Decisions and Disinformation

An evaluation of the usefulness of the Fast & Frugal Heuristics programme in uncovering implicature-type disinformation

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Summary

This thesis investigates ways in which the Fast & Frugal Heuristics (F&FH) programme in the field of Judgment and Decision Making (JDM) theory can be brought to bear on the phenomenon of disinformation. The study applies existing theory to develop an argument around the capacity of the F&FH framework to respond in a normative, descriptive and prescriptive fashion specifically to implicature-type disinformation. This leads to conclusions about the usefulness of the programme for a specific field that is supposed to be within the ambit of the programme.

The study attempts to answer the research question by examining the philosophical and developmental history of JDM and of disinformation as a theme of inquiry. With the necessary background as context, the phenomenon of disinformation is investigated, specifically in the case of advertisements. Specific focus is given to pictorial metaphor that may lead to disinformation.

The study concludes that F&FH only succeeds to some extent in its descriptive capacity, whilst it fails to provide normative or prescriptive insights when faced with implicature-type disinformation in the following ways: firstly, proponents of the F&FH programme seem self-contradictory about the value of F&FH as a decision making theory – on the one hand they are generally positive about the its descriptive, normative and prescriptive abilities, whilst fully admitting to fundamental problems in every aspect of the theory and its applications. Secondly, even though there is a general admission of the importance of social and cultural elements in decision making, F&FH still remains intrinsically individualistic. As such it will fail to recognise deception and disinformation as those form part of a language act that is specifically designed around hidden motives and specialised persuasion techniques. Thirdly, F&FH will not be able to break free from the underlying issues it faces without breaking free from its philosophical underpinnings. F&FH still remains primarily empiricist through its behaviourist/positivist assumptions and application and as such fails to recognise the validity of concepts such as meaning, belief and attitude.

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Opsomming

Die tesis ondersoek die wyses waarop die *Fast & Frugal Heuristics (F&FH)* program in die veld van besluitnemingsteorie van toepassing gemaak kan word op die verskynsel van disinformasie. Die studie gebruik bestaande teorie in terme van normatiewe, voorskrywende en beskrywende toepassings om argument te ontwikkel rondom die kapasiteit van die F&FH raamwerk om te reageer op spesifiek implikatuur-tipe disinformasie. Dit lei tot gevolgtrekkings oor die bruikbaarheid van die program vir 'n spesifieke veld wat veronderstel is om binne die bestek van die program te val.

Die studie poog om die navorsingsvraag te antwoord deur die filosofiese en ontwikkelingsgeskiedenis van besluitnemingsteorie asook disinformasie te ondersoek. Met die nodige agtergrond as konteks word die verskynsel van disinformasie deur implikasie ondersoek, spesifiek in die geval van die advertensies. Daar word spesifiek gefokus op advertensies waar metafore wat ontwikkel word deur visuele beelde waardeur disinformasie geïmpliseer kan word.

Die studie maak die gevolgtrekking dat F&FH slegs tot 'n mate sukses behaal as beskrywende teorie terwyl dit nie suksesvol toegepas kan word as normatiewe en voorskrywende teorie nie. Die volgende probleme word uitgelig: eerstens, voorstaanders van die F&FH program hou teenstrydige perspektiewe voor – aan die een kant is hulle oor die algemeen positief oor die teorie se beskrywende, normatiewe en voorskrywende kapasiteite terwyl hulle openlik getuig van die grondliggende probleme in bykans elke faset van die teorie en sy toepassings. Tweedens, ten spyte daarvan dat daar erkenning gegee word aan die sosiale en kulturele aspekte van besluitneming bly F&FH primêr individualisties. As sulks sal dit faal om valshede en disinformasie te herken aangesien beide elemente is van 'n taalaksie wat spesifiek ontwerp is rondom versteekte motiewe en gespesialiseerde oorredingstegnieke. Derdens, F&FH kan nie afstand doen van die onderliggende probleme sonder om weg te breek van die onderliggende filosofiese grondslag nie. F&FH bly hoofsaaklik empiristies deur die behavioristiese/positiwistiese eienskappe in die onderliggende aannames en toepassings – as sulks gee dit nie erkenning aan die geldigheid van konsepte soos betekenis, oortuiging en houding nie.

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Table of often used acronyms

1. JDM: Judgment and Decision Making
2. H&B: Heuristics & Biases (the meta-theory founded by Kahneman and Tversky)
3. F&FH: Fast & Frugal Heuristics (the meta-theory founded by Gerd Gigerenzer and the ABC Research Group)[1]

[1] Note that the term "Fast & Frugal Heuristics" is used to refer to the programme in decision making research whereas "fast and frugal heuristics" refers to heuristics that are fast and frugal

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Chapter 1

Introduction

1.1 Introduction

"One of the most salient features of our culture is that there is so much bullshit. Everyone knows this. Each of us contributes his share. But we tend to take the situation for granted. Most people are rather confident of their ability to recognize bullshit and to avoid being taken in by it. So the phenomenon has not aroused much deliberate concern, nor attracted much sustained inquiry."[2] In this manner Harry G. Frankfurt introduces his take on a society rife with all manner of deceit. Even though he takes a somewhat whimsical slant on the subject, the underlying idea is relevant, especially in a world filled with unverified (and often unverifiable) information. The same idea is confirmed by Carl Hausman who states: "We live in a media-driven society fuelled by consumption which, in turn, is fuelled by advertising. Our decisions – about what to buy, whom to vote for – are shaped, in large part, by an ecological system of persuasion. Persuasion has grown into a serious and sophisticated business and has interwoven itself into the fabric of society – so much so that we're sometimes not quite sure what's 'real' and what's 'made up'."[3]

Figure 1 – "This is not a plastic bag" – an example of information that is deceptive, even though it is technically true or accurate

One can easily find evidence of the issue

[2] Frankfurt, H.G. 2005. *On bullshit*: 1

[3] Hausman, C. 2000. *The lies we live by: Defeating double-talk and deception in advertising and politics*: 5

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raised by both Frankfurt and Hausman. Every day we read words and see pictures that have a single purpose – to lead our decisions to a brand, product or vote. As an example, in Figure 1 we see the cover of a well-known magazine, wrapped in a paper envelope with bold printing on the top that states: "This is not a plastic bag". The theme for this particular edition of the magazine is "Earth Issue" and discusses subjects related to saving the scarce resources of the earth.

At the time of writing, the magazine had a total paid circulation of 33 966[4]. It consists of more than 141 pages[5] contained in a large paper envelope. Using these figures, the magazine used at least 4 789 206 sheets of paper. Including the envelopes (which is roughly equal to two sheets of paper) this particular edition used an estimated total of 4 857 138 sheets of paper. A study conducted by Berkley University in 2003 estimates that a single tree produces about 8 500 sheets of 80gsm A4 paper[6]. If we do the simple calculation of sheets used divided by sheets per tree, we find that Marie Claire destroyed a little more than 571 trees this month alone. By using the envelopes instead of plastic wrappers, they used almost eight trees worth of paper. Even more interesting, this edition has a special supplement of 24 pages for the "Earth Issue" theme (as seen in Figure 1) which implies that 815 184 pages were printed that would normally not be included in the magazine. Nearly 96 trees were used in the making of this supplement alone.

Taking the example of the magazine, two sets of questions arise – a set relating to the intent of the publisher of the magazine, and a set relating to the way in which the message of the magazine influence the decisions made by readers to buy a copy. For example, related to the intent of the publisher, one could ask the following rhetorical questions:

1. If their true intent was to be more environmentally friendly, why not change the format of the magazine to use less paper or use a higher percentage of recycled paper?

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[4] Associated Magazines. 2011. *Marie Claire:* http://www.assocmags.co.za/brands/2/marie-claire. Accessed 4 June 2011.

[5] On the Marie Claire web site there is a reference made to an article on page 141 about paper versus digital products: http://marieclairvoyant.com/in-this-months-issue/the-art-of-paper-by-flux-trends. Accessed 4 June 2011

[6] University of California. 2003. *How Much Information? 2003*: http://www2.sims.berkeley.edu/research/projects/how-much-info-2003/print.htm#wpaper. Accessed 4 June 2011

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2. Why seal the magazine in the first place and not just eliminate the wrapper altogether and use an alternative way (e.g. A sticker seal) to achieve the same goal?
3. Why did they find it necessary to advertise a very obvious fact (that the wrapper is not plastic) in bright colours and big letters?

When we think about the consumer who finds the magazine in the shop we could ask:

1. How does the message of environmental friendliness affect their attitude towards the magazine?
2. Are they aware of the true environmental impact of the magazine?
3. If they would be made aware of the magazine's impact on the environment, how would it change their decision making behaviour?
4. Is there any way for the consumer to differentiate messages that are misleading, even when those messages are facts (e.g. "This is not a plastic bag" is a fact, but the underlying implication of the message is misleading)

As Frankfurt stated – we seem to believe that we are well equipped to manage the disinformation we face every day. This study asks the question whether current perspectives on decision making, specifically the programme of F&FH, have the potential to engage fruitfully with the phenomenon of disinformation when modelling decision making behaviour. The study will attempt to answer the question by discussing accepted definitions of disinformation, placing a selected definition in the context of the selected decision making theory and applying the combination to examples from the advertising industry.

1.2 Background and motivation

The study is the result of questions raised about the effect that messages related to the H1N1 virus during 2009 had on the use of antiviral medicines and flu vaccines by the public. After some research on the subject it became clear that the underlying question of how people make decisions in the face of disinformation seems unanswered specifically within the context of currently accepted decision making theory. This realisation served as the primary motivation to take a deeper look into decision making theory and the role of disinformation.

The field of Judgment and Decision Making is very active with numerous researchers contributing to the field. The field is also highly influential with a number of Nobel Prizes in

Economics awarded to researchers who have had an explicit connection to the field.[7] Exploratory research into the subject clarified the need to focus on a single prominent meta-theory, rather than attempting a critique of the entire discipline. For this purpose the programme of F&FH was chosen as it presented a perspective that attempts to move away from the classically defined concept of rationality and seems to have a certain attractiveness in popular intellectual discourse.

1.3 Research problem

As seen in the introductory section of this chapter, it seems to be a commonly accepted fact that people lie, and that they do so as a natural part of daily life. When decision making is studied however, it seems as if the information used during the decision making process can be called "truth neutral" – none of the intent to deceive, the nature and qualities of deceptive information nor the effects thereof on the decision maker seems to be fully explored.

The problem that follows from this is that current decision making theory doesn't seem to fully recognise the effects of the intent to deceive on the ability of the decision maker to make a "good" decision. As is shown throughout the study, this intent to deceive is not only an everyday occurrence, it is a strategy applied in various types of marketing and sales activities that directly affect the quality of life for people who are exposed to it. If decision making theories cannot provide norms and rules for how everyday people can make better decisions, especially in a world where the intent to deceive dictates the available information upon which decisions are made, then these theories are of merely academic value. This is particularly true for the programme of F&FH where proponents of this theory claim that it has normative, descriptive and prescriptive value.

Of specific interest is deceptive information that can be defined as disinformation. As the study will show, disinformation typically presents information that at face value seems true, but in actual fact contains untruths. More specifically, as was seen with the Marie Claire example, these untruths may in fact be in an implied form. Implied information that is untrue, or implicature-type disinformation, provides a particular challenge for decision makers as they may not have the required skills or knowledge to identify this type of disinformation.

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[7] For example, Daniel Kahneman who received the Nobel Prize for Economics in 2002. *Nobel Prizes 2002*: http://www.nobelprize.org/nobel_prizes/lists/year/?year=2002. Accessed 27 February 2012

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This study takes a deeper look into the truth of this problem and investigates the extent to which the specific theory of F&FH deals with deceptive information.

The following question provides the foundation for this study and acts as the primary reference point for research conducted: *Does the programme of F&FH provide adequate and useful norms, descriptions and prescriptions for decision making when the decision maker is faced with implicature-type disinformation?*

1.4 Research objectives

The research question requires a three-pronged approach namely 1) developing a clear understanding of the character of F&FH through in-depth analysis of the philosophical and theoretical underpinnings, 2) defining disinformation as a strategic language act through a discussion of the nature of language use as a means to deceive, and 3) applying the concepts of F&FH and disinformation to selected examples of disinformation used in advertising as a thought experiment. The study answers the research question as stated above by reaching the following objectives:

1. To discover the origins and underlying suppositions of the discipline of Judgement and Decision Making (JDM).
2. To discover the origins and nature of F&FH as a research programme within JDM.
3. To understand the use of language as a joint social action with the aim to reach private and public goals.
4. To examine different perspectives on the concept of "disinformation" in terms of its origins and characteristics with the aim to select an appropriate definition for use in the study.
5. To apply the concept of disinformation to implicatures (implied information) as a thought experiment.
6. To examine the extent to which F&FH can address implicature-type disinformation by discussing cases of disinformation and decision making in the context of advertising.
7. To identify opportunities for future research

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1.5 Research methodology

1.5.1 Strategies and techniques

The study is primarily argumentative, conceptual and qualitative and uses a number of primary and secondary sources as a means to explore and understand various related concepts. Using the information presented by a broad range of researchers, the study proceeds to develop a logical argument towards an answer to the research question. Primary sources rely on philosophy, established theories in Judgment and Decision Making and linguistics whereas secondary sources will provide additional insight through economics, psychology, management sciences, advertising and marketing, as well as history of religion.

The study will utilise the following approach:

1. A literature study with relevant examples will be used to discuss current approaches to decision making and decision making models, which will lead to an overview of the F&FH meta-theory
2. A literature study with relevant examples will be used to identify the origins and nature of disinformation with the aim to select a definition of disinformation
3. Two examples of implicature-type disinformation in advertising will be discussed and evaluated in terms of the theory of F&FH (specifically ecological rationality and the adaptive toolbox). These examples will be selected to indicate advertising that informs a) immediate and b) future decisions.

1.5.2 Key theoretical frameworks

1.5.2.1 Frameworks related to judgment and decision making

The study firstly seeks to gain an understanding of the origins and current debates within the field of Judgement and Decision Making. The following frameworks are used for this purpose:

1. Rationalism and empiricism as philosophical theories underlying to the two meta-theories discussed. These theories are selected as it is assumed to be the most prominent philosophical perspectives that inform the majority of disciplines within the Western-philosophical academic paradigm and that underlie the kind of behaviourist research undertaken often in the JDM field.

