

This Master thesis is developed at the Radboud University, Nijmegen for graduation in Information Science. The research, that took place at the University of Reading (UK), was centered around the problem of text analysis in accounting. On the basis of the completeness of interpretation suggested by a semiotic model of human processing developed at Radboud University, a methodology is introduced for testing the plausibility and convincingness (cf. rhetoric) of CFR reports.

Towards a methodology for measuring plausibility

Explorative analysis of its use for
an analysis of CFR reports

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Preface

This Master thesis is developed at the Radboud University, Nijmegen for graduation in Information Science. The research, that took place at the University of Reading (UK), was centered around the problem of text analysis in accounting. On the basis of the completeness of interpretation suggested by a semiotic model of human processing developed at Radboud University, a methodology is introduced for testing the plausibility and convincingness (cf. rhetoric) of CFR reports.

I always wanted to be in an exchange program with England. As my graduation was growing near the time to do so was declining. Especially when you don't have an idea for a graduation subject. A special thank you therefore to Theo van de Weide for giving me directions on what to do and to who I should speak.

Arranging this in a few months was hard. When I left for Reading I didn't have a place to stay. For this matter I would like to thank Elena Torres, Yelena Ablaeva and Charmaine Birchmore for making my stay possible and giving me a warm welcome.

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Finally a word of gratitude to the PhD students within the Information Research Centre who were always willing to assist me in the things I needed to do.

Though I was a bit uncertain on the subject in the beginning of my graduation period, the areas of rhetoric, semiotics and syllogism got a hold on me. In the end I found an interest that I'm willing to explore more in the future.

Executive Summary

A considerable amount of researches has been published on the benefits of using corporate financial reporting (CFR) and/or annual reports. The research at hand provides a new methodology for performing textual analysis in annual CFR reports without any need for using linguistic theories. The theories which are considered to be an asset to this methodology are the reasoning figures of Aristotle's (e.g. syllogism), a process model of Peirce's theory of interpretation and Aristotle's rhetoric including his ethos, pathos and logos.

Natural language can be assigned a reasoning interpretation that can be any one of the three syllogistic figures. An application of a syllogistic figure (cf. reasoning figure) in natural language can be seen as an inference step, having the aspect of deduction, induction or abduction. We assume that from a pair of sentences (cf. premises) a conclusion can be drawn through the use of a common term occurring in both premises.

In this thesis we identify three levels of interpretation: sentence-level as first level, paragraph-level as second level and the entire text as third level. All three levels enable an expression of the reasoning figures having the aspect of deduction, induction and abduction as a consequence of the used model of (meaningful) interpretation. This research focuses on paragraph-level interpretation.

Based on the above assumption both understandability as well as plausibility can be measured. The condition that in meaningful interpretation all three types of reasoning aspects are involved can be used for checking the completeness of the input. It also allows us to check whether this incompleteness affects the plausibility of the text. For measuring plausibility proposes that Aristotle's rhetoric of logos, ethos and pathos correspond to deductive, inductive and abductive reasoning. Through linking the forms of reasoning with those of rhetoric, the form of reasoning in a text can be used for characterizing plausibility of the text. Testing the above observation through an on-line survey is the subject of this research.

By performing the analysis introduced above, paragraphs are individually analysed into reasoning structures. Premises are derived from the sentences occurring in the paragraph. The obtained premises are then checked if rhetoric is involved and/or paraphrasing is necessary. After the common term is identified and a conclusion is drawn, the next sentence is used as a potential new premise. When the paragraph has no further sentences the process terminates.

The survey was build with the online tool Kwiksurvey which provided a link that was sent to 60 students within the field of accounting. For reliability reason, we needed at least 20 students to fill in the survey as this would provide enough data to make conclusions. There were 27 responses, making the total of 41 responses. Of those 41, the 14 'views' weren't counted as well as 5 'views' made by the students. In sum, this brought the total of responses to 22. The last response submitted made on July the 19th.

The results of the experiment show that reasoning in most paragraphs was sound, hence the responses followed the expectations set in this thesis. Plausibility can be different in each paragraph. This suggest that the author is able to persuade the reader in finding some of the paragraphs plausible where the paragraphs should be less plausible according to the reasoning schemes.

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Introduction

A considerable amount of researches has been published on the benefits of using corporate financial reporting (CFSR) and/or annual reports. Companies use these reports in order to uphold their image in front of their stakeholders, clients and the general public (Gray, Javad et al. 2001). The social reports have been of great interest for researchers and in particular in the fields of accounting, corporate governance and social and environmental (Gray, Javad et al. 2001). So far, there are many researches that have given various insights, by means of either textual analysis (Davison 2008; Higgins and Walker 2012; Merkl-Davies and Koller 2012) or longitudinal studies (Gray, Kouhy et al. 1995; Laine 2005; Ratanajonkol, H. et al. 2006) on how companies report their actions. These researches consist of mostly researching the impact on society or what or what not the disclosures reported.

The research at hand provides a new methodology for performing textual analysis in annual reports without any need for using linguistic theories. Theories that are to be considered to be an asset to this methodology are the reasoning figures of Aristotle's syllogistic reasoning (e.g. syllogism) (Jenkison, 2009), a process model of Peirce's theory of interpretation (Peirce 1931) and Aristotle's rhetoric appealed by ethos, pathos and logos (Roberts 2009). These theories, that I briefly explain in section 'Literature Review', enable language to be interpreted as reasoning.

The Aristotelian theory of reasoning has the perspective of deduction primarily. As stated by Aristotle in Prior Analytics: "A syllogism is a discourse in which, certain things being stated, something other than what is stated follows of necessity from their being so" (Jenkison, 2009). This relates to that when the 'things being stated' are true, necessarily 'what is stated' is also true (Lagerlund, 2010; Sloman 1996). Eventually this form of reasoning created two other reasoning forms: induction, also found by Aristotle, and abduction, introduced by Peirce (Deutscher, 2002).

On the basis of their form, syllogisms can be assigned a perspective of reasoning which can be one deduction, induction and abduction (Sarbo et al, 2011). In general, a perspective corresponds to interpretation from a certain stance. For instance, a table can be seen as only a square if we look at it from a geometrical perspective (cf. shape). There are many other perspectives possible to look at a table.

This research focuses on Aristotle's three syllogistic figures. An analysis of quantification is omitted. Following (Sarbo et al, 2011), in this thesis those three figures will be considered to be structures exhibiting the aspects of deduction, induction and abduction.

We will suggest that natural language can be assigned a reasoning interpretation, hence also a syllogistic figure. An occurrence of a syllogistic figure in natural language can be interpreted as an inference step, having the aspect of deduction, induction or abduction. We assume that from a pair of two sentences (cf. premises) a conclusion can be drawn (see section "The three syllogistic forms: induction, deduction and abduction" for more explanations).

Following (Sarbo et al, 2011), deduction can be associated with the reasoning figure in which the common term is in the subject position in the major premise and is in the predicate position in the minor premise. A characteristic of deduction is to explicate the premises within its conclusion (Chong, 1994; Burks, 1946), hence an identification of the subject of the minor in the extension of the predicate of the major premise. Induction can be associated with the figure in which the

common term is in the subject position in both the major and minor premise. The property of induction allows the testing of a predicate, expressed by the conclusion (Burks; 1946, Chong, 1994; Sarbo et al, 2011), or a generalization of the predicate of the major by the predicate of the minor premise. Abduction can be associated with the figure in which the common term is set in the predicate position in both the major and in the minor premise. The property of abduction is the creation of a concept or hypothesis about the premises in the conclusion (Chong, 1994; Deutscher, 2002), hence a combination of the subject of the minor with the subject of the major premise. In his syllogism, Aristotle maintained that deduction only is experienced as necessarily true. Therefore we assume that the truth of induction and abduction can be gradually less trusted. In this thesis, will be suggested that this property is inherited by for the reasoning figures as well.

This research focuses on the manner in which language is processed as reasoning. Following the model by (Sarbo et al, 2011) the events of human processing can be assigned to a syllogistic figure of reasoning.

In Figure 1, in section "A semiotic model of information processing", the interpretation model of (Sarbo et al, 2011) is displayed. Deduction is associated with the interaction between the rheme and index positions as premises and the dicent position as conclusion. Induction is associated with the interaction between the index and legisign positions as the premises with the symbol as conclusion. Finally abduction is associated with the interaction between the dicent and symbol positions as premises and the argument position as conclusion.

In this thesis we assume the possibility of three levels of interpretation (cf. scalability of interpretation): sentence-level as first level, paragraph-level as second level and on text level as third level. First level interpretation considers the aspects of deduction, induction and abduction within a single sentence. The second level is a paragraph in which the sentences are combined by means of the three syllogistic figures without the use of embedding. The third level of text differs from the second level by the possibility of embedding (cf. nesting). This research focuses on the second level interpretation. An analysis of third level requires text summarization that falls beyond the scope of this research.

Following the completeness of interpretation a (meaningful) paragraph involves an expression of all three aspects of reasoning. If a paragraph does not involve a reasoning aspect, e.g. the inductive one, we can test whether the reader did develop information about the missing aspects in his/her interpretation of the paragraph. The above test applies to chairman's letters as well.

This way we can test if a letter is complete or not, from the perspective of reasoning. It also allows us to check whether incompleteness affects the plausibility of the text. Plausibility can be measured by making use of Aristotle's theory on rhetoric: logos, ethos and pathos. Logos appeals to logical reasoning, ethos appeals to stating authority and pathos appeals to the reader's emotions.

For measuring plausibility, this research proposes further that these forms of rhetoric have a correspondence with deductive, inductive and abductive reasoning, respectively. Through linking the figures of reasoning with the rhetoric forms, the figure of reasoning in a text can be used for characterizing plausibility of the text. Therefore deduction is convincing since logos is logical reasoning, induction is less convincing hence more persuasive since its connection to ethos appeals to the authors credibility and abduction is the most persuasive form as pathos appeals to the readers emotion.

When a text has more occurrences of deduction, it suggest to have more logical reasoning in the text. If a text have more elements of induction or abduction, it is suggested that the text is less convincing as the arguments are more an expression of the author's authority and emotions (Nørreklit 2003; Higgins and Walker 2012; Brennan and Merkl-Davies 2013). The term 'suggested' is here used in the sense that even when more inductive reasoning (ethos) or abductive reasoning (pathos) is established, this doesn't mean that these by default lead to a none convincing text for the reader. Testing the above observation through an on-line survey has been the subject of this research.

According to several researchers (Fiol 1989; Merkl-Davies and Koller 2012; Laine 2005; (Craig and Amernic 2004) words convey meaning that correspond with the role of the author and a (stressful) situation present at time of writing, hence the reason why two chairman's letters are chosen. In this thesis we analyse two chairman's letters. These two letters differ, because they are written not only by a different person but also in different situations. The first was written in 2013 when the Co-operative Bank was affected by a financial crisis. The second letter was written in 2009 before the financial crisis started.

Derivation of a scheme of reasoning

The text below illustrates the derivation of an involved reasoning (style) figure.

"Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today". (The-Co-operative-Bank-plc 2013) See Appendix I Paragraph2, Sentence 3.

In order to derive a reasoning figure, first we have to analyse the text into a pair of sentences interpreted as major and minor premises. On the basis of the syntactic structure of the sample text, a solution can be the following (as minor premise): 'We were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today'. The subject being 'We' and the predicate being 'were able to...'.
In the first sentence (cf. major premise) there cannot be a clear subject determined as the sentence itself starts with a verb. In order to proceed with our analysis we suggest in the first part of the input text to be paraphrased through representing the subject and adding tense information to the predicate.

For instance: 'Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances' is missing a clear subject. As the devising is done by the 'We' that is set in the minor premise that same 'We' can be set as the subject for the major premise as well: '**(We)** devised a Recapitalisation Plan acceptable for all stakeholders in very difficult circumstances'.

Major premise: **(We)** devised a Recapitalisation Plan [acceptable for all stakeholders in very difficult circumstances].

Minor premise: We were able to complete the Liability Management Exercise (LME) [in December without which we wouldn't be here today].

Even though these premises are correct and enable a reasoning figure to be derived, it must be noted that in these sentences rhetoric is also involved. In the example above, the rhetorical information is bracketed. Rhetoric involves either additional (cf. background) information or inferences that are used in a sentence and is not essential to use for a premise.

In these premises the phrase 'acceptable for all stakeholders in very difficult circumstances' and 'in December without which we wouldn't be here today' are representations of rhetorical information as these are not essential to both premises. When the rhetoric is removed, the premises can be stated more clearer.

Major premise: (We) devised a Recapitalisation Plan.
Minor premise: We were able to complete the Liability Management Exercise (LME).

By having 'We' as common term, this forms a inductive inference. It results in the following conclusion:

Conclusion: Completion of the LME (*was enabled by*) devising a Recapitalisation Plan.

The conclusion is constructed by the minor premise in the subject position and the major premise in the predicate position. Therefore the part 'were able to complete' is changed to 'Completion of' as this is more fitting for a subject position without changing its meaning. The inference '*was enabled by*' connects both of the premises and is derived from the verb 'able' set in the minor premise.

With induction we create a plausibility based on authority (ethos). This can be seen with the completion of the LME. Whether first devising a Recapitalisation Plan (that in itself was accepted by all stakeholders) indeed proved helpful for the completion of the LME, is not mentioned. It is expected by the authority of the Co-operative Bank's management that the reader is 'convinced' by their hard work or at least find it plausible that these statements would suffice in restoring trust in the organisation.

If the illustration above would be a single paragraph, it can be tested whether or not the deductive and abductive elements also are known to the reader. For instance, with induction focusing on the completion of the LME, the deductive element could be the devising of the Recapitalisation Plan. The abductive element could be the merging of 'devising a Recapitalisation Plan' with the 'completion of the LME'.

On the nature of this research

Within the field of Information Science, this research mediates between the fields of information processing and accountancy. The field of accounting, as mentioned earlier, has different methods to analyze accounting narratives, but has trouble with analyzing how information is processed. The methodology suggested in this thesis may function as using the above theories is developed as a link between the two fields.

This report starts off with the Literature Review where the theories, their background and the research questions are explained. First sign theory will be discussed in detail to which interpretation processing is related. Second the reasoning figures and their association with rhetoric are discussed. In the third part rhetoric is highlighted in more detail and its importance in Corporate Financial Reporting. Chairman's letters are an example of those reports. In next Section we introduce the suggested methodology. Here the process of interpretation is explained through the three levels

(sentence-, paragraph- and text-level). The Methodology is also highlighted with some examples and ends with establishing the hypotheses. Following this part the hypotheses the Method is described, followed by the next Section in which we summarize the Results. We draw conclusion and discuss how the results correlate with the Results and how they correlate with the hypotheses. The last Section is devoted to an overview of future work.

A semiotic model of information processing.

Following (Sarbo, Breemen et al. 2011) human interpretation can be characterized by a process consisting of nine types of events or interpretation moments that can be associated with Peirce's nine sign aspects. The nine interpretation moments define a hierarchy. According to this theory, the types of events can be arranged in a diamond structure. This is depicted in Figure 1.

