with the stability analysis of the discrete New stability analysis of T-S fuzzy system with robust investigations for stability analysis of Lagrange systems for symbolic-numeric stability analysis of equilibrium positions of a factorization method; Stability analysis of equilibrium solutions; Second A projection scheme to stability analysis of discrete T-S fuzzy models Global stability analysis of a class of delayed cellular Applying the Von-Neumann stability analysis method we show that the that the convergence and stability analysis is robust under random Cayley transform The stability analysis is considered in the context of of different parameters. Stability analysis is carried out for each case. Keywords: Steady states; Stability analysis; Invariant subspaces; when eigenvalues in the linear stability analysis for the ground-state stationary is extended to the stability analysis for nonlinear interconnected Robust stability analysis for discrete-time LQG system techniques and linear stability analysis. of quarter-car motion. Statistical analysis of system output shows that based on sequential statistical analysis has to be undertaken, either. (a) system; Sequential statistical analysis; Chance constraint The paper structure parameters, etc.) on stress analysis parameters in critical regions of approaches are used. One is a stress analysis parameter approach. According multiple simulation tests. A structured analysis is proposed where the system Weighted algorithm; Surface analysis When a monoenergetic electron
in order to provide entirely symbolic analysis of multi-degree of freedom

Computer-aided system analysis A general definition of

Stability analysis of T-S fuzzy models for

index condition if the sparse tableau analysis method is applied to the circuit.

Keywords: DAE; Sparse tableau analysis; Mathematica

For linear of non-zero flows; agricultural profit. The analysis shows that the model is

in the field of the geosciences. The analysis reveals a number of anomalies

dynamics. An example illustrates the analysis procedure.

domain with curved boundary. The analysis of the error estimates leads to

of computer algebra methods to the analysis of systems of implicit ordinary

inequality technique, applied to the analysis of convergence properties of the

simulation algorithms exist for the analysis of continuous and discrete

we apply the proposed scheme to the analysis of behaviour of a shape memory

motion of the soliton. Extension of the analysis for the 2D case is briefly

(of MathSoft Corporation). The analysis enables us to observe the

situations and then based on the analysis construct computational

traffic model of urban district and the analysis and problem solving of traffic

remarkably well. For theoretical analysis, simplified equations are

will be discussed. Theoretical analysis of these methods as well as

also form a basis for future theoretical analysis of the great diversity of

paper. We start with a theoretical analysis of the classical Kaczmarz?s

preconditioner. The theoretical analysis of the execution time shows

scheme are presented. The theoretical analysis is supplemented with two

algorithm based on the theoretical analysis applicable to a more general

bus topology. We present a theoretical analysis and verify these findings on the

obtained by the steady-state thermal analysis. The above procedure has been

method was developed and applied to analysis of spatial and temporal

efficient models and methods for timing analysis of single processes, real-time

components. As a result, timing analysis of complex, heterogeneous

technique associated to stream-tube analysis. The latter method involves an

Numerical analysis of dynamic characteristics of

model based on canonical variate analysis forecasts stock index volatility

Markov modelling and canonical variate analysis, and the use of a prediction

eggs Keywords: Egg quality; Vibration analysis; Non-destructive; Noise

measurements Keywords: Vibration analysis; Non-destructive; Tomato

interference cancelling Vibration analysis is a challenging technique to

Stiffness The use of tomato vibration analysis after impact excitation as a
Analyses

N Concordance
1 industry after the cultural revolution and analyses tourist flows from Japan, which
2 for six SITEs from 1984 to 2001 and analyses the relationship between
3 on such bibliometric information and analyses in making funding decisions
4 Detailed stability and bifurcation analyses will reveal that whilst the trivial
5 Numerical and bifurcation analyses for a population model of HIV
6 close to 1/3. On the basis of far-field analyses and heuristic arguments, we
7 systems. On the basis of numerical analyses of the space module?s
8 results widen the possibilities for analyses of the models being
9 Poisson regression This paper analyses results from an investigation
10 for detailed finite size scaling analyses of various thermodynamic
11 in a zonal shear flow. Most previous analyses of this phenomenon have dealt
12 Chaos The paper combines theoretical analyses with computer simulation
13 of the traffic flow is adopted. Theoretical analyses of the discontinuous solutions
14 conjugate gradient This work analyses the preconditioning with Gram
Data

whole monitoring system including a data acquisition system and the advisory of traffic congestion based on actual data. Our model is given in terms of one in the case of correlated noise affecting data. A regularization method and two FDI approaches and analytical, data- and knowledge-based. As for the way to a common combinatorial and data structure well-suited for a physical data movement, synchronization, and data structure translation overheads are approach, the overheads due to I/O and data movement exceed 50% of the total to enforce natural (circuit), signal, and data coupling between entities from growth for these six SITEs using annual data from 1985 to 2000. The economic based upon New Zealand annual data 1955–1998. The results method; Eigenvalue computation in any data mining applications, automated text appears to be a linear relation between data quality (expressed by means of the sensitivity w.r.t. initial and boundary data. It is already known in the literature and thus, by a computer data structure. In particular, every criteria. Moreover, thanks to the chosen data structure, decision making on the Increasing the number of conditioning data does not provide a satisfactory which is solved by corresponding data structures with optimal understanding of various forms of count data originating from primary health care properties of estimators of count data model with endogenous switching. Properties of estimators of count data model with endogenous switching switching. The estimation of the count data model that accommodates switching Keywords: Count data; Endogenous switching; Monte WGENK producing synthetic daily data of solar radiation, maximum and and volatility in ACDC levels using daily data from 1 January 1991 to 31 partitioning schemes are employed, data movement, synchronization, and changes in sample weight. Equilibrium data for adsorption and desorption of the best fit to the experimental data. The modified Chung-Pfost equation and fitting of the experimental data, shows three different possible Comparison with available experimental data shows that the precision of profile require gathering experimental data, processing raw data, plugging the means of the number of experimental data points) as well as the positioning of PS II. We are using the experimental data of the fluorescence transients
were compared with experimental data of dose equivalent and spectral
of the process. From experimental data obtained in discontinuous cultures a
models simulated the experimental data obtained from fungal PHBV
a rather limited set of experimental data is available for the identification of a
numerical results with experimental data. Good agreement is obtained
were obtained from experimental data. Belts, carcass and bead were
distribution assumed on experimental data) and model parameter uncertainty
However, analysis of the experimental data also reveals that this bifurcation is
case of a relatively limited experimental data (10 experiments in various operating
biochemical models with experimental data.
A faster data assignment algorithm for maximum
requirements. It is concluded that field data should be used to develop a simple
hillslopes. Sensitivity analysis and field data interpretation are used to define the
average delay as well. Finally, field data collected from an intersection in
using calibration against measured flow data, whereas streamflow in the
test A new filtering method for data with intermittency problem is
in using classification method for data coming from industrial and medical
on new practical possibilities for data analysis in the absence of good
data This paper uses high frequency data to evaluate whether information
Information asymmetry; High frequency data This paper uses high frequency
problems with single frequency data in the resonance region, and the
based on fuzzy-logic called fuzzy data association (FDA) for radar/infrared
statistics of 200 years of generated data with 20 years of observed weather
observations with the groundwater data of this area. This comparison shows
is illustrated with experimental growth data. There appears to be a linear
solving least-squares problems and in data compression. In this paper we used
PARFIT to the fluorescence induction data measured ?in vivo? on pea leaves.
over- or under-dispersed (or inflated) data. Several generalizations of PR
at locations xj(0) from the initial data. We discretize time into intervals of
KdV equation with smooth initial data blow up in finite time. In this paper,
representations in terms of the initial data, a choice and realization of
o; admissible input data. Stability of the solution with
al exp]Concordance

65 or circuit-based VTB entities from input data provided by the user. RCMAG
66 with friction and with uncertain input data in quasi-coupled thermo-elasticity is
67 both numeric and symbolic input data from the user, manages it to create
68 of high level. The model reads its input data from GIS files and produces its
69 of a rational function for given interval data. Various numerical experiments are
70 the IRI model, corrected by ionospheric data measured in Almaty, the
71 the IRI model corrected by ionospheric data Keywords: Spatial distribution;
72 the review. Contemporary ionospheric data (f0 E, f0 F1, f0 F2, h&prime;F, fmin,
73 data association Keywords: Data association; Multisensor fusion;
74 periodic scattering object from known data of a scattered field. Representations
75 of using the family is that it lets data determine which model is
76 surface recharge and groundwater level data from a 2000 km2 alluvial aquifer in
77 problems; Kaczmarz algorithm; Limited-data tomography; EM geotomography
78 image reconstruction from limited-data Keywords: Linear least-squares
79 in a tailor-made Mathematica data structure (MDS). The preprocessing
80 or at all not covered the measure data with significant expenditures. To
81 was compared with the measured data, showed that the first pass
82 discrepancies found with the measured data can be explained by the presence
83 ) from the measured data at the boundary x=0;1 is
84 Weather generator; Meteorological data; Mathematical model In the paper,
85 an on-line acquisition of meteorological data from routine stations and from a
86 on production and meteorological data acquired during a period of 11
87 decomposition; Stochastic methods; Data mining; Lanczos method;
88 are free from clattering and missing data.
89 system data set and multiple model data sets. The system data set is
90 number of the available system/model data sets. Confidence-interval-based
91 behaviour by firms. Using monthly data for the 1990s, this paper presents
92 agency to provide consistent monthly data for a large number of countries
93 Smoothing data with correlated noise via Fourier
94 multtarget tracking using multisensor data association with the conventional
95 Fuzzy logic approach to multisensor data association Keywords: Data
96 A multivector data structure for differential forms and
and equations Keywords: Multivector data structure; Combinatorial topology; with instant embodiment of new data which makes it suitable for tracking Zealand using a comprehensive new data set. The theoretical framework is coefficients against observational data of salinity. The root-mean-square further work is required both in terms of data used and types of tests employed. grid Considering the importance of data transferring between different grids, maps are used for visualisation of data relationships. Several types of NN the monolith every 5min. Use of data from three adjacent non-weighing economy The availability of data for the size of the parameter distribution). The quantity of data (expressed by means of the number This implies that at least a year of data collection is required to cover the capable of reducing the complexity of data assignment process embedded in with several seasonal sub-sets of data: (1) black-box (BB) sigmoid neural to that of past schooling. Based on data from the New Zealand Census of Keywords: Parameter optimization; Data-fitting; Contractive mapping; the statistical features of the original data set. We have evaluated both the paper. In this new method, the original data is pretreated using wavelet method to 0. The coefficients of the original data are considered significant if they are increased. Detailed analysis of our data shows several features consistent validation using a single system output data set Keywords: Modelling and employed when a single system output data set is available. We propose an measurements of input and output data are not available. Therefore, problem based on the overspecified data. A numerical examples are agricultural sector in China with a panel data set comprising 30 provinces for the period, 1991–1997. A panel data model based on the production efficiencies with panel data Fast and steady economic growth provinces, and hence warrants panel data estimation. Both fixed and random a pasture grass. The percolation data are measured directly, while the estimated using daily LME copper price data over the period 3 January 1989 to transactions based stock price data for News Corporation. Carlo methods; Tracking; Probabilistic data association The Monte Carlo in a cluttered environment. Probabilistic data association (PDA), taking into
from digital atlases and published data. For summer conditions, the Lamb
Parameter uncertainty: Data quality; Data quantity Nowadays, most of the
way and the need for quantitative data as a basis for simulation. Applying
experimental data, processing raw data, plugging the results of this
been identified and validated using real data collected during greenhouse and
improvements are closer to the reported data.

surface spectra seen in the SAR data. Soliton amplitudes of \(2\)m
information is compared with satellite data for calibration and estimation of
Problems of satellite data calibration and thematic processing
from multifrequency far-field scattering data, the first built upon the point source
Calibration of remote sensing data with help of ground surveys is
Suggested GIS and remote sensing data will provide necessary information.
on the basis of remote sensing data. The developed algorithm of the
(FDA) for radar/infrared sensor data fusion. The results of simulation
dynamics for the economic time series data. In this paper, we explore the use of
simulation; Test shell; Data base; Estimation of pollutant
on the background of the shorted data because it allows numerical
regression coefficients for every shuffled data. In this way we form a confidence
results on real and simulated data are given to demonstrate their
0, because the slopes of the shuffled data are considered statistically equal to
trained with a combination of in situ data and synthetic data generated with a
network (NN) trained only with in situ data, \((2)\) hybrid physical-RBF (radial
noise The problem of smoothing data through a transform in the Fourier
it in the equation using over specified data, the problem is transformed into the
to be determined from over specified data measured on the boundary. By
model applied to the initial soliton state data generated by the Lamb model.
utilising measured streamflow data from a larger gauged catchment in
have been proposed for modeling such data. In this paper, a rich family of
of in situ data and synthetic data generated with a physical model
experiments using synthetic data.
multiple model data sets. The system data set is considered as a discrete
comparison using a single system data set and multiple model data sets. of vehicle body and axle. The test data are collected and recorded while the of generalization of the test data. also comments on the utility of the data to address the requirements of the Poisson regression methods. The data provide strong support for the idea resistance and heat exchange by the data of experimental-industrial tests of of the solution with respect to the data is proved and employed for the proof are also harder to estimate when the data involve trends. These limitations are to sift out the mode mixing part of the data from the original signal and retain from both methods. It considers the data corresponding to the building site terms when there is no drift in the data causes a major deterioration in presented. The approximations of the data are very good, but some model as well as the positioning of these data in time have a substantial influence some methods to analyse this data to determine whether typologies of and the Jura. A cluster analysis for this data-set lead to 12 classes with a high from a weather prediction model. This data-set comprises all available parameter distributions with respect to data quality and quantity is investigated parameter distributions with respect to data quality and quantity by using Monte Cellular complexes; Topological data structures This paper presents an Multitarget motion tracking; Data association problem; Hungarian identification and which track real traffic data more correctly. some challenges presented by trending data in time series econometrics. To the problem with friction and uncertain data in thermo-elasticity Keywords: is analysed. As uncertain data coefficients of stress\-\-\-\-strain growth model; Parameter uncertainty; Data quality; Data quantity Nowadays, of groundwater recharge, using data from a deep weighing lysimeter to collect calibration and validation data in order to validate spatial/temporal thus have experimented with various data sets (both test and real-world). to generate synthetic daily weather data for modelling of agricultural data with 20 years of observed weather data for five weather stations of manufacturing process steps, where data have to be smoothed or transferred models calibrated with data limited to only a small region of the to the prediction of zooplankton data, collected in the German North Sea
Evidence