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2. Correspondence and coherence as theories of truth. There are numerous theories on truth that may have been used; however the theories of correspondence and coherence reflect the core arguments of the two key decision making frameworks mentioned below as well as the arguments of rationalism and empiricism.
3. Herbert Simon's conceptualisation of bounded rationality. Bounded rationality is a key concept in the understanding of the decision making frameworks below.
4. The Heuristics & Biases (H&B) programme of Kahneman & Tversky. This framework is selected as a breakthrough perspective on decision making as opposed to perspectives developed in neoclassical economics.
5. The F&FH programme of Gerd Gigerenzer and the ABC Research Group. This framework provides part of the focus for this thesis – it was selected because of its claims as a programme that can provide descriptive, prescriptive and normative outputs.

1.5.2.2 Frameworks related to language use and disinformation

The origins and characteristics of disinformation is found via the perspective of language use as a joint activity. The following theoretical frameworks apply:

1. Language use as a joint action as proposed by Herbert H. Clark. The concept of language use as an activity performed jointly provides the foundation for understanding disinformation as a joint activity.
2. The so-called Gricean Maxims, developed by Paul Grice that provides an "ideal" model of communication. This serves as a foundation for discussion of deviations from the ideal that could be construed as misinformation or disinformation.
3. For a comprehensive overview of medieval rhetoric, the work of J.J. Murphy will be used. This historical perspective provides some insight into the development of disinformation from rhetoric via advertising.
4. The work of Dariusz Galasinski takes an in-depth look at deception and specifically the language used during the process of deception. His work will provide confirmation of how deceptive language deviates from the Gricean Maxims, but more importantly the character and role of intent during deception.
5. Finally Don Fallis provides a fully argued process for "disinforming", which provides the definition of disinformation in conjunction with other frameworks.

1.5.3 Delimitation

This study consists of an argumentative analysis of F&FH and its descriptive, normative and prescriptive capacities. As such the study will not present empirical data, but rather construct an argument using primary and secondary sources to investigate the research question as a thought experiment. As such, this study is specifically limited to the meta-theory of F&FH. It will not attempt to provide a complete overview of all the available theories within the discipline of Judgment and Decision Making, nor will it attempt to provide a complete overview of the H&B programme of inquiry. Furthermore, the study only makes use of examples drawn from the field of marketing and advertising. Other areas such as medical information or politics might have been used, but advertising provided ample opportunity to investigate the issue at hand.

Historical overviews are provided for the purpose of creating context and background and are not intended to reflect historical figures or concepts in its entirety. This information has been selectively discussed as support to the main arguments proposed.

1.6 Research outline

Chapter 1, titled "Introduction", introduces the study by providing an example of a situation where strategic disinformation affects an audience. The chapter then proceeds to provide the background and motivation for the study. It discusses the research problem, objectives and key assumptions. Finally it provides an outline of the thesis.

Chapter 2, titled "Overview of the discipline of Judgement and Decision Making (JDM)", provides a broad overview of the field of decision making from its origins in Ancient Greek philosophy. It discusses the philosophical theories of rationalism and empiricism as well as the related truth theories of coherence and correspondence. Three key assumptions of JDM are examined in the context of two main perspectives on rationality.

Chapter 3, titled "Information and truth in Gigerenzer's Fast & Frugal Heuristics", provides an overview of the F&FH programme as a response to the H&B programme. The F&FH programme will be discussed in terms of the three underlying questions posed by the founding researchers that relates to the nature of the adaptive toolbox, the character and function of ecological rationality, and the practical application of the theory.

Chapter 4, titled "Disinformation: A language use strategy", investigates different perspectives on the use of language, information quality and the use of information in the

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process of deception. The perspectives are developed through a historical overview on rhetoric, which leads to the development of the advertising industry. Concepts such as *motive* and *goals* are discussed. A definition for disinformation is sought after which the concept of implicature is applied to said definition. In order to arrive at a deeper understanding of the concept, disinformation will be discussed by comparing it to accepted definitions of misinformation, persuasion and deception.

Chapter 5, titled "Disinformation and Fast & Frugal Heuristics", takes the discussion of deceptive techniques in advertising further and identifies ways in which advertisers generate strong and weak implicatures to elicit inferences that may possibly be false. Two examples are used to test the principles of F&FH to implicature-type disinformation. Various shortcomings are discussed.

Chapter 6, titled "Conclusion", summarises the key findings of the study, proposes a number of conclusions and provides recommendations for future research.

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Chapter 2

Overview of the discipline of Judgement and Decision Making (JDM)

2.1 Introduction

The ideas used by different programmes in the discipline of Judgment and Decision Making (JDM) share common origins. More than that, these origins shape the arguments used to this day to try and unravel the mysteries of the human decision making process. This chapter will attempt to answer the following question: What are the underpinnings of JDM? In this chapter an overview is provided of JDM to establish a clear context for the chapters to follow.

The chapter is divided into two parts. The first part takes a deeper look into the historical origins of the underlying philosophical theories of JDM. The traditions of *Rationalism* and *Empiricism* are then extended towards two specific approaches to truth namely *Correspondence* and *Coherence*. The second part discusses three main assumptions of JDM namely that man is rational, decisions follow norms and decisions have a utility fulfilment function. Throughout the study, lines will be drawn between the philosophical theories, their related truth theories and the two main approaches of rationality in JDM namely *pure rationality* and *bounded rationality*.

2.2 The philosophical foundations of JDM

In an effort to clarify the effect of disinformation on the most pertinent programmes of decision making, a deeper understanding of the origins and character of Judgment and Decision Making (JDM) theory is required. In this section the roots of the field of JDM are discussed and developed towards currently accepted models.

2.2.1 Philosophical approaches

Baron explains the cross-disciplinary nature of JDM by discussing how different models belong to different disciplines – he points out that "[d]escriptive models are clearly the task of psychology" and that "[n]ormative models are properly the task of philosophy."[8] Gigerenzer & Selten argues for interdisciplinarity when they state: "Visions of rationality do not respect disciplinary boundaries. Economics, psychology, animal biology, artificial intelligence, anthropology, and philosophy struggle with models of sound judgment, inference and decision making."[9] As much as both the programmes have been developed by psychologists[10] both programmes discussed in this study have foundations in philosophy. Two main philosophical theories, along with their different iterations over the centuries, are proposed as the foundations for JDM namely rationalism and empiricism.

2.2.1.1 Rationalism

Peter Markie provides the following insight into rationalism: "Rationalists generally develop their view in two ways. First, they argue that there are cases where the content of our concepts or knowledge outstrips the information that sense experience can provide. Second, they construct accounts of how reason in some form or other provides that additional information about the world." Markie then proceeds to provide three approaches or theses within the rationalist paradigm namely 1) "*The Intuition/Deduction Thesis*: Some propositions in a particular subject area, S, are knowable by us by intuition alone; still others are knowable by being deduced from intuited propositions" 2) *The Intuition/Deduction Thesis*: Some propositions in a particular subject area, S, are knowable by us by intuition alone; still others are knowable by being deduced from intuited propositions" and 3) "*The*

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[8] Baron, J. 2007. Normative Models of Judgment and Decision Making in: *Blackwell Handbook of Judgment & Decision Making*: 20

[9] Gigerenzer, G. and Selten. 2002. *Bounded Rationality – The Adaptive Toolbox*: 1

[10] Amos Tversky was a cognitive psychologist from Stanford University in: "Amos Tversky, leading decision researcher, dies at 59" in *Standford University News Service*: http://news.stanford.edu/pr/96/960605tversky.html. Accessed 12 September 2011

Daniel Kahneman received his PhD. In Psychology in 1961 from the University of California, Berkeley in: Princeton Unversity. 2011. *Curriculum Vitae, Daniel Kahneman*: http://www.princeton.edu/~kahneman/docs/DKahnemanCV.pdf. Accessed 12 September 2011

Gerd Gigerenzer was awarded his PhD in Psychology from Munchen Univesity in 1977 in: Max Planck Institute.2011. *Gerd Gigirenzer*: http://www.mpib-berlin.mpg.de/en/staff/gerd-gigerenzer#CV. Accessed 12 September 2011

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Innate Concept Thesis: We have some of the concepts we employ in a particular subject area, S, as part of our rational nature." In all three approaches the underlying idea remains that knowledge as a whole or in part is somehow intuitive rather than the result of experience.[11]

The idea that man is rational, and possibly purely rational, is very much the original butterfly that caused the proverbial hurricane of philosophical discussions throughout history. Christopher J. Rowe tells us that Socrates, as seen through the eyes of Plato in his *Apology*, proposes that man wants to be happy, and that happiness is doing what we know to be good. However, we cannot know what is good if we haven't reasoned about it. He notes the following: "What is most peculiar about this position…is that it allows no room for the notion of an irrational self."[12] From this point of view we will always make a rational choice if we know which choice will allow us to live happy lives.

Plato contributed to Socrates' original thoughts with the addition of the *Theory of Forms* (also Ideas or Types). The underlying concept Plato proposed was that everything in existence is an expression of an ideal form.[13] The form is something of a blueprint for that which we perceive, for example, a bulldog and a Labrador are both expressions of the form "dog". The Ideal Form "dog" contains all of the attributes that will give its expressions the characteristics that we need in order to identify it. All of the possible expressions of dog are therefore contained in the single form of "dog". As David E. Cooper puts it: "This emphasis on unity [of all things into a single form] culminates in Plato's claim that the enlightened philosopher attains knowledge of the supreme Form, that of the Good, which is the source of the intelligibility, nature and very being of everything else…"[14] Later philosophers built on this concept of knowledge through rationality. Descartes for example is famous for his supposition "cogito ergo sum" – I think, therefore I am – which points directly at a rationalist

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[11] Markie, P. 2008. "Rationalism vs. Empiricism" in *The Stanford Encyclopedia of Philosophy(Fall 2008 Edition):* http://plato.stanford.edu/archives/fall2008/entries/rationalism-empiricism/. Accessed 17 October 2011

[12] Rowe, C.J. 2005. "Socrates" in *Fifty Major Thinkers on Education - From Confucius to Dewey*: 6 – 7.

[13] Silverman, A. 2008. "Plato's Middle Period Metaphysics and Epistemology" in: *The Stanford Encyclopedia of Philosophy (Winter 2008 Edition)*: http://plato.stanford.edu/archives/win2008/entries/plato-metaphysics/. Accessed 12 September 2011.

[14] Cooper, D.E. 2005. "Plato" in *Fifty Major Thinkers on Education - From Confucius to Dewey*: 10 – 12

perspective on knowledge.[15] With this single statement he effectively connected the existence of man to his capacity for rational thought upon which he developed an entire philosophy around the rational process for scientific reasoning.

Other well-known rationalists are Baruch Spinoza and Gottfried Leibniz. Spinoza reiterated a revised version of Plato's forms by positing that everything in existence is an expression of a single substance which he called God. God, in Spinoza's view is a "thinking thing" and everything else, which he viewed as expressions of this single form, are "extended things."[16] Leibniz provided a similar point of view by stating: "What is not truly one entity is not truly one entity either"[17] through which he developed a theory of so-called "monads" or supreme entities that holds the core nature of everything that is.[18]

The rationalist perspective can therefore be summed up by saying that people make choices in order to live happy lives, that their choices are rational and that this rationality is born from a supreme singular knowledge that exists separately from the world we experience. Knowledge is acquired *a priori* or independently from experience.

2.2.1.2 Empiricism

Empiricists claim that one can have no knowledge of something without prior experience through the senses: "Insofar as we have knowledge in the subject, our knowledge is *a posteriori*, dependent upon sense experience… Sense experience is our only source of ideas."[19] The origins of the rivalry between the empiricist theory and that of rationalism are the arguments proposed by Aristotle as a response to the philosophy of Socrates and Plato. Aristotle rejected the concept of a dualistic world (Plato's Ideal Forms and expressions

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[15] Descartes, R. 1637. *Discourse on the method of rightly conducting the reason, and seeking truth in the sciences*. *Section IV*. Accessed via the Gutenberg Project: http://www.gutenberg.org/files/59/59-h/59-h.htm#part4. Accessed 17 October 2011.

[16] Spinoza, B. 1677. *The Ethics*. *Part I.* Accessed via the Gutenberg Project: http://www.gutenberg.org/files/3800/3800-h/3800-h.htm. Accessed 17 October 2011.

[17] Quoted in Phemister, P. 2006. *The Rationalists: Descartes, Spinoza and Leibniz*: 61

[18] Phemister, P. 2006. *The Rationalists: Descartes, Spinoza and Leibniz*: 61 - 62

[19] Markie, P. 2008. "Rationalism vs. Empiricism" in *The Stanford Encyclopedia of Philosophy (Fall 2008 Edition):* http://plato.stanford.edu/archives/fall2008/entries/rationalism-empiricism/. Accessed 14 October 2011

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thereof) and opted rather for a view that whatever exists, exists as it is and that we perceive this singular existence through our senses.[20]

The most famous of empiricist philosophers were John Locke, George Berkeley and David Hume. Locke rejected the idea that knowledge can be *a priori* but that individuals should rather be regarded as *tabula rasa* or a blank slate. Upon this blank slate impressions form and as impressions form so does the ability of the individual to make good decisions.[21] Berkeley took the concepts proposed by Locke a step further. He argued that the idea of matter, as something that exists in the actual, is nonsensical since there is only that which we perceive. He explained objects as "collections of ideas" that are generated as artefacts of sensations.[22] Morris discusses how Hume proposed that all of science (and therefore in effect, the way in which we attain knowledge) is subject to the limits of our understanding of human nature: "For Hume, all the materials of thinking — perceptions — are derived either from sensation ('outward sentiment') or from reflection ('inward sentiment')."[23] Hume developed a philosophy rooted in the human experience with an acknowledgement of the limits of our own capacity for understanding as well as the limits of metaphysical language as is confirmed by this quote from *An Enquiry Concerning Human Understanding*: "Nothing, at first view, may seem more unbounded than the thought of man, which not only escapes all human power and authority, but is not even restrained within the limits of nature and reality. To form monsters, and join incongruous shapes and appearances, costs the imagination no more trouble than to conceive the most natural and familiar objects. And while the body is confined to one planet, along which it creeps with pain and difficulty; the thought can in an instant transport us into the most distant regions of the universe; or even beyond the universe, into the unbounded chaos, where nature is supposed to lie in total confusion. What never was seen, or heard of, may yet be conceived; nor is any thing beyond the power of thought, except what implies an absolute contradiction.

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[20] Hobson, P. 2005. "Aristotle" in *Fifty Major Thinkers on Education - From Confucius to Dewey*: 15.

[21] Smith, R. 2005. "John Locke" in *Fifty Major Thinkers on Education - From Confucius to Dewey*: 46.