The interpretation process as a diamond-structure

In the interpretation process shown in Figure 1, the input, which is a collection of qualities, appears in the qualisign position. From there the phenomenon is established further in the other events in order to generate the appropriate interpretation in the last event, the argument event.

In the first step the input is sorted into state and effect qualities (cf. sorting). Then, the two types of qualities are abstracted (cf. abstraction) and completed with background information (cf. complementation). In the final step a relation is established between the completed state and effect qualities (cf. predication). Sorting, abstraction, complementation and predication are types of events introduced by the process model.

Following these two representations (icon and sinsign positions), two new events can be derived within the interpretation process. These two new events are established in the rheme position and the legisign position and form a more general expression of those constituent and property of the text. Then in the index position usually two types of events are assumed. Those two are events that represent the additional or background information.

Based on the general expressions and the additional or background information, the events within the dicent position and the symbol position can be derived. These two represent the subject and the predicate of the whole text. Interpretation is finished by merging the representations in the dicent and symbol positions in a single expression in the argument position.

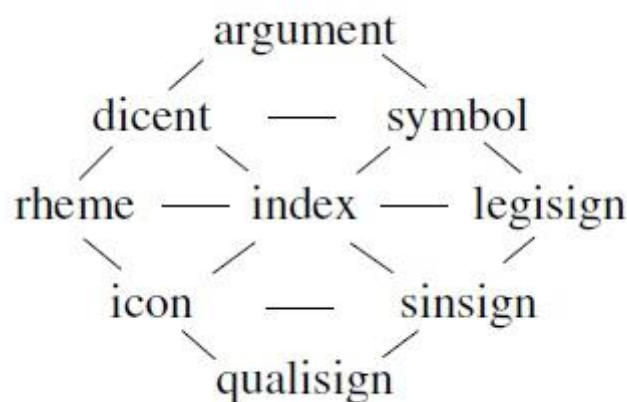


FIGURE 1: PEIRCEAN SIGN ASPECTS

Syllogism as assigned within the diamond-structure

The process model is scalable. It can be applied to input symbols that are premises as well. A semiotic analysis of the interactions of the model reveals that the event of complementation between the rheme and index positions has the aspect of deduction, the one between the index and legisign position the aspect of induction. Predication has the aspect of abduction. Sorting can be associated with the aspect of abduction in a degenerate sense, logically. This follows from the properties of the above events. The premises can be associated with the positions that are connected to each other with a horizontal line. The corresponding conclusion is set in the slant lines combining those lines in a third position.

Within the rest of the research at hand, lies the focus within the syllogistic reasoning interpretation process and the (type of) arguments used. The interpretation process as established above is assumed to be involved. Meaning that, the assumption is that human process information in nine sign aspects, from which a concluding reaction is generated. A syllogistic analysis of this process can be used for testing if the interpretation is meaningful. That is to say, if all three types of syllogisms, deduction, induction and abduction, are involved. This is called the (syllogistic) completeness condition within syllogistic (natural language) reasoning.

Natural language and reasoning

According to (Ryan B., Scapens R.W. et al. 2002) natural language reasoning is based on arguments (cf. premise) and judgement which as a result can modify our beliefs. (Ryan B., Scapens R.W. et al. 2002) give insight into how natural language reasoning (NLR) techniques can be used to translate natural language arguments (NLA) into symbolic logic. They use the 'assertability principle' to test the validity of the arguments. The methodology examines whether reasoning is present within a text. The method used to accomplish this is by doing two-stage analysis.

Stating their claim differently, arguments can alter our beliefs only if the people's judgement accepts the argument(s) as true when the premises that lead to the conclusion are also considered true (Sloman 1996). For example, within the Co-operative Bank report of 2013 it states:

"Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank". (The-Co-operative-Bank-plc 2013)

In the assumption of Ryan, Scapens et al, we first have to deal with valid arguments (Ryan B., Scapens R.W. et al. 2002). The following example illustrates this validity. With our proposed method both arguments need to state a common term. In the example below, the common term relates to stating a solution to a problem, namely 'realisation' and 'understanding'. This connection forms the 'common term' which creates the following conclusion:

First argument: Rebuilding the Bank can be realised.
Second argument: Niall Booker is appointed to understand.
Conclusion: Niall Booker (**can**) rebuild the Bank.

However when changing the second premise to 'Niall Booker is a veteran in the banking world, another solution is present, but the same conclusion doesn't have to be true.

First argument: Rebuilding the Bank can be done.
Second argument: Niall Booker is a veteran in the banking world.
Conclusion: Niall Booker (**can**) rebuild the Bank.

In this case it is assumed that 'a veteran in the banking world' can (always) rebuild something in the banking world and this perception isn't considered true for everyone. Meaning that the premise is not or the premises are not true hence it is reasoned that the conclusion isn't true.

Research by (Sloman 1996) makes a distinction between two forms of reasoning: associative and sequential (cf. rule-based) reasoning. He performed experiments to prove his hypotheses. Preliminary work on arguments was undertaken by Toulmin (Toulmin 1958). Toulmin claimed in his book 'The uses of Argument', that, from a linguistic perspective, an argument consist of at least three elements: a rule, a case and a result. Here syllogistic figures can be assigned. A result is a conclusion in a deductive figure, a rule is a conclusion in an inductive figure and a case is a conclusion in an abductive figure.

Syllogistic and natural language.

In the same vein as Ryan, Scapens *et al* (Ryan B., Scapens R.W. et al. 2002) and Sloman (Sloman 1996), syllogism forms a theory of reasoning in natural language. Following Aristotle, a syllogism consists of arguments as a pair of premises and a conclusion (Jenkison 2009). According to Aristotle premises consist of two terms: major and minor terms. These two terms can be distinguished by the effect they have on the conclusion: the major term becomes the predicate and the minor term becomes the subject within the conclusion (Kemerling 2011). Kemerling provides different forms of philosophical information, including 'Categorical Syllogisms' which highlights the syllogistic structures.

Since syllogism partly relies on natural language, it is not a formal theory, because it has been noted that formal theory or formal language isn't that expressive than natural language (Barwise and Cooper 1981) hence syllogism within natural language can consist of expressive arguments. These authors namely argue that the use of (generalized) quantifiers within natural language reasoning have also an effect on linguistic theories (Barwise and Cooper 1981).

The three syllogistic figures and their relation with the three types of reasoning.

According to Aristotle, "every belief comes either through syllogism or from induction" (Jenkison 2009). More than two millennia later Peirce suggested that third possibility exists, belief formation, that he called abduction (Peirce 1931). Peirce, who introduced his nine aspects, suggested that a syllogistic analysis of natural language is possible along the lines of the three types of reasoning deduction, abduction and induction (Peirce 1931).

Their difference between the reasoning schemes can be associated with the function of the 'middle term' within the minor and major premises as a subject or predicate, as argued by Thomas who discusses good arguments and good argumentation (Thomas 1994) and Flach who compared Peirce's view on abduction from two different perspectives (Flach 1996). This view of the 'middle term' is further supported by (Thornton 1982). He points out that the 'middle term' doesn't appear in the conclusion, but is necessary to reach that corresponding conclusion. Further is this established by his research that demonstrated that when applying practical syllogism, the conclusion reached in either induction, deduction or abduction leads to a corresponding action (Thornton 1982).

Identifying the 'middle term' is identifying two terms that are similar or closely relate to each other. For further references, see Section 'Deduction', 'Induction' and 'Abduction' later in this Section.

In order to clarify the three types of syllogism, the structures are explained by means of examples. These explanations are based on the theories of (Chong 1994; Bucciarelli and Johnson-Laird 1999; Sarbo, Breemen et al. 2011). Chong studied Peircean abduction and relates it to other forms to performing a data analysis (Chong 1994). Bucciarelli and Johnson-Laird provide a computer model that has syllogism implemented based on mental models and tested this model through experiments (Bucciarelli and Johnson-Laird 1999). Sarbo et al, discusses not only the three types of syllogism, but they provided also a functional characterization following an analysis by Peirce. This characterization implies that the three syllogism relate to the three propositions of inferences: case, rule and result (Sarbo, Breemen et al. 2011). These can be used for a characterization of the schemas as well.

Deduction

In deduction, the conclusion is a proposition of a relation between subject as set in the minor premise and predicate as set in the major premise. The general form establishes the major premise as 'X is B' and the minor premise as 'A is X'. The conclusion is then made explicit as 'A is B'.

Major premise (Rule): These books are from this shelf.
Minor premise (Case): The books from this shelf are accounting textbooks.
Conclusion (Result): These books are accounting textbooks.

Deduction is seen as the only trivially true form of logical reasoning. In deduction the conclusion as 'result' is derived from 'rule' and 'case'. This can be made clear within the Co-operative Bank annual report of 2009:

"The Co-operative Financial Services (CFS) was formed in 2002 from the bringing together of The Co-operative Bank and The Co-operative Insurance Society. This year, upon the merger with Britannia Building Society, the business has further developed its profile as the UK's most diversified mutual financial services provider". (The-Co-operative-Bank-plc 2009)

Major premise (Rule): This year, upon the merger with Britannia Building Society, the business has further developed the business profile as the UK's most diversified mutual financial services provider
Minor premise (Case): The Co-operative Financial Services (CFS) was formed in 2002 from the bringing together of The Co-operative Bank and The Co-operative Insurance Society.
Conclusion (Result): The Co-operative Financial Services (CFS) has further developed the business profile [as the UK's most diversified mutual financial services provider].

In this scheme we can see that the 'rule' infers to further developing the business profile. The 'case' that follows enhances the inference by stating that bringing together of the co-op bank and co-op insurance society and merging with Britannia, allowing for further development of the business profile. This gives the 'result' of that the combined businesses have further developed their business profile.

Induction

In induction, the middle term functions as subject both in the major and minor premises. The conclusion is the proposition of a relation between the minor and the major predicates: the predicate of the minor is expressed as an 'instance' of the predicate of the major premise. The general form consist of the major premise being 'C is B' and the minor premise 'C is X', and the conclusion is 'X is B'.

Major premise (Result): These books are accounting textbooks
Minor premise(Case): These books are from this shelf
Conclusion (Rule): The books from this shelf are accounting textbooks

The inference scheme for induction, as illustrated by the example below, derives the 'rule' from the 'result' and the 'case'. Induction is seen as a lesser form of logical reasoning, because induction only determines a relationship between major terms (e.g. authority).

"We are in the process of reshaping the Board to improve the governance in the Bank and have appointed new Non-Executive Directors who bring significant experience". (The-Co-operative-Bank-plc 2013)

Result: We are in the process of reshaping the Board to improve the governance in the Bank.
Case: **(We)** have appointed new Non-Executive Directors who bring significant experience.
Rule: Appointing new Non-Executive Directors who bring significant experience is being in the process of reshaping the Board to improve the governance in the Bank.

Here it is stated that the Co-operative Bank is (in a process of) reshaping the Board. This can be seen as a 'result' or conclusion. What follows is the 'case' in what they did to reach that result, namely appointing new Non-Executive Directors. In the end we reach the 'rule' as a conclusion that appointing new Non-Executive Directors implies reshaping the Board.

Abduction

In abduction the middle term functions as predicate in both the major and minor premise. Abduction enriches the subject of the minor premise with information involved in the subject of the major premise. Meaning that, the general form insists of the major premise being 'X is C' and the minor premise being 'A is C' and the conclusion creates 'A is X'.

Major premise (Rule): The books from this shelf are accounting textbooks
Minor premise (Result): These books are accounting textbooks
Conclusion (Case): These books are from this shelf

Abduction is the least trivial true form of logical reasoning as abduction usually generates a hypotheses (Peirce 1931) and thus merely suggest something. This is illustrated below with an example.

"Turning this Bank around will be neither a simple task nor a short journey and the most significant risks and challenges the Bank faces are outlined on pages 26 to 28 of this report. There is also no doubt that rebuilding confidence and trust is a major challenge". (The-Co-operative-Bank-plc 2013)

Considering that this first sentence is ambiguous, the sentence can be paraphrased to 'Turning this Bank around is a significant risk and a challenge the Bank faces'.

Rule:	Turning this Bank around is a significant risk and a challenge.
Result:	Rebuilding confidence and trust is a major challenge.
Case:	Rebuilding confidence and trust (<i>is</i>) turning this Bank around.

The 'rule' states that turning the Bank around is a risk and a challenge. As a 'result' of this, it can be concluded that rebuilding confidence and trust is a (major) challenge. Implying that the 'case' is that rebuilding confidence and trust conforms to turning the Bank around. Though this 'case' must be assumed for turning the Bank around, since no other options are given.

Syllogism in relation to rhetoric

Next to syllogistic, Aristotle analysed the use of rhetoric (Roberts 2009) that he classified in: ethos, pathos and logos. Ethos conforms to narratives that appeal to authority. Pathos appeals to a person's emotions by using usually stories or metaphors. Logos is the one that appeals to logic (reasoning) through good and solid argumentation. The nature of these three forms of rhetoric is analogous to the three syllogistic forms of reasoning: induction, abduction and deduction. This is explained below. It is for this reason that the two perspectives: rhetoric and interpretation as a process may correspond to one another.

Induction determines a relationship and ethos provides this determination by their authority (credibility). Abduction conveys something that is possible whereas pathos appeals to a person's emotions, which is also suggestive instead of rational. Deductive reasoning proves something, resulting in knowing something and this goes also for logos within rhetoric.

Through linking the forms of reasoning with the those of rhetoric, the form of reasoning in a text can be used for characterizing plausibility of the text. By this we mean that, in relation to text analysis, the outcome can determine whether a text is persuasive if a large amount of pathos and ethos (i.e. abduction and induction) is used. A text is convincing if more logos (i.e. deduction) is applied.

The difference between the three forms is explained using the papers of (Nørreklit 2003; Higgins and Walker 2012; Brennan and Merkl-Davies 2013). Most of these three papers use Aristotle's rhetoric in their research on Corporate Financial Reporting (CFR).

Overview of related literature of rhetoric within Corporate Financial Reporting

Analysing arguments within CFR is based on text analysis. Within the semiotic model of information processing, words are considered to be signs. Following (Fiol 1989) signs (i.e. words) convey meaning corresponding to the rules or social conventions that govern them which is inherent to semiotics.

(Fiol 1989) researched internal and external boundaries of organisations based on multiple chairman's letters as these boundaries implicate a form of control the organisation has and in particular in relationship with joint-ventures. She developed a semiotic framework for finding structures (i.e. patterns) within CFR. These structures are the overall structure within the narratives as well as in the deep structure (cf. underlining cause) in CFR.

Similarly to Fiol's claim that meaning corresponds with rules or social conventions (Fiol 1989), other authors (Brennan and Merkl-Davies 2013) assert that rhetoric is embedded in the rhetorical situation. Their research explore the use of rhetoric and the use of arguments as a means of influencing audience opinion in social and environmental reporting over a conflict between six international organisations and Greenpeace concerning environmental performance. The framework

that is used, as noted in the previous section 'Syllogism in relation to rhetoric', is built on Aristotle's framework of logos, ethos and pathos. The method used is a case study on a conflict and the focus lies in the used strategies. Aristotle's logos, ethos and pathos are used for creating an analytical framework that consists of two rhetorical analyses: one analysis on the text and another analysis on the social context affecting the rhetorical presentation.