190 Concordance
1 million of nodal variables to give an evidence of both numerical and parallel
2 series are nonstationary. Monte Carlo evidence is provided to show that the
3 need to be tested against empirical evidence to determine whether
4 on the Verspagen model. The empirical evidence suggests technological
5 1988 and 21 March 2003. The empirical evidence shows that the permanent
6 grown rapidly. Substantial empirical evidence of nonlinearities in economic
7 In this paper, we present empirical evidence and analytic analysis of the
8 a considerable amount of experimental evidence that unequivocally shows that
9 and Japanese corporate bond markets. Evidence is presented to suggest that
10 which causes pattern formation. Evidence is given for the fact that taking
11 but we give enough numerical evidence to support the conclusions. ,
12 data for the 1990s, this paper presents evidence consistent with the theory that
13 process in New Zealand. However, the evidence is not overwhelming and further
14 current retail price of gasoline. Some evidence is also presented that suggests
15 the neighborhood of singular points with evidence, we prove a theorem dealing

Evidences

74 Concordance
1 of the state. Also provided are some evidences which show the success of
Finding

k of fConcordance
1 are addressed: differentiation and finding a general term in a series of
2 Operators may be supported in the fault-finding process by a knowledge-based
3 Legendre polynomials A method for finding the solution of time-delay
4 deals with a constructive approach for finding local approximations to singular
5 This paper presents a new algorithm for finding an optimal Halton sequence
6 processing. We are interested in finding the best material-and-shape
7 1985, p. 148] is put to the test in finding optimal control laws for an
8 to be exceptionally powerful and is now finding acceptance in an application area
9 to the linear programming problem of finding vertices of polyhedron adjacent to
10 ACW-gradient algorithm is capable of finding solutions without making
11 problems. The inverse problem of finding solutions with singularities to
12 in many practical cases. Methods of finding model poles and residues and
13 polyhedron is established. The task of finding local approximations reduces to
14 CAD tool, QuickCap®trade;, capable of finding capacitance in integrated circuits
15 The paper discusses some problems of finding and qualitative investigation of
16 Less predictable is the remarkable finding that these coupled, non-linear,
17 are conformally mappable and this finding enables solutions to be obtained
18 how we can reduce the problem to finding the &ldquo;k&rdquo;-largest
19 Our method is applicable to finding the boundary of any regular

Findings

N Concordance
1 simulation results and the experimental findings concerning the dependence of
2 and uncertainty. Correspondingly, the findings obtained by any modelling
3 a theoretical analysis and verify these findings on the experimental test-bed.
4 signal losses were present. These findings are consistent with the soliton
Investigation

N Concordance
1 investigation of viscous fluid enforced flow
2 investigation of effect of depressant
3 This paper analyses results from an investigation into the determinants of model. We then present a Monte Carlo investigation of the tolerance of these
4 The paper discusses algorithms for investigation of the stability of
5 numerically by the implementation and investigation of regularized Newton-type
6 Computer algebra and investigation of invariant manifolds of
7 for mathematical and computational investigation of application problems. We
8 exchange in oil mixture flow Keywords: Investigation; Depressant additives; Oil
9 Depressant additives; Oil The results of investigation of the laws of hydrodynamic
10 in the SW Taiwan. The focus of our investigation is on the Pingtung plain, a
11 problems of finding and qualitative investigation of diverse-level invariant
12 the analytic and numeric stability investigation results we obtain an
13 being achieved. More recently, the investigation of this problem using
14 develops the dressing method for the investigation of the non-integrable in
15 is a computational method for the investigation of the low-energy properties
16 Stability investigation of Runge-Kutta schemes
17 A software tool for the investigation of plane loci Keywords:
18 survey we will consider ideas for the investigation of a new quality parameter
19 integrals. The proposed scheme of the investigation is mainly oriented to
20 of Lyapunov’s second method to investigation of stability of complex
21 of great interest in connection with investigation of environmental releases of

Investigations

N Concordance
1 Symbolic-numeric investigations for stability analysis of
2 used as effective tools for the numerical investigations of the solutions of general
3 presents analytical and numerical investigations of a two-plane automatic
4 systems, conduct qualitative investigations and solve some problems
Method

N Concordance
1 over the years. This paper proposes a method to solve the maintenance
2 Reduced phase spaces We present a method to calculate formal symmetries
3 \( (l_s) \)-Sequences Owen proposed a method of scrambling \((l_s, m, s')\)-nets to
4 Wavelets Quasi-regression is a method of Monte Carlo approximation
5 equations (ODEs); Source terms A method-of-lines solution algorithm for
6 with unrestricted VARs, or as a method of correcting coefficient bias
7 symplectic property. In this report a method of correcting the truncated map
8 in large-scale dynamical systems: a method of contractive mapping
9 symmetries This report presents a method of constructing approximate
10 the fuzzy pattern matching (FPM) as a method of classification and the
11 (BVAR) can be thought of either as a method of alleviating the burden of the
12 or chemical air pollutants. Further, a method is outlined to use the weather
13 observation This paper proposes a method for the on-line determination of
14 overheads are prohibitive. We present a method for solving the mesh partitioning
15 Quantum dots; Acoustic cavities A method for solving exactly the Helmholtz
16 systems; High throughput screening A method for solving the scheduling
17 However, it does not provide a method for optimization. A practical
18 Spin orbit; FET; Monte Carlo A method for Monte Carlo simulation of 2D
19 abstractions. This paper describes a method for formulating ARMAX forecast
20 Block-pulse; Legendre polynomials A method for finding the solution of
21 Finite fields; Feedback shift registers A method for determining multilinear state
22 of the Fisher information matrix, a method for a reasonable selection of
23 conditions. This paper provides a method combining particle swarm
24 A-EBDF: an adaptive method for numerical solution of stiff
25 errors be used for the r-adaptive method. .
26 In this paper, we use an algebraic method to compute the \( jx \),
27 the idea of the Schwarz Alternating Method. Numerical experiments are
28 the Von-Neumann stability analysis method we show that the proposed
29 condition if the sparse tableau analysis method is applied to the circuit.
30 were considered. Semi-analytical method was developed and applied to
31 in snow science Keywords: Analytical method; Optimisation;
32 is used in a successive approximations method. In these solvers, a
33 Poincare&dash;Lindstedt asymptotic method can be used to find asymptotic
34 this paper, a genetic algorithms based method for shaft crack detection is

233
conventional non-Bayesian or Bayesian method. In addition to some specific
as spline quadrature and bisection method. The robustness of the procedure
coefficient Keywords: Bisection method; Spline quadrature; Diffusion
Building; Modeling; Moisture; Block method; Update strategy Coupled
Adapting block method to solve moist air flow model
The CESTAC method is a Monte Carlo method which uses DSA and provides
Carlo method; Quasi-Monte Carlo method; Uniformly distributed
approach. First, we use Monte Carlo method to sample and to build much
spin is incorporated in the Monte Carlo method to account for the spin
Developing cities; Monte Carlo method This paper proposes a Monte
Direct simulation Monte Carlo method; Thermal force; Radiometric
Carlo methods Keywords: Monte Carlo method; Quasi-Monte Carlo method;
Sensitivity analysis; Monte Carlo method; Quasi-Monte Carlo method;
simulations Keywords: Monte Carlo method; Quasi-Monte Carlo method;
Mathematical finance; Monte Carlo method; Numerical integration;
Carlo method; Quasi-Monte Carlo method; Numerical integration;
devices Keywords: Monte Carlo method; Nonlinear Poisson equation;
task. The traditional Monte Carlo method (MC) applied to diffusion
Carlo method; Quasi-Monte Carlo method; Mathematical modelling Global
in developing cities by Monte Carlo method Keywords: Pedestrian delays;
The precision of the usual Monte Carlo method is O(N^-1/2), where N
Application of a Monte Carlo method for tracking maneuvering target
of interest. In this work the Monte Carlo method for stationary carrier transport,
of the semi-classical Monte Carlo method for semiconductor device
The Monte Carlo method for semi-classical charge
A novel parallel adaptive Monte Carlo method for nonlinear Poisson equation in
02.70.Lg; 72.10.-d; Monte Carlo method; Event bias technique; Variance
Keywords: Quasi-Monte Carlo method; Digital nets; Low-discrepancy
Keywords: 02; 50.U; Monte Carlo method; C.B. Haselgrove; Irrational
Shown This is a kind of Monte Carlo method but different from it in two points:
devices Keywords: Monte Carlo method; Boltzmann equation;
paper describes the Cartesian cut cell method, which provides a flexible and
methods for error evaluation; CESTAC method; Monte Carlo methods;
of functional ranges. The CESTAC method is a Monte Carlo method which
Generalized preconditioned CG method This paper addresses the use of
times with the ones of classical method. To conclude we expose the
neural networks (NN) as classification method. Other signals (grunts, metal
on diagnosis in using classification method for data coming from industrial
equation by using the collocation method with quintic splines. Applying the
Segmentation method; Collocation method Haar wavelet techniques for the
of a high-order implicit collocation method for the heat equation Keywords:
inequalities and a comparison method in the context of Lyapunov-like
(HFD) is a computational method for the investigation of the
the analysis construct computational method for the solution of the inverse
Spectral method A computational method based on Chebyshev spectral
In this paper, the proposed constraint method in conjunction with Lagrange's
with using the variable constraint method. For the large deformation
Lyapunov functionals construction method One general method of Lyapunov
the parameter space. The continuation method is used for the model
the parameter space; the continuation method, however, leads us to find
Model augmentation; Continuation method; Generalized extreme-value
parameter predictor&ndash;corrector method, which we call it A-EBDF, is
by using Adomian's decomposition method with analytic extension or,
the use of Adomian decomposition method, the prototypical, genuinely
Keywords: The Adomian decomposition method; Shallow water equations;
operations than the decomposition method. Several randomly constructed
generator Keywords: Decomposition method; Multiple recursive generator;
water equations by the decomposition method, Keywords: The Adomian
algorithm based on the decomposition method is proposed. The new algorithm
algorithm improves the decomposition method in terms of both generality and
KdV equation; Decomposition method; Fractional calculus In this
compared with the decomposition method for various computers.
of Adomian's decomposition method for the variable-depth shallow
In this study, the decomposition method for solving the linear heat
Modified decomposition method for multiple recursive random
of partial solutions in the decomposition method for linear and nonlinear partial
Domain decomposition method for contact problems with small
application of Adomian decomposition method, developed for differential
simulations; Adomian decomposition method; Compactons; Solitons With the
Keywords: Adomian's decomposition method; Burgers equation; Partial
N Concordance

106 scheduling; Cyclic coordinate descent method; Predetermined resource delivery
107 with a cyclic coordinate descent method and a knapsack reallocation
108 to the principles of a robust design method. The optimal design can then be
109 inequalities. In this paper, the design method of Formula Not Shown filter for a
110 part we will outline a recently developed method that is based on conformal
111 order only. (b) Further, the pure DGFE method of higher order is considered. In
112 A competitive implicit finite-difference method will be developed and used for
113 operator; Mimetic finite difference method; Triangular grid. The support
114 mode better than the finite-difference method. The generation, propagation,
115 65M06; Nonstandard finite difference method; Nonlocal approximation;
116 Quintic spline; Finite difference method. In this paper, we consider the
117 using a first-order, finite-difference method in the form of a system of
118 paper we introduce a finite difference method for a numerical simulation of this
119 Nonstandard finite difference method by nonlocal approximation
120 algorithm is basically a finite difference method but with a special procedure for
121 is solved by the finite difference method and unknown coefficient is
122 source parameter; Finite difference method; Additional specification
123 Unknown source; Finite difference method. A numerical procedure for an
124 software package implements a direct method with modified multiple shooting
125 are solved by means of the direct method using the Haar wavelets and
126 wavelet; Variational problem; Direct method. This paper establishes a clear
127 Legendre wavelets direct method for variational problems
128 matrix; Variational problem A direct method for solving variational problems
129 Haar wavelet direct method for solving variational problems
130 theory. In terms of Lyapunov’s direct method for multiple time-delay fuzzy
131 improve another property of the discrete method. We show that accuracy of the
132 Finite element time domain method; Frequency-dependent
133 05.45.-a; 05.45.Yv; Soliton; Dressing method; Non-integrable equations;
134 This article develops the dressing method for the investigation of the
135 direct simulation Monte Carlo (DSMC) method. We propose an
136 Shape optimization; Primal/dual method; Homogenization; Elasticity
137 determined using a grawmetric dynamic method with continuous recording of
138 find the set of conditions for which each method is more advantageous than the
139 power optimization is an effective method to improve voltage level,
140 models. In order to find an effective method for nonlinear channel blind
scheme provides a very efficient method to solve the ADR equation for reduction as well as a more efficient method for nonlinear parameter system. Variation inequality; Finite element method; Wrist; Spine; Fracture; Petrov&dash;Galerkin finite element method, with two parameters cubic coefficients. The standard finite element method with piecewise linear test and coefficients. Keywords: Finite element method; Wild coefficients; Iterative equations. A high-order finite element method, total variational diminishing employ a version of the finite element method to discretize the space of mooring lines. Keywords: Finite element method; Symmetrizable hyperbolic Genetic algorithms; Finite element method Shaft crack is a very dangerous results suggest that the finite-element method resolves the vertical structure of the equations via the finite element method, outline the Newton type iterative Discontinuous Galerkin finite element method; Numerical flux; Conservation equation by the finite element method. Keywords: Helmholtz equation; discontinuous Galerkin finite element method is used to numerically simulate conditions. A finite-element method is developed to study in space by a mixed finite element method. Integration in time by backward methods; Boundary element method. In this paper, we present a Discontinuous Galerkin finite element method. In this paper, the weak form of Thermo-elasticity; Finite element method. In the paper, the quasi-coupled modules method; Finite element method. In the paper a contact problem in Porous enclosure; Finite element method; ILU-CGM. In this study, coupled Time-stepping schemes; Finite element method; Hydraulic jump Four DTN technique; Finite element method; GMRES iterative method; discontinuous Galerkin finite element method for the 2D shallow water The discontinuous finite element method for red-and-green light models for discontinuous Galerkin finite element method for conservation laws. Keywords: solved numerically by finite element method (FEM) in conjunction with systems arising after the finite element method (FEM) discretization of the to the new finite difference element method (fdem) program package, an mesh method; Adaptive finite element method; Error indicator; Interpolation method and the finite-element method, are used in this model for the modules method and the finite element method are applied. First, the model of problem by means of finite element method and utilizes genetic algorithms obtained from a boundary element method. A good agreement is found.
Concordance

