UNIVERSITÀ DEGLI STUDI DI NAPOLI
"FEDERICO II"

FACOLTÀ DI SCIENZE POLITICHE

DIPARTIMENTO DI SCIENZE STATISTICHE

SEZIONE LINGUISTICA

DOTTORATO DI RICERCA IN

LINGUA INGLESE PER SCOPI SPECIALI

XX CICLO

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

NAPOLI 2007

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

Acknowledgements

I am particularly indebted to dr. Marco Venuti, my supervisor. During supervision sessions he took considerable trouble to give my drafts a very educated reading, helping me with ideas of his own to give my research a clear focus. Whatever weaknesses there may still be in this research are however my own.

I also owe much to Professor Gabriella Di Martino for her belief in my research study as a source of motivation to succeed, she was always there for me when I needed help, thank you.

I benefited a great deal from the research specialities of the academic staff at the department of *Scienze Statistiche*, especially from Professor Vanda Polese and Professor Cristina Pennarola, they gave me support and new ideas for my own research. I am also grateful to Dr Michaela Mahlberg, this thesis owes a great deal to her constructive criticism and generous advice.

I am also particularly indebted to Professor Geoff Thompson, without whose guidance this thesis could never have been realized. His valuable assistance and encouragement for the shaping of the topic and his constant feedback are greatly appreciated.

I also want to extend my gratitude to the entire administrative staff, particularly to Mena Vilardi whom I have had the pleasure of knowing right from my arrival in the department of *Scienze Statistiche* on my first year of doctorate. Her genuinely warm personality, her lovely smile and

readiness to offer help whenever needed was always a breath of fresh air even when my self-esteem was at its lowest.

I am also grateful to my PhD colleagues, during formal and informal conversations we shared research ideas and work in progress reports, thank you Gabriele, Nicola, and Eliana for being there.

I am grateful to my family for teaching me the value of hard work. My parents have always been there for me and stood by me giving me encouragement and support to fulfil my ambitions in life.

Last but not least I am beholden to Swann the most wonderful man and best friend I have ever had. The love and support he has given me throughout my studies has been phenomenal. Without his regular emails and phone calls which were always encouraging me to work hard I would not have had the motivation to complete my course. God bless him.

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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 [2] 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.

[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 evalution. 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 trough 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

Studies discussed in this section are concerned with genre analysis. Several scholars have investigated textual organization and specific genre like Swales (1990), Salager-Meyer (1990), Bhatia (1993, 1996), Kaplan (1994), dos Santos (1996) and Candlin (1999).

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 l 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 l 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".

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.

[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 no 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

> OTHERWISE DELAY ITS PUBLICATION. (From the *International Journal of Primatology* website[5])

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*)[6]:

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

[5]http://www.springer.com/uk/home/life+sci?SGWID=3-10027-70-355705840&detailsPage=contentItemPage&contentItemId=142956&CIPageCounter=CI_FOR_AUTHORS_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.

Table2.1 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:

- Introducing topic: <I>;
- Stating the purpose of the study: <P>;
- Stating a gap in knowledge: <G_To>;
- Introducing methods: <M>;
- Claiming findings: <F>;
- Concluding: <C>.

Table 2.2 XML Moves structure

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:

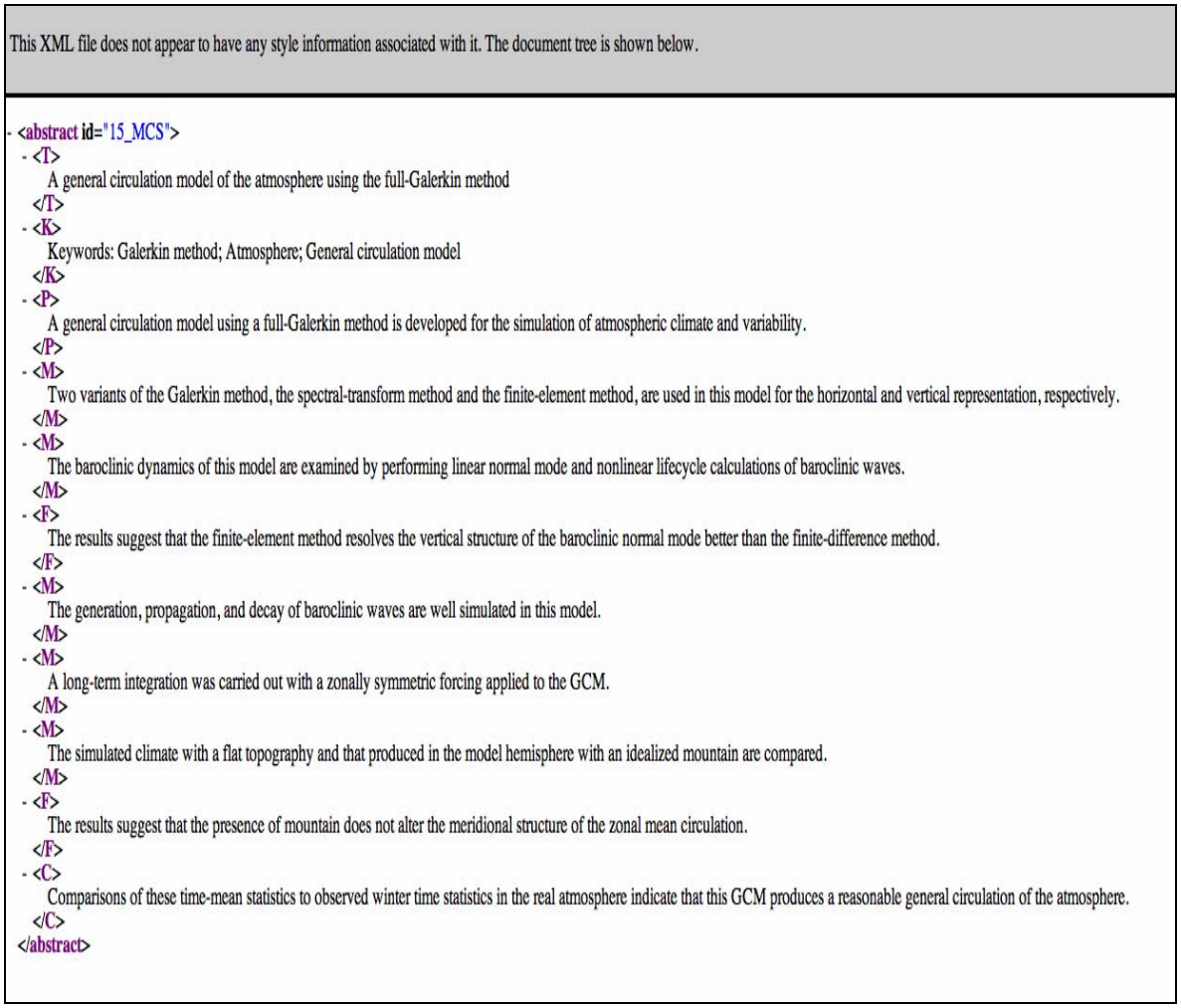

Figure. 2.1 An example of a tagged file

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***)**

4. 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:

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 Census 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,

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:

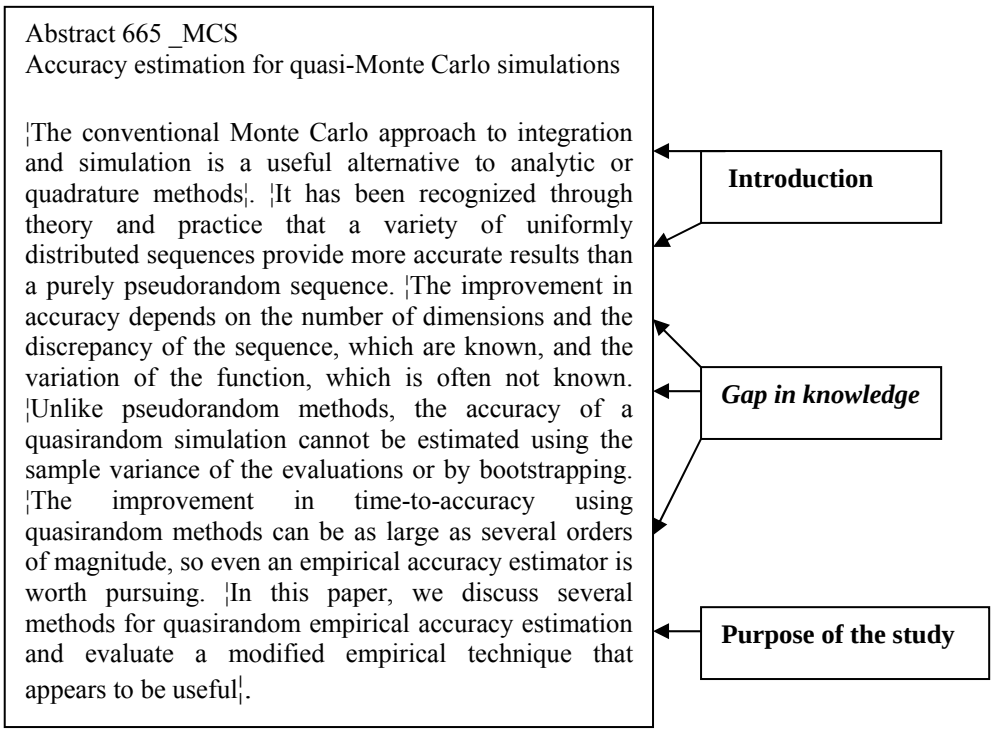

Figure 2.3 An example of Move analysis

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

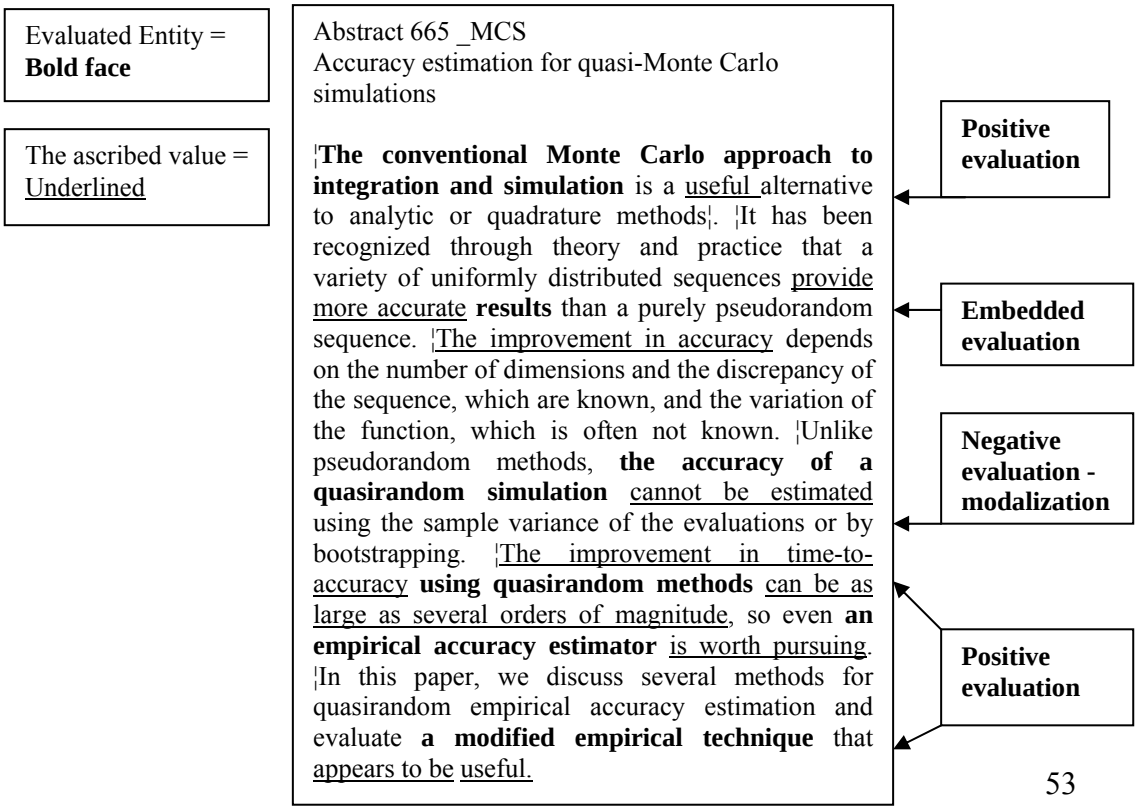

Figure 2.4 an example of ROE analysis

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-occurence will be not useful for the entire research.

Hunston (1993) suggests that in scientific texts precise adjectives may be explicitly evaluative such as: s*ignificant, 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:

SINGULAR RPWS	PLURAL RPWS
Analysis	Analyses
	Data
Evidence	Evidences
Finding	Findings
Investigation	Investigations
Method	Methods
Methodology	Methodologies
Paper	Papers
Procedure	Procedures
Research	Researches
Result	Results
Study	Studies
Theory	Theories

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:

Research Process Words	IJP Freq.	MCS Freq.	IJP ROE	MCS ROE
Analysis	63	212	3 (2+, 1-)	25+
Analyses	38	14	4 (3+, 1-)	2+
Data	182	193	27 (15+, 12-)	11 (9+, 2-)
Evidence	67	15	25 (14+, 11-)	12 (10+, 2-)
Evidences	1	1	0	1+
Finding	13	19	0	2+
Findings	49	4	15 (12+, 3-)	4+
Investigation	10	24	1+	0
Investigations	6	4	1+	1+
Method	15	522	5 (4+, 1-)	47+
Methods	28	220	4+	28+
Methodology	2	17	1+	7+
Methodologies	0	1	0	1+
Paper	5	341	1+	24+
Papers	5	1	2+	1+
Procedure	2	31	1+	9+
Procedures	0	17	0	0
Research	37	32	8+	11 (8+, 3-)
Researches	0	0	0	0
Result	31	31	1+	12 (9+, 3-)
Results	137	249	16+	49 (46+, 3-)
Study	129	111	9 (8+, 1-)	12 (10+, 1-)
Studies	89	22	11 (7+, 4-)	4+
Theory	16	94	2+	7 (5+, 2-)
Theories	5	4	0	0

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[9]. The symbol + stands for positive evaluation while the symbol – stands for negative evaluation[10]. 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

[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.

Number	Word	Frequency
24	Method	537
35	Results	386
38	Data	375
47	Paper	346
63	Analysis	275
81	Methods	248
86	Study	240

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 Francis1998; 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*[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

[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.

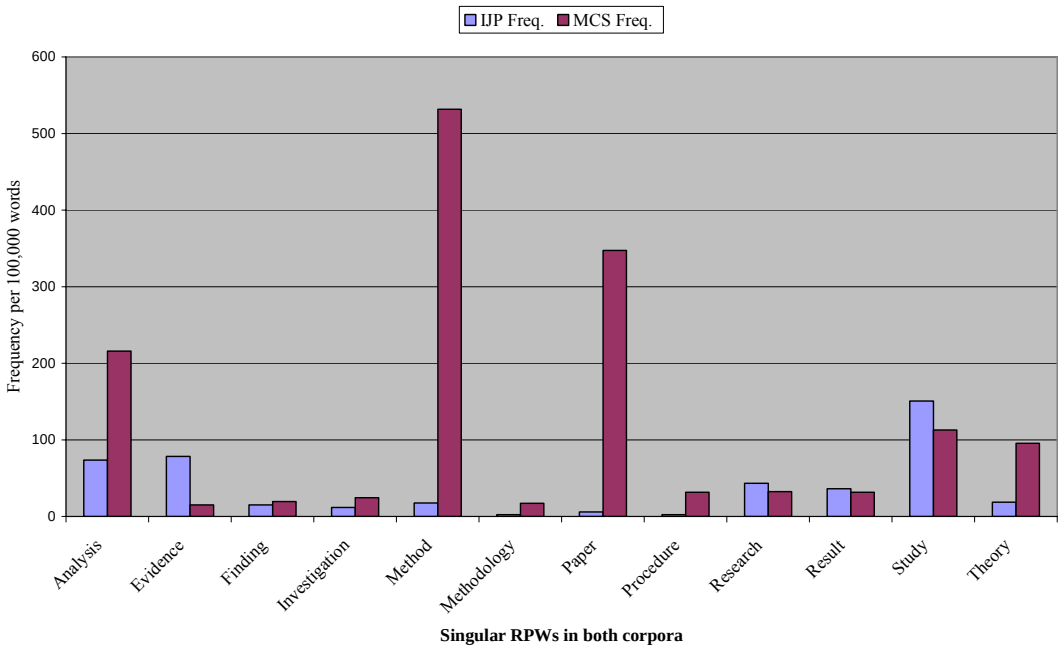

Figure. 3.1. Singular RPWS in IJP and in MCS

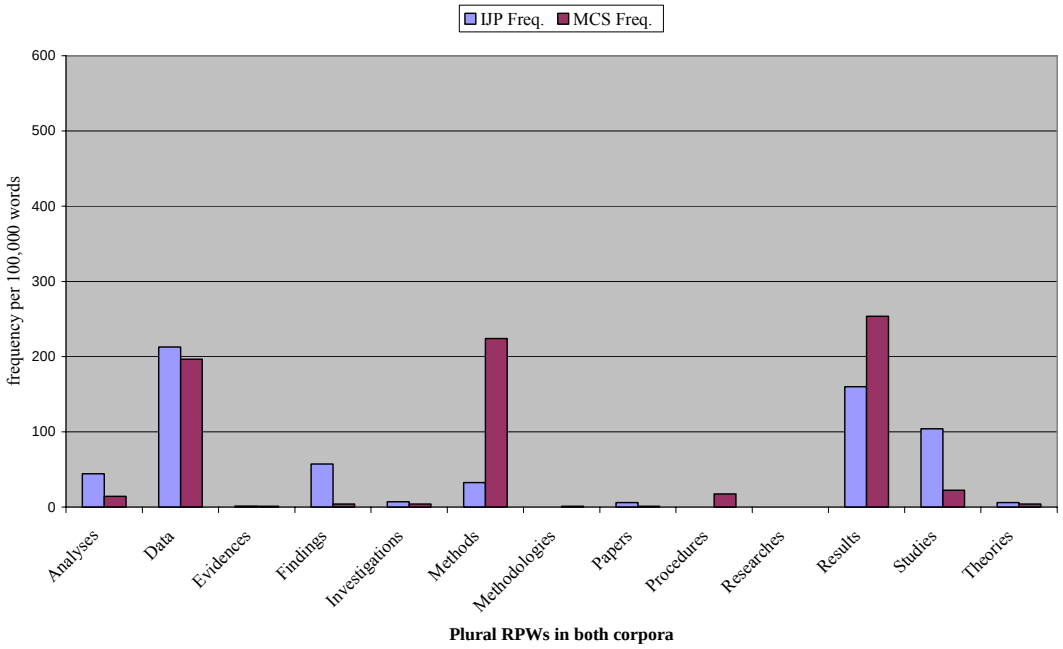

Figure 3.2. Plural RPWS in IJP and in MCS

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:

12. We present new **data** on hunting by chimpanzees at Ngogo, Kibale National Park,Uganda, and combine them with earlier **data** (Mitani and Watts, 1999, Am.J. Phys. Anthropol. 109: 439–454) to examine hunting frequency and success, seasonality, and cooperation. (99_IJP).

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).

35. 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. (271_IJP).

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).

45. 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 trough 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.*

46. 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).

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

48. 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)

49. 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).

50. 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 nad 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 R´io 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** obligate 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 **method**s will resolve these questions when longer-term **studies** of entire populations are undertaken. (1_IJP).

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

81. These **method**s 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 **method**s 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 an 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 na¨ive 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 **research**ers 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 Betampona. (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 only 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 ‚2 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 RPW*theories* 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*[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.

[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:

171. 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:

189. This paper describes the Cartesian cut cell **method**, which provides a flexible and efficient alternative to traditional boundary fitted grid methods. (364_MCS).

190. 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).

191. 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).

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

193. 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).

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

195. 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).

224. An improved simulation **method** for pricing high-dimensional American Derivatives. (330_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':

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

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

227. 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).

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

229. 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).

230. 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).

261. Using genetic algorithms avoids some of the weaknesses of traditional gradient based analytical search **methods. (**527_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 trough 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 + adj + *methodology* + *is* + *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*[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 umber 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.

[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 disinfestation 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).

355. Numerical **results** shed light on the evolution of the Muon Collider target proposed. (248_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:

377. 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.

378. 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).

379. In addition, the **study** shows the effectiveness of the FETD to simulate the CARI modality. (247_MCS).

380. 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.

381. 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).

382. 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:

383. Thus, **study** tests, the accuracy of a well-known radiation model for plastic tunnel greenhouses. (548_MCS).

384. One particularly important **study** relates to the informational role that insiders' transaction volumes have on trading activity in the equity market. (128_MCS).

385. 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*

386. 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).

387. 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.*

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.