[22] Berkeley, G. 1709. *A Treatise Concerning the Principles of Human Knowledge*. Section I. Accessed via The Gutenberg Project: http://www.gutenberg.org/files/4723/4723-h/4723-h.htm. Accessed 17 October 2011.

[23] Morris, W. E. "David Hume" in *The Stanford Encyclopedia of Philosophy (Fall 2011 Edition)*: http://plato.stanford.edu/archives/fall2011/entries/hume/. Accessed 17 October 2011

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But though our thought seems to possess this unbounded liberty, we shall find, upon a nearer examination, that it is really confined within very narrow limits, and that all this creative power of the mind amounts to no more than the faculty of compounding, transposing, augmenting, or diminishing the materials afforded us by the senses and experience."[24]

Empiricism therefore has the following characteristics: humans gain knowledge through experience, these experiences form our moral senses (included in which is our notion of what a "happy" life consists of) and these moral senses provide us with the framework we use to make decisions. Knowledge, from the empiricist point of view, is gained *a posteriori*, or as a result of experience.

2.2.1.3 Criticisms of the division of Rationalism and Empiricism

The division of philosophical schools of thought between Rationalism and Empiricism is often criticised as misleading and even incorrect. George Ladd puts the blame for what was a growing trend during the early 20th century to create this division on the shoulders of the so-called Pragmatists: "There is probably no other subject of controversy about which, and no other word under the cover of which, there has been more of this deplorable confusion and consequent inner bitterness and outward contempt than the subjects covered by the word 'rationalism'. So worn-out and antiquated does all this seem to the student of history, as it was illustrated and indeed made lurid by the theological writings of the seventeenth and eighteenth centuries, that it could scarcely make valid claim to occupy our attention at the present time, were it not for the fact that Pragmatism has just recently renewed the confusion… the now current attacks on so-called rationalism seem, too often, to take the form of an unrationalised and emotional and rather dogmatic empiricism… But rationalism is no more antithetic to empiricism than it is to idealism, or to realism, or to supernaturalism, or even to pragmatism."[25]

Hidé Ishiguro takes a similar point of view on the issue: "The grouping of European philosophers of the seventeenth and eighteenth centuries into rationalists and empiricists seems to me to be unfortunate and unhelpful. It suggests that there are two self-contained

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[24]Hume, D. 1748. *An Enquiry Concerning Human Understanding*. Accessed via The Gutenberg Project: http://www.gutenberg.org/dirs/etext06/8echu10h.htm#section2. Accessed 17 October 2011.

[25] Ladd, G.T. 1913. "Rationalism and Empiricism" in *Mind,* 22(85): 2 – 3. Ladd's argument centres around the definition of rationalism as a method of inquiry rather than a school of thought.

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mutually incompatible sets of views, which are clearly demarcated and based on opposing principles: one claiming that the source of all substantial truths about reality is reason; the other claiming that all knowledge derives from experience…Not only did thinkers like Descartes, Spinoza and Leibniz take great interest in the experimental sciences of their day, they also thought that the data we obtain from our senses played an important role in the formation of our knowledge of the world… Berkeley went so far as to write that intellect and reason are alone the sure guides of truth, and even Locke, who proclaimed that all our knowledge comes ultimately from our senses, defended a theory of knowledge in which an indispensable role is played by elements which, as many have pointed out, cannot be derived from sense-experiences."[26]

Ladd provides a compelling argument against the division when he says: "… But the depths of misapprehension would seem to be reached when we begin to decry Rationalism in systematic philosophy as the antithesis of a reasonable Empiricism. Empiricism that has not been subjected to the testing and elaborating activity of reason furnishes no truth at all. An unrationalised empiricism is not philosophy, is not science, is not ordinary knowledge… All claims to the content of truth – call this content realism or idealism, scepticism or dogmatism, orthodoxy or infidelity, empiricism, rationalism or even pragmatism – all must appear before the same court[27], all must abide by the verdict of this same court."[28]

Anthony Kenny explains that this distinction is often used for textbook and examination purposes.[29] This fact implies that the distinction of Rationalism and Empiricism as opposing schools of thought formed part of the experience many students have of philosophy – an experience that influenced their perspectives as they took this knowledge further in their academic endeavours.

The divide between Rationalism and Empiricism seems to be an artefact of an approach to teaching philosophy which makes it artificial. The points made above tell us that this divide

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[26] Ishiguro, H. 1986. "Pre-established harmony versus constant conjunction: a reconsideration of the distinction between rationalism and empiricism" in *Rationalism, Empiricism and Idealism*: 61 – 62

[27] The "court" Ladd refers to is the process of rational enquiry into the truth of a matter.

[28] Ladd, G.T. 1913. "Rationalism and Empiricism" in: *Mind,* 22(85): 7 - 8

[29] Kenny, A. 1986. "Introduction" in *Rationalism, Empiricism and Idealism*: 1

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is not only misleading, but can be detrimental to academic progress the two approaches are seen as opposites rather than complimentary.

2.2.2 Philosophies of truth

In the previous section an overview of the main philosophical theories underlying JDM was provided. An attempt was made to point out the way in which knowledge is acquired from each perspective. An additional issue that is critical to our understanding of how disinformation affects the meta-theories of JDM is how truth is determined. For the purpose of this study it is important firstly to establish the concept of truth as it relates to the philosophical underpinnings of JDM, and secondly as it relates to how it is understood in the normal, day-to-day sense. As much as the risk in juxtaposing Rationalism with Empiricism is taken into account, it can be argued that the effects of this artificial division are strengthened in the continued opposition of the rational and empirical approaches to seeking truth. The purpose of this section is not to maintain the division between the philosophical traditions but rather to establish how, in the field of JDM, the choice of one over the other has led to the programmes discussed in this study.

There are various theories of truth that can be discussed, however, in this section it is shown how the traditions of Rationalism and Empiricism formed into two specific approaches to conceptualising a definition for truth. An argument is developed whereby Rationalism leads to a concept of truth based on coherence of arguments or beliefs within a given system whereas Empiricism, from its earliest days, formed into a concept of truth that is based on correspondence with observable facts. The section ends with an overview of truth as an everyday concept as it is understood in common use language. This approach is taken firstly to establish a firm link between the underlying philosophical traditions of Rationalism and Empiricism with the programmes of H&B and F&FH. Secondly, it establishes how people understand truth in their daily lives to establish a link with the practical application of the principles of said programmes to decision making as it relates to advertising.

2.2.2.1 The difficulty of defining truth

In his discussion of the correspondence theory of truth, D.J. O'Connor warns the reader that an effort to define truth is fraught with philosophical conundrums that have not yet been clarified in a manner that is generally accepted: "A 'theory' about truth is an attempt to give satisfactory answers to questions such as the following: what are the marks that distinguish a true statement from a false one? How can we establish that a particular statement is true or

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false? What is an acceptable definition of the word 'true'? Or, more simply, what is truth? Such questions do not look on the surface very difficult. But an attempt to answer them leads us quickly into deep philosophical issues which have not so far met with any solutions that have been generally accepted."[30] Leslie Armour takes a similar point of view in the opening paragraph of his book: "It is scarcely possible to imagine a man who has no views about what separates truth from falsehood – or any doubt more tragic than the doubt that truth and falsehood can be separated effectively. Yet there is no agreement – at least amongst philosophers – about how the concept of truth is to be construed."[31] Finally Richard L. Kirkham confirms that the problem of agreement persists: "Even the briefest writings about truth… reveals that there is little agreement about what the philosophical problem of truth is."[32] Clearly, a difficulty in defining truth is that theorists cannot agree on a definition of the concept, and from Kirkham's perspective, nor do they agree on the question they are trying to answer when attempting to develop a theory of truth.

A second issue, namely that of the cultural tradition that formed the perspectives on truth discussed in this section, is introduced by Renato Rosaldo in discussing the difficulties faced by anthropologists in understanding other cultures: "We cannot… simply use our minds to invent other cultural worlds. Even those so-called realms of pure freedom, our fantasy and our 'innermost thoughts,' are produced and limited by our own local culture. Human imaginations are as culturally formed as distinctive ways of weaving, performing a ritual, raising children, grieving, or healing; they are specific to certain forms of life, whether these be Balinese, Anglo-American, Nyakyusa, or Basque."[33] When we investigate any concept, the cultural context and tradition of that concept plays a significant role in its validity and use. As an example of how truth can differ between cultures, David Hall & Roger Ames provide this insight about the differences between the Western concept of truth as compared to the Chinese notion of the same concept: "In the West, truth is a knowledge of *what* is real and what represents that reality. For the Chinese, knowledge is not abstract, but concrete; it

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[30] O'Connor, D.J. 1975. *The Correspondence Theory Of Truth*: 12

[31] Armour, L. 1969 . *The Concept of Truth*: 1

[32] Kirkham, R.L. 1992. *Theories of truth*: 1

[33] Rosaldo, R. 1993. *Culture & Truth: The Remaking of Social Analysis*: 25

is not representational, but performative and participatory; it is not discursive, but is, as a knowledge of the way, a kind of know-how."[34]

The definition of truth is a question for the ages – the primary problem in an endeavour of this kind is the fact that there seems to be no agreement amongst academics as to what truth may constitute, or in fact, what the underlying question to the definition of truth is. Furthermore, any conceptualisation of truth is subject to the cultural context from within which it comes and will reflect the dominant world view of the given culture.

2.2.2.2 Coherence

A rationalist will say that we learn about the world by thinking it through. Knowledge pre-exists and through careful reasoning is revealed to us. Knowledge exists *a priori* or removed from experiences. Our moral sense is innate which means that the truly rational man will live a good life because his choices are built upon sufficient reasoning. Truth in the rationalist sense is conceived as existing independently and being available to us through the process of deductive reasoning. René Descartes was perhaps one of the most influential of rationalists[35] in the philosophical tradition of the West. He had the following to say about finding the truth in science: "The long chains of simple and easy reasonings by means of which geometers are accustomed to reach the conclusions of their most difficult demonstrations, had led me to imagine that all things, to the knowledge of which man is competent, are mutually connected in the same way, and that there is nothing so far removed from us as to be beyond our reach, or so hidden that we cannot discover it, provided only we abstain from accepting the false for the true, and always preserve in our thoughts the order necessary for the deduction of one truth from another."[36] Descartes made several points here – firstly he suggests that knowledge consists of a set of interlinked units of truth and that one truth can be deduced from a preceding truth within this system. He believes that all of knowledge is attainable in this

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[34] Hall, D.L. & Ames, R.T. 1998. *Thinking from the Han: Self, Truth, and Transcendence in Chinese and Western Culture*: 104

[35] Markie warns however that the labels of "rationalist" and "empiricist" requires that one places more attention on the nuances of the individual philosophers. This perspective resonates with the points raised in Section 2.2.1.4 in: Markie, P. 2008. "Rationalism vs. Empiricism" in *The Stanford Encyclopedia of Philosophy (Fall 2008 Edition):* http://plato.stanford.edu/archives/fall2008/entries/rationalism-empiricism/. Accessed 17 October 2011.

[36] Descartes, R. 1637. *Discourse on method*. Accessed via The Gutenberg Project: http://www.gutenberg.org/files/59/59-h/59-h.htm Accessed October 2011.

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manner of rational enquiry. He confirms the process of discovering truth when he says: "…I commenced with the simplest and most general truths, and that thus each truth discovered was a rule available in the discovery of subsequent ones. Nor in this perhaps shall I appear too vain, if it be considered that, as the truth on any particular point is one whoever apprehends the truth, knows all that on that point can be known."[37] In other words, starting with truths that he already had all the available knowledge on, he was able to use those truths as the basis for discovery of subsequent truths.

Harold H. Joachim is one of the earliest proponents of what he calls the *coherence-notion* of truth. He builds an argument for it by starting with the proposition that, in criticising other truth theories, a person starts out with a notion of what truth is, and even though Joachim does not explicitly state it as such, comes across as a notion that exists *a priori* – one always has some conception of what truth is and can therefore determine when something isn't true.[38] Building on the concept of an interlinked system as proposed by Descartes, Joachim develops an argument for a systematic coherence that results from conceivability as "the essential nature of truth"[39]: "Thus 'conceivability' means for us *systematic coherence*, and is the determining characteristic of a 'significant whole'. The systematic coherence of such a whole is expressed most adequately and explicitly in the system of reasoned knowledge which we call a science or a branch of philosophy."[40] As such the process of building this system of truth relies on rational enquiry in almost Platonic form. This is confirmed when Joachim expresses the view that, in order for something to be true, the system of which it forms a part of, is subject to an ideal form – different to Plato however, for Joachim there exists only one such form: "For, if there are certain judgements indubitably true, then these are the *materials* of knowledge. And, in the progress of thought, a *form* is imposed upon these materials which arranges without altering them. Truth is linked to truth until the arrangement constitutes that network of chains of truths which is the system of ideally

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[37] Descartes, R. 1637. *Discourse on method*. Accessed via The Gutenberg Project: http://www.gutenberg.org/files/59/59-h/59-h.htm Accessed October 2011.

[38] Joachim, H.H. 1906. *The Nature of Truth*: 65

[39] In starting out his argument Joachim provides a preliminary definition of the coherence notion when he says: "Anything is true which can be conceived. It is true because, and in so far as, it can be conceived. Conceivability is the essential nature of truth." in: Joachim, H.H. 1906. *The Nature of Truth*: 66

[40] Joachim, H.H. 1906. *The Nature of Truth*:: 67 - 68

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complete knowledge. The form under which the infinitely various materials are ordered, is the universal form of all thinking."[41]

In the approaches taken by Descartes and Joachim it becomes clear that the elements found in the philosophical tradition of Rationalism is evident in coherence theories of truth. The concept of an ideal, reasoned system that is a requirement for truth, and that this system consists of interlinked truths, all starting from an *a priori* notion of what truth is, provides ample evidence of the relationship between Rationalism and coherence.

2.2.2.3 Correspondence

An empiricist will say that we learn about the world through experience. We start out *tabula rasa* (with a blank slate) and, as we gain experiences, our understanding of the world is formed. These experiences establish our moral framework – our ability to judge whether something will contribute to a happy life. As such, truth must also be deduced from our experiences. In a very literal sense then, the empiricist approach holds the tenet that seeing (or experiencing) is believing.