and the numerical aspects of the EMC method, the basic algorithmic
on the Ensemble Monte Carlo (EMC) method applied to device simulation, and
speeds; Boundary integral equation method To simulate media dynamics in
on the boundary integral equation method. By combination of the single-
and extensions of this state estimation method are presented. Some
method, a posterior error estimation method, and dynamic domain
at a certain time instant. An excellent method to deal with stochastic variables
Legendre expansion method for the solution of the
obstacle scattering; Factorization method We consider the direct and
bases; Numerical factorization method; Stability analysis of equilibrium
visualization by the factorization method in the case when sound-soft and
The factorization method for obstacles with a-priori
is discretized by the finite element (FE) method with conforming piecewise linear
the error estimates for higher-order FE method. The error estimates are
element (FV&ndash;FE) method. Its advantage is the use of only
often, simulation is the only feasible method because of the nature of the
on the Flux Interface Correction (FIC) method. The efficiency of this numerical
low Mach number flows Keywords: FIC method; Finite volume scheme; Low
On a fieldless method for the computation of
Intermittency test A new filtering method for data with intermittency
PDAE systems. One requirement for method-of-lines applications is that the
the use of a flexible forecasting method based on non-linear Markov
Artificial dissipator By using the Fourier method we study the stability of a
numerically by a split-step Fourier method. The first, second and
shows that the split-step Fourier method provides highly accurate
the Laplace transform and the Fourier method of variables separation were
Keywords: Split-step method; Fourier method; Generalized nonlinear
are based in the split-step Fourier method and the numerical results show
Zealand. Jorgenson and Fraumeni's method is innovative in that it simplifies
in a given set of admissible functions. Method of worst scenario is applied to
volume discontinuous Galerkin (FVDG) method, which is a generalization of the
variability. Two variants of the Galerkin method, the spectral-transform method
Keywords: Discontinuous Galerkin method; Runge-Kutta time
the atmosphere using the full-Galerkin method Keywords: Galerkin method;
discontinuous Galerkin method is investigated to solve
reasonable. The discontinuous Galerkin method is efficient.
circulation model using a full-Galerkin method is developed for the simulation of
method; Mapping functions; Galerkin method; Hermite finite elements;
method Keywords: Galerkin method; Atmosphere; General circulation
with the method of lines and the Gear method yields temporal changes in
construction method One general method of Lyapunov functionals
a preconditioned conjugate gradient method with Neumann-Neumann
the behaviour of the conjugate gradient method. The conjugate gradient method
control-variation weight (ACW)-gradient method proposed by Weinreb [Optimal
number for the conjugate gradient method Keywords: Iteration number;
preconditioned conjugate gradient method is shown to be efficient to use.
with the use of the conjugate gradient method in conjunction with an adjoint
problem Keywords: Conjugate gradient method; Function estimation; Physical
Iteration number; Conjugate gradient method; Eigenvalues When solving linear
method. The conjugate gradient method converges typically in three
is given based on a speed-gradient method. Computer simulations of the
Three versions of the conjugate gradient method are compared for the solution of
is carried out using the homogenization method. Adaptive mesh-refinement
Schrödinger equations; Hopscotch method; Periodic waves Systems of
and nonlinear optics. The Hopscotch method is applied to solve CNLS
Based on the Chen-Hsiao method [C.F. Chen, C.H. Hsiao, Haar
obtained by the Chen-Hsiao method and with the method of
a new arithmetic based on a hybrid method of chaotic particle swarm
N Concordance

A hybrid method of chaotic particle swarm and practicality of the identification method for a wide range of multivariable new method with a classical implicit method, namely the C problem Keywords: Moving index method; American options valuation

Newmark sequential integration method is employed to conduct the the most reliable numerical integration method for complicated functions. together with the Gaussian integration method are then utilized to reduce the equation based on variational iteration method, is exactly obtained. In this equation by He's variational iteration method Keywords: Variational iteration; method Keywords: Variational iteration method; Generalized RLV equation;

outline the Newton type iterative method to solve the non-linear algebraic a Gauss-Seidel type iterative method. This is compared with the conjugate gradient iterative method is used for solving of the solvers. A convergence of the iterative method is proved and results of with MC method, monotone iterative method is applied in each adaptive loop element method; GMRES iterative method; Incomplete factorization; ILUT;

of an axisymmetric tube. An iterative method based on the uncoupled mesh technique, monotone iterative method, a posterior error estimation in the method of lines Keywords: Method of lines; Convective systems; (PSOR) is a leading and well-known method. We report on experimental equation; Runge-Kutta method; Weak approximation A dynamic; Runge-Kutta method The present analysis is an second order weak Runge-Kutta method for a stochastic differential obtained applying Runge-Kutta method carries the predictions, which description of tires, the Lagrangian method was used here. Numerical methods; Data mining; Lanczos method; Eigenvalue computation In any to stream-tube analysis. The latter method involves an unknown solutions via the Poincare-Lindstedt method in the case of massless 4 theory is investigated. Based on the Lyapunov method, two new stability criteria in Multiple time-varying delays; Lyapunov method; Linear matrix inequalities In this equilibrium solutions; Second Lyapunov method An approach for by a multiple-attribute decision-making method; a technique for order a multiple-attribute decision-making method Keywords: Multiple-attribute in the breast tissue. The mathematical method consists of a dissipative wave
estimates of the numerical MC method to the EMC.

To solve the nonlinear problem with MC method, monotone iterative method is
of the solution, the Single-Particle MC method is derived in a formal way. The
known as the Single-Particle MC method, is considered. It gives a solution
thus, we call it the moving index? (MI) method. We use the so-called linear
results, which demonstrate that our MI method presents dramatic improvements
There are also cases in which the MI method continues to perform well, while
(ARS) algorithm, a global minimization method. A probability model is
the convergence of the secant modules method to the exact solution. The
inequality. Then the secant modules method is used. We prove the
contact problem; Secant modules method; Finite element method In the
is used. Then the secant modules method and the finite element method
compact difference schemes; Multigrid method; Parallel computation A new
predicted by the Lagrange multiplier method. In order to introduce the
based on the Lagrangian multipliers method. The non-linear mechanical
EBDF methods we propose a multistep method whose region of absolute
the parallel implementation of the new method with a classical implicit method,
is proposed in this paper. In this new method, the original data is pretreated
the shifted-Chebyshev series. The new method simplifies the procedure of
precision. Tested by IEEE-30, the new method provided in this paper is proved
extended to nonlinear equations. A new method of exact linearization is proposed
linear prediction In this paper, a new method is presented that offers efficient
Gauss&ndash;Newton method A new method is given to optimize parameters
Numerical results show that the new method is able to sift out the mode
one-dimensional fashion. The new method has potential applications in
set. This paper describes a new method for the construction of generator
of this paper is to propose a new method for blind equalization using
of the optimal point, the new method can improve the performance of
this context, this paper presents a new method based on the rescaled variance
will illustrate the feasibility of this new method.

A modified frozen Newton method to identify a cavity by means of
used as an initial guess for the Newton method. Numerical simulations validate
Concordance

Boundary measurements; Newton method; Nonlinear equation We here
mapping; Gauss&dash;Newton method A new method is given to
is solved by a modified frozen Newton method.
namely the Crank&dash;Nicolson method, where the parallelization is done
dynamics We present a numerical method that allows a formation of
experiment rather than as a numerical method. Recently it has been shown that
Hydro-dynamic simulation; Numerical method; Pollution Shallow north part of
developed algorithm of the numerical method of solution of the task of albedo
Carlo methods and the numerical method of Monte Carlo integration is
In this paper, we present a numerical method for the computation of surface
Integral equations A numerical method for solving the nonlinear
of R(z,t). The proposed fully numerical method can be applied for cases when
by using any well-known numerical method.
Triangular grid The support operator method designs mimetic finite difference
semi-stochastic parameter optimization method. Two cases A and B (continuous
also considered. A global optimization method is applied provided with
Runge&dash;Kutta fourth-order method (CRK), while the terms of the
in a non-stationary environment. Our method is applicable to finding the
They show that the accuracy of our method does not deteriorate and it
Discrepancy We present a particle method for solving initial-value problems
74S05; Parallel algorithms; PCG method; Preconditioner; Circulant matrix;
Spectral method for constrained linear-quadratic
using a reductive perturbation method. The dynamical equations
method of multiple-scale perturbation method is developed in a new way to
is studied using phase&dash;plane method. The effects of different
interaction of a known motion planning method, called minimum interference
problems; Regularization; POCS method; Lipschitz regularity; Wavelets;
ablation (LA) has become a popular method for production of carbon
results indicate that the present method can solve some large-scale
the main advantages of the presented method is the elimination of the
functions are utilized. The presented method does not demand the knowledge
local mesh refinement; Projection method; Variable density flows This
performed by an incremental projection method, using the original form of the
Based on the alternating projection method, the useful projection operators
model; Quadratic stability; Projection method The paper deals with the stability
of the classical Kaczmarsz’s projection method in the case of an inconsistent
local mesh refinement projection method for low Mach number flows
the numerical behavior of the proposed method, the simulation results of an
demonstrates that the proposed method results in a higher number of
blind Bayesian DFE, the proposed method presents better convergence
overall processing time of the proposed method of speech coding is a bit greater,
method we show that the proposed method is unconditionally stable. By
is presented. Approach of proposed method is to approximate unknown
The significance of the proposed method is that it relaxes most
of fault on one input. The proposed method is tested on a simulation
The effectiveness of the proposed method is illustrated by the numerical
are possible and the proposed method is feasible. The study also
as less as possible. The proposed method is computationally efficient and
initial channel estimates in proposed method. In these initial channel
study also indicates that the proposed method has the potential to solve a wide
and effectiveness of the proposed method. Finally, constraints of the
example shows that the proposed method based on the shifted-Chebyshev
Finally, constraints of the proposed method are addressed.
the parallel features of the proposed method and its implementation.
will test the accuracy of the proposed method.
show the effectiveness of the proposed method.

beyond all orders; Pseudospectral method We study the singularly
Split-step method; Pseudospectral method; KdV equation Numerical
is realized by trigonometric quadrature method. We establish convergence of
a good automatic adaptive recognition method is needed. The new adaptive
new adaptive Morse code recognition method introduced in this paper consists
A stable recovery method for the Robin inverse problem
noise affecting data. A regularization method and two GCV-type criteria are
Nonlinear model reduction — method and CAE-tool development
Projected successive over relaxation method We introduce a new technique
off-line, which ensures a reliable method with false alarm avoidance. This
heat equation. The resulting method is implicit and can be
the standard two-step method. The RK method is found to be the most efficient
fourth-order Runge-Kutta (RK) method. Both the RK method and LSODI
(RK) method. Both the RK method and LSODI are capable of
Concordance

case, we use Galerkin’s method to reduce the space. Numeric

O(N−\text{minus};r)&ge;1 for Haselgrove’s method. The aim of this report is to give

Keywords: Bifurcation; Galerkin’s method; Lyapunov–Schmidt

a more precise formulation of Baraff’s method for problems arising from

efficiency of the so called Haselgrove’s method (cf. [Math. Comp. 15 (76) (1961)]

numerical experiments of Haselgrove’s method applied to the numerical solution

The values obtained using the same method on DCMU treated samples give

are obtained by the multiple scale method. Two first-order ordinary

framework combines the weak search method with the knowledge

of theorems of Lyapunov’s second method to investigation of stability of

systems; Gyroscopic forces; Second method of stability theory; Computer

approach—the segmentation method—is developed. Five test

Differential equations; Segmentation method; Collocation method Haar

A simple method for computing the entropy of the

paper presents an analytical simulation method that can be used for the

An improved simulation method for pricing high-dimensional

the use of a Monte Carlo simulation method based on the Kolmogorov and

should make use of which solution method.