RPWs	**IJP ROE**	**MCS ROE**
Analysis	3 (2+, 1-)	25 (24+, 1-)
Analyses	4 (3+, 1-)	2+
Data	27 (15+, 12-)	11 (9+, 2-)
Evidence	25 (14+, 11-)	12 (10+, 2-)
Evidences	0	1+
Finding	0	2+
Findings	15 (12+, 3-)	4+
Investigation	1+	0
Investigations	1+	1+
Method	5 (4+, 1-)	47+
Methods	4+	28+
Methodology	1+	7+
Methodologies	0	1+
Paper	1+	24+
Papers	2+	1+
Procedure	1+	9+
Procedures	0	0
Research	8+	11 (8+, 3-)
Researches	0	0
Result	1+	12 (9+, 3-)
Results	16+	49 (46+, 3-)
Study	9 (8+, 1-)	12 (10+, 1-)
Studies	11 (7+, 4-)	4+
Theory	2+	7 (5+, 2-)
Theories	0	0

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

RPWs	IJP ROE %	MCS ROE %
Analysis	4.08	11.58
Analyses	9.01	14.03
Data	12.70	5.60
Evidence	31.93	78.54
Evidences	0	98.18
Finding	0	10.33
Findings	26.20	98.18
Investigation	8.56	0
Investigations	14.26	24.55
Method	28.53	8.84
Methods	12.23	12.50
Methodology	42.79	40.43
Methodologies	0	98.18
Paper	17.12	6.91
Papers	34.23	98.18
Procedure	42.79	28.50
Procedures	0	0
Research	18.50	33.75
Researches	0	0
Result	2.76	38.01
Results	9.99	19.32
Study	5.97	10.61
Studies	10.58	17.85
Theory	10.70	7.31
Theories	0	0

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:

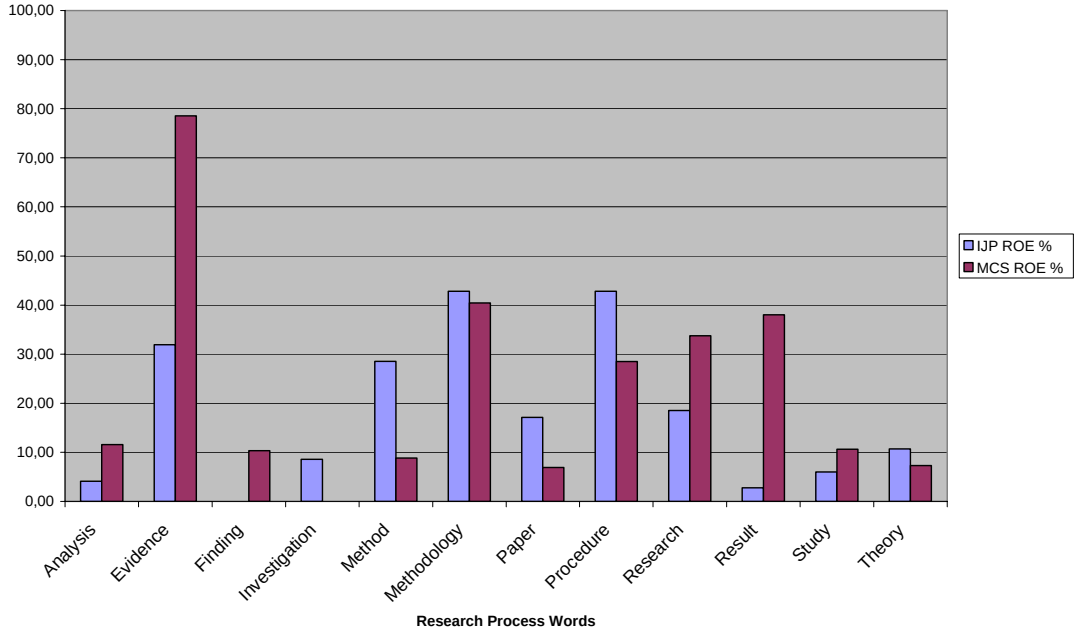

Figure. 4.1 ROE distribution of singular RPWs

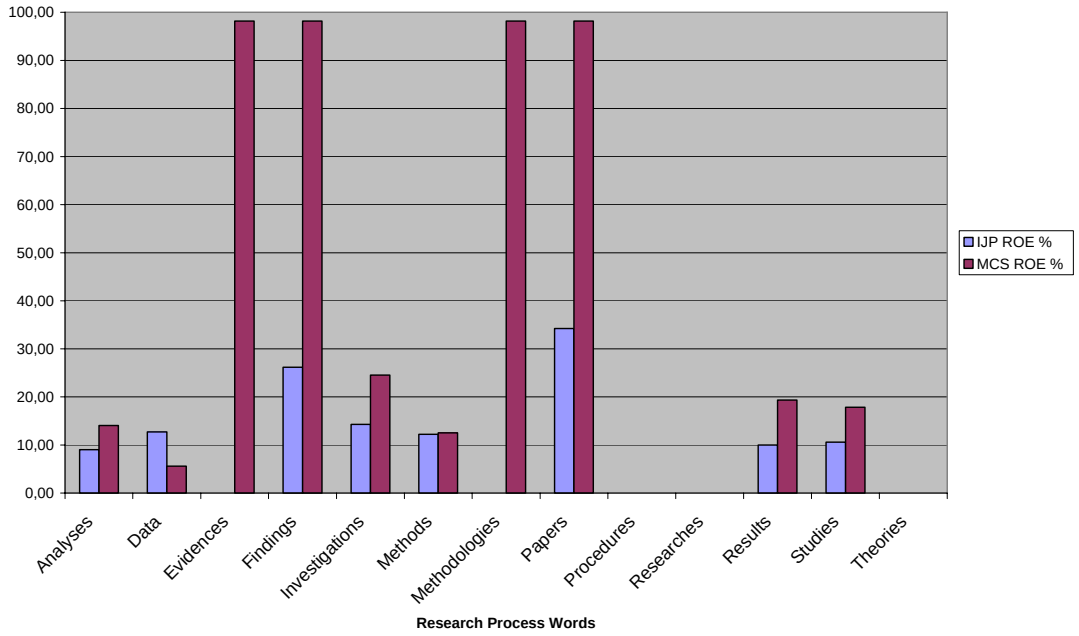

Figure. 4.2 ROE distribution of plural RPWs

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

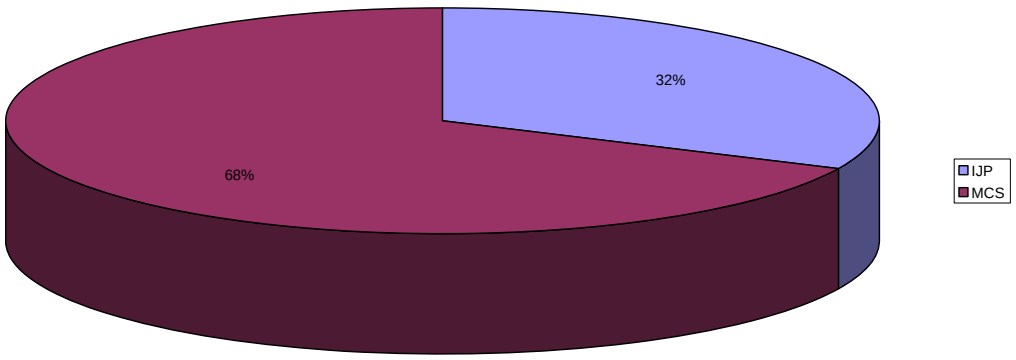

Figure 4.3. Overall ROE in both corpora

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 definitively 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:

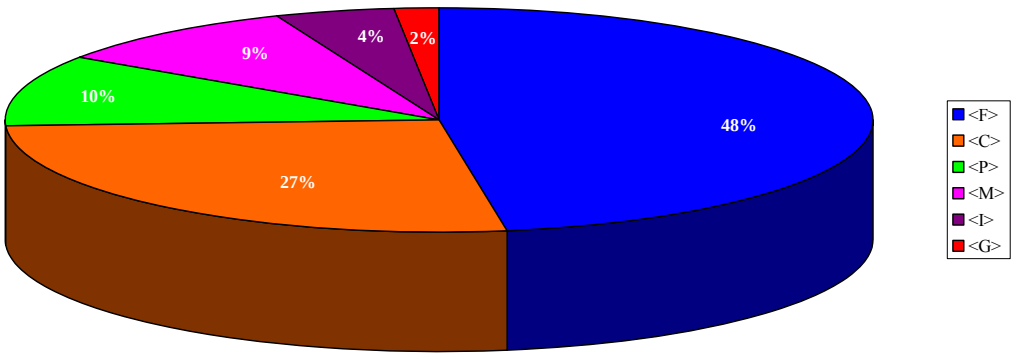

Figure 4.4 Moves percentage in IJP

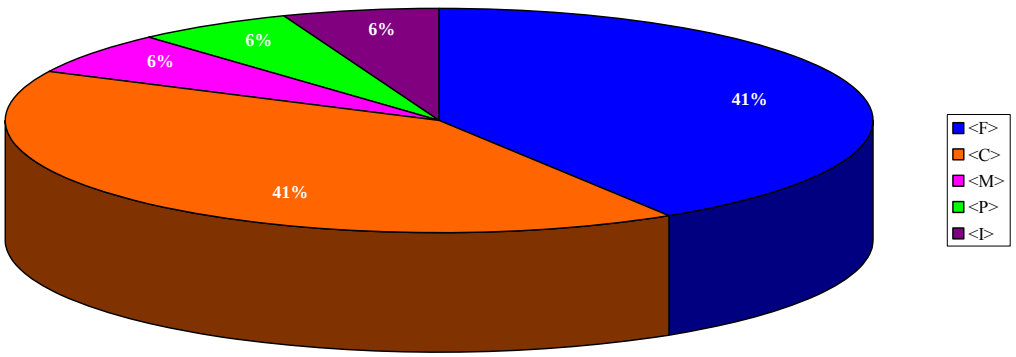

Figure 4.5. Moves percentage in MCS

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. <I> Important techniques include the polymerase chain reaction (PCR), where in exponential amounts of a target DNA sequence are produced via enzymatic amplification.</I> (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.

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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 crossstudy 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..
20	a transect, fruit monitoring trails, fecal analysis, and tracing of the animal's
21	in the macaque diets identified by fecal analysis and field observation are similar.
22	(Macaca cyclopis) in Jentse via fecal analysis and direct field observation from
23	Taiwan, Assessed by Fecal Analysis and Behavioral Observation We
24	and gorillas. Detailed frame-by-frame analysis of videotapes from field and zoo
25	KEYWORDS: evolution; genetic analysis; reproductive success;
26	Behavioral and Hormonal Analysis of Social Relationships
27	Saguinus mystax via fecal hormone analysis. Firstly, we wanted to
28	Kinematic Analysis of Trunk-to-trunk Leaping in
29	(MCPs) versus only 28.4 ha via kernel analysis; the difference is statistically
30	ha via MCPs and 2.19 ha via kernel analysis; the difference is statistically
31	ranges for pottos and galagos. Kernel analysis gave more reliable estimates of
32	tree (Bombax malabaricum). Kinematic analysis revealed that they select

N Concordance

33 have biased the choices of material. Analysis of the episodes and first
34 we conducted a microhabitat analysis and related it to specific
35 area, and a forest fragment with mineral analysis of their foods to estimate the
36 exotic species: Microcebus murinus. Analysis of the studbook provides an
37 We also conducted microscopic analysis of feces collected monthly. The
38 DNA sequences using both parsimony analysis and genetic distance analysis
39 macaque; microsatellites; paternity analysis; rank correlation; reproductive
40 determined by genetic paternity analysis over a 13-yr period in the same
41 the use of molecular phylogenetic analysis to reveal reproductive isolation
42 in Body Mass: A Phylogenetic Analysis of Rensch's Rule in Primates
43 present a multidisciplinary phylogenetic analysis of Propithecus supporting the
44 and subjected to phylogenetic analysis a3.1 kb of 2 loci (TSPY and
45 prosimians.Minimum convex polygon analysis tended to overestimate the
46 of the days sleeping alone. Preliminary analysis of genetic population structure
47 by urinary and fecal progestogen analysis. Rates of behaviors in both
48 considering the method of home range analysis when it is to be applied to
49 attention was given to the home range analysis technique. Together with
50 Home Range Analysis of Perodicticus potto edwardsi
51 We compared methods of home range analysis for 2 species of nocturnal
52 variation and is similar to a recent analysis based on craniodental variation.
53 decreased slightly.Amultiple regression analysis showed that various fruits had
54 controlled in a multiple regression analysis. Furthermore, the preference
55 widely homogeneous distribution.RFLP analysis of whole mtDNAgenome using
56 determined gibbon choice. The analysis was stratified to account for
57 cercopithecoid systematics include the analysis of quantitative and qualitative
58 for such selectivity comes from the analysis of different types of
59 monkeys in a Kenyan rain forest. The analysis focuses on the degree to which
60 variation has become accessible to analysis. KEYWORDS: evolution;
61 WORDS: intestinal parasites; urine analysis; Pan troglodytes; health
62 inspection, parasitological and urine analysis in association with behavioral
63 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 kernel analyses revealed a sex difference in
18	convex polygon (MCPs) and kernel analyses. Adult potto home ranges
19	minimum convex polygon; kernel 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 mangabey
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

N Concordance

33 social or breeding status. We collected data during a 12-mo study on 2 groups of
34 Nature Reserve, China. We collected data during 2 winters from 1998 to 2000.
35 behavior toward mothers. We collected data by observing all individuals within a
36 we aimed to provide comparative data on the presence and relative
37 in the Yerkes chimpanzees. Combined data on the 2 chimpanzee colonies,
38 other species. We present comparative data for 11 groups from 3 sites in Costa
39 especially in India. We compared data on an isolated population of golden
40 provided complementary data sets. Males and females occupied
41 I provide the first comprehensive data on the composition and mineral
42 grey mouse lemur in 1994. It contains data on individuals in zoos and research
43 signals in different social contexts. Data from behavioral observations
44 discuss the contribution of cytogenetic data to studies of systematics,
45 China. We compared demographic data recorded in the group (and in its
46 we collected detailed demographic data on six bands at four sites in
47 a 12-mo period in 1999. We derived data on preferences for particular game
48 anecdotal or incomplete dietary data from field studies and allometric
49 demographic, behavioral, and dietary data for Abyssinian black-andwhite
50 differ among them. I collected dietary data during a first yearlong comparative
51 in Kibale from published dietary data and our estimates of mineral
52 territory shift, and (6) travel distance. Data collection covered a period of 10
53 Uganda, and combine them with earlier data (Mitani and Watts, 1999, Am. J.
54 in Asia. Behavioral and ecological data suggest that the two-adult group or
55 hostile nature of intergroup encounters. Data collected on white-handed gibbons
56 behavioral observations and endocrine data to determine female reproductive
57 population dynamics. We evaluate data on primate abundance in light of
58 Coast's Ta¨i Forest. Via experimental data, we show that sooty mangabeys
59 Conservation and Census Methods Few data exist regarding long-term changes
60 and Capuchin Population Patterns Few data exist on how primate populations
61 than any other known community. Field data show that adult Ngogo males
62 The data are complemented by field data on the environmental contexts in
63 to study in the wild. Limited field data have provided conflicting information
64 observational data to complement field data and to better characterize the diets

N Concordance

65 extent of tolerant gregarious foraging. Data on orangutans and chimpanzees
66 I combined morphological fruit data, phenological, and demographic
67 at Arashiyama, Japan We gathered data on the amount, composition, and
68 cytochrome b gene. Genetic data yield strong support for 2 of the 3
69 recent intergroup dispersal. Genetic data confirm Callithrix jacchus live in
70 by the dominant male. The genetic data are consistent with
71 We collected behavioral and hormonal data during 7 mo from the reproductive
72 and behavior via pre- and post-hurricane data was presented when hurricane Iris
73 species can provide important data to define how dietary and habitat
74 to acquire critically important data on their habitat requirements, diet,
75 of each fragment in order to relate injury data to them. We censused 333
76 population. It also yields invaluable data on patterns of fertility and mortality
77 and one-male units tended to be larger. Data from Eritrea suggest that these
78 to the ground, we analyzed ad libitum data from 5 study sites, covering 2
79 and New World monkeys. Very little data have been reported in prosimians. I
80 is no more profitable. Very little data allow one to test conclusively this
81 troops, I collected precise locational data with a differentially corrected
82 rufus.We collected scent-marking data on adult male Lemur catta at
83 separately for the paternal and maternal data sets show a Y-chromosome
84 are controversial. Molecular data indicate a phylogeny at odds with
85 with my hypothesis, we need more data to test it. KEY WORDS:
86 concerning the latter finding, more data are needed to confirm these results.
87 of Molecular and Morphological Data for Understanding Ateline
88 capturerecapture and morphometric data with detailed behavioral
89 in brown lemurs using morphometric data from 3 populations in southeastern
90 in Cebus capucinus Most data relating to aggressive and
91 Research Center We collected nesting data from 512 fresh nest sites, including
92 that are unclear.We present new data on hunting by chimpanzees at
93 of A. laniger. We present new data on body weights of Avahi which,
94 social groups for which observational data were available, together with
95 provides experimental observational data to complement field data and to
96 resources. Here, I report observational data from a wild population of hamadryas

N	Concordance
97	on hamadryas baboons, to obtain data which will be integrated in a national
98	classified as folivores, yet 15 years of data on western lowland gorillas (Gorilla
99	Park, NE Argentina. We obtained data on six different groups (33
100	mountain gorillas. However, the lack of data from habituated groups prevents a
101	we make about the validity of data and the homology of observed
102	G. zanzibaricus is not supported by our data. The most likely alliance for
103	rule out local differences in ecology, our data suggest that social learning may
104	and with private individuals. Our data suggest that early rearing
105	from ascending the rank order. Our data suggest that in the absence of
106	of the Eastern Argentinean Chaco. Our data show that the area is highly
107	in fecal glucocorticoid excretion. Our data provide the first detailed information
108	groups plus extragroup copulations; our data provide no evidence for polyandry
109	and absence of mangabeys. Our data indicate that red colobus and Diana
110	archaeolemurids of Madagascar. Our data include dental use wear (examined
111	Park, S˜ao Paulo, Brazil). Our data are from direct observation and from
112	the Cercopithecini than Papionini. Our data also support the hypothesis that
113	area and 2) to obtain fecal parasitic data on 3 groups of baboons to provide
114	further study. Nonetheless, preliminary data suggest that biomechanical
115	also compared preliminary data related to nutritional condition,
116	of the species, report preliminary data on its field biology and discuss
117	Amazonian Tropical Forest I present data regarding the diet and feeding
118	and chimpanzees. We present data on patterns of reconciliation in two
119	to question this image.We present data on injuries in Mexican mantled
120	for Callimico goeldii. We present data on group sizes, habitat utilization,
121	We pooled the results with previous data to show that abundance of red
122	new studies employing proportional data aimed at conveying input/output
123	Second, some studies have provided data suggesting that primate mothers
124	of primates and other mammals provide data suggesting that as substrate size
125	statistical reanalysis of biometrical raw data from calcaneal morphology recently
126	might have operated. Published data from a smaller chimpanzee
127	baboons to provide baseline reference data.We sampled individual baboons
128	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

N Concordance

161 ranging patterns is detectable with the data available, which is likely a
162 enamel thickness, and d13C. The data are complemented by field data on
163 a social group of >500 individuals. The data are based upon 20-min focal
164 System (GPS) over 6mo. The data analysis yielded the speed and
165 Forest for 15 months. I compare these data with similar information collected on
166 foods containing tannins. These data support other suggestions of African
167 and saplings can occur. These data suggest that Strychnos mitis does
168 of cercopithecines. These data may help to interpret how the
169 known dominance styles, the Tibetan data generally fell within the range for
170 of genetic, behavioral and soft tissue data. This has placed museum curators
171 Impenetrable National Park, Uganda Data on intraspecific dietary variability
172 Forest Reserve, Uganda. I use data gathered during monthly farm
173 due to different sample sizes. I used data from the total available sample
174 species at 16 sites in Guyana. I used data from 1725 km of line-transect
175 those exploited by generalists. I used data from 1,725 km of primate surveys
176 patterns than elsewhere. We used data collected on food supply and party
177 We examined spatial proximity using data on the distance from nearest
178 prefer brightly colored males using data on periovulatory sexual behavior
179 During the 11-yr period for which data are available, only alpha males
180 do Rio Grande do Norte colony and wild data via regular trapping of 243
181 to 5 yr. These results contrast with data from the wild. Wild bonobos tend to
182 I compared these observations with data from June, 1975. The core of Troop

Evidence

N	Concordance
1	predictions. Overall, there is ample evidence for the role of KS in shaping
2	body weights, provide additional evidence for recognizing eastern and
3	Avoiding Predators: Expectations and Evidence in Primate Antipredator
4	Copulation Calls in Guinea Baboons: Evidence for Postcopulatory Female
5	male together with circumstantial evidence suggest that Kasekela males
6	of wild callitrichids provide conflicting evidence regarding polyandrous groups.
7	in Eurasia. They have yielded critical evidence for the evolutionary history,
8	are contradictory, cytogenetic evidence clearly appears to be better
9	with Arboreal Monkeys: Experimental Evidence for the Effects of Reduced
10	New Evidence for Leaf Swallowing and
11	in auditory range for 155 min. Further evidence of gorilla presence included 8
12	in longitudinal behavioral studies, for evidence of gastrointestinal parasites.
13	Biogeography of Dwarf Lemurs: Genetic Evidence for Unexpected Patterns in
14	from female vaginas provides further evidence for sperm competition in
15	of Multimale Breeding Groups: Evidence for Non-monopolizing
16	obscure. Now there is growing evidence that mate choice decisions
17	of the state. We collected indirect evidence of the presence of a second
18	primate communication. There is evidence that some primate signals are
19	reciprocity does not. However, there is evidence for a reciprocal relationship
20	for polyandrous males. We found little evidence that males in polyandrous
21	in Alouatta palliata mexicana: Evidence From Injuries, Demography,
22	ascanius) and Strychnos mitis: Evidence for Plant Benefits Beyond Seed
23	level remains to be clarified; more evidence from a large range of Asian
24	repeatedly inferred from morphological evidence. However, some analyses
25	from other primates. However, mounting evidence suggests that divergence
26	Relationships of Lemurs I review new evidence on origins and adaptive
27	of aggression among primates, new evidence is emerging to question this
28	extinction (Oates et al., 2000), new evidence from forest in the extreme
29	within the study area. Also, there is no evidence to suggest that the distribution
30	between males and females. I found no evidence that Ta can be used to predict
31	in the 7 study groups. There is no evidence that dispersal events were
32	spectacled leaf monkeys.We found no evidence of redirection of aggression