Joachim provides the following perspective into truth as correspondence "In most everyday judgments of common sense, and in many philosophical theories, a certain conception of truth is implied or expressed, which I shall call the 'correspondence-notion' of truth. Thus e.g. to 'speak the truth' is to speak 'in accordance with' or 'in conformity to' the facts. A 'true' man, or a 'true' friend, is a person whose outward acts 'correspond to' – faithfully reflect – his inner feelings. A narrative is 'true' if it 're-presents', in essentials and within its own sphere, the real order of events. So again, according to Aristotle, the synthesis or analysis of the thoughts expressed in true judgement must exactly re-present, or correspond to, the way in which the real things are conjoined or divided; and a 'scientific truth' is the conclusion of a deductive inference, which exactly repeats in its structure the necessary coherence of a substance with its *propium* through the proximate cause of that connexion."[42] Kirkham provides a similar definition, although he distinguishes between two different kinds of correspondence: "We come now to the most venerable of all kinds of theories of truth: correspondence theories, of which there are two types: correspondence as correlation and

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[41] Joachim, H.H. 1906. *The Nature of Truth*:: 73

[42] Joachim, H.H. 1906. *The Nature of Truth*:: 7

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correspondence as congruence. The first of these, put very simply, says that every truth bearer is correlated to a state of affairs. If the state of affairs to which a given truth bearer is correlated actually obtains, then the truth bearer is true; otherwise it is false."[43] Kirkham also confirms that correspondence-as-correlation can be taken back to Aristotle: "Aristotle offered the first correspondence-as-correlation theory with his famous remark 'To say that [either] that which is is *not* or that which is not *is*, is a falsehood; and to say that that which is is and that which is not is not, is true' (*Metaphysics* 1011b26)"[44]

Correspondence as correlation is clearly an Empiricist approach to truth inasmuch as it was born from Aristotle's work. Correspondence reflects the notion that knowledge, and specifically true knowledge, can be acquired through observations of fact.

2.2.2.4 Truth in everyday language

It is critical to investigate how the concept of truth is understood in everyday language. It is assumed that the definition of truth as it is reflected in this understanding will also reflect how it is used in the day-to-day decisions undertaken by people in normal circumstance. This investigation will assist in confirming the extent to which specifically the F&FH programme lives up to certain claims of practical applicability of the theory.

The best source for finding ordinary use definitions of any word in common language is almost certainly a dictionary. The following definitions of truth were found in various dictionaries:

The Chambers 21st Century Dictionary:[45]

1. the quality or state of being true, genuine or factual.
2. the state of being truthful; sincerity; honesty.
3. that which is true.
4. that which is established or generally accepted as true *scientific truths*.

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[43] Kirkham, R.L. 1992. *Theories of truth*: 119

[44] Kirkham, R.L. 1992. *Theories of truth*: 119 - 120

[45] Chambers 21st Century Dictionary. 2001. *truth*: http://www.credoreference.com.ez.sun.ac.za/entry/chambdict/truth. Accessed 14 October 2011

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5. strict adherence to an original or standard.

The Collins English Dictionary[46]:

1. the quality of being true, genuine, actual, or factual: the truth of his statement was attested.
2. something that is true as opposed to false: you did not tell me the truth.
3. a proven or verified principle or statement; fact: the truths of astronomy.
4. (usually plural) a system of concepts purporting to represent some aspect of the world: the truths of ancient religions.
5. fidelity to a required standard or law.
6. faithful reproduction or portrayal: the truth of a portrait.
7. an obvious fact; truism; platitude.
8. honesty, reliability, or veracity: the truth of her nature.
9. accuracy, as in the setting, adjustment, or position of something, such as a mechanical instrument.
10. the state or quality of being faithful; allegiance. Related adjs veritable, veracious.

The Macquarie Dictionary[47]:

1. that which is true; the true or actual facts of a case; to tell the truth.
2. conformity with fact or reality; verity; the truth of a statement.
3. a verified or indisputable fact, proposition, principle, or the like; mathematical truths.
4. the state or character of being true.
5. genuineness, reality, or actual existence.

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[46] Collins English Dictionary. 2000. *truth* : http://www.credoreference.com.ez.sun.ac.za/entry/hcengdict/truth. Accessed 14 October 2011

[47] The Macquarie Dictionary. 2005. *truth*: http://www.credoreference.com.ez.sun.ac.za/entry/macqdict/truth. Accessed 14 October 2011

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6. agreement with a standard, rule, or the like.

7. honesty, uprightness, or integrity.

8. accuracy, as of position or adjustment.

9. Archaic fidelity or constancy.

The multitude of definitions for the concept of truth provides more evidence of the difficulties of definition as noted above – even in ordinary language use. However a general theme comes to the fore namely that of correlation between a statement or proposition with an established fact. When we speak the truth, what we say is understood to correlate with some established fact. For the purpose of this study the truthfulness of information in commonly used language may be understood as something that corresponds with a proven or accepted fact. Taking the issue of the Western cultural tradition into account, this common use understanding of truth reflects the scientific approach of correspondence.

2.3 The core assumptions of JDM

Judgment and Decision Making (JDM) seems to be governed by three underlying assumptions namely that human beings are rational, that the process of making decisions follows norms and that the outcomes of decisions achieve some degree of utility. Gigerenzer says: "If you open a book on judgment and decision making theory, chances are you'll stumble over the following moral: Good reasoning must adhere to the laws of logic, the calculus of probability, or the maximization of expected utility…"[48] This point of view is echoed by David Over (in talking about what constitutes rationality) when he includes formal logic and probability theory as two of the main underlying normative theories in the field of decision making.[49] Finally Jonathan Baron confirms the notion when he says: "The study of judgement and decision making (JDM) is traditionally concerned with the comparison of judgments to standards…The major standards come from probability theory, utility theory and statistics."[50] This section will firstly investigate the idea that humans are rational, presenting different viewpoints on the subject and introducing the concept of bounded

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[48] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 63.

[49] Over, D. 2007. *Blackwell Handbook of Judgment & Decision Making*: 3.

[50] Baron, J. 2007. *Blackwell Handbook of Judgment & Decision Making*: 19.

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rationality. Secondly the issue of norms will be clarified where Gerd Gigerenzer's concept of ecological rationality will be juxtaposed with the normative framework of unbounded rationality. Finally the idea of utility will be discussed in terms of the distinction between the utility of unbounded rationality versus that of bounded rationality.

2.3.1 Humans are rational

Rationality as a concept differs from that of rationalism. Whereas the latter refers to the philosophical theory discussed above the former is a somewhat problematic concept that can refer either to "the ability to think logically" or to "be reasonable".[51] Within the discipline of JDM we find various perspectives on rationality. In fact, it is precisely these differences that clearly delineate the two programmes[52] of H&B on the one hand and F&FH on the other. That said, Over provides us with a good starting point when he describes the most widely accepted definition of rationality (which he calls instrumental rationality) within JDM as follows: "According to this definition, our mental states or processes are rational when they help us to achieve our goals."[53] In other words, when we found the most effective way to solve a problem or fulfil a need, we acted rationally.

Baron explains that, within the context of normative models (discussed in Section 2.3.2), this definition of instrumental rationality provides a common key, namely the idea that the best option, when faced with a decision, is the one that results in the most good and that "good", or utility, is that which allows us to achieve our goals.[54] Ideas underpinning *Decision Theory*, also known as *Rational Choice Theory*, has a long history – as early as 1662 Atoine Arnauld published this statement in his work called *Port Royal Logic*: "To judge what one must do to obtain a good or avoid an evil one must consider not only the good and the evil in itself but also the probability of its happening or not happening, and view geometrically the proportion that all these things have together."[55] In this statement we can see the same principles at work that underlies current theories around decision making – when referring to the

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[51] Manktelow, K.I. & Over, D.E. 1993. "Introduction: The study of rationality" in *Rationality: Psychological and Philosophical Perspectives*: 2

[52] In Chapter 3 it will be discussed in detail how Fast & Frugal Heuristics became a programme

[53] Over, D. 2002. *Bounded Rationality – The Adaptive Toolbox*: 3

[54] Baron, J. 2002. *Bounded Rationality – The Adaptive Toolbox* : 23

[55] Arnauld, A. 1850. *Logic, or, The art of thinking : being the Port-Royal logic*: 359 – 360.

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consideration that must be given and the way in which things must be considered, we can clearly see the foundations of rationality. Furthermore, Arnauld refers to the application of probability and mathematics to predict the outcome of the rational choice – tools often used in JDM.

In an attempt to solve the St. Petersburg Paradox[56] in 1738, Daniel Bernoulli took the concept of rational choice into the realm of economics by applying it to the monetary benefits that could possibly be gained in this famous problem.[57] Jeremy Bentham (1738) provided possibly one the earliest examples of an explicitly economic utilitarian stance in his *Economic Writings* by developing the concept of utility as the maximum enjoyment a person can achieve through economic consumption.[58] Traction for this concept grew in the form of utilitarianism during the Neoclassical age and was eventually adopted by economists through the works of individuals such as John Stuart Mill (1863) and Henry Sedgwick (1907).[59] Herbert Simon provides us with clear insight into the assumptions of Neoclassic economic theory: "First, human goals and motivations are assumed to be given *a priori* in the form of a utility function which allows an individual to make consistent choices among all the possible bundles of goods and services. Second, economic actors are assumed always to choose, among the alternatives open to them, that one of the alternatives that yields the greatest utility." Following this he refers to the latter assumption, namely the maximization of utility, as rationality, thereby confirming the original thoughts of Bentham and his followers.[60] This form of rationality is regarded as *unbounded*, meaning that the rational agent (the individual making the decision) has no limits in terms of their cognitive abilities, availability of information or constraints of time.[61] The neoclassical assumption that motivations and goals

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[56] Refers to the discrepancies between choices made and the mathematical outcomes of a gamble. Gigerenzer, G. and Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 2

[57] Martin, R. 2008. "The St. Petersburg Paradox" in *The Stanford Encyclopedia of Philosophy (Fall 2008 Edition):* http://plato.stanford.edu/archives/fall2008/entries/paradox-stpetersburg/. Accessed 17 October 2011.

[58] Driver, J. 2009. "The History of Utilitarianism" in *The Stanford Encyclopedia of Philosophy (Summer 2009 Edition)*: http://plato.stanford.edu/archives/sum2009/entries/utilitarianism-history/. Accessed 17 October 2011

Stark, W. 1954. *Jeremy Bentham's Economic Writings*: 421 - 450

[59] Sinnott-Armstrong, W. 2011. "Consequentialism" in *The Stanford Encyclopedia of Philosophy (Winter 2011 Edition)*: http://plato.stanford.edu/archives/win2011/entries/consequentialism/. Accessed 17 October 2011

[60] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 277

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are given *a priori* and can be maximised through rational decision making closely reflects its classical roots of rationalism.

Simon developed an alternative concept, namely that of *bounded rationality*, that opposed the traditional approaches to decision making. He explains the following: "The theory of subjective utility (SEU theory) underlying neo-classical economics postulates that choices are made: (1) among a given, fixed set of alternatives; (2) with (subjectively) known probability distributions of outcomes for each; and (3) in such a way as to maximize the expected value of a given utility function." He then introduces the concept of bounded rationality as follows: "Theories of bounded rationality can be generated by relaxing one or more of the assumptions of SEU theory."[62] In other words, choices are made within certain boundaries, such as limited time or limited knowledge.[63] These two perspectives on rationality – that of unbounded and that of bounded rationality – form the first cornerstone of the current discussions within the study of decision making.

2.3.2 Decisions follow norms

If humans are rational (be it bounded or unbounded), and rationality refers to the human capacity for logical reasoning, it follows that rational humans reason logically when making decisions. When faced with the two alternative views on rationality, however, the question as to what constitutes logic must be addressed.

It is at this juncture that a better understanding of the classification of different theories or models within Judgment and Decision Making theory is done. In broad terms, JDM theories are normative, descriptive or prescriptive. Normative models describe the ideal way in which we should make rational decisions, descriptive theories attempt to provide a description of

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[61] Encyclopedia of the Human Brain. 2002. *II. Unbounded Rationality Versus the Bounded Reality of Human Decision Making*: http://www.credoreference.com.ez.sun.ac.za/entry/esthumanbrain/ii_unbounded_rationality_versus_the_bounded_reality_of_human_decision_making. Accessed 16 August 2011

[62] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 291

[63] Encyclopedia of the Human Brain. 2002. *II. Unbounded Rationality Versus the Bounded Reality of Human Decision Making*: http://www.credoreference.com.ez.sun.ac.za/entry/esthumanbrain/ii_unbounded_rationality_versus_the_bounded_reality_of_human_decision_making. Accessed 16 August 2011

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how decision making actually happens whereas prescriptive models provide rules by which better decision making happens.[64]

David Over explains that normative theories include formal logic, probability theory and decision theory (or utility theory).[65] James Baron confirms Over's explanation by stating that: "The major standards [in JDM] come from probability theory, utility theory and statistics."[66] As such, normative theories provide norms by which "good decision making behaviour" can be measured.

Gerd Gigerenzer (in describing what a heuristic is) provides a clever thought experiment to explain the differences between unbounded rationality and bounded rationality in which he posits a robot that has the same characteristics as the traditional economically rational man. He poses that, if one builds a robot that can catch balls (specifically fly balls in baseball or cricket) that this robot can be built using one of two approaches. The first is that of omniscience, where the robot would require a complete representation of its environment alongside a very powerful capacity to calculate all of the parabolas and trajectories a ball might travel. Furthermore, this robot will require instruments that can measure the information (e.g. the initial distance, initial velocity and projection angle) required to calculate the ball's final landing point. The robot must then be capable of making all of the measures and calculations within a few seconds (whilst the ball is in the air) in order to catch it. Gigerenzer follows this up with a second perspective namely the development of a robot that makes use of simple rules that mimic human decision making behaviour. He points out that humans are too limited in their calculating abilities to use all of the environmental inputs and variables to catch the ball. However, as is proven by baseball and cricket players, people still succeed in doing so with the application of simple rules (called *heuristics*). He highlights one such rule called the "gaze heuristic" where players fixate on the ball in the air and adjust their running speed so that the angle of the gaze remains constant. Unbounded rationality assumes that all information and capacities are available to the decision maker (a concept closely resembling the perspectives of coherence in that an answer is true on the basis of a

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[64] Over, D. 2007. *Blackwell Handbook of Judgment & Decision Making*: 3

Baron, J. 2007. *Blackwell Handbook of Judgment & Decision Making*: 24

[65] Over, D. 2007. *Blackwell Handbook of Judgment & Decision Making*: 3

[66] Baron, J. 2007. *Blackwell Handbook of Judgment & Decision Making*: 23

logical argument) and that any deviation from the strict logical and mathematical models that underlie this perspective implies, as Gigerenzer puts it, "some form of cognitive or motivational flaw".[67]

On the other side of the spectrum, Simon provides us with a metaphor that consists of two interlocking principles that work like the blades of a scissor to shape human behaviour – the first blade is that of the computational capabilities of the actor and the second is the structure of task environments.[68] In other words the bounds of our rationality, from Simon's point of view, consists of the limitations in our context or environment and the limitations in our capacity to derive and process relevant information gained from the environment – Gigerenzer refers to the latter as *ecological rationality*.[69] Instead of the logical and mathematical norms underlying unbounded rationality, bounded rationality implies that rational decisions are therefore subjective to the cognitive abilities and environmental structure of the decision maker. As such the decision maker uses simple rules to achieve their outcome. Where unbounded rationality has complex norms, bounded rationality makes use of simple rules.