the first built upon the point source method proposed by Potthast for solving

implementation using the point source method can be viewed as a generalized

obstacle scattering: the point source method and generalized filtered

numerical simulation using a spectral method. We will first present an overview

long wave equation; Galerkin spectral method We develop a

wave equation via a Galerkin spectral method Keywords: Localized waves;

method based on Chebyshev spectral method is presented to solve the

algorithm implementing the spectral method is developed. The rate of

and implement a fully discrete spectral method for the numerical solution of a

Chebyshev polynomials; Spectral method A computational method based

Sequential step tests; Least squares method This paper presents a novel

The typical methods are two-stage method of moments (TSM) and nonlinear

Fisher equation, a fractional-step method, where the reaction and diffusion

of ODEs in the standard two-step method. The RK method is found to be

KdV equation Keywords: Split-step method; Pseudospectral method; KdV

Advection; Diffusion; Two-step method Numerical models of reactive

step in the ?standard? two-step method is shown to be a special case of
equation Keywords: Split-step method; Fourier method; Generalized

devices; Simulation The stochastic method used to simulate the stationary

were solved. Moreover, the suggested method is applicable for a wide area of

is the only appropriate and suitable method of solution. In this paper, we

from the popular response surface method. The smoothing algorithm which

213; The simulation&ndash;tabulation method for classical diffusion Monte

ion equations; Tanh method The tanh technique is used to

Integrated circuit packaging; Taguchi method The simulation model is a proven

dissipation have been studied. The tanh method is used as a perturbation

tends to infinity. Furthermore, the method will be seen to be more

As verification of the method, we tabulate the h-conditioned

algorithm. An important feature of the method we present lies in its validity for

by trigonometric polynomials. The method was tested by comparing

of one scattered acoustic wave. The method uses a sampling set of surfaces

is formulated and discussed. The method used is based on the weak

from our recent application of the method to the study of the density

that simplify the implementation of the method. To show the numerical behavior

equation; Pion Meson equation The method suggested in the manuscript

The problem of generalisation of the method presented to the case when the

Pontryagin?S maximum principle. The method of spherical harmonic series is

method and with the method of piecewise constant

close frequencies is examined. The method of multiple scales is used to

excitations is studied and solved. The method of multiple scale perturbation

Optical soliton; Nonlinear damping The method of multiple-scale perturbation

error analysis for PDEs, or the method of modified equations, is a useful

local Lagrangian form we extend the method of Marsden, Patrick and

the Signorini condition. We use the method of lines to obtain numerical

of a PDAE network model, if the method-of-lines approach is not

Upwinding approximations The method of lines (MOL) is a procedure for

apply DAE numerics also to PDEs. The method-of-lines (MOL) approach for the

Upwinding in the method of lines Keywords: Method of

of the governing equation with the method of lines and the Gear method

is proved in the general case by the method of interior boundaries. In doing

social, ecological, and economic. The method of integration of the system
modified wave equation is solved via the method of finite differences. One aspect
problems is presented. Using the method of dependent tests a successive
the transport part can be dealt with the method of characteristics, the efficient
the use of a local version of the method of characteristics,
A further possible application of the method leading to exact treatment of the
approach reveals novel properties of the method. It is shown that the method can
theory. The results reveal that the method is very effective and convenient.
methods in the literature. The method is used to determine the impact
mismatches not caused by faults. The method is tested via simulation on the
process is manifested well. The method is suitable for the shorter interval
electrons in disordered solids. The method is related to the
components. The convergence of the method is illustrated numerically.
extensions. For the first time, the method is extended to nonlinear
the breast tissues. Moreover, the method is experimentally verified to have
conforming grid. The development of the method is described with applications to
equations into algebraic equations. The method is computationally attractive, and
constructed for a specific view point the method is best suited to situations
integral equations is presented. The method is based upon Legendre wavelet
polynomials are presented. The method is based upon expanding various
by minimizing of the cycle time. The method is applied to high throughput
for one or a few incident fields, i.e. the method is a natural one-wave-method. In
to show the robustness of the method. Furthermore, achieved parallel
method. We show that accuracy of the method for quadratic functions improves
Diophantine approximation. The method extends techniques currently
initial conditions. The application of the method demonstrated that the partial
series of unknown parameters. The method converts the optimal control
of parameters is suggested here. The method chooses the most sensitive
of the method. It is shown that the method can be interpreted as a
to ideal solution (TOPSIS). The method assumes that the control factors
second and fourth-order versions of the method are presented. A classical
(HF) Hamiltonian. The properties of the method are discussed for the example of
state-control inequality constraints. The method approximates each of the
We establish convergence of the method and prove error estimates in a
to illustrate the performance of the method.
models to more complex models. This method works successfully when the computer time. However, this method works only if the diffusion to finance problems. By using this method, we achieve 6500 times faster equations with source term. Using this method, the solutions were calculated in method, is exactly obtained. In this method, the solution is calculated in the show the efficiency and stability of this method. The numerical simulations are to certain non-linear equations. This method predicts the existence of from the values of the moments. This method of proof may be applied to many solve problems of integrability. This method of factorization of differential simulation of this equation. This method is second-order in space and of the Painlevé chains obtained by this method is limited by the appearance of the surface and bottom variations. This method is computationally very efficient Section 1, we give a brief sketch of this method. In Section 2, we will explain is used to compute the solution. This method has second-order accuracy with theory of sallow water. Using this method has allowed to study storms of models of interval uncertainty. This method gives an optimal interval solution on buffered banyan networks. This method comprises the probabilistic (RLS) adaptive filtering algorithm. This method can be successfully used in on Mathematica, it is outlined how this method can be brought to bear on include the incremental learning in this method, and we compare the obtained function, we study the stability of this method and present some numericals our goal is to considerably simplify this method and find the unknown scatterer transformations used earlier. This method allows us to constructively study We discuss two versions of this method: (a) Finite volume discontinuous Galerkin method, the spectral-transform method and the finite-element method, idea of the hodograph transformation method, which exchanges the applications Keywords: Stream-tube method; Mapping functions; Galerkin Although the Gauss–Seidel-type method to be developed in this paper is Urine; Urethra; Bladder; Uncoupled method; Non-linear; Continuum; we present a general and unified method for investigating the general
a modified sequential dummy variable method is developed. The empirical
compliance; Constrained vibrations; Method of lines. We present and
Appl. Math.] a rather tricky visualization method is described to determine the
problems. Keywords: Finite volume method; Unstructured triangular meshes;
Axisymmetric; Finite volume method. Modeling of non-linear
A quasi-random walk method for one-dimensional
i.e. the method is a natural one-wave-method. In the pilot paper [SIAM J. Appl.
original data is pretreated using wavelet method to avoid the mode mixture in the
that the single-term Haar wavelet method (STHW) is better than the
Legendre wavelets method for the nonlinear
[C.F. Chen, C.H. Hsiao, Haar wavelet method for solving lumped and
Plasma fluid; Implicit Lax-Wendroff method A Lax-Wendroff type
Methods

Concordance
1 and forecasting work, where adaptive methods are often used to help keep
2 either simple explicit and ADI methods, respectively. The
3 with the application of computer algebra methods to the analysis of systems of
4 Computer algebra methods for implicit dynamic systems
5 Hamiltonian maps; Lie algebraic methods; Symplectic maps; Exact
6 differential equations; Lie algebraic methods; Computer algebra;
7 problems as compared to alternative methods from the literature. .
8 By combining numerical and analytical methods we prove the existence of
9 in time domain. General semi-analytical methods and numerical solutions of
10 solution is then constructed and methods of the indifference zone
11 combine different efficient models and methods for timing analysis of single
12 We use a combination of asymptotic methods and the rigorous results
13 a review of some currently available methods and algorithms which have
14 Carlo and cubature rule based methods for solving high-dimensional
15 aspects of the particle-based methods for simulation of charge
16 Research performance Bibliometric methods for analysing and describing
17 and the performance of block methods is evaluated. Finally, a robust
18 physical problem, main ideas of block methods are presented. Then splitting of
19 that combines advantages from both methods. It considers the data
20 85.60.-q; 87.59.-e; Monte Carlo methods; X-ray; Pixel detector;
21 eigenvalues using parallel Monte Carlo methods. We apply these methods to
22 Model bootstrap filter; Monte Carlo methods; Tracking; Probabilistic data
23 by Monte Carlo (or quasi-Monte Carlo) methods. These indices are used for
24 observables; Monte Carlo methods The Monte Carlo (MC)
25 to the success of quasi-Monte Carlo methods. The Halton sequence is one of
26 are a variant of ordinary Monte Carlo methods that employ highly uniform
27 Weyl sums; Quasi-Monte Carlo methods; (t, m, s)-nets;
28 variation Keywords: Monte Carlo methods; Runge\ndash;Kutta methods;
29 data association The Monte Carlo methods provide a possibility for
30 Keywords: Quasi-Monte Carlo methods; Low-discrepancy sequences;
31 simulation Keywords: Monte Carlo methods; Low-discrepancy sequences;
32 integrals by quasi-Monte Carlo methods Keywords: Monte Carlo
CESTAC method; Monte Carlo methods; Functional range evaluation

Recent hybrid-Monte Carlo methods designed for high dimensional
of Monte Carlo and quasi-Monte Carlo methods, because their power degrades
Halton sequence Quasi-Monte Carlo methods are a variant of ordinary Monte
between physically-based Monte Carlo methods and the numerical method of
and efficiency in many practical cases. Methods of finding model poles and
Developments in Cartesian cut cell methods Keywords: Cut cells; Finite
comparable to the time the classical methods need.
Numerical solution; Collocation methods; Laplace transforms; Actuarial
equation Keywords: Implicit collocation methods; High-order compact scheme;
to t using polynomial spline collocation methods and then inverting numerically.
operators, communication methods, and local search procedures
HLL-MUSCL and composite methods are implemented on
combination of computational methods and recent algorithmic
to be efficient to use. The considered methods are applied to the solution of
by supplementing conventional methods with a procedure of contractive
tuned and maintained by conventional methods. Software teams in the
or block Jacobi&Davidson methods are used. There exist
that was captured are described. Methods used to categorise and
Instead of using deterministic methods to find the required number of
triplets using standard deterministic methods. Second, we investigate how
This is our starting point to develop methods based on Lécot's approach [C.
Shrödinger equation; Finite difference methods; Solitons The coupled nonlinear
products for mimetic finite difference methods on a triangular grid Keywords:
author's nonstandard finite difference methods form the basis for this
systems. These difference methods are constructed based on the
amplifiers We show here different methods to demonstrate the intrinsic
paper. Comparison between different methods from theoretical elegance to
do the products. Two different methods are used to cancel
(SSP) time discretization methods (also known as
bases and Lie-group discretization methods.
a modification of A-BDF and EBDF methods we propose a multistep method larger than those of A-BDF and EBDF methods.

systems whereas many efficient methods have been developed for r-adaptive finite element methods using various error indicators genetic algorithms and finite element methods to detect shaft crack for Geometric integrators; Finite element methods In this paper we develop the for the r-adaptive finite element methods based on moving mesh partial This algorithm employs finite element methods and iteratively solves smaller Meshless methods for conservation laws burdensome. Alternative estimation methods do not require fully specified about fault detection and isolation (FDI) methods by the use of neural networks. schemes have been previously found for methods with up to five stages and up to Normal form methods for symbolic creation of jump problem, are solved by the four methods, respectively. The numerical speeds and the stabilities of the four methods are compared.
to traditional boundary fitted grid methods. The Cartesian cut cell equations based on Lie group methods. Since this approach requires multivariable process identification methods, it is universally applicable to modelling of electrostatic imaging methods. In the first part we will survey structure. Efficient implementation methods are suggested.

Simulation methods in ruin models with non-linear An assessment of such intervention methods has clinical importance. One accurate solutions. Classical iterative methods with these schemes are scheme; Matrix inverse; Iterative methods; Parallel computers We at each time step with a few iterative methods and their performances are stability) than some well-known methods in the literature. The method is and compare it with already known methods and apply it to some particular strong-stability-preserving Runge-Kutta methods Keywords: Evolution; Optimal; Carlo methods; Runge-Kutta methods; Discrepancy We propose a as the Hurst exponent. Although many methods have been proposed to deal of the monotone iterative as well as MC methods. Numerical results for vehicle model. In field measurement methods, an experiment is designed to
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97 conservation laws Keywords: Meshless methods; Euler equations; Smooth
to the presentation of new meshless methods based on the introduction of a
grid. Numerical results, with multigrid methods implemented on a shared
prediction by multivariate next neighbor methods with application to zooplankton
Prediction; Plankton; Next neighbor methods In the context of non-linear
has shown that there is a need for new methods to collect calibration and
perturbation; CAE-tool; NEON New methods for nonlinear model reduction of
the two different types, design new methods, and aim to identify which
high-dimensional spaces. Other NN methods would be very difficult to use
a combination of symbolic and numeric methods, which is very well suited for
Using various analytical and numerical methods originally devised to obtain this
Quasi-randomized numerical methods for systems with coefficients of
First steps towards numerical methods for solving NSCL-problems
study We implement several numerical methods for computing the solution of
differential equations; Numerical methods; Cache utilization; Parallel
fast and sufficiently accurate numerical methods are used and (ii) the models
used in the selection of numerical methods and in the development of
compared with well-known numerical methods.
difficult to solve [I]. That is why, lots of methods focus on the optimization
this purpose. The core consists of methods and services that enable an
approach: a focused review of methods and applications Keywords:
Comparison of split-operator methods for solving coupled chemical
We analyze first and second order methods which use quasi-random point
an intricate system for which the other methods failed and it has given global
not controllable. The application of our methods to the prediction of zooplankton
generalize classical weighted particle methods for conservation laws and
topography; Geometrical perturbation methods; Boundary element method In
elementary stable nonstandard (PESN) methods, having the same qualitative
In contrast to non-local prediction methods, next neighbor techniques are
production than alternative prediction methods including an "energy
dynamics, next neighbor prediction methods have been successfully applied
that are difficult for the previous methods.
Nagumo's equation Probabilistic methods are presented to solve Sequential quadratic programming methods This paper describes the two types of subspace projection methods for such equations. One in of two-component fluid flow. Projection methods are used for solving the are given to illustrate the proposed methods. dispersion; Pseudospectral methods The problems under often not known. Unlike pseudorandom methods, the accuracy of a quasirandom of the split-step and the pseudospectral methods for solving higher KdV equation transform and the pseudospectral methods are used to investigate this we find that some of the QMC methods show reduced variance and we observe that some of the QMC methods not only generalize to high Dividend barrier strategies; QMC methods In this paper, a collective risk . In this article, we present QMC methods for the approximate solution of alternative to analytic or quadrature methods. It has been recognized through kernels; Collocation and quadrature; Methods In this paper, we present an in time-to-accuracy using quasirandom methods can be as large as several classical deterministic or randomized methods for this type of a problem. In developed model order reduction methods for fast simulation of large-scale numerics. Adaptive mesh refinement methods are explored to overcome these work utilizes Poisson regression methods. The data provide strong with different ridge regression methods is made. The methodology is for the no-response test and related methods Keywords: No-response test; can be used to work with related methods as the range test Inverse fluid flow problem; High-resolution methods; Moving interface This work is High-resolution methods for two-component fluid flow equations and high-resolution methods are used for solving the In contrast to previous sampling methods, this approach does need to with the usage of space satellites, methods of remote sensing, and proper level using general random search methods. This procedure is based on gradient based analytical search methods including the difficulty in In this paper, we discuss several methods for quasirandom empirical Solution quality of random search methods for discrete stochastic
Concordance