N	Concordance
33	grip preferences. There was no evidence of rearing effects on
34	in intact natal family groups showed no evidence of ovarian cyclicity. We noted
35	OMUs within the group, there was no evidence of a hamadryas multilevel
36	and Bejarano (1981), there was no evidence for the presence of the two
37	center of the study area. We found no evidence for the use of seasonally
38	J. Primatol. 15:367– 371), we found no evidence for sympatry between Saguinus
39	consume the same fruits.We found no evidence for social learning when
40	in Macaca sylvanus in Gibraltar: No Evidence for Rank Dependence The
41	copulations; our data provide no evidence for polyandry and are
42	monopoly over the female and no evidence for overt competition between
43	contrary to expectations, there is no evidence for female chimpanzees
44	uninvolved third parties. There was no evidence for consolation—affiliative
45	provide, therefore, the best type of evidence to test KS. But such evidence
46	under the scrutiny of multiple lines of evidence. KEY WORDS: paleoecology;
47	of archaeolemurids. Several lines of evidence converge to suggest that all
48	Molecular Evidence of Reproductive Isolation in
49	solutions, and acquisition patterns. Evidence derives primarily from
50	the fossil record because it is positive evidence. But we cannot control how
51	scan samples, providing preliminary evidence that intragroup contest
52	also examine whether available primate evidence supports various hypotheses
53	of Ferrier and Yeo (1884). We provide evidence that these papers can provide
54	GT and GRE. The results provide evidence that ovarian function in mature
55	innovation in primates and provides evidence that much individual variation in
56	in different contexts. The results provide evidence that, during communicative
57	increased with body size, providing evidence for vertical stratification within
58	male that sired them, thus providing evidence for a behavioral mechanism of
59	invariably formed a clade, showing evidence of very recent radiation. The
60	of primate societies. I review recent evidence of predation and antipredator
61	primates. The review revealed some evidence of population-left sided cradling
62	sex-biased dispersal, present strong evidence for contemporary hybridization
63	type of evidence to test KS. But such evidence is difficult to obtain because
64	populations. In this paper, I review the evidence of laterality in maternal cradling
65	interactions in various areas. But the evidence for kin-selected altruism
66	undetected to this point. I discuss the evidence—a tail, a skin and a
67	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 con- firm 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 corroberate 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

N Concordance

33 Our results are consistent with previous findings at the same and neighboring
34 the reliability of previously published findings on hand preferences in
35 is consistent with previously published findings in the Yerkes chimpanzees.
36 compared them to previously published findings in captive chimpanzees at the
37 female.We therefore conclude that findings from captivity should be only
38 conspecifics were. We discuss the findings with respect to the ecology of
39 is also supported. Taken together, the findings suggest that female copulation
40 be attributed to forest structure. The findings suggest that the major part of
41 genera, will also benefit from the findings presented in this paper. KEY
42 and the days when they did not. The findings demonstrate that mate guarding
43 seasonality on group movements. The findings are not only important for
44 the number of copulating partners. The findings are consistent with predictions
45 members of neighboring groups. These findings obligate a renewed consideration
46 ripe fruits in secondary forest. These findings not only reflect the larger
47 siblings being more aggressive. These findings have been associated with
48 high interspecific variation. These findings demonstrate that vocal and volar
49 consistent with allelic trichromacy. Findings indicate the presence of an M/L

Investigation

N Concordance

1 by both experimental and comparative investigation. Somewhat more tenuous is
2 strike a compromise among functions. Investigation of the mate again, sperm
3 males. The study is the first extensive investigation of behavioral innovation in
4 KEY WORDS: direct olfactory investigation; seasonality; sexual
5 KEY WORDS: Lemur catta; olfactory investigation; scent-marking; ontogeny;
6 1999. Male direct and indirect olfactory investigation on females showed
7 than scent-marking. Moreover, olfactory investigation of conspecifics appeared
8 We analyzed the role of direct olfactory investigation in relation to seasonality,
9 On the whole, we found that olfactory investigation appears and matures earlier
10 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 Census 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

1 region of the reserve. We used 2 methods to calculate population density
2 independent, appropriate analytic methods should reveal subtle and
3 for Conservation and Census Methods Few data exist regarding
4 A standardization of collection methods is greatly needed to allow for
5 Primates; Rensch's Rule; comparative methods; allometry; phylogenetically
6 ranging patterns. We compared methods of home range analysis for 2
7 A Reevaluation with Controlled Methods Affiliative postconflict
8 other sites. Despite the use of different methods, the same species exhibited
9 but with different diets and different methods of food processing. Past
10 noninvasive multilocus genotyping methods will resolve these questions
11 Field Methods for Capturing and Marking
12 surveys) and qualitative (interviews) methods. We recorded the red howler
13 few investigators used early multivariate methods. In mammals, these studies
14 is important to assess the reliability of methods used to analyze ranging
15 biological information is independent of methods used in the several studies.
16 though when several optional methods were available, their balance of
17 sampling and ad libitum sampling methods.We determined the time
18 involved in applying these statistical methods in detail. KEY WORDS: sexual
19 Evolution 39: 783–791), I apply the methods to New World monkey
20 South America. We report here on the methods and drug dosages used to
21 at the Arnhem Zoo. Since then methods have been considerably refined,
22 that look almost identical. These methods provide a practical means of
23 and subsequently sequenced. These methods have been applied with great
24 subfamilies are the rule when these methods are applied. KEYWORDS:
25 probably result from more traditional methods of hygiene and lack of available
26 time. Therefore, we employed two methods to reduce this bias: (1) we
27 between results from the two methods in some of the finer details of
28 by the number of nest groups; the two methods gave similar results.We found

Methodology

N Concordance
1 group, is the first to use the revised methodology with chimpanzees. We
2 colonies of chimpanzees via the same methodology. Differences in hand

Paper

N Concordance
1 from the findings presented in this paper. KEY WORDS: phylogenetics;
2 perspectives and needs. The aim of this paper is to examine the impact of crop
3 of Grey Mouse Lemurs This paper illustrates the importance of a
4 reported in human populations. In this paper, I review the evidence of laterality
5 in 3 of 4 capuchin species. In this paper, I analyze the effects of male

Papers

N Concordance
1 the 1950s. More than 2,000 academic papers have been published, covering
2 a computer search of the literature (i.e., papers published prior to about 1966). In
3 are unaware of the important papers involving lesions of the primate
4 (1884). We provide evidence that these papers can provide valuable information
5 here an annotated bibliography of these papers beginning with that of Ferrier and

Procedure

N Concordance
1 cluster analysis; parametric resampling procedure..
2 validity of the apparatus and the testing procedure. The most notable difference

Research

N Concordance

1 recommendations for conservation and research. KEY WORDS: colobus;
2 data on individuals in zoos and research establishments. Analyses of
3 medical treatment. All workers at research sites should be monitored and
4 should not be neglected in behavioral research dealing with instrumental tasks.
5 of human influence while conducting research on wild gorillas but also
6 biodiversity hotspots. Conservation research since 1997 has documented
7 offer suggestions for future conservation research and consider strategies to
8 cryptic genera for which continued research will surely reveal even more
9 paleoecological and ecomorphological research have enabled researchers to
10 of the most active fields in evolutionary research. After a brief overview of the
11 folivorous primate populations. Further research on habitat requirements of Indri
12 We suggest directions for future research, particularly in regard to primate
13 tutee status, would benefit from greater research. Future instigated studies on
14 chimpanzees at the New Iberia Research Center, I observed that
15 captive colonies and when interpreting research data. KEYWORDS: long-tailed
16 community ecology. These interrelated research activities should contribute to
17 1998 and April 1999 at the Iyema research site, Lomako Forest,
18 of the African apes. During laboratory research at the San Francisco Zoological
19 Chimpanzees, and Humans at Mondika Research Site, Dzanga-Ndoki National
20 of western gorillas at the Mondika Research Site, Central African Republic
21 Gorilla Nest Construction at Mondika Research Center We collected nesting
22 attention to cases where more research is urgently required and in
23 fruit eaters than chimpanzees are. My research provides experimental
24 quality, and initiation of observational research with habituated individuals to
25 Thirty Years of Research in Kibale National Park,
26 it has been the focus of over 30 yr of research and has received considerable
27 method and to evaluate past research, it is necessary to understand
28 interpret this finding in light of previous research reporting that long-tailed
29 at the Yerkes National Primate Research Center. The new sample
30 Learning and Primate Reintroduction Research on social learning may be of
31 and forest and corridor restoration. Research should focus on traditional
32 catta) We conducted a long-term research project (1996–1999) on
33 has advanced considerably through research over the past half century.
34 increased significantly, partly due to research revealing specific subdivisions
35 This information is equally relevant to research and to captive management. I
36 dipterocarp forest in the Barito Ulu research area, Central Kalimantan,
37 and from Mpala Group, Mpala Wildlife Research Centre, Kenya. Lodge Group

Result

ova. Concordance

1	of all ranks relatively equally. As	a result,	there were few rank-related
2	cooperative relationships. As	a result,	the size of its grooming network
3	than in other families. As	a result,	the Makand´e forest is subject to
4	capuchin populations, probably as	a result	of their more seasonal
5	colobine populations are limited as	a result	of the combined effect of the
6	another group. The conflict was not	a result	of territorial defense or intergroup
7	feeding on fruit probably changed as	a result	of seasonal availability,
8	of habitat for Rhinopithecus bieti is	a result	of population growth of humans,
9	to impair ovarian function, likely as	a result	of increased activation of the
10	the highest mating success as	a result	of his high expenditure of time and
11	change with temperature as	a result	of changes in energy required for
12	conservation organizations. As	a result,	Kibale serves as a valuable case
13	than reproductive females and as	a result	experienced more years of
14	ignored the arrival of observers. As	a result,	daily path lengths were longer
15	the diversity of feeding niches and	result	in a low incidence of polyspecific
16	of Eulemur fulvus is the evolutionary	result	of female preference for brightly
17	high levels of frugivory probably	result	from year-round availability of fruit
18	distribution of Callimico goeldii may	result	from their restriction to forests that
19	parasite levels of Ba'Aka probably	result	from more traditional methods of
20	vulnerable. These factors should	result	in the disruption of the life cycle of
21	differences in PCS among species	result	from differences in muscle mass
22	and maintenance of oil palm uses, the	result	raises interesting questions about
23	of intestinal parasites. This may be the	result	of the high proportion of swamp
24	evolved in the human female as the	result	of selection for a postreproductive
25	males furthermore seemed to be the	result	of mate competition. The high
26	1 and 19 is best explained as the	result	of a reciprocal translocation, which
27	on reducing germination time. This	result	may be related to longer gut
28	feed on harder or frugivorous diets. This	result	complements findings from
29	encounters were more likely to	result	in the displacement of one group,
30	The distribution patterns are thought to	result	from specialists using relatively
31	(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
2	Information gleaned from adults results from efforts initiated by the
3	tail, a skin and a photograph—and results of accompanying surveys.
4	R. bieti and R. avunculus) are. Results also indicate that 3
5	there are discrepancies between results from the two methods in some of
6	was well predicted by patch size. Both results highlight the independent nature
7	which opponents first exchanged calls. Results suggest that competitive
8	steepest slope (0.134) is for Catarrhini. Results differed when we conducted
9	16S rRNA gave the most consistent results, while cytochrome b was least
10	On the whole, we found that contrasting results were probably related to different
11	on color rather than brightness cues. Results indicate that each male and one
12	lateralized than females. We discuss results in the light of recent models of
13	of urine that indicate organ dysfunction. Results of the different analyses are
14	did not increase just before emigration. Results suggest that spatiotemporal
15	reproductive biology. Our genetic results indicate that, as in other atelins,
16	monkey fruit processing on seed fate. Results indicate that 83% of seeds spat
17	were not otherwise essential habitat. Results of this study have implications
18	overlap of 1.5 m. Virtually identical results for Balanites wilsoniana and
19	hypothesis, in which infanticide results from overcrowding or recent
20	the need for caution when interpreting results from non-habituated gorillas. KEY
21	subjects and across object location. Results show that, according to the
22	to a shortened cycle) over 54 months. Results from transverse experiments
23	lemurs under natural conditions. My results showed that male and female
24	to seasonal or scarce resources. My results indicate that wild spectral tarsiers
25	might be a form of sexual coercion. My results indicate that female reproductive
26	and eat young leaves and fruit. My results agree with reports on the
27	affected estimates of primate numbers. Results indicate that two species, blue
28	in female dominance status occurred. Results suggest that in addition to
29	or group traditions. A comparison of our results with the diets of gorillas of the
30	years after a major flowering event. Our results support the argument that
31	food than when they were isolated. Our results suggest that: 1. juvenile common
32	ears. In contrast to other studies, our results suggest that the presence of

N	Concordance
33	may partly explain these patterns. Our results suggest that variation in plant
34	the number of floor nests. Our results suggest that providing adequate
35	short chirp calls. Our results suggest specific status for gray
36	undisturbed montane rain forest. Our results suggest a relationship between
37	within call types were apparent. Our results show that although a prosimian,
38	and phonotaxic techniques, our results show that cotton-top tamarins
39	of resources important for survival. Our results indicate the importance of
40	an additional pericentric inversion. Our results indicate that Pygathrix nemeus is
41	with average tree circumference. Our results indicate that Rhinopithecus
42	hominoid and Lufengpithecus. Our results indicate that both the upper and
43	the first 9 weeks of infant life. Our results indicate that the presence of
44	ages and in future generations. Our results indicate that early cohabitation is
45	the behavior of a focal group. Our results indicate that the langur groups
46	of tree in which a nest is built. Our results illustrate that the nest-related
47	is more important than tree size. Our results have at least three implications
48	breeding and nonbreeding males. Our results confirm the challenge hypothesis
49	unfavorable to monkey populations. Our results confirm that habitat mosaics may
50	a model integrating and interpreting our results as a function of the spatial and
51	social factors appear to play a role. Our results are similar to those found a
52	than mature leaves or flowers. Our results are consistent with previous
53	rank and matrilineal inbreeding. Our results are consistent with the
54	in either colony. We discuss the overall results in the context of the evolution of
55	density, and in Alouatta pigra results in a shift from single to multimale
56	Okavango Delta, Botswana We present results of a 10-year study of free-ranging
57	foraging strategy of a species. I present results from digestive passage
58	and Lepilemur edwardsi I present results from a comparative field study on
59	familiarity acquired during peer-rearing results in sexual aversion at maturity.
60	the specific lifestyles. Our most recent results demonstrate that chimpanzees
61	in the Kakamega Forest, Kenya I report results of a 4-year study, which profiles
62	groups; the two methods gave similar results.We found differences in number
63	distribution of injuries. Although some results suggest that food resource
64	is correlated with reproductive success. Results showed that numbers of

N Concordance

65 dimorphism are indicated by this test. Results of the discriminant function
66 that by removing pulp, a process that results in a reduction of fungal pathogen
67 not configurationally. We compare the results with those of previous studies
68 for the region and discuss the results with reference to previous studies
69 not be differentiated. We pooled the results with previous data to show that
70 rates on T levels, comparing the results with predictions of the challenge
71 during the phase of ovarian activity. The results suggest that, in contrast to most
72 the speaker. Collectively, the results suggest that whinnies are used
73 deprivation and pretraining. The results suggest that the 4FM is a
74 and clumped spatial distributions. The results suggest that woolly monkeys are
75 frequency of aggression received. The results suggest that the costs of estrous
76 during the low-fruiting season. The results suggest that the fruit of Musanga
77 for the Papionini and Colobinae. The results suggest Allenopithecus and
78 only between GT and GRE. The results provide evidence that ovarian
79 produced in different contexts. The results provide evidence that, during
80 duration of canine crown formation, the results provide essential background
81 those of smaller-bodied hominoids. The results permit us to understand more
82 food to infants than mothers did. The results of this study emphasize the
83 presumed to affect fruit choice. The results of the independent regressions
84 characteristic that can strongly bias the results of quantitative comparisons
85 for Speciation in Ateles We used the results of phylogenetic analyses of
86 patterns, and thus directly influence the results of nest surveys used to
87 by Saguinus oedipus We report the results of an experiment designed to
88 and relative densities. We report the results of a survey conducted in 6 forest
89 Low Altitude Rain Forest We report the results of a census of Indri indri
90 of indrid chromosomes. In general, the results obtained by chromosome
91 2, involved only the 3-act solution. The results indicated that the types of
92 analyses of 122 leaps. The results indicate that irrespective of
93 latitudes, but differ in forest type. The results indicate that the availability of
94 above the juveniles' targets. The results indicate that the sole presence of
95 effect was independent from age. The results indicate that the possibility of
96 other groups, except Strepsirhini. The results indicate that phylogenetic effects

N	Concordance
97	was directed up the hierarchy. The results indicate that although Japanese
98	chimpanzees. We discuss the results in terms of the role of early
99	because of high individual variation. The results have clear implications for the
100	buffering gastric upset. We discuss the results from the viewpoint of several
101	influenced searching for prey. The results emphasize the distinctly different
102	methodological point of view, the results emphasize a well-known but
103	and 6– 7 generalist species. The results differ from findings in Amazonia
104	third parties. This finding mirrors the results concerning reconciliation in
105	a decrease in home range size. The results are consistent with ones for other
106	intergroup transfer in mangabeys. The results also suggest that dispersing
107	and analytical method, but the results also gave strong phylogenetic
108	interbirth interval is ca. 18–20 mo. The results also confirm that females
109	inflict injury upon them. Although these results support the coercion hypothesis,
110	copper and manganese. These results suggest that despite their high
111	a time frame of several weeks. These results suggest that mutualism plays a
112	of their prebirth body weight. These results suggest that caring for infants is
113	to these ecological variables. These results suggest that woolly monkeys
114	in 300 mM fructose solutions. These results suggest that gorillas use
115	be members of the opposite sex. These results suggest that bonds between the
116	number of anestrous females. These results suggest that males tended to join
117	ambient temperature decreased. These results suggest that energy requirements
118	differ across the three periods. These results suggest that interactions with
119	of thermoregulatory modulation. These results strongly suggest that, during the
120	as substrate size decreased. These results reject the hypothesis that arm
121	estimates of primate numbers. These results provide guidelines for the use of
122	than in unimale groups. These results may be explained in terms of
123	more data are needed to confirm these results. KEY WORDS: douc langur;
124	and Pongo. Taken together, these results indicate that sexual differences in
125	with the tendency to reconcile. These results indicate that spectacled langurs
126	reconciliation. We discuss these results in light of recent theories
127	badly damaged by baboons. These results have important implications for
128	their grooming less equitably. These results fit those expected if limits on

N	Concordance
129	of offspring surviving to 5 yr. These results contrast with data from the wild.
130	of food patches with the females. These results contradict dietary learning by trial
131	and combinative behaviors. These results are consistent with the
132	effect on male grooming. These results and earlier, conflicting findings on
133	females and resident members. These results agree with previous reports on
134	statistical difference in weight. These results accord with previous reports of
135	in the dryest zone. Possibly this results from fruit failure in years following
136	based on craniodental variation. Results of this investigation suggest
137	crown region. When combined with results on the rate and duration of canine

Study

N	Concordance
1	are higher than at Kummer's (1968) study site in Ethiopia. Hamadryas
2	trap locations 50 m apart over 2 study areas of ca. 25 ha each. The
3	we analyzed ad libitum data from 5 study sites, covering 2 species and 5
4	ascanius). We established 4 study sites approximately 15 km apart in
5	home ranges, and I expected that the 5 study groups would eat similar foods.
6	dominance hierarchy among the 6 study males. All males copulated with
7	and the number of adult males in the 7 study groups. There is no evidence that
8	in different parts of their cage in a study of the spatial dependency of
9	most folivorous primates. I conducted a study of the feeding ecology of two
10	in Free-ranging Ateles geoffroyi In a study of the reproductive biology and
11	not been reported for chimpanzees. In a study of captive, adolescent
12	Uganda We previously reported on a study of 4 soils that chimpanzees of the
13	increases during moonlit nights. A study I conducted at Tangkoko Nature
14	volume was relatively high across study populations. Thus, sperm
15	chrysomelas: A Behavioral Study We assessed the color
16	areas. Although overlap zones between study communities mainly represented
17	result, Kibale serves as a valuable case study with which to evaluate the factors
18	strategies by the colobus as a case study of how a primate prey species
19	post hoc among chimpanzee study sites made differences in the
20	hierarchies among the chimpanzee study sites are affected by food

N Concordance

21 data during a first yearlong comparative study of wild groups of Callimico goeldii,
22 western woolly lemurs. A comparative study of wild subjects and museum
23 and definition confound cross-study comparisons. I introduce a
24 on feeding invaluable. In the current study, we quantified energy contents of
25 of gaze. We present a detailed study of gazing and eye
26 About half of the individuals in each study group initiated 74%–90% of all
27 our findings with those from an earlier study of similar species in Gabon, where
28 We conducted an experimental field study on wild groups of emperor
29 present results from a comparative field study on the feeding behavior of the
30 During a long-term field study on the behavioral ecology and
31 and experiments from a 3-year field study of spider monkeys (Ateles
32 National Park, Uganda: Diet Via a field study of chimpanzees (Pan troglodytes
33 primate species. During a 4-mo field study of 12 females and 27 males, we
34 revision of the genus. During a field study in southeastern Madagascar, we
35 between the location of our field study and the origin of the respective
36 group of Tonkean macaques. In a first study, immature subjects observed their
37 in China started in 1862, but fruitful study began only in the 1950s. More
38 is quite complex and requires further study. Nonetheless, preliminary data
39 male behavior in Costa Rican howlers. Study males engaged in little or no
40 censused Lemur catta within a 1 km2 study area at Berenty Reserve,
41 In addition, we conducted a year-long study of the ranging behavior of 3 groups
42 and female rank via of a longitudinal study on 16 adult ring-tailed lemurs living
43 Papio; human impact; longitudinal study..
44 attacked the target group. Our main study group was the target of such
45 We collected data during a 12-mo study on 2 groups of moustached
46 of ecology. I conducted an 18-mo study comparing the feeding ecologies of
47 23.5 years apart at the Ngogo study area in Kibale National Park,
48 such as bush babies. However, no study included quantitative comparisons
49 in Lemur catta are unknown, as no study had heretofore documented
50 with a highly diversified diet. There is no study describing if and how the diet is
51 Ecuador during a oneyear observational study and subsequently used molecular
52 contributed to ¸1% of the diet. For one study group, the proportion of ripe fruit in
53 not frequently entered by any other study group. Mean daily path length is
54 0 to 6 years and were members of one study group in which kinship relations
55 to S. fuscicollis. Over all our study supports the idea that