2.3.3 Outcomes achieve utility

In the previous sections it was found that the unbounded rational man has as his ultimate goal the maximisation of utility. In this fundamental assumption of unbounded rationality one finds a definition of what the ideal outcome of a decision is: the neoclassical economic man will always make his decisions in order to get the maximum benefits from the options available to him. This process of seeking maximum utility is also called optimisation.[70] What has not yet been clarified is what utility looks like from the perspective of bounded rationality.

Gigerenzer & Selten proposes three classes of process models namely simple search rules, simple stopping rules and simple decision rules. All of these rules apply to the overall process of search (the process of finding information that will help an individual make a

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[67] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 63 – 64
Gigerenzer, G. and Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 6 - 7

[68] Gigerenzer, G. and Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 6

[69] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 66 - 68

[70] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 295

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decision). The authors explain that the process of search further distinguishes between models of bounded rationality namely those that search for alternatives (for example satisficing) and those that search for cues (for example fast and frugal heuristics).[71] Gigerenzer explains the difference as follows: satisficing applies to a context where options are unknown[72] which implies that alternatives need to be sought out whereas fast and frugal heuristics proposes a search for cues in the environment to guide a decision where options are already known (e.g. job candidates).[73]

Simon discusses the search for or generation of alternatives and states the following: "because of limits on complexity, human alternative-generating behaviour observed in the laboratory is usually best described as a heuristic search aimed at finding satisfactory alternatives, or alternatives that represent an improvement over those previously available".[74] The limitations on our capacity to find all possible alternatives has an effect on the outcomes of our decisions – in the statement above Simon proposes that the consequence is, contrary to the idea of maximum utility, to find alternatives that satisfy our goals according to a set of requirements. Selten, borrowing the term from Simon[75], calls these requirements *aspiration levels*.[76]

In discussing the problem of optimization, Simon reiterates the problem that most optimal solutions within a real-world context can simply not be computed due computational complexity. He proposes an alternative which he calls *satisficing*. In principle satisficing implies that utility is not necessarily the maximum benefit that can be derived from a limitless supply of options, but rather that a decision maker searches for an alternative that satisfies their aspirations.[77] As discussed above, where the options are known, the decision maker faces a somewhat different challenge – instead of searches for alternatives (as a limited

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[71] Gigerenzer, G. and Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 8

[72] This point is confirmed by Simon where he specifically discusses the problem of limitations of time and information during the search for alternatives in: Simon, H.A. 1997. *Models of Bounded Rationality* (3): 292

[73] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox:* 44

[74]Simon, H.A. 1997. *Models of Bounded Rationality* (3): 292

[75] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 296 - 297

[76] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 14

[77] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 295 - 296

set of alternatives are already available), the decision maker searches for cues from their environment to guide them towards an alternative. According to Gigerenzer "…search is stopped as soon as the first cue that favors one alternative is found."[78] Both satisficing and search for cues as a process closely reflect the empiricist approach to knowledge acquisition (assuming that we build our knowledge through experience) and it may be argued that it therefore relates to the correspondence theory of truth.

Whether search is focused on satisficing or discovering cues, from the above it follows that, where rationality is bounded, utility is not maximised, but rather that aspiration levels are satisfied.

2.4 Conclusion

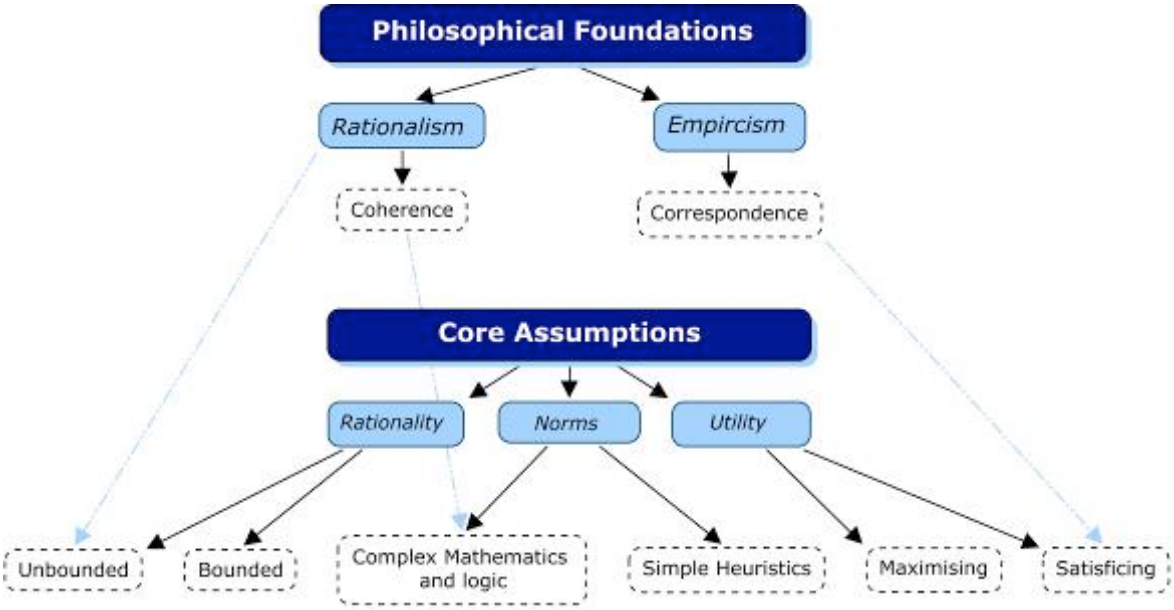

Figure 2 - From philosophical roots to the assumptions of JDM

Figure 2 provides a summary of the chapter in graphical form. Chapter 2 aimed to answer the question: "What are the underpinnings of Judgment and Decision Making theory?" The approach was firstly to provide a brief historical overview on the philosophical foundations of JDM and secondly to understand the core assumptions of JDM. An attempt was made to create a simplified version of the underpinnings of JDM without the loss of critical concepts. The discipline of JDM is however very active and as much as one may be tempted to rigidly classify one theory as rationalist and another as empiricist, it must be noted that ideas are

[78] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox:* 44

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often cross-pollinated, shared or otherwise accepted across the boundaries of different perspectives.[79] Figure 2 above provides a graphical representation of the findings.

The brief historical overview provided two overarching traditions namely that of *Rationalism* and *Empiricism*. It was shown that rationalism espouses the use of reason to acquire and verify knowledge. Truth is an external, objective form or idea that can be understood through reasoning using knowledge that is available *a priori*. In contrast, empiricism advocates the belief that knowledge can only be attained through experience (*a posteriori*) and that truth is established in the same manner. The discussion on rationalism and empiricism was followed with a short description of the two major approaches to truth namely correspondence and coherence. It was shown that the correspondence theory of truth is reflects the same principles of empiricism whereas the coherence theory of truth reflects those of rationalism.

The section following this discussed the core assumptions of JDM namely that humans are rational, that decisions follow norms and that outcomes achieve utility. It was shown that the concept of rationality can be divided into the unbounded rationality of neoclassical economics and the bounded rationality proposed by Herbert Simon. It was further shown that norms for unbounded rationality are typically strict logical and mathematical whereas bounded rationality relies on simple rules. Finally it was shown that, within the context of unbounded rationality, utility is maximised in contrast to bounded rationality where utility is the satisficing of aspiration levels through the use of search.

[79] For example Herbert Simon notes that bounded rationality appears in neoclassical economics in: Simon, H.A. 1997. *Models of Bounded Rationality* (3): 294

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Chapter 3

Information and truth in Gigerenzer's Fast & Frugal Heuristics

3.1 Introduction

The F&FH programme developed by Gerd Gigerenzer offers an alternative perspective on the function of heuristics within the decision making process. This chapter will provide an overview of the programme with the goal of establishing key questions on the issue of truth within the Fast & Frugal context. The chapter will introduce the programme of H&B and proposes that F&FH is a response to two key issues found in the former approach namely 1) norms, in terms of the way in which they are used to define rationality as well as which norms have been chosen for this purpose and, 2) the role of heuristics in study of decision making.

Once the differences between H&B and F&FH has been established, the F&FH programme will be discussed in terms of the three underlying questions posed by the founding researchers that relate to the nature of the adaptive toolbox, the character and function of ecological rationality, and the practical application of the theory. Following this, the search function will be introduced as it is first described by Herbert Simon and now by Gerd Gigerenzer specifically. The similarities and differences between these two approaches to search are discussed and graphically represented.

Finally the problem of information and truth within the Fast & Frugal programme is discussed in terms of the nature of information and the underlying truth condition. An example of a problem where information is manipulated is presented in order to define questions relating to the ability of F&FH to process disinformation.

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3.2 Challenging the standard of Heuristics & Biases

3.2.1 Introducing Heuristics & Biases

It has been established in Chapter 2 that normative theories of judgment are used as a standard against which actual decision making can be measured. In recent history it has become increasingly obvious that the concept of a fully rational man does not reflect the reality of the situation. People do not seem to make their decisions in accordance with the rigours of logic and probability.[80] Amos Tversky and Daniel Kahneman pioneered a programme that attempted to explain why this is the case. The programme became known as Heuristics & Biases (H&B).[81]

In the preface of the book *Judgment under uncertainty: Heuristics and Biases* Kahneman, Slovic & Tversky explain the origins of the programme: "The approach to the study of judgement that this book represents had origins in three lines of research that developed in the 1950s and 1960s: the comparison of clinical and statistical prediction, initiated by Paul Meehl; the study of subjective probability in the Bayesian paradigm, introduced to psychology by Ward Edwards; and the investigation of heuristics and strategies of reasoning, for which Herbert Simon offered a program and Jerome Bruner an example."[82] The origins presented by the authors provide a clear indication of the normative approach adopted by the authors: the work of Paul Meehl and Ward Edwards provided the normative aspect of the H&B programme[83], whilst Herbert Simon provided the theory behind heuristics. Jerome Bruner applied the concept of heuristics in education as he examined a so-called *heuristic of discovery*.[84] Using these influences Tversky & Kahneman states the underlying theme of their programme: "…people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations. In general, these heuristics are quite useful, but sometimes they lead to severe

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[80] This point is confirmed by Evans when he explains the paradox of human intelligence and bias in decision making: "…human beings are highly intelligent on the one hand and chronically biased in their reasoning and judgment on the other." In: Evans, J. St B.T. 1993. "Bias and rationality" in *Rationality: Psychological and Philosophical Perspectives* : 6

[81] Keren, G. & Teigen K.H. 2007. *Blackwell Handbook of Judgment & Decision Making*: 89

[82] Kahneman, D., Slovic, P. and Tversky, A. 1982. *Judgment under Uncertainty: Heuristics and Biases*: xi

[83] Chapter 2 expands on the point that probability and statistics form part of the normative standards of JDM.

[84] Bruner, J.S. 1979. *On Knowing: Essays for the Left Hand*: 94

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and systematic errors."[85] The systematic errors they refer to would then constitute the biases mentioned in the title of their article, as well as the name of their programme.

The H&B programme uses logic and probability theory as standards against which decision making is tested – where decision making veers off the norm, one or more biases are identified. These biases are attributed to the use of heuristics. The success of the programme attracted both praise and criticism, and created a platform for many studies that wished to test, confirm or otherwise critique the H&B approach.[86] One such line of study, primarily initiated by Gerd Gigerenzer, was to develop into a programme known as *Fast & Frugal Heuristics*.

3.2.2 Key issues that gave rise to Fast & Frugal Heuristics

The programmes of F&FH and H&B differ mainly in two aspects namely 1) norms, in terms of how they are used to define rationality as well as which norms were chosen by the H&B programme for this purpose, and 2) the role of heuristics in the aforementioned process. These differences provided the impetus needed for the development of the F&FH programme.