Merkel-Davies and Koller (Merkel-Davies and Koller 2012) support the view of (Brennan and Merkel-Davies 2013) that rhetoric is embedded in the rhetorical situation. According to them there exist particular interpreters and values which are preferred in each situation. This is based on the authors new approach, the Critical Discourse Analysis (CDA), for analysing written and spoken text more systematically and in more detail by using the linguistic features of the text in order to see how the organisational activities and outcomes are represented (Merkel-Davies and Koller 2012). The analysis states that there are three levels that can be analysed: micro-level, meso-level and lastly the macro-level. In order to analyse these levels two grammatical devices are used: impersonalisation and evaluation.

The perspective taken by (Merkel-Davies and Koller 2012) rhetoric is a fundamental one for studying CSR or annual reports. As introduced by (Laine 2005) rhetorical arguments and rhetoric are a constituent of annual reports. (Laine 2005) provides support for this claim by giving new insight by looking what the company is trying to convey and whether a change in style over the years has to do with either a change or pressure from their (social) environment. The paper relies on the theory that states how an institutional environment can shape the organisational structure and further used a theory that identified three types of that (Laine 2005) uses to describe the kind of pressure the organisation went through. The analysis focuses on analysing rhetoric, rhetorical arguments and visual presentation within the report and the similarities and dissimilarities between years in their longitudinal study.

Laine's view (Laine 2005) is supported by (Nørreklit 2003) who states that rhetoric is a key management tool because it is a form of communication with a certain intention. Hanne Nørreklit investigates how rhetoric is used to win an audience in approving the Balance Scorecard (BSC) as based on Chapter 1 of Kaplan and Norton, The Balanced Scorecard, 1996 (Nørreklit 2003). Appealing the audience is investigated by means of Aristotle's rhetoric: ethos, pathos or logos and the theory of Toulmin's arguments (Toulmin 1958). Toulmin noted that three elements make a valid argumentation: a rule, case and a result. He used the methodology of stylistic text analysis and the argumentation theory mentioned above. The stylistic analysis involves 'analogies, metaphors, similes, metonymy, hyperbole and irony' (Nørreklit 2003). It is important to note is that Nørreklit also claims that conveying acceptability of persuasive appeal (cf. meaning) has 'lines of resistance' (Nørreklit 2003). This resistance is an expression of the readers interpretation, as a text can be judged merely as convincing or persuasive depending on the arguments. Method for measuring this distinction is one of the goals aimed for in this research.

Nørreklit's work (Nørreklit 2003) is complemented by Higgins and Walker study (Higgins and Walker 2012) who state that managements use rhetoric within these reports to increase acceptability by means of persuasive appeals. (Higgins and Walker 2012) extend critical perspectives about Social Environmental Reporting (SER), a related form of CFR, by investigating how organisations use persuasion in order to influence social actors in accepting the societal expectation that the organisation needs to conform to. Higgins and Walker also use Aristotle's ethos, pathos and logos

(Higgins and Walker 2012). They subdivided ethos in similitude, deference, expertise, self-criticism, inclination to succeed, consistency and ingratiation. These authors also provide a subcategory within pathos: metaphors together with identity. Logos is subdivided in argumentation, logic, warrants/justifications, claims, data and evidence/examples. Aristotle's theory of ethos, pathos and logos as well as the metaphors of journeying, balance and 'triple bottom line' is used as a methodology to constitute a discourse in order to identify how these persuasions influence the reader (Higgins and Walker 2012).

Unlike Higgins and Walker (Higgins and Walker 2012), (Craig and Amernic 2004) investigated the role of the CEO labelling them as public figures 'who actively engage in public rhetoric', though, as argued by (Laine 2005) their approach may vary depending on the pressures put on the organisation. Even so, (Craig and Amernic 2004) investigated the role by performing an interpretative textual analysis on the information given by the chairman, written during a privatisation of a Canadian railway station. Since rhetoric was a major part of the research, it was highlighted by the metaphors, rhetorical devices and ideological stances used within three rhetorical stages that are related to privatisation: before privatisation, during the privatisation and after the privatisation is complete.

Other studies have considered rhetoric within CFR reports, or Corporate Social Reporting (CSR), have been shown to uncover trends (Gray, Kouhy et al. 1995) within the reports and even creating awareness in repetition (Davison 2008). The study of Gray *et al.* used over 10 years of CSR reports published of a UK company. With this data he tries to uncover trends and patterns that are used within the reports published, focussing on the type of report, the subjects (mandatory and voluntary) addressed and the volume (pages) (Gray, Kouhy et al. 1995). (Davison 2008) provides a model which may be applied for analysing repetition in narratives and in pictures within annual reporting. A concept of dividing signs in signifiant and signifie forms the base of this paper. This methodology is a case study that consists of two main parts. The first part investigates rhetorical signifiants within the narrative and visual repetition. The second part focuses on the chief executive's statement in detail and the visuals used through photographs (particularly of the directors), pictures and drawings.

Other CFR or CSR reports are used for establish behaviour like the environmental impact on corporate activities (Harte and Owen 1991; Laine 2005), for characterizing the actual social responsibility of the companies researched (Robertson and Nicholson 1996) and last studies on measuring the volume of the reports in pages and words (Unerman 1991; Ratanajonkol, H. et al. 2006).

Research problem

Overall, the mentioned studies outline a critical role of reasoning and rhetoric in the use of natural language. However some of the studies above are constrained by the fact that no clear analytical framework is applied. These studies include, but aren't limited to, (Craig and Amernic 2004), (Merkl-Davies and Koller 2012), (Nørreklit 2003), (Robertson and Nicholson 1996) and (Thornton 1982).

Furthermore a few papers didn't involve the manner in which the CSR or annual report is received by the reader (Craig and Amernic 2004), (Davison 2008) or give an incomplete representation due to either neglecting parts of the report (Unerman 1991) or by focussing on a generic trend (Gray, Kouhy et al. 1995). Also it must be noted that the study of (Merkl-Davies and Koller 2012) is focused too

much on the linguistic aspects which is too restricted. Alternative studies are prominently theoretical (Thornton 1982).

In this work we suggest that on the basis of the assumptions mentioned within the Introduction and Literature Review a new semiotic framework can be introduced for CFR analysis. Following the process model of (Sarbo, Breemen et al. 2011) we propose that an aspectual (or 'naive') interpretation can be assigned to the events of information processing. An important assumption of our approach is the assumption that in CFR reports paragraphs are meaningful in themselves. This means that the three reasoning figures must be involved.

Based on the above assumption both understandability as well as plausibility can be measured. By stating that meaningful interpretation is only achieved if all three reasoning figures are represented within the interpretation process model, this condition can be used to check whether the input (cf. chairman's letters) is complete or incomplete in their reasoning. It also allows us to check whether this incompleteness affects the plausibility of the text. For measuring plausibility, this research proposed further that Aristotle's rhetoric of logos, ethos and pathos have a correspondence with deductive, inductive and abductive reasoning, respectively. Through linking the forms of reasoning with those of rhetoric, the form of reasoning in a text can be used for characterizing plausibility of the text.

Research Problem

The research problem that is the focus of this thesis is: In what way can a text be shown to be syllogistically complete and how can this completeness be a measure of plausibility within a text?

My experience with the sample text used for my research show that an answer to the above question is possible without a need for linguistic theories. What is needed is common sense that will enable to do text analysis only. The only requirement is common sense knowledge of the language and reasoning. It enables the reader to conclude whether or not something is missing in the text that the writer should have been more explicit about.

Method & Methodology

Traditionally, Corporate Financial Reporting (CFR) reports were analysed by their volume (Unerman 1999) and the use of Aristotle's rhetoric of ethos, pathos and logos (Nørreklit 2003; Higgins and Walker 2012; Brennan and Merkl-Davies 2013). In this section a new approach is to be introduced for an analysis of a text (i.e. paragraphs) using the theory of Aristotle's syllogism. This will be further described in the next Section 'Methodology'. The testing of the proposed methodology will be further examined in the Section 'Method'.

Methodology

The methodology uses the three reasoning figures, henceforth also called reasoning schemes, as detailed in 'The three syllogistic figures and their relation with the three types of reasoning'. Through using the completeness property of interpretation, this methodology can, by the three schemes, test understandability and the plausibility. Understandability is based on the completeness condition as by the assumption of meaningful interpretation. Plausibility is measured by linking the inferences, having the aspects of deduction, induction and abduction, to ethos, pathos and logos. The methodology of deriving these schemes is applied to a couple of chairman's statements written in separate annual reports of The Co-operative Bank.

Three classes of interpretation

The scalability of interpretation, enables us to focus on paragraph-level of interpretation. Below the three levels are discussed in detail. The process of deriving the syllogistic structures will be discussed in the following section.

First Level: Sentence Level

The first level includes input that corresponds to sentence-level. Here the sentences consist of words that can be interpreted in the diamond structure (Sarbo, Breemen et al. 2011). Accordingly, a sentence involves the aspects of all three figures of reasoning.

Sentences, represented by a single diamond structure, convey a thought (process) by the author.

Understandability can be tested through questions concerning the interpretation of the involved syllogistic aspects: deduction, induction and abduction.

Second Level: Paragraph Level

The second level includes input that corresponds to paragraph-level. Paragraphs too can be represented by a single diamond structure through considering sentences to be propositions. In our syllogistic analysis we assume that a pair of sentences are interpreted as premises, the major and minor premise, from which a conclusion can be derived.

Using paragraph-level analysis for chairman's letters is applicable as we may assume that in such documents every paragraph forms a single thought (process) by the author, without nesting. That simplicity of presentation makes it possible to represent the paragraph by a single diamond structure. We assume that the conclusions obtained from the premises (cf. sentences) can be represented by events in the diamond structure, hence in the end a single representation of the entire paragraph can be derived.

Understandability can be tested through questions concerning the reasoning aspects not explicitly represented by a text fragment.

Third Level: Text Level

The third level includes input that corresponds to text-level. A significant difference between paragraph and text level is the use of nesting (e.g. episodes) in the last one. This makes that interpretation may need text summarization in order to represent the entire text by a single diamond structure.

Deriving syllogistic structures on paragraph-level

The reports chosen for applying this methodology are chairman's letters written in the annual reports of 2009 and 2013 of the Co-operative Bank. The Co-operative Bank is a British national bank provides multiple financial services to the British community. Further the Bank is part of The Co-operative Group who provides diversified services within the United Kingdom.

First hypothesis

The two chairmen's letters are chosen in particular because these letters are written in two different situations. In 2009 the Co-operative Bank was doing fairly well in the market and financially, but in 2013 it became known that the Bank suffered from a financial crisis and several big losses were reported within that year.

These two situations may influence the style of writing (cf. authorship) within these chairman's letters, hence the process of interpretation, the reasoning, may be influenced as well. This applies to Laine's view that the rhetorical approach of managements change when under pressure (Laine 2005). This results in the following hypothesis prior to the analysis:

H1: The style of writing will change in using more inductive (ethos) and abductive (pathos) reasoning than deductive (logos) reasoning when the author is pressured by the situation at time of writing to convince his audience.

This hypothesis can be tested through applying the methodology (cf. paragraph-level) on both reports. Comparing the syllogistic structures as well as the corresponding link with Aristotle's rhetoric, it can be determined if the authorship has not only changed, but also whether this style of authorship is used deliberately, respectively.

The process

The process of deriving reasoning schemes is dependent on the three reasoning figures: induction, deduction and abduction by identifying the 'middle term' or also known as the 'common term'.

Introduced in this section are methods to analyse natural language by the three reasoning figures. These methods are based on common sense and not based on theory of language. Because of this, the methods can be a bit vague in their applicability. However the proposed methodology isn't meant to be a formal method for text analysis.

Within the proposed process there are five distinctive manners identified in which these three schemes can be determined. Further it must be noted that not all sentences are immediately applicable as premises within a scheme, henceforth why there is an approach, see in section 'Paraphrasing', to make the premises and thus the scheme more plausible.

1. Representations of sentence-level interpretation

Sentence-level interpretations are sentences that can be represented by a single interpretation model, see section First Level: Sentence Level. Here a thought (process) by the author is thus conveyed in a single sentence. As illustration:

Full details of the appointments made to date and the steps we are taking are outlined in the Governance section. (The-Co-operative-Bank-plc 2013)

Finally, this will be my first and last chair's statement in the annual financial statements, as I will be stepping down from the Board later this year, having served since 2004. (The-Co-operative-Bank-plc 2009)

These two sentences above, based on the information within, convey a thought by the author. These thoughts can be considered true, hence reasoning with these sentences cannot be possible. For this reason, these sentences aren't included within the reasoning schemes.

2. Identifying a pair of premises

The first distinction requires identifying two premises each having a subject and a predicate. The identification of the two premises is done based on identifying the subject and predicate that are established within either two sentences or a single sentence. As illustration:

We are in the process of reshaping the Board to improve the governance in the Bank and have appointed new Non-Executive Directors who bring significant experience. (The-Co-operative-Bank-plc 2013)

This is a single sentence as written in the 2013 report. However it consists of two premises as determined by the indicator 'and' that connects both predicates (i.e. 'are in the process of' and 'have appointed') to a single subject (i.e. 'We'). It results in that the following premises can be derived:

Major premise:	We are in the process of reshaping the Board.
Minor premise:	(We) have appointed new Non-Executive Directors.
Conclusion:	Appointing new Non-Executive Directors is being in the process of reshaping the Board.

The *(We)* is added between brackets to make the subject within the minor premise more explicit, but also to establish an inductive reasoning process. According to this reasoning scheme they both share the same subject, hence indicating an induction with 'We' as common term.

3. Empty Reasoning

The reasoning figure above brings forth the second distinction that can be made in the reasoning schemes, called an 'empty reasoning'. Every sentence needs a subject and a predicate and here it is possible to establish that 'We' in both cases is the subject. However this second subject isn't represented in the original sentence. For this reason, 'We' in the minor premise could be added in order to see the two premises as part of an inductive reasoning step. It allowed us to identify the common term so a conclusion could be drawn. Another illustration:

We are subject to multiple external reviews and investigations, an entirely necessary response to the events over recent years. (The-Co-operative-Bank-plc 2013)

This sentence is split into two separate premises as indicated by the comma (,). The second part, the 'an entirely necessary response [...]' relates here too to the first part of the sentence, namely 'We

are subject to'. Although this isn't represented within the sentence explicitly, the connection can be established within the following reasoning scheme:

Major premise: We are subject to multiple external reviews and investigations.
Minor premise: **(We) (are subject to)** an entirely necessary response to the events over recent years.
Conclusion: External reviews and investigations *(is the)* response to the events over recent years.

Above forms once again an induction on 'We'. Setting that the Bank has been subjected to the appropriate response as well. To make the conclusion more flowing, the words *(is the)* is added. This is allowed based on the verb 'are' that is set in both premises.