N 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

N	Concordance
86	that we captured and marked during the study. Intergroup transfers are
87	introduction, and follow-up periods. The study included three different introduction
88	were very low throughout the study. In the Musanga-dominated
89	away from the river. We conducted the study in September–October, 2000,
90	varied in nutritional content. During the study, I offered 2500 paired-food choices
91	been underestimated for several of the study groups. Home range overlap was
92	agonistic dominance hierarchy in the study group shows significant and strong
93	behavior occurs. All 4 females in the study group participated in GG-rubbing,
94	the southern dry forest of Mayotte. The study focused on activities and diets of 4
95	monkey group in every month of the study. Both species were highly
96	care patterns. Primates are ideal for the study as there is variation in infant care
97	one in Northern Taiwan. Although the study areas differed dramatically in their
98	Three distinct populations inhabit the study area. We recommend conservation
99	a single 4-ha square in the center of the study area. We found no evidence for the
100	The monkey population in the study area was reduced by 42% and
101	made 10 parallel line-transects in the study area; they were 5-km long and
102	density of chimpanzees in the study area both by the number of
103	and Callithrix geoffroyi live in the study area. Although variable, primate
104	a significant factor anywhere within the study area. Also, there is no evidence to
105	the large groups increased. Within the study area, 5 social groups have been
106	just given birth at the beginning of the study, and she gave birth 6 mo later.
107	with gorillas in the 6 mo preceding the study (53.5%) to villagers who had no
108	partial sequences employed in the study, 16S rRNA gave the most
109	Colony of Apes The purpose of this study was to evaluate the reliability of
110	interaction at the time. Overall, this study suggests that a star-shaped
111	Forest Reserve, Rwanda. This study is the first to examine the ranging
112	essential habitat. Results of this study have implications for improving
113	than mothers did. The results of this study emphasize the existence of
114	some gregarious nonprimates. This study, conducted with a different captive
115	One male emigrated from each of three study groups, providing ideal
116	was supported in only one of the three study groups. Males in two groups
117	in availability of resources. To study the role of daylength on seasonal
118	a Hurricane The opportunity to study the effects of a powerful hurricane
119	kinds of models that could be used to study primate behavior and ecology:
120	chimpanzees have proved difficult to study in the wild. Limited field data have
121	it has become possible, to a degree, to study genetic variation as it relates
122	entered on ¸30% of a group's total study days) of any one group were not
123	Kenya I report results of a 4-year study, which profiles grooming partners
124	underpinning it. Via a 2-year study, we explored determinants of
125	and home range size. During the 3-year study, the gorillas ate 16 species of fruit
126	lagotricha) based on a 12-year study of one group of them at Macarena
127	We present results of a 10-year study of free-ranging gray-footed chacma
128	fragments outside of Kibale, a 5-yr study revealed that human land-use
129	and unlogged forests and a 10-yr study of forest dynamics showed that

Studies

N	Concordance
1	rates of use of positional modes across studies. I also discuss the significance
2	to allow for direct comparison among studies. To develop an appropriate
3	in Guyana: A Biogeographic Analysis Studies of primate community structure
4	Aotus azarai azarai in Argentina Studies of infant development and
5	Night Monkeys Long-term behavioral studies require the permanent
6	involved in longitudinal behavioral studies, for evidence of gastrointestinal
7	and Ateles belzebuth belzebuth Studies of interspecific competition and
8	with estimates of gestation from captive studies. Low steroid concentrations from
9	tough foods. Preliminary captive studies have suggested that they may
10	Marmosets (Callithrix jacchus) Captive studies and occasional trappings of wild
11	as the day of birth. However, captive studies also indicate that weaning young
12	potentially very useful to conservation studies because they may offer an early
13	follicular phase of the menstrual cycle. Studies of mandrills support the
14	What Cytogenetic Studies May Tell Us about Species
15	and dominance relationships. Detailed studies of the patterning of altruistic
16	have been well studied but empirical studies regarding the dynamics of
17	are supported by a number of empirical studies of primates.POCtheory has
18	changes in the physical environment. Studies on primate responses to high
19	Congo. 2Laboratory of Human Evolution Studies, Faculty of Science, Kyoto
20	parts of the brain. Thus, evolutionary studies of many species and of whole
21	developmental and evolutionary studies implying a considerably greater
22	dyads. Ours is among the few studies showing a decrease, albeit
23	tests of it are based only on a few studies of species that have similar
24	might be attributed to the fact that few studies have taken ultimate approaches
25	Brazil is poorly known, and few studies have focused on buffy
26	are widespread in male primates, few studies have examined female choice for
27	and dispersal events.However, the few studies dealing with intragroup
28	Mato Grosso State, Brazil Prior field studies of Alouatta showed the highest
29	which is particularly beneficial in field studies. Fragments containing
30	or incomplete dietary data from field studies and allometric effects on skeletal
31	of more specimens and further studies do not support these
32	no relationship with elevation. Future studies will require more detailed
33	species, and it is very likely that future studies of primates will continue to
34	macaque males (0.31) versus that in studies on the other subspecies Macaca
35	tract visibly unchanged. Independent studies in two populations of
36	from greater research. Future instigated studies on primate social learning would

N	Concordance
37	Saguinus fuscicollis and S. labiatus Studies of sympatric species can provide
38	foraging on thin branches? Laboratory studies of primates and other mammals
39	all the instigated social learning studies in primates published since 1950
40	Mahafaly Special Reserve, Madagascar Studies of primate diets usually focus on
41	convex polygon method used in many studies of nocturnal prosimians.Minimum
42	of Escape Opportunities Many studies have focused on the responses
43	posed by more refined modern studies. KEY WORDS: primary motor
44	In contrast, several recent molecular studies point to a closer relationship
45	of lemurs but also show that more studies on other lemur taxa are needed
46	in primates. Comparative morphometric studies, involving 31 species
47	show ovarian inactivity. However, most studies on callitrichid reproductive
48	major groups of living primates. Most studies have confirmed that lemurs
49	in fact, evident in earlier multivariate studies (Holloway, R. L. (1979). In Hahn,
50	Tools to Crack Open Nuts Naturalistic studies on tool use by nonhuman
51	variation in howler diets and new studies have shown higher frugivory for
52	New York, pp. 245–287). However, new studies employing proportional data
53	Markers Suitable for Noninvasive Studies of Guenon Hybridization We
54	expands the utility of noninvasive studies. KEYWORDS: TSPY;
55	a form of predator avoidance: numerous studies indicate that predation increases
56	derives primarily from observational studies of feeding behavior in free-ranging
57	above the ears. In contrast to other studies, our results suggest that the
58	Facultative Polyandry Studies of wild callitrichids provide
59	in the same population and to other studies of space use in apes but are the
60	and molecular phylogenetic studies of mouse lemurs (Microcebus)
61	as well as differences between other studies of fragmentation and ours
62	in a Modern Baboon Population Studies of cercopithecoid systematics
63	findings corroberate food preference studies and nutritional analyses of wild
64	the results with those of previous studies with other animal species and
65	fuscata and M. mulatta) Previous studies on nonhuman primate maternal
66	for infant survivorship. Previous studies on births in Alouatta caraya in
67	the results with reference to previous studies on Ateles and the importance of
68	complements findings from previous studies of tooth size proportion, and the
69	in canopy and food utilization. Previous studies of positional behavior in Ateles,
70	diet. In contrast to most previous studies of colobines, in which seeds
71	and compare them with previous studies in the Pando. Differences in body
72	with G. senegalensis Previous studies have shown the taxonomic value

N Concordance

73 Genetic Markers in Primate Studies: Elucidating Behavior and Its
74 utilize these signals. However, recent studies of the vocal behaviors of both
75 obscurus). I. Reconciliation Studies of postconflict behavior have
76 in Wild Leontopithecus rosalia Studies have linked variation in feeding
77 of methods used in the several studies. Suspensory behavior facilitates
78 and engage in conflict. Second, some studies have provided data suggesting
79 morphology can be useful in taxonomic studies, particularly when assessing the
80 these questions when longer-term studies of entire populations are
81 during 3 successive short-term studies. All species exhibited marked
82 lagomorphs, badgers and bats. These studies have consistently shown that
83 methods. In mammals, these studies generally show the primacy of
84 the contribution of cytogenetic data to studies of systematics, phylogeny and
85 and deception and their application to studies of nonhuman primate
86 range analysis technique. Together with studies of lemur spatial systems they
87 We conducted radio-tracking studies of 10 pottos and 8 galagos from
88 in human and nonhuman primates, yet studies on the impact of cosleeping on
89 of videotapes from field and zoo studies of orangutans revealed that they

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	nalysis of discrete event systems by
2	nalysis of coupled oceanographic and
3	nalysis of an integrated model for
4	nalysis of a bifurcation problem
5	nalysis and parameter selection for an
6	nalysis and optimization of inner
7	nalysis 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

N	Concordance
36	Dynamic game; Parallel R&D analysis; Simulation tests This paper
37	on new practical possibilities for data analysis in the absence of good theory
38	dividend announcements: An intra-day analysis Keywords: Earnings and
39	beams is steadily increased. Detailed analysis of our data shows several
40	roles in the design, development, analysis and evaluation of computer
41	treatments and the development, analysis, and applications of effective
42	And we thus proposed an efficient analysis algorithm for analyzing the
43	Prior to simulation by the finite element analysis, two separate sets of testing,
44	flow; Coulomb friction; Finite element analysis; Radioactive waste repositories
45	[Feistauer et al., On the Finite Element Analysis of Problems with Non-linear
46	Finite-element analysis of frictionless contact problem
47	medium Keywords: Finite-element analysis; Laminated medium;
48	Sensitivity analysis of microbial growth parameter
49	Sensitivity analysis in the migration of
50	assumed to be equivalent to the EPC. Analysis of the behavior of the RD
51	General equilibrium analysis on arms exports to developing
52	An analytical mass balance error analysis shows that the proposed
53	Hamiltonian PDEs; Backward error analysis Several recently developed
54	be a starting step towards a total error analysis of the numerical solution of split
55	numerical simulations. Backward error analysis for PDEs, or the method of
56	this paper we initiate a backward error analysis for PDE discretizations, in
57	Backward error analysis for multisymplectic
58	-Shell error analysis for “Walk On
59	Lyapunov stability theory is used for analysis of the system. A numerical
60	is investigated. The FEM analysis of the problem is also
61	both a theoretical and experimental analysis of asymmetric stator and rotor
62	and water policy options selected for analysis, and highlights the plausibility of
63	is obtained, based on which further analysis is conducted to represent the
64	path R&D approach: a stochastic game analysis Keywords: Dynamic game;
65	system of differential equations. Group analysis is applied to this system. New
66	A new approach related with group analysis and hodograph type
67	similarity analysis; Linear harmonic analysis We use a multi-scale similarity
68	microbiology in the context of hazard analysis and critical control points
69	Simulation analysis of the effects of the
70	a subcritical Hopf bifurcation. However, analysis of the experimental data also

N	Concordance
71	The analysis of neurologic studies using an
72	the coincidence degree and inequality analysis, the authors study further global
73	Interval analysis; Directed interval analysis; Stochastic methods for error
74	The algorithm set inversion via interval analysis (SIVIA) makes it possible to
75	3-4 Keywords: Bounded errors; Interval analysis; Nonlinear estimation; Robot
76	algebra, following the thought of interval analysis. First of all, we give the concept
77	interval arithmetic Keywords: Interval analysis; Directed interval analysis;
78	Performance verification; Interval analysis Complex multi-processor
79	containing random errors in the inverse analysis. Different functional forms,
80	to develop and run. The mathematical analysis approach is preferable but in
81	Unilateral shifts; Multiresolution analysis; Wandering subspaces
82	constructed through a multiresolution analysis, there corresponds a unilateral
83	subspaces to wavelet multiresolution analysis (MRA) will be discussed. .
84	resulted from a wavelet multiresolution analysis (MRA). The former has not been
85	by the notion of multiresolution analysis. In practice, however, one is
86	the Floquet discriminant. The Mel?nikov analysis yields explicit conditions for the
87	in order to develop a Mel?nikov analysis of the noneven chaotic regime.
88	Mel?nikov analysis of a symmetry-breaking
89	the NLS equation Keywords: Mel?nikov analysis; NLS equation;
90	The paper also provides a novel analysis of four risk ratings using
91	parameter estimation and the numerical analysis schemes.
92	value problem in 3D; Numerical analysis Outdoor high-voltage equipment
93	terms. In [Feistauer et al., Numerical analysis of problems with non-linear
94	classical problem in numerical analysis is considered, namely, to find
95	boundary value problem; Numerical analysis Droplets on insulators in
96	the mathematical and numerical analysis are also presented. .
97	problem in the area of Numerical Analysis.
98	of the accessibility and observability analysis for implicit ordinary differential
99	system. As far as we know, the kind of analysis here proposed is entirely new.
100	Comparative analysis of risk ratings for the East
101	Cointegration analysis of metals futures Keywords:
102	to the original. In addition, based on analysis and insight into the correlations
103	Conditioning analysis of separate displacement
104	and numerically. A consequence of our analysis is a class of spatially localized,
105	and solvability of the local system. Our analysis has been performed by

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106 of the cell Reynolds numbers. Our analysis and numerical experiments
107 evaluation; Simulation The performance analysis of network architecture is a very
108 Timed Petri nets; Performance analysis In the design and analysis of
109 divisible load paradigm: performance analysis and simulation Keywords:
110 We present a performance analysis and experimental simulation
111 as a decision support tool for policy analysis.
112 this decreas is not the result of a poor analysis, but it really appears. In our
113 method The present analysis is an application of the
114 method comprises the probabilistic analysis and the simulation technique
115 Computer algebra; Qualitative analysis; Rigid body mechanics;
116 Computer algebra; Qualitative analysis; Rigid body mechanics;
117 of river flow. Water quality analysis is carried out using an artificial
118 need to be simulated for a realistic analysis of the parallel system. This
119 Carlo percolative approach to reliability analysis of semiconductor structures
120 circuits We present a reliability analysis associated with the electrical
121 nonlinear wave simulations. Rigorous analysis is given for the numerical
122 critical control points (HACCP) and risk analysis studies, stochastic models
123 sectors. The importance of country risk analysis is underscored by the existence
124 with the aim to support quantitative risk analysis can only deliver satisfying
125 of model variability on the safeguard analysis of gamma-contaminated truck
126 information content. Cross-sectional analysis shows that forecast errors and
127 policy options Keywords: Sensitivity analysis; Water resources; Integrated
128 Finite deformation; Sensitivity analysis; Updated Lagrangian
129 is examined in the view of sensitivity analysis. Two methods are compared:
130 useful for global sensitivity analysis. This paper presents a new
131 equations; Sensitivity analysis; Optimal control; Sequential
132 paper outlines results of a sensitivity analysis on a model developed to
133 other system components. Sensitivity analysis of the integrated model
134 incompressible inclusions. A sensitivity analysis of homogenized coefficients is
135 Carlo estimates Keywords: Sensitivity analysis; Monte Carlo method;
136 Radionuclide migration; Sensitivity analysis; Monte Carlo simulations;
137 experiments; Global sensitivity analysis; Machine learning; Wavelets
138 networks of realistic size. Sensitivity analysis is performed on randomly
139 system models. The sensitivity analysis involved running variables in the
140 plantations on hillslopes. Sensitivity analysis and field data interpretation are

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141 years, research in nonlinear time series analysis has grown rapidly. Substantial
142 Box-Jenkins univariate time series analysis facilitates an understanding of
143 We introduce a qualitative similarity analysis, which yields relations between
144 We use a multi-scale similarity analysis which gives specific relations
145 Wavelets; Multi-scale similarity analysis; Linear harmonic analysis We
146 The study includes simulation analysis of the model. .
147 maps; Intelligent systems; Sound analysis Coughing is one of the most
148 modes; Bifurcations; Linear stability analysis We present the similarities and
149 CHAOS A nonlinear stability analysis using a multiple-scales
150 Multi-estimation; Robustness; Stability analysis; Time-varying plants This paper
151 Non-autonomous systems; Stability analysis; Thresholds; Dengue;
152 of equations of motion, the stability analysis on the basis of an analytical
153 The paper deals with the stability analysis of the discrete
154 New stability analysis of T-S fuzzy system with robust
155 investigations for stability analysis of Lagrange systems
156 for symbolic–numeric stability analysis of equilibrium positions of a
157 factorization method; Stability analysis of equilibrium solutions; Second
158 A projection scheme to stability analysis of discrete T-S fuzzy models
159 Global stability analysis of a class of delayed cellular
160 Applying the Von-Neumann stability analysis method we show that the
161 that the convergence and stability analysis is robust under random
162 Cayley transform The stability analysis is considered in the context of
163 of different parameters. Stability analysis is carried out for each case.
164 Keywords: Steady states; Stability analysis; Invariant subspaces;
165 when eigenvalues in the linear stability analysis for the ground-state stationary
166 is extended to the stability analysis for nonlinear interconnected
167 Robust stability analysis for discrete-time LQG system
168 techniques and linear stability analysis.
169 of quarter-car motion. Statistical analysis of system output shows that
170 based on sequential statistical analysis has to be undertaken, either. (a)
171 system; Sequential statistical analysis; Chance constraint The paper
172 structure parameters, etc.) on stress analysis parameters in critical regions of
173 approaches are used. One is a stress analysis parameter approach. According
174 multiple simulation tests. A structured analysis is proposed where the system
175 Weighted algorithm; Surface analysis When a monoenergetic electron

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176 in order to provide entirely symbolic analysis of multi-degree of freedom
177 Computer-aided system analysis A general definition of
178 Stability analysis of T-S fuzzy models for
179 index condition if the sparse tableau analysis method is applied to the circuit.
180 Keywords: DAE; Sparse tableau analysis; Mathematica For linear
181 of non-zero flows; agricultural profit. The analysis shows that the model is
182 in the field of the geosciences. The analysis reveals a number of anomalies
183 dynamics. An example illustrates the analysis procedure.
184 domain with curved boundary. The analysis of the error estimates leads to
185 of computer algebra methods to the analysis of systems of implicit ordinary
186 inequality technique, applied to the analysis of convergence properties of the
187 simulation algorithms exist for the analysis of continuous and discrete
188 we apply the proposed scheme to the analysis of behaviour of a shape memory
189 motion of the soliton. Extension of the analysis for the 2D case is briefly
190 (of MathSoft Corporation). The analysis enables us to observe the
191 situations and then based on the analysis construct computational
192 traffic model of urban district and the analysis and problem solving of traffic
193 remarkably well. For theoretical analysis, simplified equations are
194 will be discussed. Theoretical analysis of these methods as well as
195 also form a basis for future theoretical analysis of the great diversity of
196 paper. We start with a theoretical analysis of the classical Kaczmarz?s
197 preconditioner. The theoretical analysis of the execution time shows
198 scheme are presented. The theoretical analysis is supplemented with two
199 algorithm based on the theoretical analysis applicable to a more general
200 bus topology. We present a theoretical analysis and verify these findings on the
201 obtained by the steady-state thermal analysis. The above procedure has been
202 method was developed and applied to analysis of spatial and temporal
203 efficient models and methods for timing analysis of single processes, real-time
204 components. As a result, timing analysis of complex, heterogeneous
205 technique associated to stream-tube analysis. The latter method involves an
206 Numerical analysis of dynamic characteristics of
207 model based on canonical variate analysis forecasts stock index volatility
208 Markov modelling and canonical variate analysis, and the use of a prediction
209 eggs Keywords: Egg quality; Vibration analysis; Non-destructive; Noise
210 measurements Keywords: Vibration analysis; Non-destructive; Tomato
211 interference cancelling Vibration analysis is a challenging technique to
212 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

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1 whole monitoring system including a data acquisition system and the advisory
2 of traffic congestion based on actual data. Our model is given in terms of one
3 in the case of correlated noise affecting data. A regularization method and two
4 FDI approaches — analytical, data- and knowledge-based. As for the
5 way to a common combinatorial and data structure well-suited for a physical
6 data movement, synchronization, and data structure translation overheads are
7 approach, the overheads due to I/O and data movement exceed 50% of the total
8 to enforce natural (circuit), signal, and data coupling between entities from
9 growth for these six SITEs using annual data from 1985 to 2000. The economic
10 based upon New Zealand annual data 1955–1998. The results
11 method; Eigenvalue computation In any data mining applications, automated text
12 appears to be a linear relation between data quality (expressed by means of the
13 sensitivity w.r.t. initial and boundary data. It is already known in the literature
14 and thus, by a computer data structure. In particular, every
15 criteria. Moreover, thanks to the chosen data structure, decision making on the
16 Increasing the number of conditioning data does not provide a satisfactory
17 which is solved by corresponding data structures with optimal
18 understanding of various forms of count data originating from primary health care
19 properties of estimators of count data model with endogenous switching.
20 Properties of estimators of count data model with endogenous switching
21 switching. The estimation of the count data model that accommodates
22 switching Keywords: Count data; Endogenous switching; Monte
23 WGENK producing synthetic daily data of solar radiation, maximum and
24 and volatility in ACDC levels using daily data from 1 January 1991 to 31
25 partitioning schemes are employed, data movement, synchronization, and
26 changes in sample weight. Equilibrium data for adsorption and desorption of
27 the best fit to the experimental data. The modified Chung-Pfost equation
28 and fitting of the experimental data, shows three different possible
29 Comparison with available experimental data shows that the precision of profile
30 require gathering experimental data, processing raw data, plugging the
31 means of the number of experimental data points) as well as the positioning of
32 PS II. We are using the experimental data of the fluorescence transients

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33 were compared with experimental data of dose equivalent and spectral
34 of the process. From experimental data obtained in discontinuous cultures a
35 models simulated the experimental data obtained from fungal PHBV
36 a rather limited set of experimental data is available for the identification of a
37 numerical results with experimental data. Good agreement is obtained
38 were obtained from experimental data. Belts, carcass and bead were
39 distribution assumed on experimental data) and model parameter uncertainty
40 However, analysis of the experimental data also reveals that this bifurcation is
41 case of a relatively limited experimental data (10 experiments in various operating
42 biochemical models with experimental data.
43 A faster data assignment algorithm for maximum
44 requirements. It is concluded that field data should be used to develop a simple
45 hillslopes. Sensitivity analysis and field data interpretation are used to define the
46 average delay as well. Finally, field data collected from an intersection in
47 using calibration against measured flow data, whereas streamflow in the
48 test A new filtering method for data with intermittency problem is
49 in using classification method for data coming from industrial and medical
50 on new practical possibilities for data analysis in the absence of good
51 data This paper uses high frequency data to evaluate whether information
52 Information asymmetry; High frequency data This paper uses high frequency
53 problems with single frequency data in the resonance region, and the
54 based on fuzzy-logic called fuzzy data association (FDA) for radar/infrared
55 statistics of 200 years of generated data with 20 years of observed weather
56 observations with the groundwater data of this area. This comparison shows
57 is illustrated with experimental growth data. There appears to be a linear
58 solving least-squares problems and in data compression. In this paper we used
59 PARFIT to the fluorescence induction data measured ?in vivo? on pea leaves.
60 over- or under-dispersed (or inflated) data. Several generalizations of PR
61 at locations xj(0) from the initial data. We discretize time into intervals of
62 KdV equation with smooth initial data blow up in finite time. In this paper,
63 representations in terms of the initial data, a choice and realization of
64 o; admissible input data. Stability of the solution with