161 Macro-economic dynamics; Shooting methods; Numerical techniques This derived from the application of similarity methods since general solutions to the
162 for certain Monte Carlo simulation methods. The algorithm is based on
163 of the most important class of solution methods for image reconstruction
164 Lagrangian trajectory simulation methods for calculation of the mean
165 design. These constraint-solving methods have been evaluated through
166 (QE). The new constraint-solving methods derived from these techniques
167 have illustrated these constraint-solving methods are useful for gaining insights
168 technology and proposes some methods to analyse this data to
169 that stems naturally from spectral methods when Fourier series expansions
170 35J05; Legendre polynomials; Spectral methods; Helmholtz equation;
171 Analytical solution Tau spectral methods and Adomian’s decomposition
172 (PDE); Boundary problems; Spectral methods; Analytical solution Tau
173 quadratic programming (SQP) methods. Partial derivative matrices
174 by the well-developed least squares methods. The significance of the
175 of NN are compared with statistical methods for the classification of the
176 as well as comparison of the stochastic methods proposed are presented.
177 Directed interval analysis; Stochastic methods for error evaluation; CESTAC
178 value decomposition; Stochastic methods; Data mining; Lanczos method;
179 Sylvester equation; Subspace methods; Invariant subspaces We will
180 Adaptive synchronization methods for signal transmission on
181 Hamiltonian systems Symplectic methods for integrating canonical and
182 partial differential equations with tau methods Keywords: 35C10; Partial
183 and control-oriented realizations. The methods have been programmed and
184 But unfortunately, almost all the methods from the ART class give
185 Numerical results illustrate the methods for radionuclide migration and
186 Remote sensing Here are described the methods for calculation of the parameter
187 The numerical results show that the methods based on both interpolation
188 SYMBOLOIC toolboxes. Via NEON the methods are here applied to a structural
189 mesh partial differential equations. The methods are compared with a careful
190 equations have been developed. The methods are based on singular
191 long securities are used to illustrate the methods.
Monte Carlo methods. We apply these methods to the initial matrix and also to under critical intensity. Using these methods the temperature field. The common feature of all these methods is the error equation that allows time series. We generalize these methods, in particular, theoretical analysis of these methods as well as numerical results random variate generation where these methods are used to produce a single of cavity soliton trajectories. These methods are based on one hand, on the of implementation are given. By these methods, a large dimensional system both be effectively represented. Three methods are presented to convert fluid within each time step. Unlike traditional methods, the proposed scheme provides numerically using Fourier transform methods and a high order compact finite as total-variation-diminishing or TVD methods) are popular and effective Parametric resonances Two methods (the multiple scales and the roughness; Power spectral density Two methods, i.e. computer simulation and Image processing We outline two methods for obstacle reconstruction from The results obtained by these two methods are in excellent agreement. The in the view of sensitivity analysis. Two methods are compared: Differential agreement is found between the two methods. To adapt Runge-Kutta type methods for Itô equations, we propose to Second order weak Runge-Kutta type methods for Itô equations Keywords: model have been proposed. The typical methods are two-stage method of Numerical methods of reconstruction of optical In the last decade so called universal methods have been developed for these explain the observed behavior we use methods of Hamiltonian dynamics, first Mixture of Gaussian laws Using methods from computer algebra, problems Four typical finite volume methods, the Roe-MUSCL, Roe-Upwind, A comparative study of finite volume methods on unstructured meshes for
Methodology

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1 index The present paper describes a methodology proposed for surface runoff
2 Semi-stochastic optimization A methodology for the design of
3 net handles symbolic tokens. Then a methodology for the modelling of batch
4 examples illustrate the design methodology.
5 to immune model-based fault diagnosis methodology for nonlinear systems is
6 introduced and some new econometric methodology is suggested for analyzing
7 differential equation An efficient methodology of estimation of parameters
8 in a physically oriented modeling methodology. Modeling languages like
9 model with exogenous input (NARMAX) methodology, two engineering
10 results show that the proposed methodology provides an effective and
11 for the application of the proposed methodology. Herein, optimization and
12 to show the efficiency of the suggested methodology.
13 Switch; Petri net; Estimation The methodology of switched LAN models
14 ridge regression methods is made. The methodology is illustrated with a simple
15 (SDE) is presented in this work. The methodology is based on the concept of
16 of batch processes is proposed; in this methodology the upper level describes
17 The incremental unknowns methodology appears well suited to

Methodologies

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1 of EAs. The integration of these two methodologies for the multi-objective
Modeling of the wet end part of a paper mill with Dymola Keywords: Paper library for thermohydraulic, pulp and paper systems. Up to now, the model on the physical modeling of AssiDomän paper mill in Frövi (Sweden). This project reconstruction, stated in a companion paper, can be reduced when the acoustic source strength. In the current paper, we minimize the power required independent variable. In the current paper, a continuous time — two of a paper mill with Dymola Keywords: Paper mill; Modeling; Object-oriented analysis, but it really appears. In our paper, we give a brief of the results. The activity in the equity market. In our paper, we examine whether insiders? a natural one-wave-method. In the pilot paper [SIAM J. Appl. Math.] a rather the case that we analyze in the present paper. We start with a theoretical a maneuvering target. In the present paper this algorithm is further extended strategy; Moving obstacles The present paper studies the problem of control and optimization problem. The present paper proposes to solve the for the multiple responses. The present paper predicts the system performances this model is in the focus of the present paper. In particular, we discuss a state of the aging material. The present paper develops a numerical procedure to Topographic index The present paper describes a methodology multiple linear programming. In present paper, a simple approach is proposed for that the results discussed in the paper would enhance our understanding A priori vacation probability In the paper we focus on the class of M/G/1 described in the last part of the paper we compare the above mentioned Electrical circuits The authors of the paper together with their colleagues have eigenvalues are distributed. In the paper, this is explained by proper data; Mathematical model In the paper, the weather generator WGENK Finite element method In the paper, the quasi-coupled semi-coercive different fluids is addressed in the paper. The problem is solved by Rössler systems. At the end of the paper, synchronization in larger arrays of model description are presented in the paper. Since transfer functions are complex than those for control, the paper shows that diagnostic models for the set of test cases described in the paper. Reflected shock waves interact
open to question. For this reason, the paper provides a qualitative comparison to be risky entities. For this reason, the paper provides a comparison of monthly a Bayesian approach. Furthermore, the paper proves that we can get a better model includes the wet end part of the paper process, that is the approaching adjacent to the zero vertex. The paper presents Nipp polyhedron rotor; Synchronisation; Simulation The paper presents analytical and numerical Equation of motion; FEM The paper presents a simplified mathematical Stochastic project simulation The paper presents a heuristic for resource the particle swarm optimization, the paper presents a new arithmetic based ensembles; Soliton interaction The paper is focused on the details of the as well as numerical solution. The paper is devoted to the non-unique on the macroscopic properties. The paper is devoted to the shape Grid alignment; Shock wave The paper is concerned with the grid Limiting of order of accuracy The paper is concerned with the numerical Spine; Fracture; Biomechanics The paper is concerned with the numerical research has for Australia's future? The paper is based on a study of three modelling techniques used in the paper is also briefly introduced. ergodicity and stochastic property, the paper introduces chaos mapping into the by Nguetseng and Allaire, the paper introduces an alternative approach Strong convergence; Simulation The paper introduces an approach for the dynamic models are noted and then the paper focuses on the estimation of modelling; Heat exchangers The paper extends object-oriented modelling models on track as trends evolve. The paper discusses these broader issues mechanics; Invariant manifolds The paper discusses some problems of stability theory; Computer algebra The paper discusses algorithms for Simulation; Road; Traffic; PIM The paper describes the development, Wind tunnel experiments The paper describes the effects of random expert systems are reviewed and the paper describes the work to create a energy density; Christensen stress The paper describes the intention of the Padé approximation; PIPESIM The paper deals with the verification of three of transcendent transfer function The paper deals with different pipeline models currents or even flash-overs. The paper deals with the behaviour of a single
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65 equation; Collocation schemes The paper deals with the mathematical and Solitons; Laser propagation The paper deals with the generalized 1+1 analysis; Chance constraint The paper deals with the problem of of non-linear elliptic equations The paper deals with the homogenization of stability; Projection method The paper deals with the stability analysis of eigenfrequency is demonstrated. The paper contains examples of simulation of polynomial equation solving. The paper contains an exhaustive Adaptive mesh refinement The paper consists of three parts. In the first Synchronization; Manifolds; Chaos The paper combines theoretical analyses The benefits of the approach of the paper are illustrated by two specific to the technology leader (USA). The paper applies two different time series velocity field employed in the paper. An explanation of these by seven leading rating agencies. The paper also provides a novel analysis of assignment of instances to tiles. The paper aims at an effective description of method; Finite element method In the paper a contact problem in non-linear three-dimensional (3D) structures. This paper will address some of the most economies (SITEs) analyzed in this paper were colonised, and had depended and in data compression. In this paper we used the Computer Algebra determinants; Algorithm In this paper, we use an algebraic method to extension function theorem, in of this paper, we try to present the theory of cubic systems; Center problem In this paper, we study a family of nilpotent Solitons; Phi-four equation In this paper we study two generalized forms of Finite element approximation In this paper, we study a one-dimensional as a basis of a subspace. In this paper we review the two different types, effect; Stochastic algorithms In this paper, we review recent results Programming; Future trends In this paper we review the current state of the learning in real time difficult. In this paper, we recall the principle of the FPM be further used in constructions. In this paper, we pursue the development of a instead of sigmoidal-like ones. In this paper, we propose complex functional complexity and new problems. In this paper, we propose a Pareto approach Carlo; Dynamic programming In this paper, we propose an estimator for annealing; Random search In this paper, we propose a framework for
and suitable method of solution. In this paper, we propose different conceptual
Hexagonal traveling waves in this paper we produce numerical, genuinely
and quadrature; Methods In this paper, we present an algorithm for
this paper adds to the debate. In this paper we present two contributions to
the -dependent error in WOS. In this paper, we present empirical evidence
equation; Integrable systems In this paper, we present relations between
Cracks; Inverse problems In this paper, we present results concerning the
transformations; Newton problems In this paper, we present an algorithm to
stages and up to fourth order. In this paper, we present new optimal
equations Abstract (English): In this paper we present a general and unified
chambers; Control system In this paper, we present the modeling of the
Boundary element method In this paper, we present a numerical method
solver; Abstract machine In this paper we present MILONGA, a language
triangulation; Parallel computing In this paper, we present a new approach for
in semiconductor plasma. In this paper, we present results of a numerical
user-friendly interaction. In this paper, we model the complete cycle of
the commutator AX&minus;XA In this paper, we look at a particular case of
Quasiperiodic solutions In this paper we investigate the emergence of
initial data blow up in finite time. In this paper, we investigate the effect of
matrices; Fredholm’s alternative In this paper, we investigate periodic solutions
Aquaculture; Network model In this paper, we introduce a network
fiber with linear birefringence. In this paper we introduce a finite difference
properties of the scheme. In this paper we initiate a backward error
equilibria; Linear feedback rule In this paper, we implement an adaptive search
for this type of a problem. In this paper we give a short introduction to the
in the physical literature. In this paper, we give a simple rigorous proof of
Rigid body simulations In this paper we give algorithms for solving
the economic time series data. In this paper, we explore the use of nonlinear
estimation; Wavelet coefficient In this paper, we examine the finite-sample
modeling; Model exchange In this paper we discuss an object oriented
estimator is worth pursuing. In this paper, we discuss several methods for
to the programmer and end-user. In this paper, we discuss compiler technology
Finite element methods in this paper we develop the Lagrangian and
to communicate between them. In this paper we describe the tools to share
LDOS; Green’s function in this paper we describe a Monte Carlo
fast wavelet transform (FWT). In this paper, we describe the structure of
synchronization will be possible. In this paper, we deduce adaptation laws to
Unconditional convergence in this paper, we consider a strongly coupled
detection; Spiky deconvolution in this paper, we consider a wavelet based
spline; Finite difference method in this paper, we consider the solution of the
important role in that transition. In this paper, we consider interactions between
Resolvent MC (RMC) algorithm in this paper, we consider Monte Carlo (MC)
Homoclinic connection in this paper, we consider a two-dimensional
to each other (i.e. pairwise). In this paper, we consider the general case in
studied carefully and sufficiently. In this paper, we conduct a Monte Carlo
have never been studied so far. In this paper, we compared the finite sample
au equation in this paper, we begin to develop a theoretical
solutions; Finite element In this paper, we are concerned with an elliptic
type of computer simulations. In this paper, we are concerned with parallel
Matrix extension; Multiwavelet in this paper we are interested in discuss the
for controlled systems. In this paper, we are pointing out two
and understanding their limits. In this paper, we analyse finite nanowire
case error; Quasi-Monte Carlo in this paper various measures for the uniformity
asymmetry; High frequency data This paper uses high frequency data to
equation blows up in finite time. In this paper, two numerical schemes: the
mellitus patients is carried out in this paper. Two matrix models are proposed
in real world engineering problems. This paper tries to bridge the gap between the
and field measurement, are used in this paper to investigate dynamic pavement
or by a sequential algorithm. In this paper, this approach is extended to the
case of this general form. In this paper, these two approaches are
source; Concentration field in this paper there is proposed analytical
Galerkin finite element method in this paper, the weak form of the
set-theoretic approach. In this paper, the uncertainty in the physical
employing neural networks in this paper. The testing of the scheme is
Time delay; Fuzzy systems in this paper, the Takagi–Sugeno
splitting Abstract (English): In this paper the splitting error arising in the
of nonlinear stiff problems in this paper. The simulation result shows that
Laplacian operators. In this paper the resulting condition number is
Computer simulation in this paper, the proposed constraint method in
self-feedbacks is proposed in this paper. The proposed algorithm gradually
pollution model will be discussed in this paper. The principles used in the
after appropriate approximations. In this paper, the precalcination degree is
Fault diagnosis; Neural network in this paper, the neural networks of fault
aluminium targets is presented in this paper. The models of interactions for the
non-ferrous metals. In this paper, the market for 3-month LME
to study the nature of the load. In this paper the load is investigated through the
interval uncertainties is given in this paper. The improved bound is obtained,
Integro-interpolational schemes in this paper, the full dynamic model describing
Porous media We address in this paper the efficient estimation of
theory; Linear matrix inequalities in this paper, the design method of Formula Not
computation is also proposed in this paper. The computational complexity
dynamic equations is developed in this paper. The basic idea is that the state
on modelling financial volatility, this paper tests the significance of
fuzziness degree for a fuzzy set. This paper studies the entropy calculation of
some potential benefits are lost. This paper starts from the observation that
which are discrete in time. In this paper, several new theorems on the
most popular tourist destinations. This paper reviews the development of the
(large aspect ratio) meshes. This paper reviews stability results of several
variables; Operational factors This paper reports the results of experimental
computing; History of computing This paper provides some reflections on the
running under normal conditions. This paper provides a method combining
Based on the robustness criterion, this paper provides a new way to deal with
areas, including automatic control. This paper provides a review of some currently
low order kernel in small sample. This paper proposes to select the bandwidth
models remains a heavy work. This paper proposes neural networks. high clutter tracking environment. This paper proposes an association algorithm. dispatch; Hydroelectric system This paper proposes a novel hybrid chaotic splitting; Linear stability This paper proposes a split cosine scheme. techniques over the years. This paper proposes a method to solve the and cyclic boundary conditions. This paper proposes a solution that is based form description; State observation This paper proposes a method for the on-line cities; Monte Carlo method This paper proposes a Monte Carlo model to simulation models. This paper presents the results of analysis of the parallel system. This paper presents the approach that has Thermal climate; Climate model This paper presents some results from a Using monthly data for the 1990s, this paper presents evidence consistent with without physical experimentation. This paper presents both a theoretical and Topological data structures This paper presents an extension of a but in most cases not applicable. This paper presents an analytical simulation ARS algorithm; Stopping rule This paper presents an analysis of an Time-varying system tracking This paper presents an adaptive RBF network techniques; Investment models This paper presents an approach for analysis; Time-varying plants This paper presents an indirect adaptive step tests; Least squares method This paper presents a novel technique for equation; Biharmonic equations This paper presents a formula expressing level of confidence. Finally, this paper presents a systematic procedure Stick-slip; Free-surface flow This paper presents a vel for global sensitivity analysis. This paper presents a new version, a family of scrambled sequences. This paper presents a new algorithm for conflicting results. In this context, this paper presents a new method based on modelling; Catchment scale This paper outlines results of a sensitivity Terrestrial and riparian ecology This paper outlines one component of a study (CST) has been introduced in this paper. It has been implemented in the a fast convergence. The purpose of this paper is to derive an orthogonal ECLMS causality; VAR The purpose of this paper is to analyze in bivariate vector the global climate. The purpose of this paper is to analyse the trends and
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225 isolation; Residuals The goal of this paper is to emphasize both the
226 Underwriting The purpose of this paper is to examine the impact of a 1993
227 Bayesian likelihood The purpose of this paper is to propose a new method for
228 of humans and animals. The aim of this paper is to build up an intelligent alarm
229 convex hull The main purpose of this paper is to state some sufficient
230 (GP) algorithm. The purpose of this paper is to evaluate the performance of
231 Hybrid simplex GA The purpose of this paper is to derive a hybrid simplex
232 Monte Carlo; InP The aim of this paper is to review and discuss the most
233 Economic reform The purpose of this paper is to study relative developments
234 Parallel programming The point of this paper is to review recent theoretical and
235 the textile industry. The scope of this paper is to present a HPC architecture
236 the new method provided in this paper is proved effective and practical in
237 method to be developed in this paper is implicit by construction, it
238 hydrodynamics; Renormalization This paper is devoted to the presentation of
239 models; Set-theoretic approach This paper is concerned with the problem of
240 and mechanical transmission. This paper is concerned with the
241 Legibility; Spray-coating This paper is concerned with the trajectory
242 systems; Bottom topography This paper is centered at deriving and
243 solution; Exact linearization This paper is based on a uniform theory of
244 model in volatility; GARCH; Jump This paper investigates whether there are
245 model; Volatility forecasting This paper investigates the use of a flexible
246 indicators; Unit roots This paper investigates the long-run
247 euro areas but no clear yen area. This paper investigates the prospect of a
248 with regard to volatility and risk. This paper investigates the volatility of a
249 problem is proposed in this paper. In this new method, the original
250 time scheduling; Priority rules This paper identifies and characterizes
251 easily than the original problem. This paper gives explicit results that simplify
252 error evaluation is proposed in this paper for a statistical computation of
253 Linear matrix inequality This paper focuses on the problem of
254 which are described in this paper. Firstly, a new graphical user
255 Twisted GFSR generator This paper extends the idea of serial tests by
256 networks Abstract (English): In this paper, exponential periodicity and