4. Premises through previous paragraphs

In addition to identifying two premises, it is possible for a conclusion or a sentence to be used in a reasoning scheme within another paragraph. For instance, in the 2009 report there stands the following 'paragraph':

But while we have avoided the high-risk growth strategies of our competitors, The Co-operative Bank has been firmly focused on future growth. (The-Co-operative-Bank-plc 2009)

This sentence cannot be represented with a single diamond structure as the word 'But' changes the interpretation of the sentence. Further it can also not be used on paragraph-level since this sentence cannot be split up into two separate premises. However in the same chairman's letter another paragraph starts with:

The most significant development of 2009, for our business and for the Bank in particular, was the merger of The Co-operative Financial Services with the Britannia Building Society. (The-Co-operative-Bank-plc 2009)

From the above sentence it can be said that the 'merger' was 'the growth strategy' as a merger indicate a growth of the Bank in some way. For this reason, this connection has made it possible to use the previous premise ('The Co-operative Bank has been firmly focused on future growth') in another paragraph ('The most significant development was the merger'). This is allowed because the information that we know about either the subject or predicate, within a previous paragraph, isn't lost (cf. a form of nesting). Resulting in the third distinction: that previous conclusions can be used with premises within another paragraph if either the subject or predicate match. In this case we can draw the below abductive conclusion:

Major premise: The most significant development of 2009, for our business and for the Bank in particular was the merger of The Co-operative Financial Services with the Britannia Building Society.
Minor premise: The Co-operative Bank has been firmly focused on future growth **(by avoiding)** the high-risk growth strategies of our competitors.
Conclusion: The Co-operative Bank's **(merger) (was)** the most significant development of 2009, for our business and for the Bank in particular.

5. Paraphrasing

As can be seen in the above scheme, the minor premise is different than the original sentence. This is because that sentence is paraphrased to a more usable premise, meaning that here also the word 'but' changes the interpretation of the sentence. Paraphrasing is also possible if a lot of additional information is added in the sentence that strays from the essential thought.

But while we have avoided the high-risk growth strategies of our competitors, The Co-operative Bank has been firmly focused on future growth. (The-Co-operative-Bank-plc 2009)

In the sentence above, the 'But' indicates that they could have focused on future growth by avoiding the high-risk growth strategies. Changing the original sentence in: 'The Co-operative Bank has been firmly focused on future growth **(by avoiding)** the high-risk growth strategies of our competitors' makes the original more explicit in what they want to convey. It further fits better in a reasoning scheme by stating clearly the subject and the predicate.

For another example, a previous text fragment is chosen. This fragment can be found in 'Natural language through arguments' as in the Literature Review.

"Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank". (The-Co-operative-Bank-plc 2013)

It has already been mentioned that these two sentences have been paraphrased into the following premise:

Major premise: Rebuilding the Bank can be realised.

Minor premise: Niall Booker is appointed to understand.

We can paraphrase most of the premises by removing rhetorical parts, which will shorten the phrases/sentences and show key messages, as you mentioned below in "A representation of rhetoric". Again the word 'but' is used to convey a change of interpretation, namely that rebuilding the Bank is possible. Niall Booker is then mentioned which connects him to the 'tools to begin turning the business around'. The understanding part in the minor premise is because the second sentence states 'to understand the true state of the Bank'. Even though a lot more is stated in the sentence the 'understanding of the true state' is more essential to what the author is thinking, hence why Niall Booker is appointed to 'understand'.

Paraphrasing is another technique to make it possible to find the common term easier within the reasoning schemes. However paraphrasing can make the sentence clear that it doesn't have import in the analysis. In the analysis of the chairman's letters, the identification of the most essential parts is checked by an Accounting professor as not enough background information was known to fully understand the context. Therefore some information could be essential to use as premise as by an accounting student and not by the researcher.

To illustrate, a previous example is used of the 2013 report:

"Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today". (The-Co-operative-Bank-plc 2013)

The beginning in which the 'Devising of the Recapitalisation Plan' is stated, was initially found as a rhetorical representation, see the next Section 'An informationally representation of rhetoric' for more details about this process. Therefore this sentence consisted of one premise: 'We were able to

complete the Liability Management Exercise (LME)'. However upon discussing the analysis, the Recapitalisation Plan is closely related to the LME. With this association in place, the two were automatically linked within an accounting student interpretation (which was already the intended target), hence a corresponding reasoning scheme needed to be in place as well.

6. A representation of rhetoric

Upon dealing with either paraphrasing or finding two sentences that form reasoning scheme, the sentences involved may contain information that cannot be informationally represented within this scheme. As within the Niall Booker case, the 'veteran of the banking world' as well as 'working closely with the Board' doesn't add anything relevant to the conclusion.

This brings us to the fourth distinction: both premises must contain only the information that represents the most relevant effect (cf. predicate) and the most relevant something that is undergoing the effect (cf. subject). It is considered rhetoric when the author is giving merely additional or background information. As illustration:

The most significant development of 2009, for our business and for the Bank in particular, was the merger of The Co-operative Financial Services with the Britannia Building Society. The first merger between a mutual and a co-operative, this brought together two successful, member-run businesses with complementary, customer-centred values. (The-Co-operative-Bank-plc 2009)

Note: The first sentence is earlier established as conclusion of an abductive scheme. For this explanation is however the original sentence used as a premise to clarify the rhetorical information used. The conclusion in both schemes remains unchanged.

Major premise: The most significant development of 2009, for our business and for the Bank in particular was the merger of The Co-operative Financial Services with the Britannia Building Society.

Minor premise: The first merger between a mutual and a co-operative, this brought together two successful, member-run businesses with complementary, customer-centred values.

Conclusion: The most significant development of 2009, for our business and for the Bank in particular brought together two successful, member-run businesses with complementary, customer-centred values.

These two sentences within the 2009 chairman's letter form a reasoning scheme. The 'Co-operative Bank's merger' as described in the predicate of the first premise connects to the 'This' mentioned in the second premise as subject, hence forming a deduction. However the mentioning of 'for our business and for the Bank in particular' as well as 'The first merger between a mutual and a co-operative' gives additional information about the subject in order to emphasize how significant and an accomplishment this merger was for the Bank (and for the business). Compare the structure above to the following structure:

Paraphrased Paragraph

Major premise: The most significant development of 2009 was the merger of The Co-operative Financial Services with the Britannia Building Society.

Minor premise: This brought together two successful, member-run businesses.

Conclusion: The most significant development of 2009 brought together two successful businesses.

Both conclusions conclude the same thing, namely that the bringing together two successful businesses was a significant development in 2009. Only in the second paragraph, the paraphrased paragraph, is this made explicit because the additional information is left out. However this is one part of the rhetorical information.

When we look at the following sentence within the 2013 report, there already can be established that this forms a type of conclusion:

As a consequence we announced on 24 March 2014, that we have started the process of raising additional capital. (The-Co-operative-Bank-plc 2013)

This is indicated by the words 'As a consequence'. These types of words are indicators. They can help the analysis by indicating a conclusion or premise. In both the full analyses, Appendix I and Appendix II, rhetorical indicators and inference indicators are bracketed [...].

7. Text-level representation

The text-level representation involves text summarization, meaning combining all the paragraphs into a major premise and minor premise to where the conclusion represents the chairman's statement as a whole (cf. nesting). Text-level is excluded because of the complexity of text summarization potentially required.

The reports

The process of deriving the reasoning schemes was first applied on the 2013 chairman's letter. Then the chairman's letter of the 2009 annual report was analysed. The process of analysis remained unchanged upon applying it on the two chairman's letters.

By performing the analysis, each of the paragraphs is taken separately to derive the reasoning structures within these paragraphs. Here the premises are derived from those sentences which cannot be represented by a single diamond structure. A fair amount of sentences in the 2009 chairman's letter consists those type of sentences which made twelve out of sixteen paragraphs applicable to the methodology. In the 2013 letter only some sentences were represented on sentence-level.

The next step involved identifying the rhetorical information in the sentence. The identification brings forth the essential subject and the predicate. The rhetorical information is then divided into the two classifications: rhetorical indicators and inference indicators.

After the identification of the essential subject and predicate, the next step is to see whether these are made explicit enough to be part of the scheme. As the earlier illustrations highlighted, the subject or predicate can be missing in the text (fragment) and thus they can be added (cf. paraphrased) in the scheme. Paraphrasing can also be done on the entire sentence which may result in them having no more import in the analysis.

The final step includes identifying the 'middle term' or 'common term' within the reasoning scheme as this determines what kind of style these premises indicate: induction if the subject is the common

term, abduction if the predicate is the common term and deduction if the common term is in the subject as well as in the predicate position. This step ends with writing down the conclusion in a clear form.

After writing the conclusion, if the paragraph still continues, the second premise upon the conclusion needs to be identified. The process of finding rhetoric and possible paraphrasing starts again until the paragraph has no more sentences..

Diagram of the process

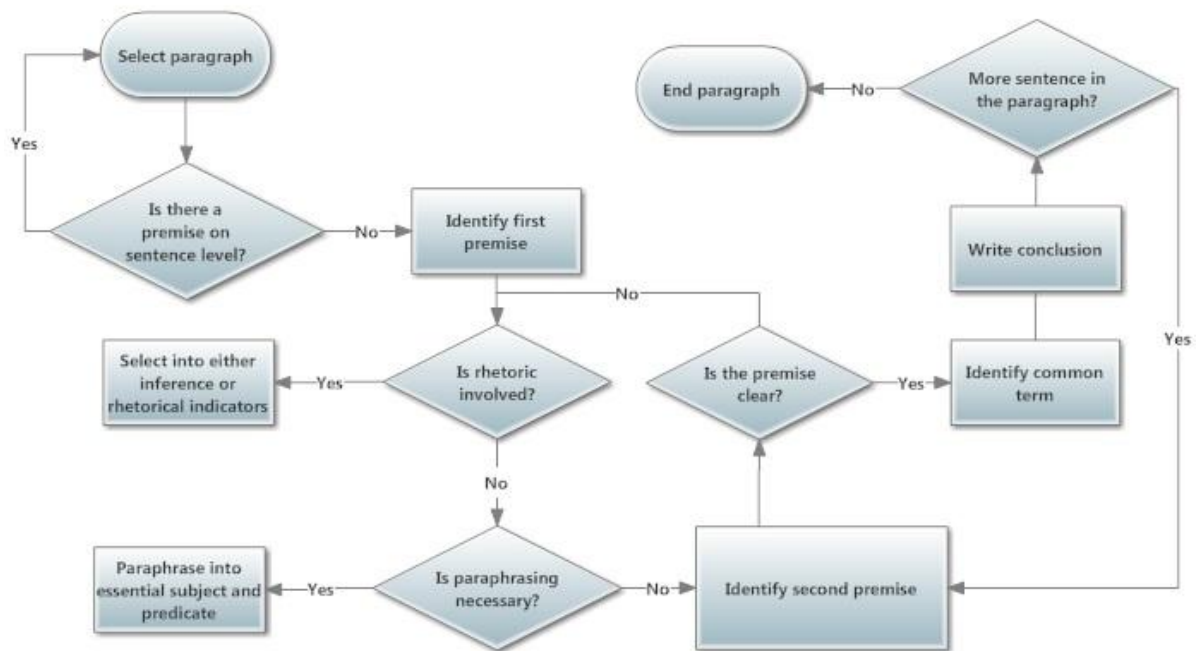


FIGURE 2: DIAGRAM OF DERIVING REASONING SCHEME

Results of the analysis

The first hypothesis in this research sought out to determine whether the style of writing (cf. authorship) would change upon the situation within the Co-operative Bank:

H1: The style of writing will change in using more inductive (ethos) and abductive (pathos) reasoning than deductive (logos) reasoning when the author is pressured by the situation at time of writing to convince his audience.

The result of the analysis, see Appendix I for the whole analysis of 2013, detected more inductive and abductive reasoning (cf. inductive and abductive schemes) in the chairman's letter of 2013. The chairman's letter of 2009 showed to have more deductive reasoning (cf. deductive schemes) than inductive and abductive reasoning, see Appendix II for the whole analysis of 2009.

This confirms H1 in the fact that when The Co-operative Bank was under pressure (e.g. poor financial situation), their style of writing changed by utilising more inductive and abductive reasoning. Whereas the 2009 report, before the crisis started, used more deduction, hence using a more logical approach. Further the 2009 reports contained more sentences on sentence-level, which already have the aspects of deductive, inductive and abductive reasoning (cf. meaningful reasoning). These

findings support thus the view of Laine (Laine 2005) that the rhetorical approach changes upon the pressure put on the organisation as having a poor financial situation is damaging for a national bank and thus 'justifying' their work to correct this damage was needed.

Hypotheses

Whether this confirmation of changes in the authorship has a certain influence on the reader, is divided into four hypotheses based on the paragraph-level analysis:

H2: Since more deductive reasoning is applied in the 2009 chairman's letter, these paragraphs are considered to be more understandable.

H3: The understandability in the readers interpretation makes that the paragraph convinces the reader more than it persuades the reader, hence making it plausible.

In order to test whether deductive reasoning according to the schemes is more understandable and plausible for the reader. If it proves to be not understandable or plausible to the reader, it means that the author tells his story with not enough information to see the appropriate effect of the actions taken.

H4: Since more inductive and abductive reasoning is applied in the 2013 report, these paragraphs are considered to be less understandable and less plausible.

H5: The lesser understandability in the readers interpretation makes the paragraph less convincing and leans more in persuading the reader of its plausibility.

In order to test whether inductive and abductive reasoning according to the schemes is less understandable and plausible for the reader. If it proves to be plausible or understandable to the reader, it means that the author tells a good story which is able to persuade the reader of his actions.

Method

To test the above hypotheses we used an online experiment as a method. The experiment tests the understandability and plausibility of the paragraph by investigating how both are reached through a human's interpretation after their initial read. The test consist of a series of questions which are introduced based on the reasoning schemes derived from the analysis of both chairman's letters.

This experiment required at least 20 native English speakers who are working or studying in the field of accounting. The field of accounting is necessary since the experiment uses content from a financial institute, namely The Co-operative Bank. It is therefore important that the participants understand the context as this helps the understanding (cf. the reasoning) better. The experiment itself consist of 14 multiple choice questions about the authorship (cf. understandability) of the chairman's letters. The plausibility is measured by a score on a scale of 1-5 (1: min, 5: max).

Not both chairman's letters are used as a whole, but the survey uses only 5 paragraphs. As the understandability is dependent on the completeness condition of the reason, only several incomplete paragraphs would already suffice in proving this methodology. The paragraphs in question are chosen on their incompleteness and their readability, meaning that some other paragraphs were grammatically difficult. For example, see Appendix I, Paragraph 1.

The paragraphs are slightly changed by that The Co-operative Bank and other specific names or brands are referred to a more general expression like, "The BANK". This is done in order to not influence the participants since knowing of The Co-operative Bank and the situation they are currently in, will make them aware of the problem, hence sceptical of the narratives. Further to make it more effective, the paragraphs are mixed so it isn't clear which paragraph belongs to which report.