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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′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 cluttering 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 multitarget 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

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97 and equations Keywords: Multivector data structure; Combinatorial topology;
98 with instant embodiment of new data which makes it suitable for tracking
99 Zealand using a comprehensive new data set. The theoretical framework is
100 coefficients against observational data of salinity. The root-mean-square
101 further work is required both in terms of data used and types of tests employed. .
102 grid Considering the importance of data transferring between different grids,
103 maps are used for visualisation of data relationships. Several types of NN
104 the monolith every 5min. Use of data from three adjacent non-weighing
105 economy The availability of data for the size of the
106 parameter distribution). The quantity of data (expressed by means of the number
107 This implies that at least a year of data collection is required to cover the
108 capable of reducing the complexity of data assignment process embedded in
109 with several seasonal sub-sets of data: (1) black-box (BB) sigmoid neural
110 to that of past schooling. Based on data from the New Zealand Census of
111 Keywords: Parameter optimization; Data-fitting; Contractive mapping;
112 the statistical features of the original data set. We have evaluated both the
113 paper. In this new method, the original data is pretreated using wavelet method
114 to 0. The coefficients of the original data are considered significant if they are
115 increased. Detailed analysis of our data shows several features consistent
116 validation using a single system output data set Keywords: Modelling and
117 employed when a single system output data set is available. We propose an
118 measurements of input and output data are not available. Therefore,
119 problem based on the overspecified data. A numerical examples are
120 agricultural sector in China with a panel data set comprising 30 provinces for the
121 period, 1991–1997. A panel data model based on the
122 production efficiencies with panel data Fast and steady economic growth
123 provinces, and hence warrants panel data estimation. Both fixed and random
124 a pasture grass. The percolation data are measured directly, while the
125 estimated using daily LME copper price data over the period 3 January 1989 to
126 transactions based stock price data for News Corporation.
127 Carlo methods; Tracking; Probabilistic data association The Monte Carlo
128 in a cluttered environment. Probabilistic data association (PDA), taking into

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129 from digital atlases and published data. For summer conditions, the Lamb
130 Parameter uncertainty; Data quality; Data quantity Nowadays, most of the
131 way and the need for quantitative data as a basis for simulation. Applying
132 experimental data, processing raw data, plugging the results of this
133 been identified and validated using real data collected during greenhouse and
134 the most reliable [J. Phys. Chem. Ref. Data 28 (1999) 19] consists in
135 improvements are closer to the reported data.
136 surface spectra seen in the SAR data. Soliton amplitudes of 2–7m
137 information is compared with satellite data for calibration and estimation of
138 Problems of satellite data calibration and thematic processing
139 from multifrequency far-field scattering data, the first built upon the point source
140 Calibration of remote sensing data with help of ground surveys is
141 Suggested GIS and remote sensing data will provide necessary information. .
142 on the basis of remote sensing data. The developed algorithm of the
143 (FDA) for radar/infrared sensor data fusion. The results of simulation
144 dynamics for the economic time series data. In this paper, we explore the use of
145 simulation; Test shell; Data base; Estimation of pollutant
146 on the background of the shorted data because it allows numerical
147 regression coefficients for every shuffled data. In this way we form a confidence
148 results on real and simulated data are given to demonstrate their
149 0, because the slopes of the shuffled data are considered statistically equal to
150 trained with a combination of in situ data and synthetic data generated with a
151 network (NN) trained only with in situ data, (2) hybrid physical-RBF (radial
152 noise The problem of smoothing data trough a transform in the Fourier
153 it in the equation using over specified data, the problem is transformed into the
154 to be determined from over specified data measured on the boundary. By
155 model applied to the initial soliton state data generated by the Lamb model.
156 utilising measured streamflow data from a larger gauged catchment in
157 have been proposed for modeling such data. In this paper, a rich family of
158 of in situ data and synthetic data generated with a physical model
159 experiments using synthetic data.
160 multiple model data sets. The system data set is considered as a discrete

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161 comparison using a single system data set and multiple model data sets.
162 of vehicle body and axle. The test data are collected and recorded while the
163 of generalization of the test data. .
164 also comments on the utility of the data to address the requirements of the
165 Poisson regression methods. The data provide strong support for the idea
166 resistance and heat exchange by the data of experimental-industrial tests of
167 of the solution with respect to the data is proved and employed for the proof
168 are also harder to estimate when the data involve trends. These limitations are
169 to sift out the mode mixing part of the data from the original signal and retain
170 from both methods. It considers the data corresponding to the building site
171 terms when there is no drift in the data causes a major deterioration in
172 presented. The approximations of the data are very good, but some model
173 as well as the positioning of these data in time have a substantial influence
174 some methods to analyse this data to determine whether typologies of
175 and the Jura. A cluster analysis for this data-set lead to 12 classes with a high
176 from a weather prediction model. This data-set comprises all available
177 parameter distributions with respect to data quality and quantity is investigated
178 parameter distributions with respect to data quality and quantity by using Monte
179 Cellular complexes; Topological data structures This paper presents an
180 Multitarget motion tracking; Data association problem; Hungarian
181 identification and which track real traffic data more correctly.
182 some challenges presented by trending data in time series econometrics. To the
183 problem with friction and uncertain data in thermo-elasticity Keywords:
184 is analysed. As uncertain data coefficients of stress–strain
185 growth model; Parameter uncertainty; Data quality; Data quantity Nowadays,
186 of groundwater recharge, using data from a deep weighing lysimeter
187 to collect calibration and validation data in order to validate spatial/temporal
188 thus have experimented with various data sets (both test and real-world).
189 to generate synthetic daily weather data for modelling of agricultural
190 data with 20 years of observed weather data for five weather stations of
191 manufacturing process steps, where data have to be smoothed or transferred
192 models calibrated with data limited to only a small region of the
193 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

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1 of the state. Also provided are some evidences which show the success of

Finding

k of f Concordance

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™, 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 “k”-largest
19 Our method is applicable to finding the boundary of any regular

Findings

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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	nvestigation of viscous fluid enforced flow
2	nvestigation of effect of depressant
3	This paper analyses results from an investigation into the determinants of
4	model. We then present a Monte Carlo investigation of the tolerance of these
5	The paper discusses algorithms for investigation of the stability of
6	the stability of mechanical systems: (i) investigation of stability in the first
7	this equation can be used for investigation of soliton-antisoliton
8	numerically by the implementation and investigation of regularized Newton-type
9	Computer algebra and investigation of invariant manifolds of
10	for mathematical and computational investigation of application problems. We
11	exchange in oil mixture flow Keywords: Investigation; Depressant additives; Oil
12	Depressant additives; Oil The results of investigation of the laws of hydrodynamic
13	in the SW Taiwan. The focus of our investigation is on the Pingtung plain, a
14	problems of finding and qualitative investigation of diverse-level invariant
15	the analytic and numeric stability investigation results we obtain an
16	being achieved. More recently, the investigation of this problem using
17	develops the dressing method for the investigation of the non-integrable in
18	is a computational method for the investigation of the low-energy properties
19	Stability investigation of Runge-Kutta schemes
20	A software tool for the investigation of plane loci Keywords:
21	survey we will consider ideas for the investigation of a new quality parameter
22	integrals. The proposed scheme of the investigation is mainly oriented to
23	of Lyapunov?s second method to investigation of stability of complex
24	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	ethod of spherical harmonic series in the
2	over the years. This paper proposes a method to solve the maintenance
3	Reduced phase spaces We present a method to calculate formal symmetries
4	(t,s)-Sequences Owen proposed a method of scrambling (t,m,s)-nets to
5	Wavelets Quasi-regression is a method of Monte Carlo approximation
6	equations (ODEs); Source terms A method-of-lines solution algorithm for
7	with unrestricted VARs, or as a method of correcting coefficient bias
8	symplectic property. In this report a method of correcting the truncated map
9	in large-scale dynamical systems: a method of contractive mapping
10	symmetries This report presents a method of constructing approximate
11	the fuzzy pattern matching (FPM) as a method of classification and the
12	(BVAR) can be thought of either as a method of alleviating the burden of the
13	or chemical air pollutants. Further, a method is outlined to use the weather
14	observation This paper proposes a method for the on-line determination of
15	overheads are prohibitive. We present a method for solving the mesh partitioning
16	Quantum dots; Acoustic cavities A method for solving exactly the Helmholtz
17	systems; High throughput screening A method for solving the scheduling
18	However, it does not provide a method for optimization. A practical
19	Spin orbit; FET; Monte Carlo A method for Monte Carlo simulation of 2D
20	abstractions. This paper describes a method for formulating ARMAX forecast
21	Block-pulse; Legendre polynomials A method for finding the solution of
22	Finite fields; Feedback shift registers A method for determining multilinear state
23	of the Fisher information matrix, a method for a reasonable selection of
24	conditions. This paper provides a method combining particle swarm
25	A-EBDF: an adaptive method for numerical solution of stiff
26	errors be used for the r-adaptive method. .
27	In this paper, we use an algebraic method to compute the j×j,
28	the idea of the Schwarz Alternating Method. Numerical experiments are
29	the Von-Neumann stability analysis method we show that the proposed
30	condition if the sparse tableau analysis method is applied to the circuit.
31	were considered. Semi-analytical method was developed and applied to
32	in snow science Keywords: Analytical method; Optimisation;
33	is used in a successive approximations method. In these solvers, a
34	Poincare–Lindstedt asymptotic method can be used to find asymptotic
35	this paper, a genetic algorithms based method for shaft crack detection is

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36 conventional non-Bayesian or Bayesian method. In addition to some specific
37 as spline quadrature and bisection method. The robustness of the procedure
38 coefficient Keywords: Bisection method; Spline quadrature; Diffusion
39 Building; Modeling; Moisture; Block method; Update strategy Coupled
40 Adapting block method to solve moist air flow model
41 The CESTAC method is a Monte Carlo method which uses DSA and provides
42 Carlo method; Quasi-Monte Carlo method; Uniformly distributed
43 approach. First, we use Monte Carlo method to sample and to build much
44 spin is incorporated in the Monte Carlo method to account for the spin
45 Developing cities; Monte Carlo method This paper proposes a Monte
46 Direct simulation Monte Carlo method; Thermal force; Radiometric
47 Carlo methods Keywords: Monte Carlo method; Quasi-Monte Carlo method;
48 Sensitivity analysis; Monte Carlo method; Quasi-Monte Carlo method;
49 simulations Keywords: Monte Carlo method; Quasi-Monte Carlo method;
50 Mathematical finance; Monte Carlo method; Numerical integration;
51 Carlo method; Quasi-Monte Carlo method; Numerical integration;
52 devices Keywords: Monte Carlo method; Nonlinear Poisson equation;
53 task. The traditional Monte Carlo method (MC) applied to diffusion
54 Carlo method; Quasi-Monte Carlo method; Mathematical modelling Global
55 in developing cities by Monte Carlo method Keywords: Pedestrian delays;
56 The precision of the usual Monte Carlo method is O(N−1/2), where N
57 Application of a Monte Carlo method for tracking maneuvering target
58 of interest. In this work the Monte Carlo method for stationary carrier transport,
59 of the semi-classical Monte Carlo method for semiconductor device
60 The Monte Carlo method for semi-classical charge
61 A novel parallel adaptive Monte Carlo method for nonlinear Poisson equation in
62 02.70.Lg; 72.10.-d; Monte Carlo method; Event bias technique; Variance
63 Keywords: Quasi-Monte Carlo method; Digital nets; Low-discrepancy
64 Keywords: 02; 50.U; Monte Carlo method; C.B. Haselgrove; Irrational
65 Shown This is a kind of Monte Carlo method but different from it in two points:
66 devices Keywords: Monte Carlo method; Boltzmann equation;
67 paper describes the Cartesian cut cell method, which provides a flexible and
68 methods for error evaluation; CESTAC method; Monte Carlo methods;
69 of functional ranges. The CESTAC method is a Monte Carlo method which
70 Generalized preconditioned CG method This paper addresses the use of

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71 times with the ones of classical method. To conclude we expose the
72 neural networks (NN) as classification method. Other signals (grunts, metal
73 on diagnosis in using classification method for data coming from industrial
74 equation by using the collocation method with quintic splines. Applying the
75 Segmentation method; Collocation method Haar wavelet techniques for the
76 of a high-order implicit collocation method for the heat equation Keywords:
77 inequalities and a comparison method in the context of Lyapunov-like
78 (HFD) is a computational method for the investigation of the
79 the analysis construct computational method for the solution of the inverse
80 Spectral method A computational method based on Chebyshev spectral
81 In this paper, the proposed constraint method in conjunction with Lagrange's
82 with using the variable constraint method. For the large deformation
83 Lyapunov functionals construction method One general method of Lyapunov
84 the parameter space. The continuation method is used for the model
85 the parameter space; the continuation method, however, leads us to find
86 Model augmentation; Continuation method; Generalized extreme-value
87 parameter predictor–corrector method, which we call it A-EBDF, is
88 by using Adomian?s decomposition method with analytic extension or,
89 the use of Adomian decomposition method, the prototypical, genuinely
90 Keywords: The Adomian decomposition method; Shallow watere quations;
91 operations than the decomposition method. Several randomly constructed
92 generator Keywords: Decomposition method; Multiple recursive generator;
93 water equations by the decomposition method, Keywords: The Adomian
94 algorithm based on the decomposition method is proposed. The new algorithm
95 algorithm improves the decomposition method in terms of both generality and
96 KdV equation; Decomposition method; Fractional calculus In this
97 compared with the decomposition method for various computers.
98 of Adomian?s decomposition method for the variable-depth shallow
99 In this study, the decomposition method for solving the linear heat
100 Modified decomposition method for multiple recursive random
101 of partial solutions in the decomposition method for linear and nonlinear partial
102 Domain decomposition method for contact problems with small
103 application of Adomian decomposition method, developed for differential
104 simulations; Adomian decomposition method; Compactons; Solitons With the
105 Keywords: Adomian?s decomposition method; Burgers equation; Partial

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 gravimetric 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

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141 scheme provides a very efficient method to solve the ADR equation for
142 reduction as well as a more efficient method for nonlinear parameter system
143 Variational inequality; Finite element method; Wrist; Spine; Fracture;
144 Petrov–Galerkin finite element method, with two parameters cubic
145 coefficients. The standard finite element method with piecewise linear test and
146 coefficients Keywords: Finite element method; Wild coefficients; Iterative
147 equations A high-order finite element method, total variational diminishing
148 employ a version of the finite element method to discretize the space of
149 mooring lines Keywords: Finite element method; Symmetrizable hyperbolic
150 Genetic algorithms; Finite element method Shaft crack is a very dangerous
151 results suggest that the finite-element method resolves the vertical structure of
152 the equations via the finite element method, outline the Newton type iterative
153 Discontinuous Galerkin finite element method; Numerical flux; Conservation
154 equation by the finite element method Keywords: Helmholtz equation;
155 discontinuous Galerkin finite element method is used to numerically simulate
156 conditions A finite-element method is developed to study
157 in space by a mixed finite element method. Integration in time by backward
158 methods; Boundary element method In this paper, we present a
159 Discontinuous Galerkin finite element method In this paper, the weak form of
160 Thermo-elasticity; Finite element method In the paper, the quasi-coupled
161 modules method; Finite element method In the paper a contact problem in
162 Porous enclosure; Finite element method; ILU-CGM In this study, coupled
163 Time-stepping schemes; Finite element method; Hydraulic jump Four
164 DtN technique; Finite element method; GMRES iterative method;
165 discontinuous Galerkin finite element method for the 2D shallow water
166 The discontinuous finite element method for red-and-green light models for
167 discontinuous Galerkin finite element method for conservation laws Keywords:
168 solved numerically by finite element method (FEM) in conjunction with
169 systems arising after the finite element method (FEM) discretization of the
170 to the new finite difference element method (fdem) program package, an
171 mesh method; Adaptive finite element method; Error indicator; Interpolation
172 method and the finite-element method, are used in this model for the
173 modules method and the finite element method are applied. First, the model of
174 problem by means of finite element method and utilizes genetic algorithms
175 obtained from a boundary element method. A good agreement is found

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176 and the numerical aspects of the EMC method, the basic algorithmic
177 on the Ensemble Monte Carlo (EMC) method applied to device simulation, and
178 speeds; Boundary integral equation method To simulate media dynamics in
179 on the boundary integral equation method. By combination of the single-
180 and extensions of this state estimation method are presented. Some
181 method, a posterior error estimation method, and dynamic domain
182 at a certain time instant. An excellent method to deal with stochastic variables
183 Legendre expansion method for the solution of the
184 and Jacobi elliptic function expansion method are used to construct new exact
185 obstacle scattering; Factorization method We consider the direct and
186 bases; Numerical factorization method; Stability analysis of equilibrium
187 visualization by the factorization method in the case when sound-soft and
188 The factorization method for obstacles with a-priori
189 is discretized by the finite element (FE) method with conforming piecewise linear
190 the error estimates for higher-order FE method. The error estimates are
191 element (FV–FE) method. Its advantage is the use of only
192 often, simulation is the only feasible method because of the nature of the
193 on the Flux Interface Correction (FIC) method. The efficiency of this numerical
194 low Mach number flows Keywords: FIC method; Finite volume scheme; Low
195 On a fieldless method for the computation of
196 Intermittency test A new filtering method for data with intermittency
197 PDAE systems. One requirement for method-of-lines applications is that the
198 the use of a flexible forecasting method based on non-linear Markov
199 Artificial dissipator By using the Fourier method we study the stability of a
200 numerically by a split-step Fourier method. The first, second and

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201 shows that the split-step Fourier method provides highly accurate
202 the Laplace transform and the Fourier method of variables separation were
203 Keywords: Split-step method; Fourier method; Generalized nonlinear
204 are based in the split-step Fourier method and the numerical results show
205 Zealand. Jorgenson and Fraumeni's method is innovative in that it simplifies
206 in a given set of admissible functions. Method of worst scenario is applied to
207 volume discontinuous Galerkin (FVDG) method, which is a generalization of the
208 variability. Two variants of the Galerkin method, the spectral-transform method
209 Keywords: Discontinuous Galerkin method; Runge–Kutta time
210 the atmosphere using the full-Galerkin method Keywords: Galerkin method;
211 discontinuous Galerkin method is investigated to solve
212 reasonable. The discontinuous Galerkin method is efficient. .
213 circulation model using a full-Galerkin method is developed for the simulation of
214 method; Mapping functions; Galerkin method; Hermite finite elements;
215 method Keywords: Galerkin method; Atmosphere; General circulation
216 with the method of lines and the Gear method yields temporal changes in
217 construction method One general method of Lyapunov functionals
218 Green?s function first-passage (GFFP) method [J. Comput. Phys. 174 (2001)
219 a preconditioned conjugate gradient method with Neumann–Neumann
220 the behaviour of the conjugate gradient method. The conjugate gradient method
221 control-variation weight (ACW)-gradient method proposed by Weinreb [Optimal
222 number for the conjugate gradient method Keywords: Iteration number;
223 preconditioned congugate gradient method is shown to be efficient to use.
224 with the use of the conjugate gradient method in conjunction with an adjoint
225 problem Keywords: Conjugate gradient method; Function estimation; Physical
226 Iteration number; Conjugate gradient method; Eigenvalues When solving linear
227 method. The conjugate gradient method converges typically in three
228 is given based on a speed-gradient method. Computer simulations of the
229 Three versions of the conjugate gradient method are compared for the solution of
230 is carried out using the homogenization method. Adaptive mesh-refinement
231 Schrödinger equations; Hopscotch method; Periodic waves Systems of
232 and nonlinear optics. The Hopscotch method is applied to solve CNLS
233 Based on the Chen–Hsiao method [C.F. Chen, C.H. Hsiao, Haar
234 obtained by the Chen–Hsiao method and with the method of
235 a new arithmetic based on a hybrid method of chaotic particle swarm

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236 A hybrid method of chaotic particle swarm
237 and practicality of the identification method for a wide range of multivariable
238 new method with a classical implicit method, namely the C
239 A ?moving index? method for the solution of the American
240 problem Keywords: Moving index method; American options valuation
241 Newmark sequential integration method is employed to conduct the
242 the most reliable numerical integration method for complicated functions.
243 together with the Gaussian integration method are then utilized to reduce the
244 equation based on variational iteratiom method, is exactly obtained. In this
245 equation by He?s variational iteration method Keywords: Variational iteration
246 method Keywords: Variational iteration method; Generalized RLW equation;
247 outline the Newton type iterative method to solve the non-linear algebraic
248 a Gauss–Seidel type iterative method. This is compared with the
249 conjugate gradient iterative method is used for solving of the
250 solvers. A convergence of the iterative method is proved and results of
251 with MC method, monotone iterative method is applied in each adaptive loop
252 element method; GMRES iterative method; Incomplete factorization; ILUT;
253 of an axisymetric tube. An iterative method based on the uncoupled
254 mesh technique, monotone iterative method, a posterior error estimation
255 in the method of lines Keywords: Method of lines; Convective systems;
256 (PSOR) is a leading and well-known method. We report on experimental
257 equation; Runge–Kutta method; Weak approximation A
258 dynamic; Runge–Kutta method The present analysis is an
259 second order weak Runge–Kutta method for a stochastic differential
260 obtained applying Runge–Kutta method carries the predictions, which
261 description of tires, the Lagrangian method was used here. Numerical
262 methods; Data mining; Lanczos method; Eigenvalue computation In any
263 to stream-tube analysis. The latter method involves an unknown
264 solutions via the Poincare-Lindstedt method in the case of massless 4 theory
265 is investigated. Based on the Lyapunov method, two new stability criteria in
266 Multiple time-varying delays; Lyapunov method; Linear matrix inequalities In this
267 equilibrium solutions; Second Lyapunov method An approach for
268 by a multiple-attribute decision-making method—a technique for order
269 a multiple-attribute decision-making method Keywords: Multiple-attribute
270 in the breast tissue. The mathematical method consists of a dissipative wave