The matter that the F&FH and H&B programmes agree on is the systematic deviation from probabilistic norms. Laura Martignon provides the following insight: "Modern experimental psychology opened up a front in the war against the view of rational man as probabilist, in a flurry of work documenting the ways in which actual human reasoning differs from the probabilistic norm. These deviations were regarded by many as cognitive illusions, as proof that unaided human reasoning is riddled with fallacies (e.g. Tversky and Kahneman 1974)."[87] Richard Selten provides more clarity to the critique: "Full rationality requires unlimited cognitive capabilities. Fully rational man is a mythical hero who knows the solutions to all mathematical problems and can immediately perform all computations, regardless of how difficult they are. Human beings are in reality very different… [T]here is overwhelming evidence for substantial deviations from Bayesian rationality… : people do not obey Bayes' rule, their probability judgments fail to satisfy basic requirements like monotonicity with

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[85] Kahneman, D., Slovic, P. and Tversky, A. 1982. *Judgment under Uncertainty: Heuristics and Biases*: 3

[86] Keren, G. & Teigen K.H. 2007. *Blackwell Handbook of Judgment & Decision Making*: 89

[87] Martignon, L. 2002. *Bounded Rationality – The Adaptive Toolbo*x: 159

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respect to set inclusion, and they do not have consistent preferences, even in situations involving no risk or uncertainty."[88]

Decision theorists seem to agree that people do not make decisions using the norms of probability theory. What they seem to disagree on is whether deviation from these norms in fact constitute bad decisions. On the one hand there is the H&B programme that is quite clear about the perspective that heuristics induce biases, which in turn result in non-optimal decisions when using logic and probability as standards. More importantly, these biases are often described in a way that implies that normal human decision making is irrational or fallacious as Martignon explained above. This fallacious behaviour is then often attributed to the limits of human rational capacity: "Since the 1970s, researchers have documented discrepancies between a 'norm' (e.g., a law of probability or logic) and human judgment… the blame was put on the human mind rather than on the norm. The discrepancies were labelled 'fallacies,'… and attributed the humans' 'bounded rationality,' in the sense of limitations on rationality."[89] This constitutes the first point of difference between the H&B programme and that of F&FH: "Bounded rationality is, however, not simply a discrepancy between human reasoning and the laws of probability or some form of optimization. Bounded rationality dispenses with the notion of optimization and, usually, with probabilities and utilities as well. It provides an alternative to current norms, not an account that accepts current norms and studies when humans deviate from these norms. Bounded rationality means rethinking the norms as well as studying the actual behavior of minds and institutions."[90]

The two programmes also differ on how they perceive the role of heuristics within rationality. H&B sees heuristics as mental shortcuts that lead to fallacious decision making: "The meaning of the term heuristics, as first used by Kahneman and Tversky, was highly similar to its use in the problem-solving literature, by being considered to be simplified methods intended to cope with humans' limited processing capacity. They were also error prone, leading generally to acceptable (although imprecise) estimates, but under certain

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[88] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 38

[89] Gigerenzer, G. and Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 5

[90] Gigerenzer, G. and Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 6

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circumstances, to systematic biases."[91] However, the F&FH programme is positive about heuristics, partly because researchers like Gigerenzer were able to prove that the use of heuristics can improve decision making in many situations: "When optimal solutions are out of reach, we are not paralyzed to inaction or doomed to failure. We can use heuristics to discover good solutions."[92] Rather than define heuristics as potentially irrational decision making shortcuts, F&FH defines heuristics as tools that help us achieve rational decisions: "…a heuristic is a rule whose purpose is to describe the actual process – not mere the outcome – of problem solving."[93]

3.2.3 Behaviourism and positivism as common origin

Behaviourism is an approach within psychology that was founded by John B. Watson[94] and to which its prominence can be attributed in large part to the work of Burrhus F. Skinner who maintained an approach known today as *Radical Behaviourism*.[95] The basic tenets of this approach hold that 1) the primary determinant of human behaviour is the environment,[96] and 2) that an understanding of human psychology can only come from observing their behaviour.[97] Behaviourists generally reject the idea that the primary force of behaviour is comes from "the mind" with some going so far as to reject the concept of "mind" altogether.[98] The behaviourist approach can be seen as an expression of the empiricist approach. The behaviourist believes that one gains knowledge through observation, and that there is no intangible truth, only knowledge that reflects reality.

It is generally accepted, in the history of the development of psychology as a science, that behaviourism as a so-called school of thought was supplanted by what is often called the

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[91] Keren, G. & Teigen K.H. 2007. *Blackwell Handbook of Judgment & Decision Making*: 93

[92] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 67

[93] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 68

[94] Marx, M.H. & Hillix, W.A. 1979. *Systems and Theories in Psychology*:125

[95] Ringen, J. 1999. "Radical Behaviorism: B.F. Skinner's Philosophy of Science" in *Handbook of Behaviorism*: 160

[96] Marx, M.H. & Hillix, W.A. 1979. *Systems and Theories in Psychology*: 144 - 145

[97] Sternberg, R.J. 1996. *Cognitive Psychology*: 11

[98] Sternberg, R.J. 1996. *Cognitive Psychology*: 11
Marx, M.H. & Hillix, W.A. 1979. *Systems and Theories in Psychology*:126

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cognitive revolution. Bernard Baars provides an in-depth account of the events and nature of the cognitive revolution, and in principle explains that there was a steady move away from the behaviourist approach to include what he calls "theoretical imagination" where psychologists started to take note of the cognitive aspects that play a role in human behaviour: "…the cognitive metatheory [is] the belief that psychology studies behavior in order to infer unobservable explanatory constructs, such as 'memory', 'attention' and 'meaning.'"[99] The cognitive revolution is often portrayed as a change in approach to the study of psychology that was a reaction against behaviourism; George Miller refers to it as a counter-revolution that "brought the mind back into experimental psychology."[100] Herbert Simon cautions though that one should not see cognitive revolution as opposite to the behaviourist approach, as the former relies heavily on the theories and methodologies developed by the latter.[101]

It cannot be said that either the H&B programme or the F&FH programme is behaviourist in their respective approaches, however there are particular similarities and emphases that indicate a behaviourist influence. Within the H&B programme the emphasis on decision making *behaviour* as an indicator of the decision making process relates strongly to the behaviouristic approach as was shown in the previous sections. As will be shown in the sections that follow, the F&FH programme not only places a similar emphasis on behaviour as an indicator of process, but also places in large part emphasis on the environment as the determining factor for the heuristics that are used during the decision making process. This is apparent when Gigerenzer states: "What has been called the 'cognitive revolution'… is more than the overthrow of behaviorism by mentalist concepts. These concepts have been continuously part of scientific psychology since its emergence in the late 19th century, even coexisting with American behaviorism during its heyday (Lovie, 1983). The cognitive revolution did more than revive the mental; it has changed what the mental means, often dramatically. One source of this change is the tools-to-theories heuristic, with its new analogy

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[99] Baars, B.J. 1986. *The Cognitive Revolution in Psychology*: 144

[100] Miller, G.A. 2003. "The cognitive revolution: a historical perspective" in *TRENDS in Cognitive Sciences,* 7(3): 142

[101] Simon states: "This circular view of history is wholly counterfactual. The 'cognitive revolution' (I even used the phrase in my opening summary) did not destroy either behaviorism or Gestalt psychology. It drew liberally upon both of them, both for experimental data and for concepts." In: Simon, H.A. 1992. "What is an 'Explanation' of Behavior?" in *Psychological Science,* 3(3): 150 - 151

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of the mind as an intuitive statistician. To show the discontinuity within cognitive theories, I briefly discuss two areas will be briefly discussed in which an entire statistical technique, not only a few statistical concepts, became a model of mental processes: (a) stimulus detection and discrimination and (b) causal attribution."[102] Stimulus detection and discrimination as well as causal attribution are methodologies that can be strongly linked to methodologies developed in the behaviourist approach – the cognitive revolution might have brought the mind back into psychology, but the traditional methods of experimental research reflect the positivist notion that observation is the way to gain knowledge.

3.3 The adaptive toolbox, ecological rationality and practical application

According to Gigerenzer et al.: "The program of fast and frugal heuristics centers on three questions. The first concerns the adaptive toolbox: What heuristics do organisms use? Answering this involves identifying heuristics, their building blocks, and the evolved capacities that these exploit. The second concerns ecological rationality: What are the environmental structures in which a given heuristic works well or poorly, and how do people adapt heuristics to these structures? The third question concerns applications: How can the study of ecological rationality inform the design of heuristics and environments to improve decision making?"[103] If the programme of F&FH is to be understood, then understanding how it defines and uses the three areas of study will provide a foundation.

3.3.1 The adaptive toolbox

Gigerenzer introduces the concept of the adaptive toolbox that "promotes a specific vision of bounded rationality based on three premises" namely psychological plausibility, which implies a more realistic goal of understanding human decision making as it truly happens rather than how it theoretically should happen; domain specificity, which describes heuristics

[102] Gigerenzer, G. 1991. "From Tools to Theories: A Heuristic of Discovery in Cognitive Psychology" in *Psychological Review,* 98(2): 256

[103] Gigerenzer, G., Goldstein, D.G. & Hoffrage, U. 2008. "Fast and Frugal Heuristics Are Plausible Models of Cognition: Reply to Dougherty, Franco-Watkins, and Thomas (2008)" in: *Psychological Review 2008*, 115(1): 230

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as specialised rather than domain general; and ecological rationality, in reference to "the study of the match between heuristics and environmental structures".[104]

Gigerenzer notes: "From a functional view…consistency in choice and judgment is not a general norm to follow blindly, but rather a tool for achieving certain proximal goals. For a given goal, consistent behavior can be an advantage, a disadvantage, or unimportant. For example, in cooperative relationships within families and businesses, some forms of consistent behaviors seem to be indispensable. They contribute to producing and maintaining a social climate of trust, fairness, and commitment. In competitive relationships, however, strategies with built-in inconsistencies can be an advantage."[105] He goes on to clarify what the tools within the adaptive toolbox is: "The adaptive toolbox offers a collection of heuristics that are specialized rather than domain general as would be the case in subjective expected utility (SEU)."[106] Heuristics seem to be bound to the environment within which it most makes sense and are therefore domain specific. As such, the F&FH programme holds that human decision makers develop a toolbox filled with different domain specific heuristics.

In an in-depth review of advances in the F&FH programme, Todd provides experimental developmental and environmental evidence that heuristics are indeed adaptive. In terms of experimentation, Todd provides an example of an experiment conducted by Goldstein & Gigerenzer in 1999 that tested participants for the use of the recognition heuristic. Even though Todd notes some possible interpretation challenges, "92% of the inferences made by participants still agreed with the recognition heuristic."[107] Todd further provides the example of work done by Elman in 1993 who discovered that the often studied "less is more effect" was very true for language acquisition experimentation in a neural network. When Elman initially restricted the memory of the neural network, it learned underlying grammatical rules from short sentences that allowed it to form more complex relationships as its memory was

[104] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 38

[105] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 41

[106] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 38

[107] Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 63

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expanded.[108] Finally Todd points out that environmental evidence comes in the form of people restructuring their environments for higher degrees of efficiency.[109]

An important feature of the adaptive toolbox, and perhaps fast and frugal heuristics in general, is that it is conceptualised as something that developed in an evolutionary manner: "…everyday decision tasks, such as deciding which of two objects is larger and thereby a greater threat or benefit, memory and processing power would not be constrained *within* which evolution had to work – these are the elements that evolution had to work with, to shape and extend as necessary to meet the selective demands at hand."[110] Gigerenzer confirms the point in discussing the role of the environment in quick estimation: "…the ability to estimate the size of social groups accurately might have been of value in a number of circumstances encountered by our evolutionary ancestors, for instance, when they had to make quick decisions about whether to threaten to fight over resource with other families, clans, or tribes."[111]

From the above it follows that heuristics are domain specific and adaptive tools that humans (and perhaps other organisms) use to make decisions. In developing the adaptive toolbox of bounded rationality, Gigerenzer challenged the standard of H&B by developing a framework for rationality that fundamentally differs from that used by the H&B programme.

3.3.2 Ecological rationality

The concept of ecological rationality within the framework of F&FH has been developed as a means to posit a theory explaining why and when bounded rationality works[112]: "The 'rationality' of domain-specific heuristics is not in optimization, omniscience, or consistency. Their success (and failure) is in their degree of adaptation to the structure of environments, both physical and social. The study of the match between heuristics and environmental structures is the study of ecological rationality."[113] Gigerenzer chose this model as it explains

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[108] Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 65

[109] Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 66

[110] Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 52

[111] Gigerenzer, G. et al. 1999. *Simple Heuristics That Make Us Smart*: 219

[112] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 46

[113] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 38

how decisions that may seem irrational from the perspective of the neoclassical economic man, can be regarded as fully rational as a result of the information found within a particular environment.[114] The decision maker searches for cues from the environment and selects an alternative if cues favour one in particular. Ecological rationality is therefore a kind of bounded rationality that aims to describe the way in which heuristics match the environment within which it makes sense.

Peter Todd provides this insight in discussing the application of fast and frugal heuristics for "environmentally bound minds": "The selective forces impinging on our cognitive evolution largely came instead from outside our heads, from our interactions with the world and the people and organisms in it. Thus, the most important bounds that shaped our evolving rationality were not internal, mental factors, but rather external, environmental ones."[115] In asking "where do new ideas come from?" Gigerenzer notes the following: "New tools can suggest new scientific ideas and metaphors about nature, society, and the mind. When this happens, we can trace discoveries back to the changing technological environment in which they evolved rather than attributing them to some mystical process inside the scientist's head. In this sense, new *in*sights can come from *out*side the mind."[116] What is interesting about these points is that they strongly reflect an empiricist point of view and as such may suffer from the same problems that George Ladd referred to when he talked about empiricism that excludes a rational process.

3.3.3 Practical application

F&FH is not a fully normative theory in the traditional sense of the word – as a theory built on bounded rationality it provides an alternative to the norms found in that of the H&B programme. Gigerenzer provides some clarification as to where the theory fits into the larger JDM framework: "The study of smart heuristics is concerned with identifying (1) the building blocks of heuristics, and (2) the structures of environments that a given heuristic can exploit, that is, the kind of problems it can solve. In other words, its first objective is the study of the adaptive toolbox, and the second that of ecological rationality, with aims that are

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[114] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 47

[115] Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 52

[116] Gigerenzer, G. 2000. *Adaptive Thinking: Rationality in the real world*: 1

both descriptive and prescriptive."[117] Gigerenzer explains that studies concerning the adaptive toolbox is generally descriptive and makes it possible to make quantitative and qualitative predictions. He further notes that the study of ecological rationality is both descriptive and prescriptive: "Its [i.e. the study of ecological rationality] results concerning the match between heuristics and structures of the environment can be used to derive hypotheses about people's adaptive use of heuristics. These results also carry prescriptive force. For instance, when the available information is noncompensatory, we can recommend a fast and frugal tree for classification."[118] He finally closes the gap when he states that "[t]he systematic study of fast and frugal heuristics can provide normative recommendations on an empirical basis, even when we can never know the best solution."[119] Gigerenzer effectively argues that the study of F&FH in terms of the adaptive toolbox and ecological rationality can deliver normative, descriptive and prescriptive theories and applications.