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257 R&D analysis; Simulation tests This paper explores the economic
258 of technological change on growth, this paper examines whether Singapore is
259 experienced within a region, this paper examines the suitability of
260 unobtrusive ankle transmitters. This paper examines the technical aspects of
261 reduction in production input. This paper estimates production efficiency in
262 theory; Gasoline; Pricing behaviour This paper estimates models for the retail
263 Variational problem; Direct method This paper establishes a clear procedure for
264 short-term response well. This paper employs models of a catchment in
265 zone; Unconfined coastal aquifer This paper employs a two-dimensional
266 due to changes in meteorology. This paper discusses the spatial distribution
267 factorization; ILUT; ILUTC; ILU0 This paper discusses 2D and 3D solutions of
268 model; Temperature field In this paper different aspects of laser-material
269 methods; Numerical techniques This paper describes two alternative
270 with its linearised counterpart. This paper describes the FastDer++ library
271 scientific simulation development. This paper describes the ACL projects now
272 performed using sonar sensors. This paper describes the control architecture
273 quadratic programming methods This paper describes the functionality and
274 mill; Modeling; Object-oriented This paper describes the ongoing research on
275 Cartesian grids; Inviscid flows This paper describes the Cartesian cut cell
276 programming interface (API), and this paper describes examples of the use of
277 Design knowledge; Simulation This paper describes a new specific
278 with the choice of generator set. This paper describes a new method for the
279 recent but unknown abstractions. This paper describes a method for formulating
280 in their code development process. This paper describes a tool named RCMAG
281 theorem of impulsive system, this paper derives some sufficient conditions
282 reactor; (Bio-)chemical process This paper deals with the optimal control (OC)
283 Multigrid computation This paper deals with the development of a
284 Super-harmonic oscillation This paper deals with certain forms of
285 programs-stability; Efficient set This paper deals with the set of all
286 Updated Lagrangian formulation This paper deals with homogenization of
287 agriculture; Droplet spectrum This paper deals with the mathematical model
288 algorithm; Asymptotic expansions This paper deals with a constructive approach
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289 solutions; Conservation laws This paper deals with the implementation of
290 recognition method introduced in this paper consists of five separate
291 Weak convergence; Simulation This paper considers the derivation of weak
292 generator; Random number This paper considers the problem of generally
293 function; Hybrid observers This paper considers global chaos
294 value problem; Regularization This paper considers an elliptic PDE with a
295 function; Stochastic process This paper considers a new class of time
296 non-ruin case, respectively. In this paper, computational results for the finite
297 model reduction are proposed in this paper. Comparison between different
298 when their period is long. In this paper, combined generators with one
299 stability condition presented in this paper can be used to analyze the
300 Linear matrix inequalities in this paper, asymptotic stability for neutral
301 properties of the simulated values. This paper argues that we need to apply the
302 The results reported in this paper are a powerful support to the
303 solution of linear stiff problems in this paper. And it can integrate the stiff
304 simulation tools are described in this paper and compared with real life
305 on rough set theory are explored in this paper and are used to extract a feature
306 Innovation; Poisson regression This paper analyses results from an
307 be taken into consideration. In this paper, an extended model of the water
308 Abstract (English): In this paper, an estimation of the Gaussian
309 element of this resurgence and this paper adds to the debate. In this paper
310 process in an integrated manner. This paper addresses two building-block
311 Robust stability; Linear systems This paper addresses the issue of
312 transport; Monte Carlo simulation This paper addresses the problem of
313 preconditioned CG method This paper addresses the use of space
314 method; Variable density flows This paper addresses a sub-problem of low
315 Noise uncertainties in this paper, a sufficient condition is proposed
316 role in contaminant transport. In this paper, a stochastic model of
317 for modeling such data. In this paper, a rich family of generalized
318 control; Jump systems In this paper a reconfigurable adaptive control
319 from overparameterisation. In this paper a procedure is outlined for the
320 EBDF; Stability; Stiff ODEs In this paper a one parameter
Artificial immune regulation in this paper, a novel approach to immune
filtering; Forward linear prediction in this paper, a new method is presented that
authors to solve this problem. In this paper, a new fast implementation in the
numerical stability problems. In this paper, a new type of algorithm to solve
navigation process. We present in this paper a new approach that uses visual
not suitable for control purposes. In this paper, a new model structure for the
System dynamics; Fuzzy logic in this paper a model of waste management
Knowledge-based system in this paper, a knowledge-based system is
problem and not easy to tackle. In this paper, a genetic algorithms based
power flow; Automotive control in this paper, a generalized fuzzy logic
problems of Stefan-like type. In this paper, a generalized two-phase
method; Fractional calculus in this paper, a fractional Korteweg-de Vries
networks with delays (DCNNs) in this paper. A family of sufficient conditions is
the system must be used. In this paper, a dynamic separation model is
on the surface of the object. In this paper, a dynamic inverse obstacle
Existence; Stability; Simulation in this paper a conflict game between the two
barrier strategies; QMC methods in this paper, a collective risk reserve process
scheme, we give two examples in this paper.
with simulations throughout this paper.
theory and will be presented in this paper.

Papers

Since the publication of my original papers more than 10 years ago, it has

Procedure

conventional methods with a procedure of contractive mapping. The
overparameterisation. In this paper a procedure is outlined for the selection or
functions; Differential elimination A procedure is given for reducing nonlinear
The method of lines (MOL) is a procedure for the numerical integration of
in railway traction is analysed, a procedure for indirect identification of
definition of the algorithm is of a procedure based on imitation of the real
thermal analysis. The above procedure has been shown to facilitate
Augmented Dickey-Fuller (ADF) procedure is used to test for unit roots,
An example illustrates the analysis procedure.
function of a simulated annealing procedure, previously simulated random
to quantum transport the Monte Carlo procedure that proved to be very method. This paper establishes a clear procedure for the variational problem
scheme is proved. A computational procedure is designed to solve the
of the proposed computational procedure.

Third, a robust supervisory control procedure is employed to choose the
is simulated by a disaggregation procedure utilising measured streamflow
empirical mode decomposition (EMD) procedure. We make use of the
&ldquo;educated&rdquo; trial-and-error procedure currently practiced by this
likelihood parameter estimation procedure from simpler models to more
as model parameter in the fitting procedure. The results obtained after
while Johansen?s maximum likelihood procedure is used to test for
pre-optimization. A contractive mapping procedure is designed to asymptotically
The present paper develops a numerical procedure to determine the
Hysteresis loss A numerical procedure has been applied for
equation. We here propose a numerical procedure for the reconstruction of a
Finite difference method A numerical procedure for an inverse problem of
obtained solution. A numerical procedure and examples are presented.
conservation laws; Numerical procedure An introduction to modelling of
using a multiple-scales perturbation procedure is performed for the instability
but different from it in two points: * procedure of taking arithmetic mean is
sub-optimal controller. The proposed procedure is applied to control the
with high probability. The proposed procedure is applied on a simulated
type of fuzzy rules and the Jang?s procedure of learning. MATLAB,
well. We propose a two-step selection procedure, utilizing the criteria. This
adopt a statistical model selection procedure in their evaluation. The main
for a practical model selection procedure, but its performance has not
condition. The original smoothing procedure for the generally discontinuous
difference method but with a special procedure for marching forward in time.
model parameters, and a test statistic procedure to verify conjectures about the
this connection, the following three-step procedure can be used to test ODE's for
the practical point of view, a systematic procedure based on nonlocal
decomposition of functions in $l_2(Z)$. The procedure of using the wavelet theory of
series. The new method simplifies the procedure of solving the
control principle. The procedure of computer synthesis for a
method. The robustness of the procedure is tested with respect to the
for ordinary differential equations. The procedure is illustrated with two
formulation. The effectiveness of the procedure is also demonstrated through
and the results obtained from the procedure are experimentally validated.
procedure, utilizing the criteria. This procedure performs better.
to Stokeslets located outside O. This procedure leads to the resolution of a
general random search methods. This procedure is based on performing the
of this new model. Indeed, this procedure has been tested on an
ear example is pursued to demonstrate this procedure.
beam. A good truncation procedure based on the system
Numerical procedure for identification of water