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271 estimates of the numerical MC method to the EMC. .
272 To solve the nonlinear problem with MC method, monotone iterative method is
273 of the solution, the Single-Particle MC method is derived in a formal way. The
274 known as the Single-Particle MC method, is considered. It gives a solution
275 30nm. A standard Monte Carlo (MC) method coupled with the solution of
276 Based on a fixed random walk MC method, 1-irregular unstructured mesh
277 65M50; 65M60; Moving mesh method; Adaptive finite element method;
278 thus, we call it the ?moving index? (MI) method. We use the so-called linear
279 results, which demonstrate that our MI method presents dramatic improvements
280 There are also cases in which the MI method continues to perform well, while
281 (ARS) algorithm, a global minimization method. A probability model is
282 the convergence of the secant modules method to the exact solution. The
283 inequality. Then the secant modules method is used. We prove the
284 contact problem; Secant modules method; Finite element method In the
285 is used. Then the secant modules method and the finite element method
286 compact difference schemes; Multigrid method; Parallel computation A new
287 predicted by the Lagrange multiplier method. In order to introduce the
288 based on the Lagrangian multipliers method. The non-linear mechanical
289 EBDF methods we propose a multistep method whose region of absolute
290 the parallel implementation of the new method with a classical implicit method,
291 is proposed in this paper. In this new method, the original data is pretreated
292 the shifted-Chebyshev series. The new method simplifies the procedure of
293 precision. Tested by IEEE-30, the new method provided in this paper is proved
294 extended to nonlinear equations. A new method of exact linearization is proposed
295 linear prediction In this paper, a new method is presented that offers efficient
296 Gauss–Newton method A new method is given to optimize parameters
297 Numerical results show that the new method is able to sift out the mode
298 one-dimensional fashion. The new method has potential applications in
299 set. This paper describes a new method for the construction of generator
300 of this paper is to propose a new method for blind equalization using
301 of the optimal point, the new method can improve the performance of
302 this context, this paper presents a new method based on the rescaled variance
303 will illustrate the feasibility of this new method.
304 A modified frozen Newton method to identify a cavity by means of
305 used as an initial guess for the Newton method. Numerical simulations validate

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306 Boundary measurements; Newton method; Nonlinear equation We here
307 mapping; Gauss–Newton method A new method is given to
308 is solved by a modified frozen Newton method.
309 namely the Crank–Nicolson method, where the parallelization is done
310 dynamics We present a numerical method that allows a formation of
311 experiment rather than as a numerical method. Recently it has been shown that
312 Hydro-dynamic simulation; Numerical method; Pollution Shallow north part of
313 developed algorithm of the numerical method of solution of the task of albedo
314 Carlo methods and the numerical method of Monte Carlo integration is
315 In this paper, we present a numerical method for the computation of surface
316 Integral equations A numerical method for solving the nonlinear
317 of R(z,t). The proposed fully numerical method can be applied for cases when
318 by using any well-known numerical method.
319 Triangular grid The support operator method designs mimetic finite difference
320 semi-stochastic parameter optimization method. Two cases A and B (continuous
321 also considered. A global optimization method is applied provided with
322 Runge–Kutta fourth-order method (CRK), while the terms of the
323 in a non-stationary environment. Our method is applicable to finding the
324 They show that the accuracy of our method does not deteriorate and it
325 Discrepancy We present a particle method for solving initial-value problems
326 74S05; Parallel algorithms; PCG method; Preconditioner; Circulant matrix;
327 Spectral method for constrained linear-quadratic
328 using a reductive perturbation method. The dynamical equations
329 method of multiple-scale perturbation method is developed in a new way to
330 is studied using phase–plane method. The effects of different
331 interaction of a known motion planning method, called minimum interference
332 problems; Regularization; POCS method; Lipschitz regularity; Wavelets;
333 ablation (LA) has become a popular method for production of carbon
334 results indicate that the present method can solve some large-scale
335 the main advantages of the presented method is the elimination of the
336 functions are utilized. The presented method does not demand the knowledge
337 local mesh refinement; Projection method; Variable density flows This
338 performed by an incremental projection method, using the original form of the
339 Based on the alternating projection method, the useful projection operators
340 model; Quadratic stability; Projection method The paper deals with the stability

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341 of the classical Kaczmarz?s projection method in the case of an inconsistent
342 local mesh refinement projection method for low Mach number flows
343 the numerical behavior of the proposed method, the simulation results of an
344 demonstrates that the proposed method results in a higher number of
345 blind Bayesian DFE, the proposed method presents better convergence
346 overall processing time of the proposed method of speech coding is a bit greater,
347 method we show that the proposed method is unconditionally stable. By
348 is presented. Approach of proposed method is to approximate unknown
349 The significance of the proposed method is that it relaxes most
350 of fault on one input. The proposed method is tested on a simulation
351 The effectiveness of the proposed method is illustrated by the numerical
352 are possible and the proposed method is feasible. The study also
353 as less as possible. The proposed method is computationally efficient and
354 initial channel estimates in proposed method. In these initial channel
355 study also indicates that the proposed method has the potential to solve a wide
356 and effectiveness of the proposed method. Finally, constraints of the
357 example shows that the proposed method based on the shifted-Chebyshev
358 Finally, constraints of the proposed method are addressed.
359 the parallel features of the proposed method and its implementation.
360 will test the accuracy of the proposed method.
361 show the effectiveness of the proposed method. .
362 beyond all orders; Pseudospectral method We study the singularly
363 Split-step method; Pseudospectral method; KdV equation Numerical
364 is realized by trigonometric quadrature method. We establish convergence of
365 a good automatic adaptive recognition method is needed. The new adaptive
366 new adaptive Morse code recognition method introduced in this paper consists
367 A stable recovery method for the Robin inverse problem
368 noise affecting data. A regularization method and two GCV-type criteria are
369 Nonlinear model reduction -- method and CAE-tool development
370 Projected successive over relaxation method We introduce a new technique
371 off-line, which ensures a reliable method with false alarm avoidance. This
372 heat equation. The resulting method is implicit and can be
373 the standard two-step method. The RK method is found to be the most efficient
374 fourth-order Runge–Kutta (RK) method. Both the RK method and LSODI
375 (RK) method. Both the RK method and LSODI are capable of

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376 case, we use Galerkin?s method to reduce the space. Numeric
377 O(N−r),r≥1 for Haselgrove?s method. The aim of this report is to give
378 Keywords: Bifurcation; Galerkin?s method; Lyapunov–Schmidt
379 a more precise formulation of Baraff?s method for problems arising from
380 efficiency of the so called Haselgrove?s method (cf. [Math. Comp. 15 (76) (1961)
381 numerical experiments of Haselgrove?s method applied to the numerical solution
382 The values obtained using the same method on DCMU treated samples give
383 are obtained by the multiple scale method. Two first-order ordinary
384 framework combines the weak search method with the knowledge
385 of theorems of Lyapunov?s second method to investigation of stability of
386 systems; Gyroscopic forces; Second method of stability theory; Computer
387 approach—the segmentation method—is developed. Five test
388 Differential equations; Segmentation method; Collocation method Haar
389 A simple method for computing the entropy of the
390 paper presents an analytical simulation method that can be used for the
391 An improved simulation method for pricing high-dimensional
392 the use of a Monte Carlo simulation method based on the Kolmogorov and
393 should make use of which solution method.
394 the first built upon the point source method proposed by Potthast for solving
395 implementation using the point source method can be viewed as a generalized
396 obstacle scattering: the point source method and generalized filtered
397 numerical simulation using a spectral method. We will first present an overview
398 long wave equation; Galerkin spectral method We develop a
399 wave equation via a Galerkin spectral method Keywords: Localized waves;
400 method based on Chebyshev spectral method is presented to solve the
401 algorithm implementing the spectral method is developed. The rate of
402 and implement a fully discrete spectral method for the numerical solution of a
403 Chebyshev polynomials; Spectral method A computational method based
404 Sequential step tests; Least squares method This paper presents a novel
405 The typical methods are two-stage method of moments (TSM) and nonlinear
406 Fisher equation, a fractional-step method, where the reaction and diffusion
407 of ODEs in the standard two-step method. The RK method is found to be
408 KdV equation Keywords: Split-step method; Pseudospectral method; KdV
409 Advection; Diffusion; Two-step method Numerical models of reactive
410 step in the ?standard? two-step method is shown to be a special case of

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411 equation Keywords: Split-step method; Fourier method; Generalized
412 devices; Simulation The stochastic method used to simulate the stationary
413 (MC) Hamiltonian is a new stochastic method to solve many-body problems.
414 were solved. Moreover, the suggested method is applicable for a wide area of
415 is the only appropriate and suitable method of solution. In this paper, we
416 from the popular response surface method. The smoothing algorithm which
417 213; The simulation–tabulation method for classical diffusion Monte
418 ion equations; Tanh method The tanh technique is used to
419 Integrated circuit packaging; Taguchi method The simulation model is a proven
420 dissipation have been studied. The tanh method is used as a perturbation
421 time t tends to infinity. Furthermore, the method will be seen to be more
422 174 (2001) 946]. As verification of the method, we tabulate the h-conditioned
423 algorithm. An important feature of the method we present lies in its validity for
424 by trigonometric polynomials. The method was tested by comparing
425 of one scattered acoustic wave. The method uses a sampling set of surfaces
426 is formulated and discussed. The method used is based on the weak
427 from our recent application of the method to the study of the density
428 that simplify the implementation of the method. To show the numerical behavior
429 equation; Pion Meson equation The method suggested in the manuscript
430 The problem of generalisation of the method presented to the case when the
431 Pontryagin?s maximum principle. The method of spherical harmonic series is
432 method and with the method of piecewise constant
433 close frequencies is examined. The method of multiple scales is used to
434 excitations is studied and solved. The method of multiple scale perturbation
435 Optical soliton; Nonlinear damping The method of multiple-scale perturbation
436 error analysis for PDEs, or the method of modified equations, is a useful
437 local Lagrangian form we extend the method of Marsden, Patrick and
438 the Signorini condition. We use the method of lines to obtain numerical
439 of a PDAE network model, if the method-of-lines approach is not
440 Upwinding approximations The method of lines (MOL) is a procedure for
441 apply DAE numerics also to PDEs. The method-of-lines (MOL) approach for the
442 Upwinding in the method of lines Keywords: Method of
443 of the governing equation with the method of lines and the Gear method
444 is proved in the general case by the method of interior boundaries. In doing
445 social, ecological, and economic. The method of integration of the system

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446 modified wave equation is solved via the method of finite differences. One aspect
447 problems is presented. Using the method of dependent tests a successive
448 the transport part can be dealt with the method of characteristics, the efficient
449 the use of a local version of the method of characteristics,
450 A further possible application of the method leading to exact treatment of the
451 approach reveals novel properties of the method. It is shown that the method can
452 theory. The results reveal that the method is very effective and convenient.
453 methods in the literature. The method is used to determine the impact
454 mismatches not caused by faults. The method is tested via simulation on the
455 process is manifested well. The method is suitable for the shorter interval
456 electrons in disordered solids. The method is related to the
457 components. The convergence of the method is illustrated numerically.
458 extensions. For the first time, the method is extended to nonlinear
459 the breast tissues. Moreover, the method is experimentally verified to have
460 conforming grid. The development of the method is described with applications to
461 equations into algebraic equations. The method is computationally attractive, and
462 constructed for a specific view point the method is best suited to situations
463 integral equations is presented. The method is based upon Legendre wavelet
464 polynomials are presented. The method is based upon expanding various
465 by minimization of the cycle time. The method is applied to high throughput
466 for one or a few incident fields, i.e. the method is a natural one-wave-method. In
467 to show the robustness of the method. Furthermore, achieved parallel
468 method. We show that accuracy of the method for quadratic functions improves
469 Diophantine approximation. The method extends techniques currently
470 initial conditions. The application of the method demonstrated that the partial
471 series of unknown parameters. The method converts the optimal control
472 of parameters is suggested here. The method chooses the most sensitive
473 of the method. It is shown that the method can be interpreted as a
474 to ideal solution (TOPSIS). The method assumes that the control factors
475 second and fourth-order versions of the method are presented. A classical
476 (HF) Hamiltonian. The properties of the method are discussed for the example of
477 state-control inequality constraints. The method approximates each of the
478 We establish convergence of the method and prove error estimates in a
479 to illustrate the performance of the method. .
480 illustrate the performance of the method.

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481 models to more complex models. This method works successfully when the
482 computer time. However, this method works only if the diffusion
483 to finance problems. By using this method, we achieve 6500 times faster
484 equations with source term. Using this method, the solutions were calculated in
485 method, is exactly obtained. In this method, the solution is calculated in the
486 show the efficiency and stability of this method. The numerical simulations are
487 to certain non-linear equations. This method predicts the existence of
488 from the values of the moments. This method of proof may be applied to many
489 solve problems of integrability. This method of factorization of differential
490 simulation of this equation. This method is second-order in space and
491 of the Painlevé chains obtained by this method is limited by the appearance of
492 the surface and bottom variations. This method is computationally very efficient
493 Section 1, we give a brief sketch of this method. In Section 2, we will explain
494 is used to compute the solution. This method has second-order accuracy with
495 theory of sallow water. Using this method has allowed to study storms of
496 models of interval uncertainty. This method gives an optimal interval solution
497 on buffered banyan networks. This method comprises the probabilistic
498 (RLS) adaptive filtering algorithm. This method can be successfully used in
499 on Mathematica, it is outlined how this method can be brought to bear on
500 include the incremental learning in this method, and we compare the obtained
501 function, we study the stability of this method and present some numericals
502 our goal is to considerably simplify this method and find the unknown scatterer
503 transformations used earlier. This method allows us to constructively study
504 We discuss two versions of this method: (a) Finite volume discontinuous
505 Galerkin method, the spectral-transform method and the finite-element method,
506 idea of the hodograph transformation method, which exchanges the
507 applications Keywords: Stream-tube method; Mapping functions; Galerkin
508 Although the Gauss–Seidel-type method to be developed in this paper is
509 Urine; Urethra; Bladder; Uncoupled method; Non-linear; Continuum;
510 we present a general and unified method for investigating the general

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511 a modified sequential dummy variable method is developed. The empirical
512 compliance; Constrained vibrations; Method of lines We present and
513 Appl. Math.] a rather tricky visualization method is described to determine the
514 problems Keywords: Finite volume method; Unstructured triangular meshes;
515 Axisymmetric; Finite volume method Modeling of non-linear
516 A quasi-random walk method for one-dimensional
517 i.e. the method is a natural one-wave-method. In the pilot paper [SIAM J. Appl.
518 original data is pretreated using wavelet method to avoid the mode mixture in the
519 that the single-term Haar wavelet method (STHW) is better than the
520 Legendre wavelets method for the nonlinear
521 [C.F. Chen, C.H. Hsiao, Haar wavelet method for solving lumped and
522 Plasma fluid; Implicit Lax-Wendroff method A Lax-Wendroff type

Methods

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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–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

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33 CESTAC method; Monte Carlo methods; Functional range evaluation A
34 Lattice rules are quasi-Monte Carlo methods for numerical multiple
35 Recent hybrid-Monte Carlo methods designed for high dimensional
36 of Monte Carlo and quasi-Monte Carlo methods, because their power degrades
37 Halton sequence Quasi-Monte Carlo methods are a variant of ordinary Monte
38 between physically-based Monte Carlo methods and the numerical method of
39 and efficiency in many practical cases. Methods of finding model poles and
40 Developments in Cartesian cut cell methods Keywords: Cut cells; Finite
41 comparable to the time the classical methods need.
42 Numerical solution; Collocation methods; Laplace transforms; Actuarial
43 equation Keywords: Implicit collocation methods; High-order compact scheme;
44 to t using polynomial spline collocation methods and then inverting numerically.
45 operators, communication methods, and local search procedures
46 HLL-MUSCL and composite methods are implemented on
47 combination of computational methods and recent algorithmic
48 to be efficient to use. The considered methods are applied to the solution of
49 by supplementing conventional methods with a procedure of contractive
50 tuned and maintained by conventional methods. Software teams in the
51 or block Jacobi–Davidson methods are used. There exist
52 that was captured are described. Methods used to categorise and
53 Instead of using deterministic methods to find the required number of
54 triplets using standard deterministic methods. Second, we investigate how
55 This is our starting point to develop methods based on Lécot?s approach [C.
56 Shrödinger equation; Finite difference methods; Solitons The coupled nonlinear
57 products for mimetic finite difference methods on a triangular grid Keywords:
58 author?s nonstandard finite difference methods form the basis for this
59 systems. These difference methods are constructed based on the
60 amplifiers We show here different methods to demonstrate the intrinsic
61 paper. Comparison between different methods from theoretical elegancy to
62 of the products. Two different methods are used to cancel
63 (SSP) time discretization methods (also known as
64 bases and Lie-group discretization methods.

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65 a modification of A-BDF and EBDF methods we propose a multistep method
66 larger than those of A-BDF and EBDF methods.
67 systems whereas many efficient methods have been developed for
68 r-adaptive finite element methods using various error indicators
69 genetic algorithms and finite element methods to detect shaft crack for
70 Geometric integrators; Finite element methods In this paper we develop the
71 for the r-adaptive finite element methods based on moving mesh partial
72 This algorithm employs finite element methods and iteratively solves smaller
73 Meshless methods for conservation laws
74 burdensome. Alternative estimation methods do not require fully specified
75 about fault detection and isolation (FDI) methods by the use of neural networks.
76 schemes have been previously found for methods with up to five stages and up to
77 Normal form methods for symbolic creation of
78 jump problem, are solved by the four methods, respectively. The numerical
79 speeds and the stabilities of the four methods are compared.
80 to traditional boundary fitted grid methods. The Cartesian cut cell
81 equations based on Lie group methods. Since this approach requires
82 multivariable process identification methods, it is universally applicable to
83 modelling of electrostatic imaging methods. In the first part we will survey
84 structure. Efficient implementation methods are suggested. .
85 Simulation methods in ruin models with non-linear
86 An assessment of such intervention methods has clinical importance. One
87 accurate solutions. Classical iterative methods with these schemes are
88 scheme; Matrix inverse; Iterative methods; Parallel computers We
89 at each time step with a few iterative methods and their performances are
90 stability) than some well-known methods in the literature. The method is
91 and compare it with already known methods and apply it to some particular
92 strong-stability-preserving Runge-Kutta methods Keywords: Evolution; Optimal;
93 Carlo methods; Runge–Kutta methods; Discrepancy We propose a
94 as the Hurst exponent. Although many methods have been proposed to deal
95 of the monotone iterative as well as MC methods. Numerical results for
96 vehicle model. In field measurement methods, an experiment is designed to

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97 conservation laws Keywords: Meshless methods; Euler equations; Smooth
98 to the presentation of new meshless methods based on the introduction of a
99 grid. Numerical results, with multigrid methods implemented on a shared
100 prediction by multivariate next neighbor methods with application to zooplankton
101 Prediction; Plankton; Next neighbor methods In the context of non-linear
102 has shown that there is a need for new methods to collect calibration and
103 perturbation; CAE-tool; NEON New methods for nonlinear model reduction of
104 the two different types, design new methods, and aim to identify which
105 high-dimensional spaces. Other NN methods would be very difficult to use
106 a combination of symbolic and numeric methods, which is very well suited for
107 Using various analytical and numerical methods originally devised to obtain this
108 Quasi-randomized numerical methods for systems with coefficients of
109 First steps towards numerical methods for solving NSCL-problems
110 study We implement several numerical methods for computing the solution of
111 differential equations; Numerical methods; Cache utilization; Parallel
112 fast and sufficiently accurate numerical methods are used and (ii) the models
113 used in the selection of numerical methods and in the development of
114 compared with well-known numerical methods.
115 difficult to solve []. That is why, lots of methods focus on the optimization
116 this purpose. The core consists of methods and services that enable an
117 approach: a focused review of methods and applications Keywords:
118 Comparison of split-operator methods for solving coupled chemical
119 We analyze first and second order methods which use quasi-random point
120 an intricate system for which the other methods failed and it has given global
121 not controllable. The application of our methods to the prediction of zooplankton
122 generalize classical weighted particle methods for conservation laws and
123 topography; Geometrical perturbation methods; Boundary element method In
124 elementary stable nonstandard (PESN) methods, having the same qualitative
125 In contrast to non-local prediction methods, next neighbor techniques are
126 production than alternative prediction methods including an “energy
127 dynamics, next neighbor prediction methods have been successfully applied
128 that are difficult for the previous methods.