Figure 3 provides a graphical overview of Gigerenzer's argument regarding the practical application of the Fast & Frugal programme:

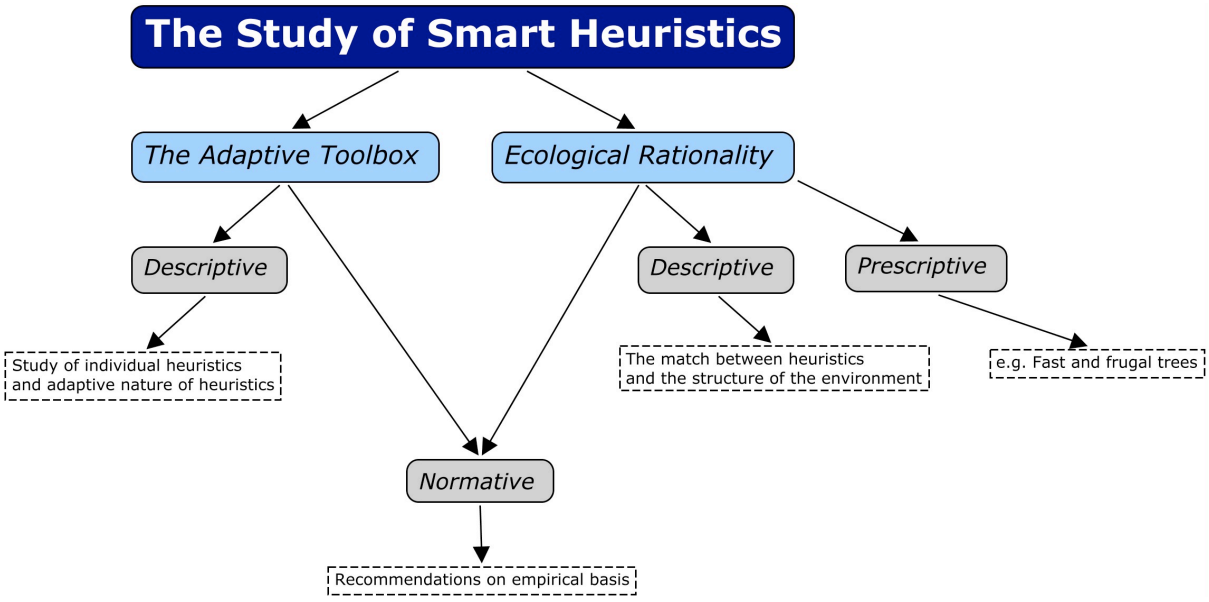

Figure 3 - The study of smart heuristics

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[117] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 83

[118] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 83

[119] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 83

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3.3.4 The purpose and assumptions of F&FH

F&FH was initiated as a response to the issues Gigerenzer found with the H&B programme. Specifically, he rejected the notion of an unboundedly rational agent with the unlimited capacity to maximise his or her utility through complex algorithmic calculations as regulative ideal. Instead, Gigerenzer proposed that rationality is ecologically bounded and rather than maximise utility through complex calculation, decision makers choose to satisfy their goals by searching for cues to an alternative that can indeed do so.

In the first chapter of "Bounded Rationality: The Adaptive Toolbox" edited by Gigerenzer and Selten, the purpose of the book closely reflects the agenda of those who subscribe to the Fast & Frugal paradigm: "This book…cannot and will not provide a unified theory of bounded rationality. Rather, its goals are (a) to provide a framework of bounded rationality in terms of the metaphor of the adaptive toolbox, (b) to provide an understanding about why and when simple heuristics in the adaptive toolbox work, (c) to extend the notion of bounded rationality from cognitive tools to emotions, and (d) to extend the notion of bounded rationality to include social norms, imitation, and other cultural tools."[120] Admittedly, he acknowledge that the theory of bounded rationality is yet to be completed, but as a means to promote the concept, Gigerenzer and his fellow researchers followed a path that provided a metaphor that describes the way in which human decision making is done in an effort to move away from the classical rational man.

It has been shown that the F&FH programme has the following features:

1. It subscribes to a particular form of bounded rationality, namely that of ecological rationality, that focuses on how cues from the environment allow decision makers to choose heuristics and apply them towards a satisfying fulfilment of a goal
2. Heuristics are seen as adaptive tools that determine how cues are searched, how the search is stopped and how decisions are made. They adapt to an environment, but also over time as decision makers learn new things.

[120] Gigerenzer, G. & Selten, R.2002. *Bounded Rationality – The Adaptive Toolbox*: 1

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3.3.5 Summary of claims made by Gigerenzer and other researchers about F&FH

The following claims have been found in literature within the F&FH programme – this is not an exhaustive take on all of the claims made by the researchers in question, but rather provides a number of repeated claims that are critical to the F&FH argument.

Gigerenzer claims in various sources that the use of heuristics is how people make decisions in real world situations e.g.:

1. "I will introduce you to the study of cognitive heuristics: how people actually make judgments and decisions in everyday life…"[121]

2. "This book is about fast and frugal heuristics for making decisions… From a descriptive standpoint, they are intended to capture how real minds make decisions under constraints of limited time and knowledge."[122]

One of the most obvious claims made by researchers in this programme is that heuristics are used by people as effective tools for decision making under the constraints of limited time and knowledge and are therefore fast and frugal. It is important to note that the same researchers do not make any claims that heuristics are 100% effective, but rather that in specific instances they can be at least as accurate as the normative models used by the H&B programme.[123]

In section 3.3.3 it was shown how Gigerenzer claims that F&FH can provide descriptive, prescriptive and normative insight in the field of JDM. The descriptive insights come from the study of the adaptive toolbox and ecological rationality – in the first instance the use and adaptation of heuristics are described whilst in the latter the structures of the environment is described. The prescriptive aspect comes from the study of ecological rationality where so-called fast and frugal trees can be prescribed based on an analysis of the given environment. Finally the overall study of fast and frugal heuristics provides "normative recommendations on an empirical basis."[124] Even though an explicit description of the nature of these

[121] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 62

[122] Gigerenzer, G. et al. 1999. *Simple Heuristics That Make Us Smart*: 5

[123] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 68

[124] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 83

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normative recommendations are difficult to find, Todd & Gigerenzer provides a valuable clue as to what it may entail when they say: "Fast and frugal heuristics that are matched to particular environmental structures allow organisms to be ecologically rational."[125] A rational decision, in the normative sense, is therefore one that consists of a match between a heuristic and an appropriate environment.

In summary then the programme of F&FH makes three major claims namely 1) that the use of heuristics reflects the way in which people make decisions in real world situations, 2) that these heuristics may be effective tools in making decisions in certain instances and 3) that the programme of F&FH provides normative, descriptive and prescriptive insights into the field of JDM.

3.4 The Search Function

The function of search appears in the work of Simon as well as that of Gigerenzer and has similarities as well as a few fundamental differences. Gigerenzer & Selten provide us with a first look into the concept: "A key process in bounded rationality is limited search. Whereas in models of unbounded rationality all relevant information is assumed to be available already, real humans and animals need to search for information first. Search can be for two kinds of information: alternatives (such as for houses and spouses) and cues (that is, for reasons and predictors when deciding between given alternatives). Search can be performed inside the human mind (memory) or outside (e.g. library, internet, other minds)."[126]

Simon's approach to search falls into the category of search for alternatives: "Most actual human choice begins with the recognition of the need for a decision, then proceeds to discover one or more alternatives that would meet this need. For a very wide range of human decision-making activities, the greatest part of the decision maker's time and effort is devoted to generating or identifying alternatives."[127] Selten provides more insight into Simon's approach to bounded rationality: "[Simon] described decision making as a search process guided by aspiration levels. An aspiration level is a value of a goal variable that must be

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[125] Gigerenzer, G. & Todd, P.M. 1999. "Fast and Frugal Heuristics" in *Simple Heuristics That Make Us Smart*: 18

[126] Gigerenzer, G. & Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 5

[127] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 321

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reached or surpassed by a satisfactory decision alternative."[128] One may then deduce that, in the decision making process as described by Simon, the following elements are found: a) a goal, b) an aspiration level, and c) alternatives. The process of search implies that a decision maker will search for alternatives that can satisfy a given aspiration level for a specific goal. When the aspiration level is reached the goal is satisfied. From there Simon developed the concept of satisficing. Where Simon emphasises the search for alternatives, Gigerenzer emphasises the search for cues: "…Simon's concept of satisficing involves search for alternatives, but not for cues (Simon 1955). Cues can be thought of as implicit in his concept of an aspiration level. On the other hand, the fast and frugal heuristics studied by our research group (Gigerenzer et al. 1999) search for cues and are designed for situations in which alternatives (such as job candidates or stocks) are already known."[129]

3.4.1 Aspiration levels

Aspiration levels is a term that can be found in Simon's description of the search for alternatives[130] as well as in Selten's exposition on a theoretical model called *aspiration adaptation* that attempts to "model the nonoptimizing behavior of boundedly rational economic agents…" Selten notes that one aspect of the theory is that decision making is modelled as a multi-goal problem and that each goal has a number of real-valued goal variables. Selten explains that "[i]n aspiration adaptation theory, an aspiration level is a vector of values for the goal variables."[131] What is of interest for this study is how goals come about – disinformation, as is shown in Chapter 4, may affect the development of goals in different ways. Selten points out that bounded rationality struggles with a proper understanding of motivation: "The human motivational system determines the goal pursued by boundedly rational decision making. Unfortunately we have no clear understanding of the interaction of different motivational forces. This is a serious difficulty for the development of a comprehensive theory of bounded rationality."[132]

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[128] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 14

[129] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 43 - 44

[130] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 323

[131] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 18

[132] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 32

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3.4.2 The environment

In reference to Simon's second proverbial scissor blade Gigerenzer criticises the neglect of analysis of the structure of environments when he says: "On the other hand, the analysis of the structure of natural environments has often been paired with a behavioristic anxiety about opening the black box of the mind." For him, studies of the environment rarely meet up with studies of the mind.[133] He provides a powerful example for this case: "Hundreds of papers were written in economics and psychology on the sunk cost fallacy, and hundreds of papers were written in evolutionary biology (by some of the most eminent biologists) on the Concorde fallacy – which is the same fallacy. There is not a single cross reference in these hundreds of papers, nor any awareness that both fields came to opposite conclusions…"[134]As a result Gigerenzer introduced the concept of ecological rationality: "The question of ecological rationality concerns the match between a strategy and an environment… Heuristics that are matched to particular environments allow agents to be ecologically rational…"[135] Instead of trying to define environments, Gigerenzer's adaptive toolbox places focus on the tools (heuristics) that are used to find information within those environments. As such the structure of the environment as seen through the lens of F&FH contains unknowns that are clarified through the use of fast and frugal heuristics.

The F&FH programme typically approaches decision making from the point of a single rational agent. However, it does acknowledge the importance of the social aspect of decision making – Gigerenzer makes note of a special case of ecological rationality that he calls *social rationality*: "The study of social rationality is a special case of ecological rationality when environments consist of other agent with which to interact… the adaptive toolbox contains boundedly rational strategies that employ social norms, social imitation and social emotions in addition to the cognitive building blocks outlined earlier."[136] In adding the social strategies to the adaptive toolbox, Gigerenzer attempts to accommodate the relational aspect of decision making. However, the programme still maintains the perspective of a single rational agent that incidentally interacts on a social level.

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[133] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 39 - 40

[134] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 11

[135] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 46 - 47

[136] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 49

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3.4.3 Heuristics

It has been shown earlier in the chapter that heuristics are seen in a somewhat negative light by researchers in the H&B programme. In F&FH however, heuristics are seen as the very tools used to make decisions. Heuristics are made up of building blocks which consist of search rules, stopping rules and decision rules. Gigerenzer provides an overview of the search rules: "Building blocks for guiding search includes random search, ordered search (e.g., looking up cues according to their validities), and search by imitation of conspecifics, such as stimulus enhancement, response facilitation, and priming."[137] Stopping rules apply when the cue or alternative found satisfies an aspiration level. Gigerenzer provides a few examples of such rules: "Simple rules for stopping search for cues are employed by Take The Best, Take The Last, and other heuristics, where search is stopped as soon as the first cue that favors one alternative is found (Gigerenzer and Goldstein 1996)."[138] In the same section Gigerenzer also notes that stopping rules can be non-cognitive (such as emotions). Decision rules follow search and stop rules. Gigerenzer points out that decision rules have typically been the focus of JDM models. He further notes that the way in which decisions are actually made need not be inferior in terms of accuracy than that of complex probability: "…this is not to say that fewer computations and less information imply significantly less accuracy, not to mention irrationality. For example, simple linear models that use only unit weights (+1 or -1), and forego the matrix computations linear multiple regression demands, can make predictions about as well as regressions."[139]

3.4.4 Cues

Merriam-Webster defines a cue as "a feature indicating the nature of something perceived."[140] Brunswik & Kimiya provide a more relevant definition: "A more broadly functionalistic view of perception would suggest an alternative interpretation of the factors of perceptual organization which at the same time would be well in keeping with modern learning theory. According to this view these factors would be seen as guides to the life-

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[137] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 44

[138] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 44

[139] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 45

[140] Merriam-Webster Online Dictionary. *Cue*: http://www.merriam-webster.com/dictionary/cue?show=1&t=1313670668. Accessed 18 August 2011

relevant physical properties of the remote environmental objects, and thus as playing a part in adjustment; in more technical language, they would be conceived of as proximal 'cues' to the so-called distal bodily reality."[141] According to this definition then, cues are relevant, physical properties of remote objects in the environment that plays a part in adjustment of perception. Cues are therefore the bits of information we perceive that help us adjust our perception towards a better understanding of reality. They carry information that can be generally defined as neutral.

3.4.5 Summary of approaches to search

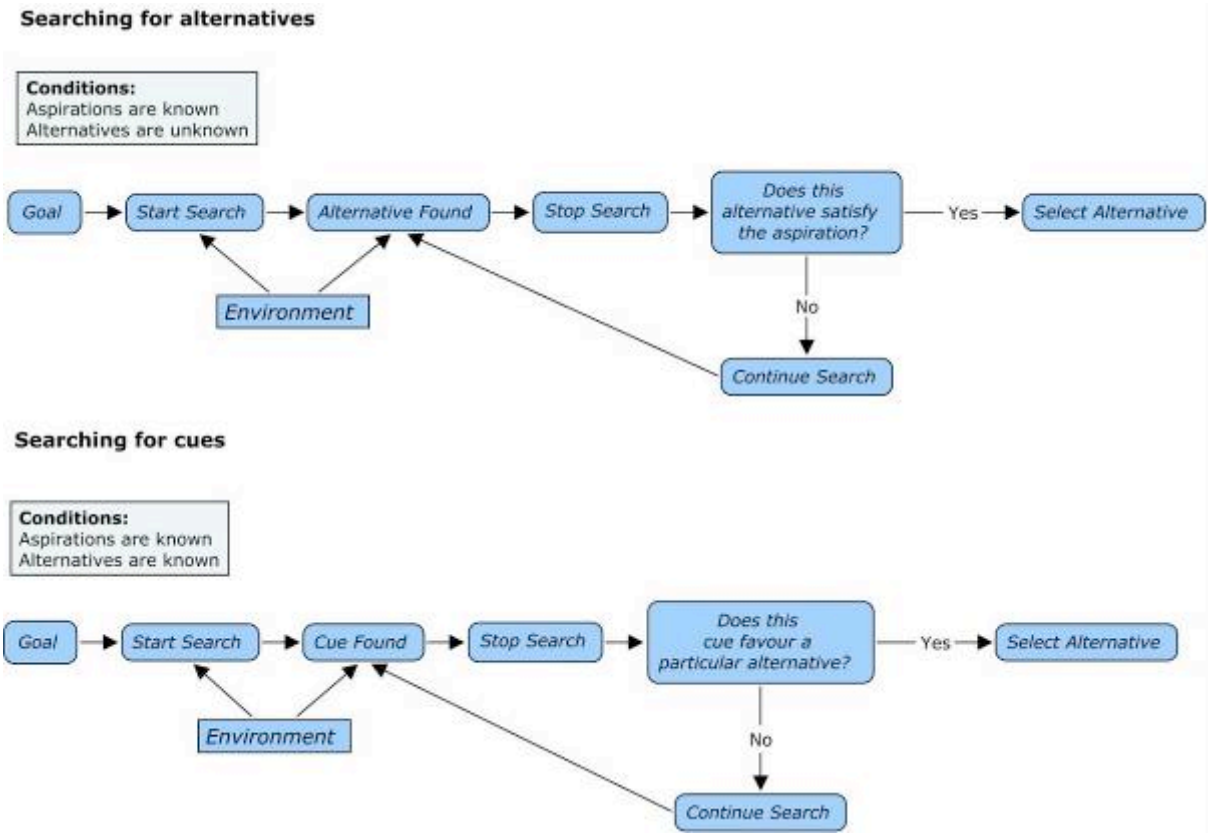

Figure 4 - Search classes

Figure 4 shows the differences between the search processes of Simon and Gigerenzer. The two approaches to search share a number of elements: firstly, there is a goal that provides the impetus behind the decision; secondly, there is the environmental structure that provides information about alternatives; thirdly there are the heuristics that function as specialised

[141] It must be noted that Brunswik and Kamiya were specifically defining cues as they relate to perception within an actual environment in: Brunswik, E. and Kamiya, J. 1953. "Ecological Cue-Validity of 'Proximity' and of Other Gestalt Factors" in*: The American Journal of Psychology* 66(1): 20

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search, stop and decision rules in assessing the validity of cues or alternatives; and finally there are the cues themselves (which is implicit in Simon's aspiration levels).