Research

trends, scenarios for 2010/2025, and research issues to be addressed. .
IFAC, Wageningen University and Research Centre, Royal Dutch Institute
is based on a study of three Australian research centres in the field of the
Policy setting; Research centres; Research performance Bibliometric
methods for analysing and describing research output have been supported
or developing a model to use for research it is important that the model
using agent-based models. However, research has shown that there is a need
productivity reflect the real impact research has for Australia's future? The
this work came originally from medical research, specifically the problem of
have also been subject of much research. However, under seasonal
an important task in nanotechnology research. Tools of mathematical
Does bibliometric modelling of research productivity reflect the real
and encouraging the development of research potential and strengths. Does
Incremental learning Our team of research "diagnosis of industrial
some of the common themes of research in this field and recall some
This paper describes the ongoing research on the physical modeling of groundwater level. Based on our research results, we infer that the related activities associated with scientific research. Some 20 years ago, this research work described aims to bring an on-line implementation requires research on the robustness of the typologies of trip itineraries. The research used running race timing of high recirculation airlift reactors. The research objectives to identify the model of tourist behaviour do indeed exist. The research also comments on the utility of amount of the research into the behaviour of is Monte Carlo analysis. In this research, the sensitivity of microbial among these parameters. This research aims at overcoming the above Nonlinearity test. In recent years, research in nonlinear time series.
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multiple connected components. As a result, timing analysis of complex,
sectors of the two countries as a result of the reforms. In fact, the
flow is of complex structure as a result of overlay of two longitudinal
adverse consequences as a result of a massive water intake. The
points in (0,1) of different types. As a result different types of ill-conditioned
than that for the Taylor vortex. As a result, both the amplitude and sector of
has a finite variance and an analytical result is derived. This allows to assign
replacement of defective backlights result in a significant financial loss,
the accuracy on any computed result with a high probability. On the
which has converged toward the correct result in some degree must exist. The
different dimensions. These correlations result in poorly distributed
characteristic and satisfied equalization result.

large energy no global existence result is known for the DSII equation, in
up, hence that no global existence result can hold.

systems, we conjecture a global result for the initial-boundary value
an increase in frequency may result in a soliton that propagates in the
the effectiveness of the proposed result. Compared with the existing
predictions, including a recent result implying the instability of a class of
such as wave breaking and reflection result. For a more realistic
algorithms based on a variety of rules result in a wide range of different
for any length of time. The simulation result shows that the single-term Haar
problems in this paper. The simulation result shows that the whole computation
13 of the 24 cases. This is a surprising result as the country risk literature
the variance which may cause the result that the mean squared error with
of computer simulation matches the result of field measurement very well. It
means of random process theory. The result of computer simulation matches
prove that this decreases is not the result of a poor analysis, but it really
The results are compared with the result obtained by the
at the required precision order. The result is an analytic approximation to the
a guaranteed interval containing the result but this interval may be in some
of seawater density, therefore, will result in an underestimate of solute
Results

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1 algorithms can provide more accurate results than quasi-Monte Carlo routines
2 sequences provide more accurate results than a purely pseudorandom
3 the stiff equation with very accurate results for any length of time. The
4 systems. We include achieved results and the status of projects.
5 of the new grid gives more accurate results and is more correct than just
6 regression This paper analyses results from an investigation into the
7 the width of the dark soliton. Analytical results, based on perturbation
8 performance of both convergence and results? precision. Tested by IEEE-30,
9 a cluster of workstations under MPI and results of the experiments arising in
10 of an analytical approximation and results of numerical simulations. The
11 of the iterative method is proved and results of computational test are
12 algorithmic advances. A few application results are detailed, and shown by
13 time step. Simulations confirm this and results are compared with well-known
14 the work in half, our new approach results in a new tridiagonal system that
15 of mass conservation. The asymptotic results presented describe the evolution
16 to obtain the door traversing behavior. Results and performance issues are
17 Kaczmarz algorithm gives much better results than the other two.
18 the general behaviour of the calculated results and their orders of magnitude.
19 DCMU treated samples give very close results. Beside the practical advantage
20 In this paper, computational results for the finite time case are
21 We include some computational results for binary (t,m,3)-nets.
22 same time series present conflicting results. In this context, this paper
23 problem is shown. Convergence results for the numerical scheme are
24 examples illustrate convergence results.
25 networks, using recently derived results concerning stability conditions for
26 placed at the foundry gate. The different results thereby obtained are discussed
27 versus maternal education effects. Results are based on a household
28 method is developed. The empirical results show that contagion is present
29 of countries since 1984. The empirical results enable a comparative
30 engineering design. The evaluation results have illustrated these
31 result. Compared with the existing results, these results are less
32 method. We report on experimental results, which demonstrate that our MI
process knowledge and experimental results. When the hybrid separation yield is compared to experimental results. The differences between He+ N= 50&ndash;1000. From experimental results, the average of success rate of Both the numerical and experimental results suggest that the neglect of the detailed discussion on the experimental results providing directions for possible is evolved explicitly. Experimental results on real and simulated data are worked with a number of experimental results, demonstrating both accuracy coastal aquifer. Experimental results are also presented to show the both simulated and experimental results.

of PDEs and show some experimental results.

problem. This paper gives explicit results that simplify the implementation in the frequency of the velocity field results in front distortion and being extended and improved, first results of which are presented here. .

algorithm and the evaluation of the first results are also presented in detail.

physics experiments. The FLUKA results were compared with experimental chaotic regime. We obtain the following results: (1) spatial symmetry breaking a priori probability definition. The gained results widen the possibilities for real drive traction system in order to get results useable in control optimisation.

have been experimental with good results being achieved. More recently,

procedures to get global identifiability results of uncontrolled nonlinear and it has given global identifiability results.

in the literature. However, these initial results require further exploration.

are verified by numerical integration results of the governing equation and the the error estimates leads to interesting results. The non-linearity in boundary and numeric stability investigation results we obtain an analytic formula for test, is presented, together with its results over some well-known generators

Based on this, along with well known results on local existence and problem This is a short survey of known results about elimination of quantifiers frequently referred to in the literature. Results are given for simulation positive definiteness of the matrix M, results in a one parameter family of inner A comparison of measurement results with simulation results shows the
Concordance

65 that the proposed method results in a higher number of matches on
66 is very important to avoid misleading results. We show that stabilized
67 to study the dependence of the model results on the variation of some key
68 building interior climate. Some model results are presented to illustrate the
69 highlights the plausibility of the model results and limitations in applying the
70 increase in the length of nonuniformities results in both surface waves whose
71 the amplitude of the spatial modulation results in a surface wave and a soliton
72 method to reduce the space. Numeric results are included and discussed.
73 is briefly outlined; in particular, novel results are existence of stable
74 the computational grid. Numerical results, with multigrid methods
75 is established by comparing numerical results with experimental data. Good
76 codes will be described. Numerical results, which illustrate the ability of
77 of these methods as well as numerical results they produce when applied to a
78 methods, respectively. The numerical results, the computational speeds and
79 method was used here. Numerical results showed that the model? reliability
80 elasticity coefficients. Numerical results show the reliability of the
81 In the space-dependent case numerical results show the trend to a
82 Fourier method and the numerical results show the chiral effects on
83 selection of examples. The numerical results show that the methods based on
84 of the opto-microengine. The numerical results show that pressure differences
85 of background process. Numerical results show that the new method is able
86 numerically in 2D geometry. Numerical results shed light on the evolution of the
87 is needed to obtain numerical results of non-negligible validity; in most
88 algorithms are presented. Numerical results obtained by implementing the
89 order to prove theoretical or numerical results. Numerical procedures for this
90 air due to plasma generation: numerical results Keywords: Pulse collapse;
91 Carlo approximation. The numerical results indicate that by using
92 simulate the problems. The numerical results indicate that the numerical
93 are further optimized. Numerical results indicate that the present method
94 queuing models. The numerical results indicate that the proposed
95 waves very well. Also, our numerical results indicate that these schemes can
96 sensitivity coefficient. Numerical results illustrate the methods for
Numerical results illustrate the usefulness of these sets sharing this property. Numerical results for the deformation of sheets into part of the Niebling process. Numerical results for the deformation of sheets into as well as MC methods. Numerical results for the deformation of sheets into congruential sequences. Numerical results for long and short evolution times were considered and numerical results for AI specimens were presented. are considered. The numerical results for a Newtonian fluid are found to question how the present numerical results are related to those obtained in task in both 2D and 3D. Numerical results are presented for such symmetric MG iterations. Numerical results are presented to assess the in traditional OS schemes. Numerical results are presented to illustrate the induction process, the numerical results are presented. The and representative numerical results are included. The theoretical the absolute error for our numerical results and the analytic solution of the clearly according to our numerical results. diodes are discussed with numerical results. corresponds quite well with numerical results. were carried out right to the numerical results. three-dimensional numerical results. performance functions. The obtained results show that the proposed model (IMM) PDA filter. The obtained results demonstrate a superior tracking ordinary differential equations (ODEs) results through the algebraic to traditional approaches. Our results show that we can achieve nearly returns, and order imbalance. Our results show that the release of earnings and involving a difficult search. Our results provide insights into how the can be completely automated. Our results point the way to a common relative productivity developments. Our results indicate that the New Zealand the Landesman-Lazer type. Our results generalize previously published the three features simultaneously. Our results demonstrate that the three rather than molecular mixing. Our results are validated by convergence several subjective judgements, but our results are quite robust to these choices. Catchment scale This paper outlines results of a sensitivity analysis on a water-pumping rate. Our preliminary results show that the land subsidence
plasma. In this paper, we present results of a numerical simulation of problems. In this paper, we present results concerning the far field pattern of differential equations. The present results are in satisfactory agreement. A single simulation run then produces results for hundreds of models with Green's function, and provide results from a numerical experiment on a by the model are similar to published results obtained by tracer experiments. results generalize previously published results about the solvability of our The new scheme provides realistic results when compared with analytic quantum computing and survey recent results on high dimensional integration. In this paper, we review recent results concerning stochastic models for techniques for variance reduction. Results of extensive numerical tests are numerical tests are described. Related results are mentioned. level. Based on our research results, we infer that the dewatering of asymptotic methods and the rigorous results obtained from a normal form from the ART class give satisfactory results only in the case of consistent series can obtain the satisfactory results. is also obtained explicitly. Similar results hold for Gauss-Radau produce large volumes of simulation results so quickly that their management of measurement results with simulation results shows the good practical feasible, algorithm. The simulation results show the effectiveness (in terms the diagnosis approach. The simulation results show that it can detect and ascertain its performance. Simulation results show that the criteria based upon analysis and experimental simulation results on the problem of scheduling a of the proposed method, the simulation results of an example are presented. and thus lead to different simulation results. Linguistic variables are one Monte Carlo ion implantation simulation results Keywords: Monte Carlo simulator and to present the simulation results in real time. Different automatic stages. Successful simulation results have given confidence to perform the convergence speed. Simulation results have demonstrated that the detectors is presented. The simulation results have been combined with Monte emission of the vehicle. Simulation results are used to assess the Carlo scheme is given and simulation results are reported for temperatures in
We present an algorithm for smoothing results of three-dimensional Monte Carlo simulations. The aim of this report is to give some results of numerical experiments and parameter. Then, we give some results of numerical experiments with model. This paper presents some results from a numerical model of the meshes. This paper reviews stability results of several very convergence and stability results for stochastic iterative processes over plane slopes and compare the results with those obtained from a algorithm for fastest convergence. The results, which are valid for search scheme and the correctness of the results under practical circumstances.

In our paper, we give a brief of the results. The main attention is paid to the calculations of baroclinic waves. The results suggest that the finite-element idealized mountain are compared. The results suggest that the presence of runs for numerical experiments. The results show the Mellor and Yamada applied for constructing a solution. The results show that a significant heat input evolution of solitons in CNLSE. The results show that the coupling term to the observed vector series and the results show that the dynamic structure solitons in addition to breathers. The results show that the magnetisation of qualitative and quantitative criteria. The results show Park and Kuo scheme behaviour of speculators, for which the results seem to depend critically upon or perturbation theory. The results reveal that the method is very insider buying (selling) activities. The results reveal that insiders’ trading of drift and diffusion coefficients. The results reveal good performances in all from experimental observations. The results reported in this paper are a and computationally attractive. The results provide new tests for distributed
annual data 1955–1998. The results presented here lead to no support data, processing raw data, plugging the results of this processing into theoretical payload capture point coordinates. The results of this task are used in the tuning variability of groundwater recharge. The results of the study show that five in order to show its applicability, the results of smoothing a three-dimensional radar/infrared Depressant with annual of between prove factors. The results of numerical simulation of this prove that previous interpretations of the results of numerical simulation of this with respect to the space variables. The results of numerical experiments are formula for stability condition. The results of numerical solution of a number Depressant additives; Oil The results of investigation of the laws of models. This paper presents the results of experiments designed to track factors. This paper reports the results of experimental and model the theories of cellular biology and the results of experimental observations a direct current motor. We describe the results of a study of dynamic modes and in civil engineering structures. The results obtained have shown that the of friction force is proposed and the results obtained from the procedure are (3D) simulations agree with the results obtained for the two-dimensional used to obtain stationary solution. The results obtained by these two methods a Broadwell gas, and in both cases, the results obtained are compared with parameter in the fitting procedure. The results obtained after these flows is studied numerically. The results indicate that complex wave-like geotomography problems. The results indicate that the extended tapered and polynomial profiles. The results indicate efficient concentration of between phases of supply. The results illustrate good agreement the quasi-hydrodynamic model. The results have been obtained with the of periodic solutions of DCNNs. The results extend and improve the earlier a given situation. It is expected that the results discussed in the paper would attention is paid to the accuracy of the results as a function of the dimension of as proposed by Percus and the results are statistically compared to the Graphical representations of the results are presented.
model and augmented signals. The results are illustrated by numerical
of the variables of the process. The results are illustrated via simulations of
Five test problems are solved. The results are compared with the result
about the plant is also tested and the results are compared with those cases
as well as asymmetric solitons. The results apply as well to spatial solitons
but also show faster convergence in the results and thus, slightly outperform
the numerical experiments, show the results and discuss its efficiency. In
implementation, we review theoretical results that indicate a kind of optimality
force are analyzed. The theoretical results are verified by numerical
multiple frequencies. The theoretical results are obtained by the multiple
test, link it to the theoretical results and show numerical
example illustrate the theoretical results.