The participants are required to answer these questions based on their own (first) interpretation of the selected text. This experiment is done online, because at the time of the experiment the participants were at the start of their summer holiday, hence why they couldn't be physically present for the experiment. In total the experiment would take about 20 minutes to fill in. The survey of the experiment can be found in Appendix III.

The task we set out for them is to read and to try to understand the paragraphs given below and then choose one of the answers within the multiple choice questions.

Results

Gathering data

In order to get the most responses as possible, due to the summer holiday, an online survey is chosen as gathering method. Kwiksurvey is chosen as provider for the creation of the survey for the reason that this free program allowed for more than 10 multiple choice question to be build in the survey. This wasn't the case with several other free online providers. After the survey was build, a URL was created to send out to the participants.

The URL to the experiment (cf. questionnaire) is send out on Monday 23th of June, 2014. The participants, students within the field of accounting, were given a couple weeks to complete the online survey before the final results are analysed. This period is extended due to the summer holiday as here it is felt that the students are less reluctant to fill in the survey within a short(er) time period.

Within reasoning one cannot expect a single correct answer since the ability to reason differs for each person. Therefore the answers are distributed in levels of 'correctness' in which the correct answer correlates the most with the inference schemes, see Appendix I and Appendix II. Answers that are the farthest away from the 'correct' answer consist mostly or entirely of rhetorical information. Here the questions that are meant to indicate the level of plausibility are left out since these don't correlate with any of the inference schemes made. For the distribution in answers, I refer to Appendix III (Survey).

Kwiksurvey allows the creator of the survey to analyse the responses . However this tool is fairly simple. Therefore the program SPSS is used to analyse the data as part of a descriptive research. The descriptive research is chosen to measure the answers within the survey given as a characteristic of these particular students. Meaning that every variable (cf. question) cannot be used to find an independency or correlation, but instead can be used to measure which 'correct' answer occurs the most within the question. This in order to find the frequency in their reasoning.

Number of responses

Before sending out the URL to the participants, the survey needed to be checked out whether the layout and the grammar would be sufficient. As the result, 14 'responses' were added to the total of responses to the survey. These 'responses' (cf. views) aren't counted within the result as none of the 14 views had filled in the survey, hence making the 'response' an empty one.

We sent out the link to 60 students within the field of accounting. For the reliability we needed at least 20 students to fill in the survey as this would provide enough data to make the right conclusions. There were 27 responses, making the total of 41 responses. Of those 41, the 14 'views' weren't counted as well as 5 'views' made by the students. In sum, this brought the total of responses to 22. The last response submitted made on July the 19th.

Results

The data of the 22 respondents is put in SPSS on the 21th of July. Upon which one of the 22 responses filled in, turned out to be not completely filled in. Therefore this response isn't used as input in the final analysis.

After the data was set, the Frequencies test was chosen (as part of a Descriptive Statistics). This provided for each answer given, the corresponding number and percentage within the total number of responses for each question as well as an overview, tables, of the most given answer within each paragraph.

First paragraph

The first paragraph came from the 2013 chairman's letter and consisted of four questions, see Survey in Appendix III. Each of these question will be discussed by their results. In the end a conclusion will follow over the entire paragraph.

Question 1: Why do you think that Niall Booker can rebuild the BANK?

Within the first half of the paragraph, the author highlights Niall Booker and his importance to the BANK. This is mostly done in the beginning which can all be paraphrased into a simple sentence "Niall Booker is appointed to understand" which concludes with an abductive reasoning style: "Niall Booker can rebuild the BANK", see Appendix I, Paragraph 2.2.

Concerning Niall Booker there isn't much stated within the paragraph that aren't informationally representations of rhetoric. Therefore this question is asked to check whether or not the 'ability' of Niall Booker that is connected to the rebuilding of the BANK can be found by the participants. Here the most 'correct' answer lies in the conclusion "Niall Booker is appointed to understand (the real problem of the BANK)" and is indicated by the value 4.00. This number went down for each level of 'correctness' within this question as based on the same inference step. The 'Niall Booker and his Executive Team have worked closely with the Board', 'Niall Booker has been in the banking world for a long time' and 'Niall Booker has the necessary skills' on place 3.00, 2.00, and 1.00 respectively. Table 1 shows the frequencies involved for this question.

Table 1: Q1; Why do you think that Niall Booker can rebuild the BANK?

	Frequency	Percent	Answer	Value
Niall Booker has the necessary skills	3	14,3	B	1.00

Niall Booker has been in the banking world for a long time	2	9,5	A	2.00
Niall Booker and his Executive Team have worked closely with the Board	8	38,1	D	3.00
Niall Booker understands the real problem of the Bank	8	38,1	C	4.00
Total	21	100,0		

Question 2: Do you think the reasoning that Niall Booker can turn around the BANK, as suggested in this paragraph, is plausible?

As the arguments for Niall Booker really is able to turn the Bank around aren't explicitly mentioned and most of the arguments consist of rhetorical information, this is considered by our reasoning 'Not at all plausible' as it is made by an abductive reasoning style. It is indicated with the value 5.00. Therefore the numbering goes down to the 'Very plausible' set as 1.00. Table 2 below displays the results for this question.

Table 2: Q2; Do you think the reasoning that Niall Booker can turn around the BANK, as suggested in this paragraph, is plausible?

	Frequency	Percent	Answer	Value
Very plausible	2	9,5	E	1.00
Plausible	8	38,1	D	2.00
Neutral	6	28,6	C	3.00
Somewhat plausible	5	23,8	B	4.00
Not at all plausible	0	0	A	5.00
Total	21	100,0		

Question 3: Since the BANK is in a poor (financial) situation, rebuilding the BANK depends on ___?

This second half of the paragraph focuses on the rebuilding of the BANK. In the schemes for this part of the paragraph, deduction and an induction takes place. See Appendix I, Paragraph 2. With these two representatives, only abduction is missing to complete the reasoning by the readers interpretation. This question allows us to check if 'abduction style' has taken place by stating the predicate (rebuilding of the BANK as by induction) and letting them answer the corresponding subject (completion of the LME as by deduction).

The rebuilding of the Bank is concluded by the completion of the LME by means of induction, hence why this is the most 'correct' answer and set with value 4.00. As this conclusion is strengthened with the 'devising of the Recapitalisation Plan' this is the second best answer (3.00). The other options are based on rhetorical information. As the 'acceptance of the plan to all stakeholders' has the form of a

rhetorical addition and as the 'support' is unconnected to either the LME or the Plan, the 'acceptance of the plan to all stakeholders' has value 2.00 and the 'support' 1.00. Below are the results of this question stated in Table 3.

Table 3: Q3; Since the BANK is in poor (financial) situation, rebuilding the BANK depends on _____ ?

	Frequency	Percent	Answer	Value
the support of the vast majority of the subordinated bondholders, customers and colleagues of the Chairman	8	38,1	A	1.00
the acceptance of the plan to all stakeholders	3	14,3	C	2.00
devising the Recapitalisation Plan	6	28,6	B	3.00
the completion of the Liability Management Exercise (LME)	4	19,0	D	4.00
Total	21	100,0		

Question 4: How plausible is the resolution to rebuild the BANK as suggested in this paragraph?

As stated in the previous question, the resolution is the completion of the LME. This resolution was identified by both a deductive as well as two inductive reasoning steps. With these representations to support the resolution, the reasoning by the schemes is found 'Somewhat plausible' (5.00) as, even though all three forms are present, there is more induction and one empty induction involved as well. However due to that deduction is involved, the 'Plausible' option is second best, 4.00. 'Neutral' stays 3.00. The extremes are set with the value 2.00 and 1.00 as 'Very plausible' and 'Not at all plausible' respectively. Again due to the deduction is the option of 'Very plausible' more likely to hit than 'Not at all plausible'. The result of respondents to this question, can be found in Table 4.

Table 4: Q4; How plausible is the resolution to rebuild the BANK as suggested in this paragraph?

	Frequency	Percent	Answer	Value
Not at all plausible	0	0	A	1.00
Very plausible	2	9,5	E	2.00
Neutral	6	28,6	C	3.00
Plausible	8	38,1	D	4.00
Somewhat plausible	5	23,8	B	5.00
Total	21	100,0		

Conclusion first paragraph

The first paragraph consists of the elements abduction, (empty) induction, deduction and induction, hence all three reasoning forms are present. By starting with abduction, the author state a

hypothesis about the paragraph (Niall Booker can rebuild the Bank). To this is added that the completion of the LME (by devising a Recapitalisation Plan) was the key (achievement) to rebuild the Bank. The reader is in this paragraph more persuaded (as by the abductive and two inductive inferences, see Appendix I Paragraph 2.1 - 2.4) to believe the author that these main achievements have solved their problems. This is supported by Table 5 in which it can be seen that the ability of Niall Booker as well as that the resolution seems 'Plausible' to most of the participants as indicated by value 2.00

In Table 5 can be seen the 'Mode' of each question of the paragraph. The 'Mode' displays the value of the most chosen answer for that particular question. For the first question both the most 'correct answers', value 3.00 and 4.00, are chosen which suggest that the participants were capable of identifying what was most essential to assigning Niall Booker. However identifying what is essential and explicitly stating his capability are different things and, as mentioned above, this isn't done by the author. Again the participants found it 'Plausible', with value 2.00, that he was able to do this in Q2.

More interestingly, the way of rebuilding the BANK isn't found to be done by the completion of the LME, but by the 'support of the vast majority of the subordinated bondholders, customers and colleagues of the Chairman'. As second best the 'devising a Recapitalisation Plan'. This can be explained by the authorship. By stating in the last sentence that 'the key achievement could not have been accomplished without the support' it indicates a certain importance of this support while it is actually an afterthought of that the 'rebuilding of the Bank was a key achievement'.

Table 5: Statistics on the second paragraph of the 2013 chairman's letter.

	Q1: Why do you think that Niall Booker can rebuild the BANK?	Q2: Do you think the reasoning that Niall Booker can turn around the BANK, as suggested in this paragraph, is plausible?	Q3: Since the BANK is in poor (financial) situation, rebuilding the BANK depends on _____?	Q4: How plausible is the resolution to rebuild the BANK as suggested in this paragraph?
Valid	21	21	21	21
Missing	0	0	0	0
Value	3.00 ^a	2.00	1.00	2.00

. *Multiple modes exist for the question. The smallest value is shown.

Q1: Mode 3,00¹: Niall Booker and his Executive Team have worked closely with the Board.

Q1: Mode 3.00²: Niall Booker understands the real problem of the BANK.

Q2: Mode 2.00: Plausible

Q3: Mode 1.00: the support of the vast majority of the subordinated bondholders, customers and colleagues of the Chairman.

Q4: Mode 2.00: Very plausible

By Table 5 it is shown that only in the first question the reasoning was according to the expectations. The other questions lacked because the lowest numbers are chosen as answer, hence this isn't a perfect paragraph since the reasoning is questionable.

Second Paragraph

The second paragraph is from the 2009 chairman's letter. There were two questions given for this paragraph, see Survey in Appendix III. These will be discussed individually and then a conclusion about the whole paragraph follows.

Question 5: Why is there an increase in "switching of customer accounts"?

This whole paragraph contains the elements of deductive, inductive and abductive reasoning and is therefore a complete paragraph. The (abductive) conclusion in the end state, without rhetoric, that "Switching of customer accounts was due to allowing to focus wholly on the interests of our customers". As by the assumption that the existence of all three forms reflect completion for a meaningful reasoning, the above question is asked as a check whether or not the participants did conclude this. For this reason the 'focused wholly on the interest of the customers' as the highest value 4.00 the 'escaping of the pitfalls', 'consumers have found the BANK increasingly appreciative' and the 'ethical policy' as values 3.00, 2.00 and 1.00 respectively. The 'escaping of the pitfalls' was the common term within a deductive inference that concluded 'the consumers increasing appreciative', see Appendix II Paragraph 4.2. As the 'common term' is the term that is reasoned with, is this why the 'escaping of the pitfalls' has a higher value over the 'increasingly appreciation of the customers'. Further the author wrote the "escaping of the pitfalls" in such a manner that could be considered as another reason why there was an increase of switching of customers accounts. Last

the 'ethical policy' is connected to the last sentence which isn't part of the schemes as we excluded the sentences on sentence-level. Table 6 gives the overview of the answers given:

Table 6: Q5; Why is there an increase in "switching of customers accounts"?

	Frequency	Percent	Answer	Value
The BANK has an ethical policy	6	28,6	A	1.00
The consumers have found the BANK increasingly appreciative	1	4,8	D	2.00
The BANK has escaped the pitfalls of financial over-exposure	6	28,6	C	3.00
The BANK has focused wholly on the interest of the customers	8	38,1	B	4.00
Total	21	100,0		

Q6: On the basis of the paragraph, do you think the answer to Q5 is plausible?

Again, based on the assumption that all three conclude a meaningful reasoning (i.e. interpretation by human processing), the plausibility of the paragraph, and therefore Q5, is "Very plausible". This indicated by the value 5.00 to which the number goes down to the other extreme "Not at all plausible" as 1.00 Below in Table 7 the answers of the participants are outlined:

Table 7: Q6; On the basis of the paragraph, do you think the answer to Q5 is plausible?

	Frequency	Percent	Answer	Value
Not at all plausible	1	4,8	A	1.00
Somewhat plausible	7	33,3	B	2.00
Neutral	6	28,6	C	3.00
Plausible	7	33,3	D	4.00
Very plausible	0	0	E	5.00
Total	21	100,0		

Conclusion of the second paragraph

Even though the most correct answer ("wholly focused on the interest of the customers") is given within Q5, the second best ("escaping the pitfalls") and the least correct answer ("ethical policy") follow closely. That the "ethical policy" is chosen so much may have to do with that this is considered a representation on sentence-level. Here all elements of deduction, induction and abduction are present which results in meaningful reasoning. Same for "wholly focused on the interest of the customers" by paragraph-level. The "escaping of the pitfalls" was the second best answer as this made an deductive inference possible and was written as a second reason towards the switching of customers accounts. Therefore the participants could be torn between which reason was more plausible.

The last could explain why there is a high value for "Somewhat plausible" in Q6 as we asked them to base the answer to this question on the previous question. The doubt in which reason was more 'plausible' caused a split in the plausibility of the paragraph. It is also interesting to note that none of them chose "Very plausible" as an answer, but one of them chose "Not at all plausible".

Table 8 below gives the Mode for each of these two questions.

Table 8: Statistics on the fourth paragraph of the 2009 chairman's letter.

	Q5: Why is there an increase in "switching of customers accounts"?	Q6: On the basis of the paragraph, do you think the answer to Q5 is plausible?
Valid	21	21
Missing	0	0
Mode	4.00	2.00 ^a

a. Multiple modes exist. The smallest value is shown

Q5: The BANK has focused wholly on the interest of the customers

Q6¹: Somewhat plausible

Q6²: Plausible

This second paragraph does follow the expectations of a meaningful paragraph as the highest value is chosen as an answer for Q5. However the plausibility is divided which makes it not an entirely perfect paragraph.