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129 Nagumo?s equation Probabilistic methods are presented to solve
130 Sequential quadratic programming methods This paper describes the
131 two types of subspace projection methods for such equations. One in
132 of two-component fluid flow. Projection methods are used for solving the
133 are given to illustrate the proposed methods.
134 dispersion; Pseudospectral methods The problems under
135 often not known. Unlike pseudorandom methods, the accuracy of a quasirandom
136 of the split-step and the pseudospectral methods for solving higher KdV equation
137 transform and the pseudospectral methods are used to investigate this
138 we find that some of the QMC methods show reduced variance and
139 we observe that some of the QMC methods not only generalize to high
140 Dividend barrier strategies; QMC methods In this paper, a collective risk
141 . In this article, we present QMC methods for the approximate solution of
142 alternative to analytic or quadrature methods. It has been recognized through
143 kernels; Collocation and quadrature; Methods In this paper, we present an
144 in time-to-accuracy using quasirandom methods can be as large as several
145 classical deterministic or randomized methods for this type of a problem. In
146 developed model order reduction methods for fast simulation of large-scale
147 numerics. Adaptive mesh refinement methods are explored to overcome these
148 work utilises Poisson regression methods. The data provide strong
149 with different ridge regression methods is made. The methodology is
150 for the no-response test and related methods Keywords: No-response test;
151 can be used to work with related methods as the range test [Inverse
152 fluid flow problem; High-resolution methods; Moving interface This work is
153 High-resolution methods for two-component fluid flow
154 equations and high-resolution methods are used for solving the
155 In contrast to previous sampling methods, this approach does need to
156 with the usage of space satellites, methods of remote sensing, and proper
157 level using general random search methods. This procedure is based on
158 gradient based analytical search methods including the difficulty in
159 In this paper, we discuss several methods for quasirandom empirical
160 Solution quality of random search methods for discrete stochastic

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161 Macro-economic dynamics; Shooting methods; Numerical techniques This
162 derived from the application of similarity methods since general solutions to the
163 for certain Monte Carlo simulation methods. The algorithm is based on
164 of the most important class of solution methods for image reconstruction
165 Lagrangian trajectory simulation methods for calculation of the mean
166 design. These constraint-solving methods have been evaluated through
167 (QE). The new constraint-solving methods derived from these techniques
168 have illustrated these constraint-solving methods are useful for gaining insights
169 technology and proposes some methods to analyse this data to
170 that stems naturally from spectral methods when Fourier series expansions
171 35J05; Legendre polynomials; Spectral methods; Helmholtz equation;
172 Analytical solution Tau spectral methods and Adomian?s decomposition
173 (PDE); Boundary problems; Spectral methods; Analytical solution Tau
174 quadratic programming (SQP) methods. Partial derivative matrices
175 by the well-developed least squares methods. The significance of the
176 of NN are compared with statistical methods for the classification of the
177 as well as comparison of the stochastic methods proposed are presented.
178 Directed interval analysis; Stochastic methods for error evaluation; CESTAC
179 value decomposition; Stochastic methods; Data mining; Lanczos method;
180 Sylvester equation; Subspace methods; Invariant subspaces We will
181 Adaptive synchronization methods for signal transmission on
182 Hamiltonian systems Symplectic methods for integrating canonical and
183 partial differential equations with tau methods Keywords: 35C10; Partial
184 and control-oriented realizations. The methods have been programmed and
185 But unfortunately, almost all the methods from the ART class give
186 Numerical results illustrate the methods for radionuclide migration and
187 Remote sensing Here are described the methods for calculation of the parameter
188 The numerical results show that the methods based on both interpolation
189 SYMBOLIC toolboxes. Via NEON the methods are here applied to a structural
190 mesh partial differential equations. The methods are compared with a careful
191 equations have been developed. The methods are based on singular
192 long securities are used to illustrate the methods.

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193 Monte Carlo methods. We apply these methods to the initial matrix and also to
194 under critical intensity. Using these methods the temperature field
195 The common feature of all these methods is the error equation that allows
196 time series. We generalize these methods, in particular,
197 Theoretical analysis of these methods as well as numerical results
198 random variate generation where these methods are used to produce a single
199 of cavity soliton trajectories. These methods are based on one hand, on the
200 of implementation are given. By these methods, a large dimensional system
201 both be effectively represented. Three methods are presented to convert fluid
202 within each time step. Unlike traditional methods, the proposed scheme provides
203 numerically using Fourier transform methods and a high order compact finite
204 as total-variation-diminishing or TVD methods) are popular and effective
205 Parametric resonances Two methods (the multiple scales and the
206 roughness; Power spectral density Two methods, i.e. computer simulation and
207 Image processing We outline two methods for obstacle reconstruction from
208 The results obtained by these two methods are in excellent agreement. The
209 in the view of sensitivity analysis. Two methods are compared: Differential
210 agreement is found between the two methods.
211 To adapt Runge–Kutta type methods for Itô equations, we propose to
212 Second order weak Runge-Kutta type methods for Itô equations Keywords:
213 model have been proposed. The typical methods are two-stage method of
214 Numerical methods of reconstruction of optical
215 In the last decade so called universal methods have been developed for these
216 guidance in the selection of upwind methods in the MOL solution of strongly
217 explain the observed behavior we use methods of Hamiltonian dynamics, first
218 Mixture of Gaussian laws Using methods from computer algebra,
219 problems Four typical finite volume methods, the Roe-MUSCL, Roe-Upwind,
220 A comparative study of finite volume methods on unstructured meshes for

Methodology

N	Concordance
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

Paper

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1 Modeling of the wet end part of a paper mill with Dymola Keywords: Paper
2 library for thermohydraulic, pulp and paper systems. Up to now, the model
3 on the physical modeling of AssiDomän paper mill in Frövi (Sweden). This project
4 reconstruction, stated in a companion paper, can be reduced when the
5 acoustic source strength. In the current paper, we minimize the power required
6 independent variable. In the current paper, a continuous time — two
7 of a paper mill with Dymola Keywords: Paper mill; Modeling; Object-oriented
8 analysis, but it really appears. In our paper, we give a brief of the results. The
9 activity in the equity market. In our paper, we examine whether insiders?
10 a natural one-wave-method. In the pilot paper [SIAM J. Appl. Math.] a rather
11 the case that we analyze in the present paper. We start with a theoretical
12 a maneuvering target. In the present paper this algorithm is further extended
13 strategy; Moving obstacles The present paper studies the problem of control and
14 optimization problem. The present paper proposes to solve the
15 for the multiple responses. The present paper predicts the system performances
16 this model is in the focus of the present paper. In particular, we discuss a
17 state of the aging material. The present paper develops a numerical procedure to
18 Topographic index The present paper describes a methodology
19 multiple linear programming. In present paper, a simple approach is proposed for
20 that the results discussed in the paper would enhance our understanding
21 A priori vacation probability In the paper we focus on the class of M/G/1
22 described in the last part of the paper we compare the above mentioned
23 Comput. Simul. (2002)]. Thus, the paper under consideration is an essential
24 Electrical circuits The authors of the paper together with their colleagues have
25 eigenvalues are distributed. In the paper, this is explained by proper
26 data; Mathematical model In the paper, the weather generator WGENK
27 Finite element method In the paper, the quasi-coupled semi-coercive
28 different fluids is addressed in the paper. The problem is solved by
29 Rössler systems. At the end of the paper, synchronization in larger arrays of
30 model description are presented in the paper. Since transfer functions are
31 complex than those for control, the paper shows that diagnostic models for
32 the set of test cases described in the paper. Reflected shock waves interact

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33 open to question. For this reason, the paper provides a qualitative comparison
34 to be risky entities. For this reason, the paper provides a comparison of monthly
35 a Bayesian approach. Furthermore, the paper proves that we can get a better
36 model includes the wet end part of the paper process, that is the approaching
37 adjacent to the zero vertex. The paper presents Nipp polyhedron
38 rotor; Synchronisation; Simulation The paper presents analytical and numerical
39 Equation of motion; FEM The paper presents a simplified mathematical
40 Stochastic project simulation The paper presents a heuristic for resource
41 the particle swarm optimization, the paper presents a new arithmetic based
42 ensembles; Soliton interaction The paper is focused on the details of the
43 as well as numerical solution. The paper is devoted to the non-unique
44 on the macroscopic properties. The paper is devoted to the shape
45 Grid alignment; Shock wave The paper is concerned with the grid
46 Limiting of order of accuracy The paper is concerned with the numerical
47 Spine; Fracture; Biomechanics The paper is concerned with the numerical
48 research has for Australia's future? The paper is based on a study of three
49 modeling techniques used in the paper is also briefly introduced.
50 ergodicity and stochastic property, the paper introduces chaos mapping into the
51 by Nguetseng and Allaire, the paper introduces an alternative approach
52 Strong convergence; Simulation The paper introduces an approach for the
53 dynamic models are noted and then the paper focuses on the estimation of
54 modelling; Heat exchangers The paper extends object-oriented modelling
55 models on track as trends evolve. The paper discusses these broader issues
56 mechanics; Invariant manifolds The paper discusses some problems of
57 stability theory; Computer algebra The paper discusses algorithms for
58 Simulation; Road; Traffic; PIM The paper describes the development,
59 Wind tunnel experiments The paper describes the effects of random
60 expert systems are reviewed and the paper describes the work to create a
61 energy density; Christensen stress The paper describes the intention of the
62 Padé approximation; PIPESIM The paper deals with the verification of three
63 of transcendent transfer function The paper deals with different pipeline models
64 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
66	Solitons; Laser propagation The paper deals with the generalized 1+1
67	analysis; Chance constraint The paper deals with the problem of
68	of non-linear elliptic equations The paper deals with the homogenization of
69	stability; Projection method The paper deals with the stability analysis of
70	eigenfrequency is demonstrated. The paper contains examples of simulation
71	of polynomial equation solving. The paper contains an exhaustive
72	Adaptive mesh refinement The paper consists of three parts. In the first
73	Synchronization; Manifolds; Chaos The paper combines theoretical analyses
74	The benefits of the approach of the paper are illustrated by two specific
75	to the technology leader (USA). The paper applies two different time series
76	velocity field employed in the paper. An explanation of these
77	by seven leading rating agencies. The paper also provides a novel analysis of
78	assignment of instances to tiles. The paper aims at an effective description of
79	method; Finite element method In the paper a contact problem in non-linear
80	three-dimensional (3D) structures. This paper will address some of the most
81	economies (SITEs) analyzed in this paper were colonised, and had depended
82	and in data compression. In this paper we used the Computer Algebra
83	determinants; Algorithm In this paper, we use an algebraic method to
84	extension function theorem, in of this paper, we try to present the theory of
85	cubic systems; Center problem In this paper, we study a family of nilpotent
86	Solitons; Phi-four equation In this paper we study two generalized forms of
87	Finite element approximation In this paper, we study a one-dimensional
88	as a basis of a subspace. In this paper we review the two different types,
89	effect; Stochastic algorithms In this paper, we review recent results
90	Programming; Future trends In this paper we review the current state of the
91	learning in real time difficult. In this paper, we recall the principle of the FPM
92	be further used in constructions. In this paper, we pursue the development of a
93	instead of sigmoidal-like ones. In this paper, we propose complex functional
94	complexity and new problems. In this paper, we propose a Pareto approach
95	Carlo; Dynamic programming In this paper, we propose an estimator for
96	annealing; Random search In this paper, we propose a framework for

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97	and suitable method of solution. In this paper, we propose different conceptual
98	Hexagonal traveling waves In this paper we produce numerical, genuinely
99	and quadrature; Methods In this paper, we present an algorithm for
100	this paper adds to the debate. In this paper we present two contributions to
101	the -dependent error in WOS. In this paper, we present empirical evidence
102	equation; Integrable systems In this paper, we present relations between
103	Cracks; Inverse problems In this paper, we present results concerning the
104	transformations; Newton polygon In this paper, we present an algorithm to
105	stages and up to fourth order. In this paper, we present new optimal
106	equations Abstract (English): In this paper we present a general and unified
107	chambers; Control system In this paper, we present the modeling of the
108	Boundary element method In this paper, we present a numerical method
109	solver; Abstract machine In this paper we present MILONGA, a language
110	triangulation; Parallel computing In this paper, we present a new approach for
111	in semiconductor plasma. In this paper, we present results of a numerical
112	user-friendly interaction. In this paper, we model the complete cycle of
113	the commutator AX−XA In this paper, we look at a particular case of
114	Quasiperiodic solutions In this paper we investigate the emergence of
115	initial data blow up in finite time. In this paper, we investigate the effect of
116	matrices; Fredholm?s alternative In this paper, we investigate periodic solutions
117	Aquaculture; Network model In this paper, we introduce a network
118	fiber with linear birefringence. In this paper we introduce a finite difference
119	properties of the scheme. In this paper we initiate a backward error
120	equilibria; Linear feedback rule In this paper, we implement an adaptive search
121	for this type of a problem. In this paper we give a short introduction to the
122	in the physical literature. In this paper, we give a simple rigorous proof of
123	Rigid body simulations In this paper we give algorithms for solving
124	the economic time series data. In this paper, we explore the use of nonlinear
125	estimation; Wavelet coefficient In this paper, we examine the finite-sample
126	modeling; Model exchange In this paper we discuss an object oriented
127	estimator is worth pursuing. In this paper, we discuss several methods for
128	to the programmer and end-user. In this paper, we discuss compiler technology

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129	hyperbolic systems; Mooring	In this paper, we develop a finite element model
130	Finite element methods	In this paper we develop the Lagrangian and
131	to communicate between them.	In this paper we describe the tools to share
132	LDOS; Green?s function	In this paper we describe a Monte Carlo
133	fast wavelet transform (FWT).	In this paper, we describe the structure of
134	synchronization will be possible.	In this paper, we deduce adaptation laws to
135	Unconditional convergence	In this paper, we consider a strongly coupled
136	detection; Spiky deconvolution	In this paper, we consider a wavelet based
137	spline; Finite difference method	In this paper, we consider the solution of the
138	important role in that transition.	In this paper, we consider interactions between
139	Resolvent MC (RMC) algorithm	In this paper, we consider Monte Carlo (MC)
140	Homoclinic connection	In this paper, we consider a two-dimensional
141	to each other (i.e. pairwise).	In this paper, we consider the general case in
142	studied carefully and sufficiently.	In this paper, we conduct a Monte Carlo
143	have never been studied so far.	In this paper, we compared the finite sample
144	au equation	In this paper, we begin to develop a theoretical
145	solutions; Finite element	In this paper, we are concerned with an elliptic
146	theory of computer simulations.	In this paper, we are concerned with parallel
147	Matrix extension; Multiwavelet	In this paper we are interested in discuss the
148	for controlled systems.	In this paper, we are pointing out two
149	and understanding their limits.	In this paper, we analyse finite nanowire
150	case error; Quasi-Monte Carlo	In this paper various measures for the uniformity
151	asymmetry; High frequency data	This paper uses high frequency data to
152	equation blows up in finite time.	In this paper, two numerical schemes: the
153	mellitus patients is carried out in	this paper. Two matrix models are proposed
154	in real world engineering problems.	This paper tries to bridge the gap between the
155	and field measurement, are used in	this paper to investigate dynamic pavement
156	or by a sequential algorithm.	In this paper, this approach is extended to the
157	case of this general form.	In this paper, these two approaches are
158	source; Concentration field	In this paper there is proposed analytical
159	Galerkin finite element method	In this paper, the weak form of the
160	set-theoretic approach.	In this paper, the uncertainty in the physical

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161	employing neural networks in this paper. The testing of the scheme is
162	Time delay; Fuzzy systems In this paper, the Takagi–Sugeno
163	splitting Abstract (English): In this paper the splitting error arising in the
164	of nonlinear stiff problems in this paper. The simulation result shows that
165	of measles in an epidemic. In this paper, the SEIR model with constant
166	Laplacian operators. In this paper the resulting condition number is
167	Computer simulation In this paper, the proposed constraint method in
168	self-feedbacks is proposed in this paper. The proposed algorithm gradually
169	pollution model will be discussed in this paper. The principles used in the
170	after appropriate approximations. In this paper, the precalcination degree is
171	Fault diagnosis; Neural network In this paper, the neural networks of fault
172	aluminium targets is presented in this paper. The models of interactions for the
173	non-ferrous metals. In this paper, the market for 3-month LME
174	to study the nature of the load. In this paper the load is investigated through the
175	interval uncertainties is given in this paper. The improved bound is obtained,
176	Integro-interpolational schemes In this paper, the full dynamic model describing
177	Porous media We address in this paper the efficient estimation of
178	theory; Linear matrix inequalities In this paper, the design method of Formula Not
179	computation is also proposed in this paper. The computational complexity
180	dynamic equations is developed in this paper. The basic idea is that the state
181	on modelling financial volatility, this paper tests the significance of
182	fuzziness degree for a fuzzy set. This paper studies the entropy calculation of
183	some potential benefits are lost. This paper starts from the observation that
184	which are discrete in time. In this paper, several new theorems on the
185	most popular tourist destinations. This paper reviews the development of the
186	(large aspect ratio) meshes. This paper reviews stability results of several
187	variables; Operational factors This paper reports the results of experimental
188	computing; History of computing This paper provides some reflections on the
189	running under normal conditions. This paper provides a method combining
190	Based on the robustness criterion, this paper provides a new way to deal with
191	areas, including automatic control. This paper provides a review of some currently
192	low order kernel in small sample. This paper proposes to select the bandwidth

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193	models remains a heavy work. This paper proposes neural networks
194	high clutter tracking environment. This paper proposes an association algorithm
195	dispatch; Hydroelectric system This paper proposes a novel hybrid chaotic
196	splitting; Linear stability This paper proposes a split cosine scheme
197	techniques over the years. This paper proposes a method to solve the
198	and cyclic boundary conditions. This paper proposes a solution that is based
199	form description; State observation This paper proposes a method for the on-line
200	cities; Monte Carlo method This paper proposes a Monte Carlo model to
201	simulation models. This paper presents the results of
202	analysis of the parallel system. This paper presents the approach that has
203	Thermal climate; Climate model This paper presents some results from a
204	Using monthly data for the 1990s, this paper presents evidence consistent with
205	without physical experimentation. This paper presents both a theoretical and
206	Topological data structures This paper presents an extension of a
207	but in most cases not applicable. This paper presents an analytical simulation
208	ARS algorithm; Stopping rule This paper presents an analysis of an
209	Time-varying system tracking This paper presents an adaptive RBF network
210	techniques; Investment models This paper presents an approach for
211	analysis; Time-varying plants This paper presents an indirect adaptive
212	step tests; Least squares method This paper presents a novel technique for
213	equation; Biharmonic equations This paper presents a formula expressing
214	level of confidence. Finally, this paper presents a systematic procedure
215	Stick-slip; Free-surface flow This paper presents a vel
216	for global sensitivity analysis. This paper presents a new version,
217	a family of scrambled sequences. This paper presents a new algorithm for
218	conflicting results. In this context, this paper presents a new method based on
219	modelling; Catchment scale This paper outlines results of a sensitivity
220	Terrestrial and riparian ecology This paper outlines one component of a study
221	(CST) has been introduced in this paper. It has been implemented in the
222	a fast convergence. The purpose of this paper is to derive an orthogonal ECLMS
223	causality; VAR The purpose of this paper is to analyze in bivariate vector
224	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 volatiltiy; 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

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321	Artificial immune regulation In this paper, a novel approach to immune
322	Sliding window principle In this paper, a new approach for robust fault
323	filtering; Forward linear prediction In this paper, a new method is presented that
324	authors to solve this problem. In this paper, a new fast implementation in the
325	numerical stability problems. In this paper, a new type of algorithm to solve
326	navigation process. We present in this paper a new approach that uses visual
327	not suitable for control purposes. In this paper, a new model structure for the
328	System dynamics; Fuzzy logic In this paper a model of waste management
329	Knowledge-based system In this paper, a knowledge-based system is
330	problem and not easy to tackle. In this paper, a genetic algorithms based
331	power flow; Automotive control In this paper, a generalized fuzzy logic
332	problems of Stefan-like type. In this paper, a generalized two-phase
333	method; Fractional calculus In this paper, a fractional Korteweg-de Vries
334	networks with delays (DCNNs) in this paper. A family of sufficient conditions is
335	the system must be used. In this paper, a dynamic separation model is
336	on the surface of the object. In this paper, a dynamic inverse obstacle
337	Existence; Stability; Simulation In this paper a conflict game between the two
338	barrier strategies; QMC methods In this paper, a collective risk reserve process
339	scheme, we give two examples in this paper.
340	with simulations throughout this paper. .
341	theory and will be presented in this paper.