theory results in a set of coupled non-linear
solutions will be made. From these results, we are also able to make some
and some implications of these results on the power of computer algebra
equations. It turns out that these results of computer simulation, we obtain
also an inward (reflected) shelf. These results make use of specific depth
behaves very stable. These results have been achieved
A discussion is given as to how these results can be generalized to a broad
with the existing results, these results are less conservative.
generators in the literature. These results are analyzed and some possible
enlargement process. Based on these results, a newly developed bioreactor
of degree 2, which yielded unusable results.

to validate the model, and the validation results indicate that the proposed model
Comparisons are made with results obtained by other approaches
data sets (both test and real-world). Results and conclusions are discussed
Study

A study of the multi-stage flowshop

A study of scheduling problem in agro-food

A study of nonlinear dispersive equations

tudy for the endurance of radial truck

future? The paper is based on a study of three Australian research

technique This work gives a study of the Regier? s model by using the

soliton; Exploding soliton We present a study of exploding soliton and front

motor We describe the results of a study of dynamic modes and bifurcations

This paper outlines one component of a study being undertaken to provide a new

have positive real parts. We also study transition from exploding fronts to

inverted parabolic potential. We also study the motion of the soliton in a long

In this work, we present an analytic study of the compactons structures in a

An analytic study of compactons structures in a

Shown and Formula Not Shown and study conditions under which the set of

a Luenberger observer. An application study shows the simplicity of the

and inequality analysis, the authors study further global exponential stability

simulation A Monte Carlo study of the transient response of single

Monte Carlo study of surface and line-width

is methodological in nature and a case study is presented with reference to a

can then be obtained. A practical case study from an integrated-circuit

region of Brazil, is chosen as the case study for the application of the proposed

River basin was selected as a case study for applying the approach. The

South Wales (NSW) is used as a case study. A Bayesian decision network

A comparative study of finite volume methods on

This method allows us to constructively study nonlinear and nonstationary

the model requirements for further study on tree belt plantations. A brief

is applied to cool the plants. Further study is still necessary to make the

The study of the intermittency test filtering

trading. One particularly important study relates to the informational role

ionization; 4H-SiC A Monte Carlo (MC) study of the hole transport in 4H-SiC is
Concordance

31 Simulate; Diabetics A mathematical study of a population of diabetes mellitus
32 DSI and DSII equations--a numerical study We implement several numerical
33 work is concerned with the numerical study of the CARI technique using a
34 We are focus on the numerical study of the effect of soliton's
35 domain size increases. Our numerical study of the model system clearly
36 Computational study of state-of-the-art path-based traffic
37 is considered through numerical study of a nonlinear dissipative
38 in this area. In this simulation study the non-hydrostatic,
39 HEMTs: a Monte Carlo simulation study Keywords: 85.30.De; 85.30.Tv;
40 A comparative simulation study for estimating diffusion coefficient
41 previously. Also we make a systematic study of the parameter regions in which
42 frequency is reduced. In addition, the study shows the effectiveness of the
43 satisfactory answer to the problem. The study shows that the bivariate entropy
44 recharge. The results of the study show that five models perform well
45 to the design of routes and the study of their compatibility in a railway
46 order 20. This algorithm is useful in the study of the growth factor for Hadamard
47 in statistical physics literature is the study of the long range dependence
48 cavitation bubbles and applied it to the study of the evolution of mercury due to
49 recent application of the method to the study of the density functional theory
50 that proved to be very successful for the study of semiclassical transport.
51 equation A classical model used in the study of dynamics of polymeric liquids is
52 under different market structures. The study includes simulation analysis of the
53 pixel array and readout electronics. The study includes several different
54 the proposed method is feasible. The study also indicates that the proposed
55 Monte Carlo simulation A theoretical study of the characteristics of kinetic
56 Groundwater; Land-subsidence In this study we implement the InSAR
57 5-01.pdf). In this study, we have applied SedNet at a
58 are thus plagued with limitations. In this study, we adopt the lifetime labour
59 to enhance laminar mixing. In this study the effect of flow pulsatility on the
60 systems; Timoshenko beams In this study, the development of a symbolic
N Concordance

61 partial differential equation in this study, the decomposition method for
62 than a posteriori error estimates, this study suggests that the error indicator
63 Source control parameters This study presents numerical schemes for
64 function; Poisson? s equation This study presents a Feynman& ndash; Kac
65 Online monitoring: Plant diagnosis This study presents a hybrid monitoring
66 of the maintenance energy. This study permits to predict the cellular
67 Simulated annealing The aim of this study is to demonstrate by means of
68 in a small volume. The aim of this study is to explore thermal dynamics of
69 and therefore, the purpose of this study is to compare the performance of
70 stability; Numerical simulation This study is concerned with
71 tire model was developed in this study. In the model, the rubber
72 configurations are investigated in this study: (i) development of a
73 major conclusions are drawn from this study: firstly, it demonstrates the
74 Finite element method; ILU-CGM in this study, coupled non-linear partial
75 The countries included in this study are the high-performing East Asian
76 of the post-synaptic membrane. In this study, a mathematical model for EPC
77 in greenhouses to be determined. Thus, study tests, the accuracy of a
78 coefficients is proposed to study their dependence on local
79 method is developed in a new way to study the propagation of optical solitons
80 drive traction system, it is necessary to study the nature of the load. In this paper
81 The object of this work is to study the influence of two sowing dates
82 quantities. Physically, the goal is to study the effects of an initial phase
83 with Kerr non-linearity is used to study the effects resulting from the
84 scenarios are often to be run in order to study the dependence of the model
85 Using this method has allowed to study storms of fluctuation in areas,
86 reform The purpose of this paper is to study relative developments in total
87 A finite-element method is developed to study interlaminar stress effects for the
88 In this manner it is possible to study geometrical effects. An excellent
89 system with a roundoff mapping. To study asymptotic properties of such
90 are considered. The series under study are 2- and 15-year government
In this paper we study two generalized forms of the system; Normal forms. We study the stability of a class of traveling a Kohn and Vogelius cost function, we study the stability of this method and all orders; Pseudospectral method. We study the singularly perturbed Landau-Lifshitz equation. We study the propagation of electromagnetic and finite boundary conditions. We study the nonlinear dynamics of a fluid of computed solutions; in particular we study the generation and interaction of type conditions. We study the existence of the weak solution. Soliton; Optical lattice. We study the dynamics of solitons in ein condensation. We study the dynamics of dark solitons in of the variational approximation, we study the discrete soliton solutions of is modeled by a random walk. We study the convergence of the scheme. Bistable systems; Noise. We study the collective dynamics of one-algebra, especially Gröbner bases, we study the application which maps the condensation; Blow-up phenomena. We study numerically stabilized solutions of solution. In this short communication we study compactons in the setting of Solitary patterns. In this work, we study compact and noncompact condensation; Blow-up phenomena. We study a quasi-local approximation for a approximation. In this paper, we study a one-dimensional quasi-static Center problem. In this paper, we study a family of nilpotent cubic systems.
Studies

Concordance

1. 2\textdagger-7m were indicated. Acoustic studies were made using the highly points (HACCP) and risk analysis studies, stochastic models should be experimentally in laboratories and studies of their properties represent an have been evaluated through case studies of multidisciplinary engineering

Quantum Monte Carlo studies of density functional theory be used in different environmental studies. These models are described have been observed in experimental studies. What is interesting and new techniques for parameter-influence studies and Monte Carlo simulation with the results of experimental and model studies of the field drying process of

The analysis of neurologic studies using an extended exponential Over the past decade, numerous studies have debated the usefulness of innovation rate and is in line with other studies reported in the literature.

Moving obstacles The present paper studies the problem of control and degree for a fuzzy set. This paper studies the entropy calculation of the Bayesian estimation. In preceding studies the authors have suggested a to the results of other published studies.

benefits to its members. Several studies evaluate whether natural analyses with computer simulation studies of spatiotemporal based on the IMC principle. Simulation studies are used to investigate the periodic, monochromatic waves. These studies observed that in the initial linear of crowding. The objective in these studies is to simulate the current and

Numerical studies of stabilized Townes solitons
Theory

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1 method in the case of massless 4 theory Keywords: f4 Theory; Periodic
2 of the (1+1)-dimensional scalar 4 theory are studied. Provided that the
3 is derived by means of a bifurcation theory of weakly localized wave
4 interval is given. We also present a theory of impulsive synchronization of
5 Wigner-function; Monte Carlo theory; Semiconductors The
6 in terms of the numerical Monte Carlo theory. A mathematically based
7 programs [Algebraic complexity theory, in: Handbook of Theoretical
8 (Chapter 11); Algebraic complexity theory, in: Grundlehren der
9 central extension and connection theory on Stiefel bundles it is shown that
11 systems, IEE Proc.&ndash;Control Theory Appl. 144 (1997) 87&ndash;94;
12 some constraints based on demand theory, and then evaluate the plausibility
13 all these cases in terms of distribution theory.
14 has been used the system equation theory of sallow water. Using this
15 based on the Kolmogorov and Dmitriev theory of branching stochastic
16 sorption; Kolmogorov&ndash;Dmitriev theory of branching stochastic
17 of massless 4 theory Keywords: f4 Theory; Periodic solutions; Standing
18 via an algorithm that use Floquet theory to evaluate the stability of the
19 non-linearities Keywords: Floquet theory; One-degree-of-freedom;
20 economist there is little guidance from theory about the source of trend behavior
21 key quantities in the density functional theory of inhomogeneous many-electron
22 Carlo studies of density functional theory Keywords: 71.15.Mb; 71.10.-w;
23 to the study of the density functional theory (DFT) of the strongly
24 Collusion; Deregulation; Game theory; Gasoline; Pricing behaviour This
25 and Osaka based on recent game theory emphasizing the importance of
26 done by means of this general theory and will be presented in this
27 data analysis in the absence of good theory models for trends. In particular, a
28 on the original optimal harvesting theory for a single production unit. The
29 n-component systems Keywords: HMO-theory; Molecular orbitals; Energy of
Convergence used in homogenization theory. Besides the original definitions changing the order of variance in theory. However, it is also known that with the predictions of the KTHNY theory. Hard and soft disks in external critical layer. Subsequently, the linear theory breaks down and nonlinear using linear matrix inequality (LMI) theory. In terms of Lyapunov's direct Formula Not Shown filtering; Lyapunov theory; Linear matrix inequalities In this an important role in the mathematical theory of computer simulations. In this Brouwer's fixed point theorem, matrix theory, a continuation theorem of the of the numerical Monte Carlo (MC) theory to the integral form of the this into account is the microcontinuum theory elaborated by Eringen modelled by a four-component mixture theory. This theory results in a set of in the framework of classical network theory. We discuss some interrelations in a Bickley jet: comparison of theory with direct numerical simulation transport processes; Percolation theory; Phase transitions; Porous media A new application of the percolation theory for describing the coupled heat A new application of percolation theory for coupled transport phenomena assumptions or perturbation theory. The results reveal that the of NLS from KdV through perturbation theory, resonant effects that give the multiple scales/nonlinear perturbation theory is explicitly extended to two explained by an analytical perturbation theory based on the quasi-continuum Fuzzy pattern matching; Possibility theory; Incremental learning Our team of in the framework of basic probability theory. It can be used in Monte Carlo analyzed by means of random process theory. The result of computer simulation is used, according to signal processing theory, fulfilling the essential approach to the quantum theory of electron transport in Maintenance; Performance; Queueing theory; Real-time system A real-time systems Keywords: Lyapunov's theory; Time delay; Fuzzy systems In find the energy function within Hückel's theory of molecular orbitals which is Keywords: Inverse problems; Scattering theory; Image processing We outline two quantum transport in semiconductors: theory and Monte Carlo approach
An application of rough set theory to defect detection of automotive glass A technique based on rough set theory is investigated for identifying linguistic rules and fuzzy set theory have been used to model a automotive glass Keywords: Rough set theory; Automated inspection system; techniques based on rough set theory are explored in this paper and are policy. We use fuzzy set theory and fuzzy logic to construct an overview of the nonlinear stability theory which indicates that a (nonlinear) is minimized. The Lyapunov stability theory is used for analysis of the jet, using both nonlinear stability theory (in its nonlinear critical layer form) wakes and jets. Nonlinear stability theory has predicted that interactions forces; Second method of stability theory; Computer algebra The paper algorithms. We present the theory underlying the floating presents evidence consistent with the theory that future changes in the quasi-random point sets based on the theory of (t,s)-sequences. We show that is based on techniques arising from the theory of simultaneous Diophantine dimension is presented based on the theory of mechanics of porous media. in of this paper, we try to present the theory of ellipsoidal algebra, following the fractions; Finite fields; Digital nets The theory of continued fractions over finite framework. The model, based on the theory of branching stochastic Korteweg-de Vries (KdV) equation. The theory is used to model the onset of turbulence. The main conclusion of the theory is that the statistically preferred reduces computational complexity. The theory is also applied to generate arising from the application of the theory are also discussed. role in many practical applications. The theory and utilisation of these models simulations that appear to support the theory. a four-component mixture theory. This theory results in a set of coupled It has been recognized through theory and practice that a variety of field Keywords: Kinetic and transport theory; Fluidodynamics equations; Low-discrepancy sequences; Transport theory; Anova decomposition Recent the one used in semiclassical transport theory. with a recent dislocation unbinding theory of laser induced melting. The This paper is based on a uniform theory of factorization and transformation the field of (deterministic) random walk theory with reaction kinetics is The procedure of using the wavelet theory of L2(R) to decompose functions
Theories

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1 by Eringen [Microcontinuum Field Theories: Foundation and Solids, 1998].
2 very complex inner structure. One of theories taking this into account is the
3 a new class of alternative regularized theories including the Euler-alpha model.
4 equations Based on both the theories of cellal biology and the results