Third Paragraph

This paragraph is written for the 2013 chairman's letter. Based on this paragraph two questions are asked to the participants, see Survey in Appendix III. Each of these question will be discussed by their results. In the end a conclusion will follow over the entire paragraph.

Question 7: How would you characterise the main problem faced by the BANK as a consequence of separating the BANK from the GROUP?

This paragraph starts with making an abduction about the problem about of the BANK, namely that the implications weren't fully known (and very significant). The rest of the paragraph makes inductive inferences to give more information about the problem and how to solve this, see Appendix I Paragraph 3.2 - 3.6. Leaving deductive reasoning out. This question asks about the deductive information present because with deductive reasoning more needs to be known about the subject. This subject needs to explain why the predicate of "raising additional capital" is justified as this was the solution presented.

The "implications weren't fully known" is the most 'correct' answer (value 4.00) followed by "the capital base was decreasing" (value 3.00) as this is given as second reason by the author for raising additional capital. The other two answers aren't explicitly mentioned in the paragraph. This is chosen

as a check whether or not the participants would reason outside the schemes when such an option was presented to them. Here the "BANK is in a severe financial situation" is based on that the 'capital base was impacted' resulting in that the BANK financial state is impacted (severely). That the customers needed to be compensated was because of the "customer redress" that helped impact the capital base. Therefore the "compensation" has the value 1.00 and the "severe financial state" value 2.00. The results for question can be found below in Table 9.

Table 9: Q7; How would you characterise the main problem faced by the BANK as a consequence of separating the BANK from the GROUP?

	Frequency	Percent	Answer	Value
The customers may have to be compensated	0	0	D	1.00
The BANK is in severe financial situation as a result of the separation	4	19,0	B	2.00
The capital base of the BANK was decreasing	10	47,6	C	3.00
The implication were not fully known	7	33,3	A	4.00
Total	21	100,0		

Question 8: How plausible are the arguments for "raising additional capital"?

As mentioned above the predicate for this paragraph is "raising additional capital" and the subject ("implications aren't fully known) is based on the deductive elements present within the paragraph. Because two of the three reasoning aspects are present and the deductive element (though not explicitly stated) this makes the paragraph "Somewhat plausible", value 5.00. Here "Plausible" cannot be the most 'correct' answer as this paragraph relies more on inductive reasoning, hence more persuasion and therefore second best (4.00). The persuasion by inductive reasoning is also the reason why "Not at all plausible" is more likely than "Very plausible". Giving it the values 2.00 and 1.00. Neutral stays value 3.00. The answers for Q8 are set below in Table 10.

Table 10: Q8; How plausible are the arguments for "raising additional capital"?

	Frequency	Percent	Answer	Value
Very plausible	2	9,5	E	1.00
Not at all plausible	1	4,8	A	2.00
Neutral	5	23,8	C	3.00
Plausible	7	33,3	D	4.00
Somewhat plausible	6	28,6	E	5.00
Total	21	100,0		

Conclusion third paragraph

This paragraph consist of mostly inductive reasoning. The abductive reasoning in the beginning was there to state a hypothesis what the BANK's main problem was. Making it so that the actual reason isn't made clear within the paragraph.

Still the deductive element is present as seen in the schemes in Appendix I. This element, represented by "the implications weren't fully known", is found by some of the participants, hence concluding that meaningful reasoning within this paragraph is possible. However the most chosen answer is the second best: "The capital base was decreasing". This may be explained that this information is set more closely to the solution (raising additional capital) which makes that the participants would connect this first then the implications that weren't known. That also might explain that "Plausible" is chosen more as the 'arguments' mentioned in the question doesn't refer directly to the answer given in Q7. Therefore the "impact (i.e. decrease) of the capital base" can be seen as a plausible reason, or somewhat plausible reason, to 'raise additional capital'.

Further neither of the participants choose the least possible answer ("customers compensation") which supports their ability of being able to reason with just the information given. However some find the paragraph "Very plausible" which least likely to the schemes, but again this may have to do with that the 'arguments' needed directly refer to the reason given in Q7. In Table 11 below, the Mode for each question is set out.

Table 11: Statistics on the third paragraph of the 2013

chairman's letter.

	Q7: How would you characterise the main problem faced by the BANK as a consequence of separating the BANK from the GROUP?	Q8: How plausible are the arguments for "raising additional capital"?
Valid	21	21
Missing	0	0
Mode	3,00	4,00

Q7: The capital base of the BANK was decreasing

Q8: Plausible

The third paragraph is close to a perfect paragraph since the second highest values are chosen for both questions.

Fourth paragraph

This paragraph follows from the 2013 chairman's letter. Based on this paragraph three questions were formulated, see Survey in Appendix III. These will be discussed individually and then a conclusion about the whole paragraph follows.

Question 9: How can the BANK guarantee its rebuilding will be successful?

Like in the previous paragraph asked in this survey, this paragraph starts with making an abductive inference, see Appendix I Paragraph 4. This is followed by an deduction to which this question is asked. The second half of the paragraph is full of rhetorical information, hence why the above

question was to test the participants if they were able to identify the most essential part to make a deductive inference. Within the scheme the "Act in line with the principles and values of the GROUP" is found the most essential part and thus indicated by the value 4.00. Closely related to that answer is "By ensuring the adherence of the BANK to the ethical standards", value 3.00, as the principles and values are the ethical standards. This is followed by "Through establishing a Board Committee" and "By relying on the commitment and professionalism of the Chairman's colleagues" as values 2.00 and 1.00. Table 12 below the answers of the participants are shown:

Table 12: Q9; How can the BANK guarantee its rebuilding will be successful?

	Frequency	Percent	Answer	Value
By relying on the commitment and professionalism of the Chairman's colleagues	1	4,8	D	1.00
Through establishing a Board Committee	3	14,3	B	2.00
By ensuring the adherence of the BANK to the ethical standards	5	23,8	C	3.00
By acting in line with the principles and values of the GROUP	12	57,1	A	4.00
Total	21	100,0		

Question 10: Why is it important to rebuild the BANK?

The fourth paragraph consist of the element of abduction and deduction. Therefore only induction remains missing for a meaningful reasoning. This question relates into finding out the inductive characteristic of the paragraph. To do this, there need to be information present about the 'predicate'. As the subject is "The task of rebuilding the Bank", see Full Analysis of the 2013 Chairman's letter within Appendix I, this subject needs to be enriched with information to why this is important. In accord to the schemes, this information is present as the 'common term' within the abductive inference (see Appendix I Paragraph 4.2), hence assigning the "To recognise the importance for society" the value 4.00. The "comply with the existing standards" relates to the previous answer of 'acting in line with the principles and values' and because of that it is considered as second best with value 3.00. The "To respect its customers" and "To acknowledge the commitment of colleagues of the Chairman" are both rhetorical sentences, but the statement 'respecting of the customers' resulted from the first sentence 'loyalty of the customers'. This was an additional thought towards the second sentence which was an acceptable premise, hence why the respecting of the customers has a higher value, value 2.00, over the acknowledgement of colleagues, namely value 1.00. In Table 13 below, the answers of the participants are shown.

Table 13: Q10; Why is it important to rebuild the BANK?

	Frequency	Percent	Answer	Value
To acknowledge the commitment of colleagues of the Chairman	0	0	D	1.00
To comply with the existing standards	4	19,0	A	2.00
To respects its customers	4	19,0	C	3.00
To recognise the importance for society	13	61,9	B	4.00
Total	21	100,0		

Question 11: Do you think the statement that remembering "what the business is supposed to stand for: help rebuild the BANK is plausible?"

As we only miss an one reasoning figure, makes this the paragraph already "Somewhat plausible". Because an inductive inference is missing, see Appendix I Paragraph 4, and thus deductive is present, the paragraph is considered "Plausible", hence value 5.00. Further because inductive information is represented in the paragraph, the second best option is "Very plausible" with value 4.00 as meaningful reasoning therefore possible. This makes that "Neutral", "Somewhat plausible" and "Not at all plausible" have the values 3.00, 2.00 and 1.00 respectively. In the Table below, Table 14, the answers to this question are given.

Table 14: Q11; Do you think the statement that remembering "what the business is supposed to stand for" help rebuild the BANK is plausible?

	Frequency	Percent	Answer	Value
Not at all plausible	3	14,3	A	1.00
Somewhat plausible	9	42,9	B	2.00
Neutral	1	4,8	C	3.00
Very Plausible	0	0	E	4.00
Plausible	8	38,1	D	5.00
Total	21	100,0		

Conclusion fourth paragraph

What is interesting about this paragraph is that despite its length, it is mostly rhetorical thus making it a challenge to identify the appropriate premises.

The two reasoning schemes found the elements of abduction and deduction. As it can be seen in Table 11, deductive reasoning was more frequent than the other options together. This corresponds with the assumption that deductive reasoning improves understandability. More interestingly is that the abductive and the (missing) inductive reasoning is also understood by the participants. The most 'correct' answer was way more frequent than the other option. Further the last 'correct' answer in that question (the acknowledgement) isn't given at all, resulting in that the participants, despite the more persuasive side of both the reasoning schemes, were able to reach the appropriate conclusion(s). They understood the paragraph.

Even so, the participants didn't find this paragraph particularly plausible. In Table 13 is shown that most of the answers given was to the "Somewhat plausible". This occurrence I can't really explain but with "Plausible" as second best answer, readers can fully understand this paragraph.

Table 15: Statistics on the fourth paragraph of the 2013 chairman's letter.

	Q9: How can the BANK guarantee its rebuilding will be successful?	Q10: Why is it important to rebuild the BANK?	Q11: Do you think the statement that remembering "what the business is supposed to stand for" help rebuild the BANK is plausible?
Valid	21	21	21
Missing	0	0	0
Mode	4.00	4.00	2.00

Q9: By acting in line with the principles and values of the GROUP

Q10: To recognise the importance for society

Q11: Somewhat plausible

This fourth paragraph is perfect as the reasoning by the participants is sound, see Table 15. The plausibility is doubtful due to unknown reasons as most of the participants found the paragraph "Somewhat plausible".

Fifth paragraph

The last paragraph occurs in the 2009 chairman's letter. Based on this paragraph two questions are asked to the participants, see Survey in Appendix III. Each of these question will be discussed by their results. In the end a conclusion will follow over the entire paragraph.

Question 12: What justification is given for the BANK's growth strategy?

This fifth paragraph is made out of inductive, deductive, inductive and abductive reasoning, see Appendix II Paragraph 10. Here all three elements of meaningful reasoning are present making this, by the theory, a understandable paragraph. To test this, the end conclusion for the paragraph is chosen to see if the participants would be able to reach that same conclusion. This conclusion is "The growth strategy is driven by the desire to put the customer first" as indicated by value 4.00. The 'growth strategy' references "The growth strategy will make customer experience fair, responsible, easy and personal" which is connected to the providing of "The growth strategy will provide an outstanding opportunity for both customers and the business". Since the 'outstanding opportunity' is the common term within a deduction, this is to be considered a more logical connection than the 'customer experience' that is the common term for an inductive scheme. Therefore the 'opportunity' is (should be) a more logical connection, hence why this has a higher value, value 3.00, over the 'customer experience' with value 2.00. The "The growth strategy will guarantee customers an

uninterrupted, seamless service" is rhetorical and thus is indicated by value 1.00. Table 16 gives the answers for this question.

Table 16: What justification is given for the BANK's growth strategy?

	Frequency	Percent	Answer	Value
The growth strategy will guarantee customers an uninterrupted, seamless service	1	4,8	B	1.00
The growth strategy will make customer experience fair, responsible, easy and personal	2	9,5	C	2.00
The growth strategy will provide an outstanding opportunity for both customers and the business	5	23,8	D	3.00
The growth strategy is driven by the desire to put the customer first	13	61,9	A	4.00
Total	21	100,0		

Question 13: Based on the paragraph above, do you think this justification is plausible?

Same as with Q6 this will check whether or not their understandability (as checked in Q12) will improve the paragraph's plausibility. All three elements of reasoning are present, but there is more induction used which results in a bit more persuasion than the use of logical argument. That is why this paragraph is found "Plausible" with value 5.00. Meaning that "Very plausible", "Neutral", "Somewhat plausible" and "Not at all plausible" have the values 4.00, 3.00, 2.00 and 1.00. The table below, Table 17, gives the answers of the participants given for this question.

Table 17: Based on the paragraph above, do you think this justification is plausible?

	Frequency	Percent	Answer	Value
Valid Not at all plausible	1	4,8	A	1.00
Somewhat plausible	6	28,6	B	2.00
Neutral	2	9,5	C	3.00
Very plausible	3	14,3	E	4.00
Plausible	9	42,9	D	5.00
Total	21	100,0		

Conclusion fifth paragraph

It is already mentioned that this paragraph contains all three reasoning figures thus a meaningful reasoning within human interpretation. This is tested by its' understandability (Q12) and its' plausibility (Q13) . As can be seen in the respectable tables, Table 16, Table 17, and Table 18 below, most of the participants not only understood it, but also found it plausible. Even so, the second most chosen option for the plausibility is "Somewhat plausible". However this might be connected to the answer given in Q12 that the plausibility in Q13 is affected.

Table 18: Statistics on the tenth paragraph of the 2009 chairman's letter.

		Q12: What justification is given for the BANK's growth strategy?	Q13: Based on the paragraph above, do you think this justification is plausible?
N	Valid	21	21
	Missing	0	0
	Mode	4,00	5,00

Q12: The growth strategy is driven by the desire to put the customer first.

Q13: Very plausible

The last paragraph is a perfect paragraph, because the reasoning (cf. understandability) and plausibility conforms to the expectations.

End Question

The end question was to check whether or not the participants were sure about their answers they have given. This question isn't based on a order of correctness, but as a general representation of the participants convincingness. In Figure 1 can be found the results of the chosen answers.



FIGURE 2: Q14: TABLE OF CONVINCINGNESS

Most of the participants were "Neutral" in their convincingness and second best was "Somewhat convinced". This gives the impression that they doubt the answers they have given and therefore they doubt their own reasoning even though they are accustomed to logical thinking.

Hypotheses

In a previous Section, Method & Methodology, two hypotheses were made for this research. These consist of:

H2: Since more deductive reasoning is applied in the 2009 chairman's letter, these paragraphs are considered to be more understandable.

H3: The understandability in the readers interpretation makes that the paragraph convinces the reader more than it persuades the reader, hence making it plausible.

In order to test whether deductive reasoning according to the schemes is more understandable and plausible for the reader.

H4: Since more inductive and abductive reasoning is applied in the 2013 report, these paragraphs are considered to be less understandable and less plausible.

H5: The lesser understandability in the readers interpretation makes the paragraph less convincing and leans more in persuading the reader of its plausibility.

In order to test whether inductive and abductive reasoning according to the schemes is less understandable and plausible for the reader.