Papers

N	Concordance
1	Since the publication of my original papers more than 10 years ago, it has

Procedure

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1	conventional methods with a procedure of contractive mapping. The
2	overparameterisation. In this paper a procedure is outlined for the selection or
3	functions; Differential elimination A procedure is given for reducing nonlinear
4	The method of lines (MOL) is a procedure for the numerical integration of
5	in railway traction is analysed, a procedure for indirect identification of
6	definition of the algorithm is of a procedure based on imitation of the real
7	thermal analysis. The above procedure has been shown to facilitate
8	Augmented Dickey–Fuller (ADF) procedure is used to test for unit roots,
9	An example illustrates the analysis procedure.
10	function of a simulated annealing procedure, previously simulated random

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11 to quantum transport the Monte Carlo procedure that proved to be very
12 method This paper establishes a clear procedure for the variational problem
13 scheme is proved. A computational procedure is designed to solve the
14 of the proposed computational procedure. .
15 Third, a robust supervisory control procedure is employed to choose the
16 is simulated by a disaggregation procedure utilising measured streamflow
17 empirical mode decomposition (EMD) procedure. We make use of the
18 “educated” trial-and-error procedure currently practiced by this
19 likelihood parameter estimation procedure from simpler models to more
20 as model parameter in the fitting procedure. The results obtained after
21 while Johansen?s maximum likelihood procedure is used to test for
22 pre-optimization. A contractive mapping procedure is designed to asymptotically
23 The present paper develops a numerical procedure to determine the
24 Hysteresis loss A numerical procedure has been applied for
25 equation We here propose a numerical procedure for the reconstruction of a
26 Finite difference method A numerical procedure for an inverse problem of
27 obtained solution. A numerical procedure and examples are presented.
28 conservation laws; Numerical procedure An introduction to modelling of
29 using a multiple-scales perturbation procedure is performed for the instability
30 but different from it in two points: * procedure of taking arithmetic mean is
31 sub-optimal controller. The proposed procedure is applied to control the
32 with high probability. The proposed procedure is applied on a simulated
33 type of fuzzy rules and the Jang?s procedure of learning. MATLAB,
34 well. We propose a two-step selection procedure, utilizing the criteria. This
35 adopt a statistical model selection procedure in their evaluation. The main
36 for a practical model selection procedure, but its performance has not
37 condition. The original smoothing procedure for the generally discontinuous
38 difference method but with a special procedure for marching forward in time.
39 model parameters, and a test statistic procedure to verify conjectures about the

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40	this connection, the following three-step procedure can be used to test ODE?s for
41	this paper presents a systematic procedure for choosing the user-specified
42	the practical point of view, a systematic procedure based on nonlocal
43	decomposition of functions in l2(Z). The procedure of using the wavelet theory of
44	series. The new method simplifies the procedure of solving the
45	control principle. The procedure of computer synthesis for a
46	method. The robustness of the procedure is tested with respect to the
47	for ordinary differential equations. The procedure is illustrated with two
48	formulation. The effectiveness of the procedure is also demonstrated through
49	and the results obtained from the procedure are experimentally validated.
50	procedure, utilizing the criteria. This procedure performs better.
51	to Stokeslets located outside O. This procedure leads to the resolution of a
52	general random search methods. This procedure is based on performing the
53	of this new model. Indeed, this procedure has been tested on an
54	example is pursued to demonstrate this procedure.
55	beam. A good truncation procedure based on the system
56	Numerical procedure for identification of water

Research

N	Concordance
1	trends, scenarios for 2010/2025, and research issues to be addressed. .
2	IFAC, Wageningen University and Research Centre, Royal Dutch Institute
3	is based on a study of three Australian research centres in the field of the
4	Policy setting; Research centres; Research performance Bibliometric
5	methods for analysing and describing research output have been supported
6	or developing a model to use for research it is important that the model
7	using agent-based models. However, research has shown that there is a need
8	productivity reflect the real impact research has for Australia's future? The
9	this work came originally from medical research, specifically the problem of
10	have also been subject of much research. However, under seasonal
11	an important task in nanotechnology research. Tools of mathematical
12	Does bibliometric modelling of research productivity reflect the real
13	and encouraging the development of research potential and strengths. Does
14	Incremental learning Our team of research “diagnosis of industrial
15	some of the common themes of research in this field and recall some

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16	having to bear the associated costs of research and development. Given the
17	This paper describes the ongoing research on the physical modeling of
18	of groundwater level. Based on our research results, we infer that the
19	in a non-destructive way. Recent research shows that the technique is
20	Simplicial decomposition Recent research has demonstrated and
21	an on-line implementation requires research on the robustness of the
22	activities associated with scientific research. Some 20 years ago, this
23	Australia; Geosciences; Policy setting; Research centres; Research
24	of high recirculation airlift reactors. The research work described aims to bring
25	complexity meet the objectives of the research while avoiding problems from
26	typologies of trip itineraries. The research used running race timing
27	Wales. These are combined with the research objectives to identify the model
28	of tourist behaviour do indeed exist. The research also comments on the utility of
29	amount of predominantly theoretical research into the behaviour of
30	is Monte Carlo analysis. In this research, the sensitivity of microbial
31	among these parameters. This research aims at overcoming the above
32	Nonlinearity test In recent years, research in nonlinear time series

Result

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1 multiple connected components. As a result, timing analysis of complex,
2 sectors of the two countries as a result of the reforms. In fact, the
3 flow is of complex structure as a result of overlay of two longitudinal
4 adverse consequences as a result of a massive water intake. The
5 points in (0,1) of different types. As a result different types of ill-conditioned
6 than that for the Taylor vortex. As a result, both the amplitude and sector of
7 has a finite variance and an analytical result is derived. This allows to assign
8 replacement of defective backlights result in a significant financial loss,
9 the accuracy on any computed result with a high probability. On the
10 which has converged toward the correct result in some degree must exist. The
11 different dimensions. These correlations result in poorly distributed
12 characteristic and satisfied equalization result.
13 large energy no global existence result is known for the DSII equation, in
14 up, hence that no global existence result can hold.
15 systems, we conjecture a global result for the initial-boundary value
16 an increase in frequency may result in a soliton that propagates in the
17 the effectiveness of the proposed result. Compared with the existing
18 predictions, including a recent result implying the instablity of a class of
19 such as wave breaking and reflection result. For a more realistic
20 algorithms based on a variety of rules result in a wide range of different
21 for any length of time. The simulation result shows that the single-term Haar
22 problems in this paper. The simulation result shows that the whole computation
23 13 of the 24 cases. This is a surprising result as the country risk literature
24 the variance which may cause the result that the mean squared error with
25 of computer simulation matches the result of field measurement very well. It
26 means of random process theory. The result of computer simulation matches
27 prove that this decreas is not the result of a poor analysis, but it really
28 The results are compared with the result obtained by the
29 at the required precision order. The result is an analytic approximation to the
30 a guaranteed interval containing the result but this interval may be in some
31 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

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33 process knowledge and experimental results. When the hybrid separation
34 yield is compared to experimental results. The differences between He+
35 N= 50–1000. From experimental results, the average of success rate of
36 Both the numerical and experimental results suggest that the neglect of the
37 recent theoretical and experimental results related to scalability of the FETI
38 detailed discussion on the experimental results providing directions for possible
39 is evolved explicitly. Experimental results on real and simulated data are
40 work with a number of experimental results, demonstrating both accuracy
41 coastal aquifer. Experimental results are also presented to show the
42 both simulated and experimental results.
43 of PDEs and show some experimental results.
44 problem. This paper gives explicit results that simplify the implementation
45 in the frequency of the velocity field results in front distorsion and
46 being extended and improved, first results of which are presented here. .
47 algorithm and the evaluation of the first results are also presented in detail.
48 physics experiments. The FLUKA results were compared with experimental
49 chaotic regime. We obtain the following results: (1) spatial symmetry breaking
50 a priori probability definition. The gained results widen the possibilities for
51 real drive traction system in order to get results useable in control optimisation.
52 have been experimental with good results being achieved. More recently,
53 procedures to get global identifiability results of uncontrolled nonlinear
54 and it has given global identifiability results.
55 in the literature. However, these initial results require further exploration.
56 are verified by numerical integration results of the governing equation and the
57 the error estimates leads to interesting results. The non-linearity in boundary
58 and numeric stability investigation results we obtain an analytic formula for
59 test, is presented, together with its results over some well-known generators
60 Based on this, along with well known results on local existence and
61 problem This is a short survey of known results about elimination of quantifiers
62 frequently referred to in the literature. Results are given for simulation
63 positive definiteness of the matrix M, results in a one parameter family of inner
64 A comparison of measurement results with simulation results shows the

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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

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97 sets sharing this property. Numerical results illustrate the usefulness of these
98 part of the Niebling process. Numerical results for the deformation of sheets into
99 as well as MC methods. Numerical results for p–n diode and
100 congruential sequences. Numerical results for long and short evolution times
101 were considered and numerical results for AI specimens were presented.
102 are considered. The numerical results for a Newtonian fluid are found to
103 question how the present numerical results are related to those obtained in
104 task in both 2D and 3D. Numerical results are presented for such
105 symmetric MG iterations. Numerical results are presented to assess the
106 in traditional OS schemes. Numerical results are presented to illustrate the
107 induction process, the numerical results are presented. The
108 and representative numerical results are included. The theoretical
109 the absolute error for our numerical results and the analytic solution of the
110 clearly according to our numerical results.
111 diodes are discussed with numerical results.
112 corresponds quite well with numerical results. .
113 were carried out right to the numerical results.
114 three-dimensional numerical results.
115 performance functions. The obtained results show that the proposed
116 model (IMM) PDA filter. The obtained results demonstrate a superior tracking
117 ordinary differential equations (ODEs) results through the algebraic
118 to traditional approaches. Our results show that we can achieve nearly
119 returns, and order imbalance. Our results show that the release of earnings
120 and involving a difficult search. Our results provide insights into how the
121 can be completely automated. Our results point the way to a common
122 relative productivity developments. Our results indicate that the New Zealand
123 the Landesman–Lazer type. Our results generalize previously published
124 the three features simultaneously. Our results demonstrate that the three
125 rather than molecular mixing. Our results are validated by convergence
126 several subjective judgements, but our results are quite robust to these choices.
127 Catchment scale This paper outlines results of a sensitivity analysis on a
128 water-pumping rate. Our preliminary results show that the land subsidence

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129 plasma. In this paper, we present results of a numerical simulation of
130 problems In this paper, we present results concerning the far field pattern
131 of differential equations. The present results are in satisfactory agreement
132 A single simulation run then produces results for hundreds of models with
133 Green?s function, and provide results from a numerical experiment on a
134 by the model are similar to published results obtained by tracer experiments
135 results generalize previously published results about the solvability of our
136 The new scheme provides realistic results when compared with analytic
137 quantum computing and survey recent results on high dimensional integration.
138 In this paper, we review recent results concerning stochastic models for
139 techniques for variance reduction. Results of extensive numerical tests are
140 numerical tests are described. Related results are mentioned.
141 level. Based on our research results, we infer that the dewatering
142 of asymptotic methods and the rigorous results obtained from a normal form
143 from the ART class give satisfactory results only in the case of consistent
144 series can obtain the satisfactory results.
145 is also obtained explicitly. Similar results hold for Gauss–Radau
146 produce large volumes of simulation results so quickly that their management
147 of measurement results with simulation results shows the good practical
148 feasible, algorithm. The simulation results show the effectiveness (in terms
149 the diagnosis approach. The simulation results show that it can detect and
150 ascertain its performance. Simulation results show that the criteria based upon
151 analysis and experimental simulation results on the problem of scheduling a
152 of the proposed method, the simulation results of an example are presented.
153 and thus lead to different simulation results. Linguistic variables are one
154 Monte Carlo ion implantation simulation results Keywords: Monte Carlo
155 simulator and to present the simulation results in real time. Different automatic
156 stages. Successful simulation results have given confidence to perform
157 the convergence speed. Simulation results have demonstrated that the
158 detectors is presented. The simulation results have been combined with Monte
159 emission of the vehicle. Simulation results are used to assess the
160 Carlo scheme is given and simulation results are reported for temperatures in

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161 barrier is developed and simulation results are discussed.
162 is found between the simulation results and the experimental findings
163 paper contains examples of simulation results and considerations about the
164 for testing the validity of simulation results against real observations, as
165 reduction techniques. The simulations results were compared with experimental
166 of sediment compaction simultaneously results in local land subsidence. This
167 We present an algorithm for smoothing results of three-dimensional Monte Carlo
168 The aim of this report is to give some results of numerical experiments and
169 parameter. Then, we give some results of numerical experiments with
170 model This paper presents some results from a numerical model of the
171 meshes. This paper reviews stability results of several v
172 several convergence and stability results for stochastic iterative processes
173 water reactor. From the testing results, it was shown that the neural
174 is treated is the shadow problem that results from taking the infinite inhibitor
175 over plane slopes and compare the results with those obtained from a
176 algorithm for fastest convergence. The results, which are valid for search
177 scheme and the correctness of the results under practical circumstances
178 In our paper, we give a brief of the results. The main attention is paid to the
179 calculations of baroclinic waves. The results suggest that the finite-element
180 idealized mountain are compared. The results suggest that the presence of
181 runs for numerical experiments. The results show the Mellor and Yamada
182 applied for constructing a solution. The results show that a significant heat input
183 evolution of solitons in CNLSE. The results show that the coupling term
184 to the observed vector series and the results show that the dynamic structure
185 solitons in addition to breathers. The results show that the magnetisation of
186 qualitative and quantitative criteria. The results show Park and Kuo scheme
187 behaviour of speculators, for which the results seem to depend critically upon
188 or perturbation theory. The results reveal that the method is very
189 insider buying (selling) activities. The results reveal that insiders? trading
190 of drift and diffusion coefficients. The results reveal good performances in all
191 from experimental observations. The results reported in this paper are a
192 and computationally attractive. The results provide new tests for distributed

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193 annual data 1955–1998. The results presented here lead to no support
194 data, processing raw data, plugging the results of this processing into theoretical
195 payload capture point coordinates. The results of this task are used in the tuning
196 variability of groundwater recharge. The results of the study show that five
197 in order to show its applicability, the results of smoothing a three-dimensional
198 radar/infrared sensor data fusion. The results of simulation show that the
199 is discussed with reference to the results of other published studies. .
200 prove that previous interpretations of the results of numerical simulation of this
201 with respect to the space variables. The results of numerical experiments are
202 formula for stability condition. The results of numerical solution of a number
203 Depressant additives; Oil The results of investigation of the laws of
204 models. This paper presents the results of experiments designed to track
205 factors This paper reports the results of experimental and model
206 the theories of cellar biology and the results of experimental observations a
207 direct current motor We describe the results of a study of dynamic modes and
208 in civil engineering structures. The results obtained have shown that the
209 of friction force is proposed and the results obtained from the procedure are
210 (3D) simulations agree with the results obtained for the two-dimensional
211 used to obtain stationary solution. The results obtained by these two methods
212 a Broadwell gas, and in both cases, the results obtained are compared with
213 parameter in the fitting procedure. The results obtained after these
214 flows is studied numerically. The results indicate that complex wave-like
215 geotomography problems. The results indicate that the extended
216 tapered and polynomial profiles. The results indicate efficient concentration of
217 between phases of supply. The results illustrate good agreement
218 the quasi-hydrodynamic model. The results have been obtained with the
219 of periodic solutions of DCNNs. The results extend and improve the earlier
220 a given situation. It is expected that the results discussed in the paper would
221 attention is paid to the accuracy of the results as a function of the dimension of
222 as proposed by Percus and the results are statistically compared to the
223 Graphical representations of the results are presented.
224 model and augmented signals. The results are illustrated by numerical

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225 of the variables of the process. The results are illustrated via simulations of
226 Five test problems are solved. The results are compared with the result
227 about the plant is also tested and the results are compared with those cases
228 as well as asymmetric solitons. The results apply as well to spatial solitons
229 but also show faster convergence in the results and thus, slightly outperform
230 the numerical experiments, show the results and discuss its efficiency. In
231 implementation, we review theoretical results that indicate a kind of optimality
232 force are analyzed. The theoretical results are verified by numerical
233 multiple frequencies. The theoretical results are obtained by the multiple
234 test, link it to the theoretical results and show numerical
235 example illustrate the theoretical results.
236 mixture theory. This theory results in a set of coupled non-linear
237 solutions will be made. From these results, we are also able to make some
238 and some implications of these results on the power of computer algebra
239 equations. It turns out that these results of computer simulation, we obtain
240 also an inward (reflected) shelf. These results make use of specific depth
241 behaves very stable. These results have been achieved
242 A discussion is given as to how these results can be generalized to a broad
243 with the existing results, these results are less conservative. .
244 generators in the literature. These results are analyzed and some possible
245 enlargement process. Based on these results, a newly developed bioreactor
246 of degree 2, which yielded unusable results. .
247 to validate the model, and the validation results indicate that the proposed model
248 Comparisons are made with results obtained by other approaches
249 data sets (both test and real-world). Results and conclusions are discussed

Study

N	Concordance
1	A study of the multi-stage flowshop
2	A study of scheduling problem in agro-food
3	A study of nonlinear dispersive equations
4	tudy for the endurance of radial truck
5	future? The paper is based on a study of three Australian research
6	technique This work gives a study of the Regier?s model by using the
7	soliton; Exploding soliton We present a study of exploding soliton and front
8	motor We describe the results of a study of dynamic modes and bifurcations
9	This paper outlines one component of a study being undertaken to provide a new
10	have positive real parts. We also study transition from exploding fronts to
11	inverted parabolic potential. We also study the motion of the soliton in a long
12	In this work, we present an analytic study of the compactons structures in a
13	An analytic study of compactons structures in a
14	Shown and Formula Not Shown and study conditions under which the set of
15	a Luenberger observer. An application study shows the simplicity of the
16	and inequality analysis, the authors study further global exponential stability
17	simulation A Monte Carlo study of the transient response of single
18	Monte Carlo study of surface and line-width
19	is methodological in nature and a case study is presented with reference to a
20	can then be obtained. A practical case study from an integrated-circuit
21	region of Brazil, is chosen as the case study for the application of the proposed
22	River basin was selected as a case study for applying the approach. The
23	South Wales (NSW) is used as a case study. A Bayesian decision network
24	A comparative study of finite volume methods on
25	This method allows us to constructively study nonlinear and nonstationary
26	the model requirements for further study on tree belt plantations. A brief
27	is applied to cool the plants. Further study is still necessary to make the
28	The study of the intermittency test filtering
29	trading. One particularly important study relates to the informational role
30	ionization; 4H-SiC A Monte Carlo (MC) study of the hole transport in 4H-SiC is

N 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–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

N	Concordance
91	Phi-four equation In this paper we study two generalized forms of the
92	systems; Normal forms We study the stability of a class of traveling
93	By using the Fourier method we study the stability of a three-stage finite
94	a Kohn and Vogelius cost function, we study the stability of this method and
95	all orders; Pseudospectral method We study the singularly perturbed
96	Landau–Lifshitz equation We study the propagation of electromagnetic
97	and finite boundary conditions. We study the nonlinear dynamics of a fluid of
98	computed solutions; in particular we study the generation and interaction of
99	type conditions We study the existence of the weak solution
100	Soliton; Optical lattice We study the dynamics of solitons in
101	ein condensation We study the dynamics of dark solitons in
102	of the variational approximation, we study the discrete soliton solutions of
103	is modeled by a random walk. We study the convergence of the scheme
104	Bistable systems; Noise We study the collective dynamics of one-
105	algebra, especially Gröbner bases, we study the application which maps the
106	condensation; Blowup phenomena We study numerically stabilized solutions of
107	solution In this short communication we study compactons in the setting of
108	Solitary patterns In this work, we study compact and noncompact
109	condensation; Blow-up phenomena We study a quasi-local approximation for a
110	approximation In this paper, we study a one-dimensional quasi-static
111	Center problem In this paper, we study a family of nilpotent cubic systems

Studies

Concordance

2–7m 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

N	Concordance
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
10	dynamic systems, IEE Proc. Control Theory Appl. 146 (1997) 213–219]
11	systems, IEE Proc.—Control Theory Appl. 144 (1997) 87–94;
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–Dmitriev **theory** of branching stochastic
17	of massless 4 theory Keywords: f4 Theory; Periodic solutions; Standing
18	by an example from lattice field **theory** (Klein–Gordon model).
19	via an algorithm that use Floquet **theory** to evaluate the stability of the
20	non-linearities Keywords: Floquet **theory**; One-degree-of-freedom;
21	economist there is little guidance from **theory** about the source of trend behavior
22	key quantities in the density functional **theory** of inhomogeneous many-electron
23	Carlo studies of density functional **theory** Keywords: 71.15.Mb; 71.10.-w;
24	to the study of the density functional **theory** (DFT) of the strongly
25	Collusion; Deregulation; Game **theory**; Gasoline; Pricing behaviour This
26	and Osaka based on recent game **theory** emphasizing the importance of
27	done by means of this general **theory** and will be presented in this
28	data analysis in the absence of good **theory** models for trends. In particular, a
29	on the original optimal harvesting **theory** for a single production unit. The
30	n-component systems Keywords: HMO-**theory**; Molecular orbitals; Energy of

N Concordance

31 convergence used in homogenization theory. Besides the original definitions
32 changing the order of variance in theory. However, it is also known that
33 with the predictions of the KTHNY theory. Hard and soft disks in external
34 critical layer. Subsequently, the linear theory breaks down and nonlinear
35 using linear matrix inequality (LMI) theory. In terms of Lyapunov?s direct
36 Formula Not Shown filtering; Lyapunov theory; Linear matrix inequalities In this
37 an important role in the mathematical theory of computer simulations. In this
38 Brouwer?s fixed point theorem, matrix theory, a continuation theorem of the
39 of the numerical Monte Carlo (MC) theory to the integral form of the
40 this into account is the microcontinuum theory elaborated by Eringen
41 modelled by a four-component mixture theory. This theory results in a set of
42 in the framework of classical network theory. We discuss some interrelations
43 in a Bickley jet: comparison of theory with direct numerical simulation
44 transport processes; Percolation theory; Phase transitions; Porous media
45 A new application of the percolation theory for describing the coupled heat
46 A new application of percolation theory for coupled transport phenomena
47 assumptions or perturbation theory. The results reveal that the
48 of NLS from KdV through perturbation theory, resonant effects that give the
49 multiple scales/nonlinear perturbation theory is explicitly extended to two
50 explained by an analytical perturbation theory based on the quasi-continuum
51 Fuzzy pattern matching; Possibility theory; Incremental learning Our team of
52 in the framework of basic probability theory. It can be used in Monte Carlo
53 analyzed by means of random process theory. The result of computer simulation
54 is used, according to signal processing theory, fulfilling the essential
55 approach to the quantum theory of electron transport in
56 Maintenance; Performance; Queueing theory; Real-time system A real-time
57 systems Keywords: Lyapunov?s theory; Time delay; Fuzzy systems In
58 find the energy function within Hückel?s theory of molecular orbitals which is
59 Keywords: Inverse problems; Scattering theory; Image processing We outline two
60 quantum transport in semiconductors: theory and Monte Carlo approach

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61 An application of rough set theory to defect detection of automotive
62 glass A technique based on rough set theory is investigated for identifying
63 linguistic rules and fuzzy set theory have been used to model a
64 automotive glass Keywords: Rough set theory; Automated inspection system;
65 techniques based on rough set theory are explored in this paper and are
66 policy. We use fuzzy set theory and fuzzy logic to construct an
67 an overview of the nonlinear stability theory which indicates that a (nonlinear)
68 is minimized. The Lyapunov stability theory is used for analysis of the
69 jet, using both nonlinear stability theory (in its nonlinear critical layer form)
70 wakes and jets. Nonlinear stability theory has predicted that interactions
71 forces; Second method of stability theory; Computer algebra The paper
72 algorithms. We present the theory underlying the floating
73 presents evidence consistent with the theory that future changes in the
74 quasi-random point sets based on the theory of (t,s)-sequences. We show that
75 is based on techniques arising from the theory of simultaneous Diophantine
76 dimension is presented based on the theory of mechanics of porous media.
77 in of this paper, we try to present the theory of ellipsoidal algebra, following the
78 fractions; Finite fields; Digital nets The theory of continued fractions over finite
79 framework. The model, based on the theory of branching stochastic
80 Korteweg-de Vries (KdV) equation. The theory is used to model the onset of
81 turbulence. The main conclusion of the theory is that the statistically preferred
82 reduces computational complexity. The theory is also applied to generate
83 arising from the application of the theory are also discussed.
84 role in many practical applications. The theory and utilisation of these models
85 simulations that appear to support the theory.
86 a four-component mixture theory. This theory results in a set of coupled
87 It has been recognized through theory and practice that a variety of
88 field Keywords: Kinetic and transport theory; Fluidodynamics equations;
89 Low-discrepancy sequences; Transport theory; Anova decomposition Recent
90 the one used in semiclassical transport theory.
91 with a recent dislocation unbinding theory of laser induced melting. The
92 This paper is based on a uniform theory of factorization and transformation
93 the field of (deterministic) random walk theory with reaction kinetics is
94 The procedure of using the wavelet theory of L2(R) to decompose functions

Theories

N Concordance

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 cellar biology and the results