For the 2009 letter more deductive reasoning styles are used. As we could see from the result of the two paragraphs written in this chairman's letter, the participants did reason more logically. In both paragraphs the most 'correct' answer was chosen the most and found in both cases plausible. Though in one of the paragraphs (the second paragraph), the plausibility was divided between "Somewhat plausible" and "Plausible". This result was because of the previous question in which a justification was asked. This justification had other options that, afterwards, proved to be more of a logical answer than first realised. As one of these was part of a sentence-level to which already all three reasoning styles are involved and the other was another (valid) reason for this justification. This caused a split in the plausibility, but it also proves that the participants were able to reason more logically, hence proving H2 and H4.

Proving H3 and H5 is a bit more challenging. The 2013 chairman's letter consist indeed more of inductive and abductive reasoning schemes. However when asked the participants were able to either choose the best (Q1, Q9 and Q10) or second best answer (Q1 and Q7). Only Q3 had them choose a 'rhetorical' answer. Meaning that the participants were able to understand the paragraphs even with the authorship displaying a more persuasive character. Despite that, the participants were persuaded in the paragraphs plausibility. Two of the paragraphs (First and Third paragraph) were found "Plausible" with "Somewhat plausible" or "Neutral" as second best option. The fourth paragraph was more logically build and so the convincingness was already there. It was chosen because it was a paragraph with the most rhetorical information to which the participants were asked to what is the most essential thing about the paragraph. In conclusion we can say that these participants were able to understand the text, but are persuaded by its' understandability and not by its logical (reasoning) structure.

Bear in mind that most of these participants also were (mostly) neutral or somewhat convinced in their answers. However I'm not sure how this affects the results in general.

Discussion

Due to practical constraints, this dissertation cannot provide a comprehensive reasoning methodology for analysing text. The reasoning styles of deduction, induction and abduction are firstly general representations of reasoning with natural language having the aspects of deduction, induction and abduction. Resulting in that there exist more reasoning styles (cf. methods) that can explain a certain reasoning or (human) interpretation process.

In addition as there exist three classes that represent a human's interpretation upon reading a text, the paragraph-level is chosen as the main approach to this new methodology. Sentence-level is part of this analysis as a paragraph consist of sentences, but wasn't the focus of this research. Text-level is excluded because of the complexity of text summarization potentially required. Further research could research these two representations within as an analytic approach for narratives.

The methodology itself contains identification of either rhetorical or inference information within the text (i.e. paragraph, sentence) and paraphrasing of a sentence to a more acceptable premise. The identification process is subjective to the researcher to what is consist of informationally representations of rhetorical and inference information as no relevant literature is found on the subject matter. In the same vain is paraphrasing used, meaning that this also was subjective as to what the researcher found to be an acceptable premise and to what is the essential part of the sentence. Though with this process an accounting professor provided insight to what is relevant within the accounting context as the chairman's letters were written in that context.

That same context influenced the participants chosen for this experiment. All the participants were aware of the context that was written in. Further these students had a background in logical reasoning which could have influenced the results. In the future the same survey should be send out to other participants who are accounting students who aren't trained in logical reasoning or to participants unrelated to the field of accounting to test if the understandability and plausibility holds.

Additionally the participants had to do the survey in their summer holiday. This resulted in 27 responses, from which 21 were acceptable, out a group of 70 students. Within this time period the results are substantially less than expected and that the participation may have been rushed, hence the conclusions drawn could change when more students would have participated while being at the university.

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Appendix

Examples of the analysis with the new methodology

Second paragraph 2013 51

Tenth paragraph 2009 58

Survey

Full survey 62

Analysis of the second paragraph 2013 chairman's letter

Paragraph 2.1 Paraphrasing Sentence (1) and Sentence (2)

Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>	
Sentence(s) paragraph used.	(1) 'Rebuilding the Bank is a [significant] challenge but [I believe] we [now] have the tools to begin turning the business around'.	
Notes	<i>This sentence can be paraphrased, because the word 'but' changes the essence of the sentence.</i>	
Paraphrasing	Subject	Predicate
	Rebuilding the Bank	= is a [significant] challenge (P), but [I believe] we [now] have the tools to begin turning the business around (P) = but we have the tools to realize it = but we can realize it. = can be realised.
	Rebuilding the Bank can be solved	
Indicators	Inference	Rhetorical
	Not applicable	= significant = I believe = now
Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan</i>	

	<i>acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>	
Sentence(s) paragraph used.	(2) Niall Booker, [a veteran of the banking world], [joined] the Bank [at the same time as me], he and his new Executive Team have worked [closely with the Board] over the second half of last year to understand [the true state of the Bank].	
Notes	<i>This sentence can be paraphrased, because there is a lot of noise within the text that distracts from the essence.</i>	
Paraphrasing	Subject	Predicate
	= Niall B., [a veteran of the banking world] (S) [joined] the Bank [at the same time as me] and he and his new Executive Team = Niall B., The Bank, He and his new Executive Team = Niall B.	= have worked [closely with the Board] over the second half of last year] to understand [the true state of the Bank] = understands = is appointed to understand.
	Niall B. is appointed to understand.	
Indicators	Inference	Rhetorical
	Not applicable	= a veteran of the banking world = joined = at the same time as me = closely with the Board = the true state of the Bank

Paragraph 2.2 Syllogism: Abduction

Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to</i>
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	<i>complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>	
Sentence(s) paragraph used.	(1) 'Rebuilding the Bank is a [significant] challenge but [I believe] we [now] have the tools to begin turning the business around'. (2) Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank	
Paraphrased sentences used	Rebuilding the Bank can be solved Niall B. can solve it.	
Syllogism	Abduction	
	Subject	Predicate
	= Rebuilding the Bank = Niall B.	= can be solved = is appointed to understand.
	Niall B. [can] rebuild the Bank.	
Notes	<i>The 'can be solved' and 'is appointed to understand' refer to the same solution and therefore counts as a common term. The [can] is added as an indicator to make the sentence more logical.</i>	

Paragraph 2.3.1 Paraphrasing Sentence 3

Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>
Sentence(s) paragraph used.	(3) [Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances], we were able to complete the Liability Management Exercise (LME) [in December without which we wouldn't be here today].

Notes	<i>This sentence can be paraphrased, because the 'Recapitalisation Plan' is connected to the 'LME' by mentioning this plan.</i>	
Paraphrasing	Subject	Predicate
	= Devising a Recapitalisation Plan = (We) devised a Recapitalisation Plan = (We)	= [acceptable to all stakeholders in very difficult circumstances] = devised a Recapitalisation Plan [acceptable to all stakeholders in very difficult circumstances]
	(We) devised a Recapitalisation Plan [acceptable to all stakeholders in very difficult circumstances]	
Indicators	Inference	Rhetorical
	= (We)	= acceptable to all stakeholders in very difficult circumstances = in December without which we wouldn't be here today

Paragraph 2.3.2 Syllogism: Empty Induction

Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>	
Sentence(s) paragraph used.	(3) [Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances], we were able to complete the Liability Management Exercise (LME)[in December without which we wouldn't be here today].	
Syllogism	Empty Induction	
	Subject	Predicate
	= (We) = We	= devised a Recapitalisation Plan [acceptable to all stakeholders in very difficult circumstances] = were able to complete the Liability Management Exercise (LME) [in

		December without which we wouldn't be here today].
	Completion of the LME (was enabled by) devising a Recapitalisation Plan [acceptable to all stakeholders in very difficult circumstances].	
Notes	<i>Niall B. represents the Bank which represents the term 'We'. That is why these two are linked (after determining the first 'We' by paraphrasing). The 'can help' references the function of the completion of the LME.</i>	
Indicators	Inference	Rhetorical
	= (can help)	= Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances = in December without which we wouldn't be here today

Paragraph 2.3.3 Syllogism: Deduction

Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>	
Sentence(s) paragraph used.	(3) [Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances], we were able to complete the Liability Management Exercise (LME)[in December without which we wouldn't be here today].	
Syllogism	Deduction	
	Subject	Predicate
	= Niall B. = Completion of the LME	= [can] rebuild the Bank = (was enabled by) devising a Recapitalisation Plan [acceptable to all stakeholders in very difficult circumstances].
	Completion of the LME (can help) to rebuild the Bank	

Notes	<i>Niall B. represents the Bank which represents 'devising a Recapitalisation Plan [acceptable to all stakeholders...]. That is why these two are linked. The 'can help' references the function of the completion of the LME.</i>	
Indicators	Inference	Rhetorical
	= (can help)	= Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances = in December without which we wouldn't be here today

Paragraph 2.4 Syllogism: Induction

Paragraph 2	<i>Rebuilding the Bank is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the Bank at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the Bank. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful</i>	
Sentence(s) paragraph used.	(4) This was certainly a key achievement and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful.	
Syllogism	Induction	
	Subject	Predicate
	= Completion of the LME = This	= (can help) to rebuild the Bank = was [certainly] a key achievement [and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful].
	Rebuilding the Bank was [certainly] a key achievement [and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful].	

Notes	<i>'This' refers directly to the completion to the LME and that is why they are the common term.</i>	
Indicators	Inference	Rhetorical
	= [certainly]	[and could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful].

Analysis of the tenth paragraph 2009 chairman's letter

Paragraph 10.0 Syllogism: Induction

Paragraph 10	<i>Over the next three years we will be making significant investment in the infrastructure we need to make the customer experience fair, responsible, easy and personal for all our customers – whether face-to-face, by telephone or online. The opportunities, both for our customers and our business, are outstanding; but our growth strategy will always be driven by the desire to put the customer first in all things. We intend to grow at a pace and in a way that guarantees our customers an uninterrupted, seamless service.</i>	
Sentence(s) paragraph used.	(1) [Over the next three years] we will be making significant investment [in the infrastructure] we need to make the customer experience fair, responsible, easy and personal [for all our customers – whether face-to-face, by telephone or online].	
Paraphrased sentences used	--	
Syllogism	Induction	
	Subject	Predicate
	= [Over the next three years] we	= will be making significant investment [in the infrastructure]
	= we	= need to make the customer experience fair, responsible, easy and personal [for all our customers – whether face-to-face, by telephone or online].
	Making the customer experience fair, responsible, easy and personal [for all our customers – whether face-to-face, by telephone or online] will be making significant investment [in the infrastructure]	
Notes	<i>This sentence state two things: ‘an investement’ and ‘improving the customer experience’. Within the sentence the indicator ‘and’ is missing to connect both statements. The sentence itself starts with announcing an ‘investment’. Investing in something is a part of a (growth) strategy as mentioned in paragraph 6. That is why this is a syllogim.</i>	
Indicators	Inference	Rhetorical
		= Over the next three years = in the infrastructure = for all our customers – whether face-to-face, by telephone or online

Paragraph 10.1 Syllogism: Deduction

Paragraph 10	<i>Over the next three years we will be making significant investment in the infrastructure we need to make the customer experience fair, responsible, easy and personal for all our customers – whether face-to-face, by telephone or online. The opportunities, both for our customers and our business, are outstanding; but our growth strategy will always be driven by the desire to put the customer first in all things. We intend to grow at a pace and in a way that guarantees our customers an uninterrupted, seamless service.</i>	
Sentence(s) paragraph used.	(2a) The opportunities, both for our customers and our business, are outstanding	
Paraphrased sentences used	Making the customer experience fair, responsible, easy and personal [for all our customers – whether face-to-face, by telephone or online] will be making significant investment [in the infrastructure]	
Syllogism	Deduction	
	Subject	Predicate
	= Making the customer experience fair, responsible, easy and personal [for all our customers – whether face-to-face, by telephone or online] = The opportunities, [both for our customers and our business]	= will be making significant investment [in the infrastructure] = are outstanding
	Making the customer experience fair, responsible, easy and personal [for all our customers - whether face-to-face, by telephone or online] is outstanding.	
Notes	<i>The second part involves 'the opportunities'. This is the 'investment' that is mentioned. Therefore it is deduction.</i>	
Indicators	Inference	Rhetorical
	Not applicable	= in the infrastructure = for all our customers – whether face-to-face, by telephone or online = both for our customers and our business]

Paragraph 10.2 Syllogism: Induction

Paragraph 10	<i>Over the next three years we will be making significant investment in the infrastructure we need to make the customer experience fair, responsible, easy and personal for all our customers – whether face-to-face, by telephone or online. The</i>
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	<i>opportunities, both for our customers and our business, are outstanding; but our growth strategy will always be driven by the desire to put the customer first in all things. We intend to grow at a pace and in a way that guarantees our customers an uninterrupted, seamless service.</i>	
Sentence(s) paragraph used.	(2b); [but] our growth strategy will [always] be driven [by the desire] to put the customer first [in all things].	
Paraphrased sentences used	Making the customer experience fair, responsible, easy and personal [for all our customers - whether face-to-face, by telephone or online] is outstanding.	
Syllogism	Induction	
	Subject	Predicate
	= Making the customer experience fair, responsible, easy and personal [for all our customers - whether face-to-face, by telephone or online] = [but] our growth strategy	= is outstanding. = will [always] be driven [by the desire] to put the customer first in all things.
	Driven [by the desire] to put the customer first [in all things] is outstanding.	
Notes	<i>The 'growth strategy' refers to the customer experience. So this is induction.</i>	
Indicators	Inference	Rhetorical
	= always = firmly = (is)	= The opportunities, both for our customers and our business, are outstanding]; [but] = by the desire = in all things = in the infrastructure = for all our customers – whether face-to-face, by telephone or online

Paragraph 10.2 Syllogism: Abduction

Paragraph 10	<i>Over the next three years we will be making significant investment in the infrastructure we need to make the customer experience fair, responsible, easy and personal for all our customers – whether face-to-face, by telephone or online. The</i>
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	<i>opportunities, both for our customers and our business, are outstanding; but our growth strategy will always be driven by the desire to put the customer first in all things. We intend to grow at a pace and in a way that guarantees our customers an uninterrupted, seamless service.</i>	
Sentence(s) paragraph used.	(3) We intend to grow [at a pace and in a way that guarantees our customers an uninterrupted, seamless service].	
Paraphrased sentences used	Driven [by the desire] to put the customer first [in all things] is outstanding.	
Syllogism	Abduction	
	Subject	Predicate
	= Driven [by the desire] to put the customer first [in all things] = We	= is outstanding. = intend to grow [at a pace and in a way that guarantees our customers an uninterrupted, seamless service].
	We (are) driven [by the desire] to put the customer first [in all things].	
Notes	<i>The 'intention to grow' as well as stating that they are 'outstanding' is connected by that both share a state of mind. Meaning that the 'drive to put the customer first' results from them being outstanding in their intended growth.</i>	
Indicators	Inference	Rhetorical
	Not applicable	= at a pace and in a way that guarantees our customers an uninterrupted, seamless service = by the desire = in all things = in the infrastructure

Appendix III: Survey with the Answers and the Distribution by the answers level of 'Correctness'.

First Paragraph:

Rebuilding the BANK is a significant challenge but I believe we now have the tools to begin turning the business around. Niall Booker, a veteran of the banking world, joined the BANK at the same time as me, and he and his new Executive Team have worked closely with the Board over the second half of last year to understand the true state of the BANK. Devising a Recapitalisation Plan acceptable to all stakeholders in very difficult circumstances, we were able to complete the Liability Management Exercise (LME) in December without which we wouldn't be here today. This could not have been accomplished without the support of the vast majority of our subordinated bondholders, customers and colleagues for which we are extremely grateful.

Based on this paragraph, please answer the following **FOUR** questions:

1) Why do you think that Niall Booker can rebuild the BANK?

Concerning Niall Booker there isn't much stated within the paragraph that aren't informationally representations of rhetoric. Therefore this question is asked to check whether or not the 'ability' of Niall Booker that is connected to the rebuilding of the BANK can be found by the participants. Here the most 'correct' answer lies in the conclusion "Niall Booker is appointed to understand (the real problem of the BANK)" and is indicated by the number (4). This number went down for each level of 'correctness' within this question as based on the same inference step. The 'Niall Booker and his Executive Team have worked closely with the Board', 'Niall Booker has been in the banking world for a long time' and 'Niall Booker has the necessary skills' on place (3), (2), and (1) respectively. Table 1 shows the frequencies involved for this question.

- A. Niall Booker has been in the banking world for a long time. **Value 2.00**
- B. Niall Booker has the necessary skills. **Value: 1.00**
- C. **Niall Booker understands the real problem of the BANK. Value: 4.00**
- D. Niall Booker and his Executive Team have worked closely with the Board. **Value 3.00**

2) Do you think the reasoning that Niall Booker can turn around the BANK, as suggested in this paragraph, is plausible?

As the arguments for Niall Booker really is able to turn the Bank around aren't explicitly mentioned and most of the arguments consist of rhetorical information, this is considered by our reasoning 'Not at all plausible' as it is made by an abductive reasoning style. It is indicated with the value 5.00. Therefore the numbering goes down to the 'Very plausible' set as 1.00.

- A. Not at all plausible Value: 5.00
- B. Somewhat plausible Value: 4.00
- C. Neutral Value: 3.00
- D. Plausible Value: 2.00
- E. Very plausible Value: 1.00

3) Since the BANK is in poor (financial) situation, rebuilding the BANK depends on_____?

This second half of the paragraph focuses on the rebuilding of the BANK. In the schemes for this part of the paragraph, a deduction and an induction takes place. With these two representatives, only abduction is missing to complete the reasoning. This question allows us to check if the 'abduction style' has taken place by stating the predicate (rebuilding of the BANK as by induction) and letting them answer the corresponding subject (completion of the LME as by deduction). The rebuilding of the Bank is concluded by the completion of the LME by means of induction, hence why this is the most 'correct' answer and set with value 4.00. As this conclusion is strengthened with the 'devising of the Recapitalisation Plan' this is the second best answer (3.00). The other options are based on rhetorical information. As the 'acceptance of the plan to all stakeholders' has the form of a rhetorical addition and as the 'support' is unconnected to either the LME or the Plan, the 'acceptance of the plan to all stakeholders' has value 2.00 and the 'support' 1.00.

- A. the support of the vast majority of the subordinated bondholders, customers and colleagues of the Chairman. Value 1.00
- B. devising the Recapitalisation Plan. Value 3.00
- C. the acceptance of the plan to all stakeholders. Value 2.00
- D. the completion of the Liability Management Exercise (LME). Value 4.00

4) How plausible is the resolution to rebuild the BANK as suggested in this paragraph?

As stated in the previous question, the resolution is the completion of the LME. This resolution was identified by both a deductive as well as two inductive reasoning steps. With these representations to support the resolution, the reasoning by the schemes is found 'Somewhat plausible' (5.00) as, even though all three forms are present, there is more induction and one empty induction involved as well. However due to that deduction is involved, the 'Plausible' option is second best, 4.00. 'Neutral' stays 3.00. The extremes are set with the value 4.00 and 5.00 as 'Very plausible' and 'Not at all plausible' respectively. Again due to the deduction is the option of 'Very plausible' more likely to hit than 'Not at all plausible'. The result of respondents to this question, can be found in Table 4.

- A. Not at all plausible Value 1.00
- B. Somewhat plausible Value 5.00

- C. Neutral **Value 3.00**
- D. Plausible **Value 4.00**
- E. Very plausible **Value 2.00**

Second Paragraph:

The 'credit crunch' has made consumers increasingly appreciative of responsible stewardship and an ethically-led business strategy. By lending within the level of customer deposits we have largely escaped the pitfalls of financial over-exposure, while the absence of publicly listed shares has allowed us to focus wholly on the interests of our customers. Switching of customer accounts from the so-called 'big five' banks to the BANK increased significantly in 2009. Meanwhile our ethical policy has seen us reject over £1bn in lending which failed to meet our ethical guidelines; however our ethical approach has attracted significantly more than this in other areas.

Based on this paragraph, please answer the following **TWO** questions:

5) Why is there an increase in “switching of customer accounts”?

This whole paragraph contains the elements of deductive, inductive and abductive reasoning in particular order. The (abductive) conclusion in the end state, without rhetoric, that "Switching of customer accounts was due to allowing to focus wholly on the interests of our customers". As by the assumption that all three forms that all three forms reflect completion for a meaningful reasoning, the above question is asked as a check whether or not the participants did conclude this. For this reason the 'focused wholly on the interest of the customers' as the highest value 4.00, the 'escaping of the pitfalls', 'consumers have found the BANK increasingly appreciative' and the 'ethical policy' as values 3.00, 2.00 and 1.00 respectively. The 'escaping of the pitfalls' was the common term within a deductive inference that concluded 'the consumers increasing appreciative'. As the 'common term' is the term that is reasoned with, is this why the 'escaping of the pitfalls' has priority over the 'increasingly appreciation of the customers'. Further the author wrote the "escaping of the pitfalls" in such a manner that could be considered as another reason why there was an increase of switching of customers accounts. Last the 'ethical policy' is connected to the last sentence which isn't part of the schemes as we excluded the first class sentences

- A. The BANK has an ethical policy. **Value 1.00**
- B. The BANK has focused wholly on the interest of the customers. Value 4.00**
- C. The BANK has escaped the pitfalls of financial over-exposure. **Value 3.00**
- D. The consumers have found the BANK increasingly attentive. **Value 2.00**

6) On the basis of the paragraph, do you think the answer to Q5 is plausible?

Again, based on the assumption that all three conclude a meaningful reasoning (i.e. interpretation by human processing), the plausibility of the paragraph, and therefore Q5, is "Very plausible". This

indicated by the value 5.00 to which the number goes down to the other extreme "Not at all plausible" as 1.00.

- A. Not at all plausible **Value 1.00**
- B. Somewhat plausible **Value 2.00**
- C. Neutral **Value 3.00**
- D. Plausible **Value 4.00**
- E. Very plausible **Value 5.00**

Third Paragraph:

The implications of separating the BANK from the GROUP were not fully known at the time of the Liability Management Exercise (LME). The complexities involved, and the consequent cost and tax implications, are very significant. Together with providing for the costs of further customer redress, these items have adversely impacted our capital base. As a consequence we announced on 24 March 2014, that we have started the process of raising additional capital. This will strengthen our Common Equity Tier 1 (CET1) position as we embark on our Turnaround Plan. This is over and above the already planned contribution from the GROUP in 2014.

Based on this paragraph, please answer the following **THREE** questions:

7) How would you characterise the main problem faced by the BANK as a consequence of separating the BANK from the GROUP?

This paragraph starts with making an abduction about the problem about of the BANK, namely that the implications weren't fully known (and very significant). The rest of the paragraph makes inductive inferences to give more information about the problem and how to solve this. Leaving deductive reasoning out. This question asks about the deductive information present because with deductive reasoning more needs to be known about the subject. This subject needs to explain why the predicate of "raising additional capital" is justified as this was the solution presented. The "implications weren't fully known" is the most 'correct' answer (value 4.00) followed by "the capital base was decreasing" (value 3.00) as this is given as second reason by the author for raising additional capital. The other two answers aren't explicitly mentioned in the paragraph. This is chosen as a check whether or not the participants would reason outside the schemes when such an option was presented to them. Here the "BANK is in a severe financial situation" is based on that the 'capital base was impacted' resulting in that the BANK financial state is impacted (severely). That the customers needed to be compensated was because of the "customer redress" that helped impact the capital base. Therefore the "compensation" has the value 1.00 and the "severe financial state" value 2.00.

- A. **The implications were not fully known. Value 4.00**
- B. The BANK is in severe financial situation as a result of the separation. **Value 2.00**
- C. The capital base of the BANK was decreasing. **Value 3.00**

D. The customers may have to be compensated. **Value 1.00**

8) How plausible are the arguments for "raising additional capital"?

As mentioned above the predicate for this paragraph is "raising additional capital" and the subject ("implications aren't fully known) is based on the deductive elements present within the paragraph. Because two of the three reasoning aspects are present and the deductive element (though not explicitly stated) this makes the paragraph "Somewhat plausible", value 5.00. Here "Plausible" cannot be the most 'correct' answer as this paragraph relies more on inductive reasoning, hence more persuasion and therefore second best (4.00). The persuasion by inductive reasoning is also the reason why "Not at all plausible" is more likely than "Very plausible". Giving it the values 2.00 and 1.00. Neutral stays value 3.00. The answers for Q8 are set below in Table 10.

A. Not at all plausible **Value 2.00**

B. Somewhat plausible Value 5.00

C. Neutral **Value 3.00**

D. Plausible **Value 4.00**

E. Very plausible **Value 1.00**

Fourth Paragraph

The loyalty of our customers during this difficult time has been considerable. We have also been reminded that what the business is supposed to stand for is important for society as a whole. That is why the task of rebuilding the BANK counts so much. We have embedded in the legal constitution of the BANK a pledge that requires us to act in line with the principles and values associated with the GROUP Movement and we have established a Board Committee to ensure our adherence to those standards. Further details are outlined in the Values and Ethics section of this report. The commitment of colleagues who have gone about their work with huge professionalism during this period of corporate turmoil is also important. I would like to say a heartfelt thank you to all of them.

Based on this paragraph, please answer the following **THREE** questions:

9) How can the BANK guarantee that rebuilding will be successful?

Acting in line, means ensuring adherence, establishing Committee and by relying on commitment.

A. By acting in line with the principles and values of the GROUP. Value 4.00

B. Through establishing a Board Committee. **Value 1.00**

C. By ensuring the adherence of the BANK to the ethical standards. **Value 3.00**

D. By relying on the commitment and professionalism of colleagues. **Value 2.00**

10) Why is it important to rebuild the BANK?

The fourth paragraph consist of the element of abduction and deduction. Therefore only induction remains missing for a meaningful reasoning. This question relates into finding out the inductive characteristic of the paragraph. To do this, there need to be information present about the 'predicate'. As the subject is "The task of rebuilding the Bank", see Full Analysis of the 2013 Chairman's letter within Appendix I, this subject needs to be enriched with information to why this is important. In accord to the schemes, this information is present as the 'common term' within the abductive inference, hence assigning the "To recognise the importance for society" the value 4.00. The "comply with the existing standards" relates to the previous answer of 'acting in line with the principles and values' and because of that it is considered as second best with value 3.00. The "To respect its customers" and "To acknowledge the commitment of colleagues of the Chairman" are both rhetorical sentences, but the statement 'respecting of the customers' resulted from the first sentence 'loyalty of the customers'. This was an additional thought towards the second sentence which was an acceptable premise, hence why the respecting of the customers has a higher value, value 2.00, over the acknowledgement of colleagues, namely value 1.00. In Table 13 below, the answers of the participants are shown.

- A. To comply with the existing standards. **Value 2.00**
- B. To recognise the importance for society. Value 4.00**
- C. To respects its customers. **Value 3.00**
- D. To acknowledge the commitment of colleagues of the Chairman. **Value 1.00**

11) Do you think the statement that remembering "what the business is supposed to stand for" help rebuild the Bank is plausible?

As we only miss an one reasoning style, makes this the paragraph already "Somewhat plausible". Because an inductive inference is missing, and thus deductive is present, the paragraph is considered "Plausible", hence value 5.00. Further because inductive information is represented in the paragraph, the second best option is "Very plausible" with value 4.00 as meaningful reasoning therefore possible. This makes that "Neutral", "Somewhat plausible" and "Not at all plausible" have the values 3.00, 2.00 and 1.00 respectively

- A. Not at all plausible **Value 1.00**
- B. Somewhat plausible **Value 2.00**
- C. Neutral **Value 3.00**
- D. Plausible Value 5.00**
- E. Very plausible **Value 4.00**

Fifth Paragraph

Over the next three years we will be making significant investment in the infrastructure we need to make the customer experience fair, responsible, easy and personal for all our customers – whether face-to-face, by telephone or online. The opportunities, both for our customers and our business, are outstanding; but our growth strategy will always be driven

by the desire to put the customer first in all things. We intend to grow at a pace and in a way that guarantees our customers an uninterrupted, service.

Based on this paragraph, please answer the following **TWO** questions:

12) What justification is given for the BANK's growth strategy?

This fifth paragraph is made out of inductive, deductive, inductive and abductive reasoning in that particular order. Here all three elements of meaningful reasoning are present making this, by the theory, a understandable paragraph. To test this, the end conclusion for the paragraph is chosen to see if the participants would be able to reach that same conclusion. This conclusion is "The growth strategy is driven by the desire to put the customer first" as indicated by value 4.00. The 'growth strategy' references " The growth strategy will make customer experience fair, responsible, easy and personal" which is connected to the providing of "The growth strategy will provide an outstanding opportunity for both customers and the business". Since the 'outstanding opportunity' is the common term within a deduction, this is to be considered a more logical connection than the 'customer experience' that is the common term for an inductive scheme. Therefore the 'opportunity' is (should be) a more logical connection, hence why this has a higher value, value 3.00, over the 'customer experience' with value 2.00. The "The growth strategy will guarantee customers an uninterrupted, seamless service" is rhetorical and thus is indicated by value 1.00.

- A. **The growth strategy is driven by the desire to put the customer first. Value 4.00**
- B. The growth strategy will guarantee customers an uninterrupted, seamless service. **Value 1.00**
- C. The growth strategy will make customer experience fair, responsible, easy and personal. **Value 2.00**
- D. The growth strategy will provide an outstanding opportunity for both customers and the business. **Value 3.00**

13) Based on the paragraph above, do you think this justification is plausible?

Same as with Q6 this will check whether or not their understandability (as checked in Q12) will improve the paragraph's plausibility. All three elements of reasoning are present, but there is more induction used which results in a bit more persuasion than the use of logical argument. That is why this paragraph is found "Plausible" with value 5.00. Meaning that "Very plausible", "Neutral", "Somewhat plausible" and "Not at all plausible" have the values 4.00, 3.00, 2.00 and 1.00.

- A. Not at all plausible **Value 1.00**
- B. Somewhat plausible **Value 2.00**
- C. Neutral **Value 3.00**
- D. **Plausible Value 5.00**

E. Very plausible **Value 4.00**

End Question

14) How convincing are you of the answers you have given during this experiment?

- A. Not at all convincing
- B. Somewhat convinced
- C. Neutral
- D. Convinced
- E. Very Convinced