The search function as it pertains to Simon's version of bounded rationality assumes that, because the decision maker has limitations, all alternatives cannot be known. Search becomes a process of identifying or generating alternatives that satisfy the aspiration levels of a goal.[142] The search function as it pertains to F&FH assumes a specific environment for which a specific set of heuristics apply. These heuristics are divided into three kinds of rule sets namely search rules, stop rules and decision rules.[143] The process further assumes that the various alternatives are known and tries to describe how, within a specific domain with a known set of alternatives, cues are used to determine which alternative is sufficient to reach a goal.

3.5 Information and truth in F&FH

How do we know that a decision maker made a good decision? What is important for this study is to understand whether mechanisms exist within the F&FH framework that enables a decision maker to ascertain the *veracity* of cues. Studies have been conducted on the *validity* of cues; however, these studies typically focus on whether cues carry *useful* information that will guide the decision maker towards a specific alternative.[144] As such it is assumed in this study that cues are neutral in the sense that the decision maker perceives the cue without being required to judge its veracity because it assumed to be intrinsically true (its usefulness notwithstanding).

In his critique of Kenneth Hammond's take on the role of coherence and correspondence in JDM, Dunwoody states the following: "Hammond (1996; 2007) argued that there are two main camps of researchers in the field of judgment and decision making (JDM) who have each adopted different criteria for assessing the competence of human judgments and decisions. According to Hammond (1996; 2007) researchers in the Brunswikian tradition

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[142] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 321

[143] Gigerenzer, G. & Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 8

[144]For example categorisation tasks related to breast cancer Martignon, L. 2002. *Bounded Rationality – The Adaptive Toolbox*: 159

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tend to emphasize the correspondence of judgment with ecological criteria….while researchers in the Heuristics & Biases (H&B) program tend to assess coherence…"[145]

F&FH are the tools in Gigerenzer's Adaptive Toolbox that aim at explaining how people make good decisions in spite of their limitations. Taking the information in Chapter 2 into account, it is striking how the empiricist tradition of knowledge acquisition through experience is reflected in the search process described in F&FH. Searching for cues, as has been discussed, is equal to finding information from the environment that enables us to learn whether a specific option will provide a desired result. Knowledge is clearly gained from the environment. If F&FH builds on the empiricist tradition, it follows that it must rely on the correspondence theory of truth. This is confirmed when Gigerenzer & Todd states the following with regards to the focus of the ABC research programme: "…we study the correspondence-based performance of heuristics in real-world environments, situations where optimal coherent strategies are often not known or feasible."[146]

3.6 Criticisms of the F&FH Programme

3.6.1 Issues noted by researchers within the programme

The F&FH programme is comparatively young and is constantly undergoing changes. Many researchers, including those who founded the programme, are relatively open about the shortcomings the programme suffers. In the opening chapter of their book on bounded rationality, Gigerenzer & Selten clearly states that the book "cannot and will not provide a unified theory of bounded rationality."[147] The first shortcoming is that of a lack of a unified theory of bounded rationality. Selten goes so far as to state that "bounded rationality cannot be precisely defined."[148] A possible reason for this problem lies in the criticism that Gigerenzer & Selten has of the divide between different academic disciplines when they state that "the lack of information flow between disciplines can hardly be underestimated." They

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[145] Dunwoody, P.T. 2009. "Theories of truth as assessment criteria in judgment and decision making" in *Judgment and Decision Making*, 4(2): 117

[146] Gigerenzer, G. & Todd, P.M. 1999. "Fast and Frugal Heuristics" in *Simple Heuristics That Make Us Smart*: 28

[147] Gigerenzer, G. & Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 1

[148] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 15

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posit that different disciplines have found answers to the same problems, yet because the information is rarely shared, the proverbial wheel is constantly reinvented.[149]

Selten highlights a second major problem: "The human motivational system determines he goal pursued by boundedly rational decision making. Unfortunately we have no clear understanding of the interaction of different motivational forces. This is a serious difficulty for the development of a comprehensive theory of bounded rationality."[150] This study goes into some detail on the motivations of advertisers and how it influences the way in which they use language with the aim of eliciting a reaction from consumers. Motivations are a critical element in the study of decision making that may not yet be fully understood in the F&FH context.

In the study of heuristics, Todd highlights a number of potential issues such as the best way to measure performance increases in comparing traditional optimisation models and F&FH. He also mentions the possible problem of unrealistic testing environments as there is no agreed upon format for what a realistic environment entails. He also highlights the problem that in some tests participants apparently used different heuristics for the same environment which goes against the idea of a domain specific heuristic. He finally reflects on the lack of multiple perspectives on tests performed to identify the use of heuristics and argues that more perspectives are required to confirm the validity of these early findings.[151] What this highlights is that the F&FH programme is still young and lacks specific support in its approach and findings.

In a group report on why and when simple heuristics work, Goldstein, et al concluded the chapter with a section called "What we do not yet understand". In this section they highlight some critical issues such as the fact that there isn't an adequate description of the environmental structure, that there is a lack of precise models of heuristics and that there is a lack of understanding how the proverbial scissor blades fit together.[152]

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[149] Gigerenzer, G. & Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 10

[150] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 32

[151] Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 67 - 68

[152] Goldstein, D.G. et al 2002. *Bounded Rationality – The Adaptive Toolbox*: 15

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In summary: the F&FH programme is young with a variety of areas that are unexplored, unexplained or even contradictory. It has some prominent shortcomings of which the lack of a unified theory for bounded rationality and the missing link between the cognitive and environmental stands out.

3.6.2 Criticisms from researchers outside of the F&FH programme

Criticism of the F&FH programme is rarely fundamental or overarching. Rather, researchers within the field of JDM tend to criticise F&FH from within the field which leads to criticisms that are typically related to specific methodologies or specific heuristics. This section provides examples of criticisms of F&FH.

Dougherty et al. attempted to develop an argument to prove that fast and frugal heuristics are psychologically implausible by criticising the underlying theory of probabilistic mental models. In their study they developed four points namely 1) that the automatic frequency counter assumption is not well supported in literature, 2) that the definition of cue validity is flawed, 3) that, as a result of the previous points, validity-guided generation is unlikely and instead a memory retrieval processes likely supersede cue validity processes, and 4) that the recognition principle violates accepted memory principles and ignores assumptions of ecological rationality.[153] Gigerenzer et al. responded by systematically refuting each of the points.[154] However, in a counter-response in their postscript, Dougherty et al. made note that, in view of Gigerenzer et al.'s response, they found the description of processes related to cue inference and memory to be vague. They also noted that there is lack of clarity as to the basis of the claimed rank ordering of cues in the Take The Best heuristic. Finally they raised a question regarding the size to which the adaptive toolbox can grow.[155] Gigerenzer et al. provided a second response that rejected any claims of vagueness and did not provide any clear response to the final question posed by Dougherty et al.[156]

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[153] Dougherty, M.R. 2008. "Psychological Plausibility of the Theory of Probabilistic Mental Models and the Fast and Frugal Heuristics" in *Psychological Review*, 115(1): 199

[154] Gigerenzer, G. et al. 2008. "Fast and Frugal Heuristics Are Plausible Models of Cognition: Reply to Dougherty, Franco-Watkins, and Thomas (2008)" in: *Psychological Review*, 115(1): 230 – 239

[155] Dougherty, M.R. 2008. "Psychological Plausibility of the Theory of Probabilistic Mental Models and the Fast and Frugal Heuristics" in: *Psychological Review*, 115(1): 213

[156] Gigerenzer, G. et al. 2008. "Fast and Frugal Heuristics Are Plausible Models of Cognition: Reply to Dougherty, Franco-Watkins, and Thomas (2008)" in: *Psychological Review*, 115(1): 238 – 239

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Michael Birnbaum made a successful attempt at criticising the priority heuristic as it relates to risky decisions. He made the following conclusions: "First, their heuristic is not descriptive of certain data that they did not review. Second, their analysis relied on a global index of fit, percentage of correct predictions of the modal choice. Such analyses can lead to wrong conclusions when parameters are not properly estimated from the data. When parameters are estimated from the data, CPT and TAX fit the D. Kahneman and A. Tversky (1979) data perfectly. Reanalysis shows that TAX and CPT do as well as the priority heuristic for 2 of the data sets reviewed and outperform the priority heuristic for the other 3. Third, when 2 of these sets of data are reexamined, the priority heuristic is seen to make systematic violations. Fourth, new critical implications have been devised for testing the family of lexicographic semiorders including the priority heuristic; new results with these critical tests show systematic evidence against lexicographic semiorder models."[157] In short, Brandstätter et al. admitted that the heuristic would not necessarily work for all data sets, and argued that this fact supports the "adaptive toolbox" approach. They also argued that they did not attempt to fit, but rather to predict, which they mean is a critical distinction when discussing the issue at hand. They further argued that the contention made by Birnbaum that they were selective in their choice of data is unfair as their study tested a wide variety of models against an even wider variety of problems, which they regard as a unique in that manner.[158]

Campitelli & Gobet raised the following issue: "Our own criticism to Gigerenzer's approach is that, although he carried out research with experts (e.g., Gigerenzer, 1996b; Hoffrage, Lindsey, Hertwig, & Gigerenzer, 2000), he did not use the potential of Simon's expertise approach. In the expertise approach, both the cognitive system and the environment are independent variables that adopt different levels. Gigerenzer used ecological environments (which is a positive aspect of his approach) but did not vary them. Consequently, the importance of fast and frugal heuristics might be an artefact of the range of tasks and individuals used in these experiments. In other words, decision making is likely to require more than fast and frugal heuristics, in particular when expertise increases… It is paradoxical that there are so few cross-citations between Klein and Gigerenzer, given that both

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[157] Birnbaum, M.H. 2008. "Evaluation of the Priority Heuristic as a Descriptive Model of Risky Decision Making: Comment on Brandstätter, Gigerenzer, and Hertwig (2006)" in: *Psychological Review*, 115(1): 253

[158] Brandstätter, E. et al. 2008. "Risky Choice With Heuristics: Reply to Birnbaum (2008), Johnson, Schulte-Mecklenbeck, and Willemsen (2008), and Rieger and Wang (2008)" in: *Psychological Review*, 115(1): 281 – 290

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approaches stress the importance of studying ecologically valid phenomena. It could be argued that Gigerenzer provided the formal models and laboratory data and Klein the real-world data."[159] In other words, not only can fast and frugal heuristics be seen as an artefact of the selective nature in which tasks were assigned to individuals, these writers contend that Gigerenzer is not testing the theory in real-world conditions.

A final example of criticism comes from Max Albert regards ecological rationality as overly simple: "From this description, it remains unclear how much is assumed to be known by the decision maker. Anyway, the highest level of the adaptive toolbox is a process of reinforcement learning. While reinforcement learning may describe some aspects of actual human decision making, it is certainly not a candidate for the decision rule we are searching for. Even if one could argue that it is rational to learn in this way, reinforcement learning cannot recommend itself. As a conception of rationality, ecological rationality is too simple."[160] This criticism clearly links the F&FH programme to the behaviourist tradition in psychology through its reference to reinforcement learning.

3.7 An example of how F&FH may function in a real world situation

In the Section 3.4 it was shown that cues (as they relate to the F&FH perspective) are pieces of information that act in a descriptive fashion to qualify an alternative from a set of known alternatives within a specific environment. It is also assumed that cues are neutral in terms of its veracity – cues are perceived and judged as valid, but its truth is not necessarily questioned. This creates a problem which is illustrated in the following speculative example[161]: A person enters a shop to buy a packet of sweets. If we use the principles of F&FH their decision making process will involve the limitations of the environment and a set of heuristics that will allow the shopper to search for cues that will result in a choice.

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[159] Campitelli, G. & Gobet, F. 2010. "Herbert Simon's Decision-Making Approach: Investigation of Cognitive Processes in Experts" in *Review of General Psychology*, 14(4): 357

[160] Albert, M. 2009. "Why Bayesian Rationality Is Empty, Perfect Rationality Doesn't Exist, Ecological Rationality Is Too Simple, and Critical Rationality Does the Job" in *RMM, Perspectives in Moral Science*, 0: 61

[161] The purpose of this example is to establish an argument around how fast and frugal heuristics could lead to less optimal decisions as a result of the manipulation of meaning and not to provide an empirically tested example of precisely how the Tallying heuristic works when selecting products in a shop, as such it acts as a thought experiment.

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In our example the shop has only two kinds of sweets – musk and peppermint. If the goal of the shopper is to mask bad breath, then their heuristics will stop their search when they find a cue that indicates which of the two options will satisfy their goal. There is a generally accepted connotation of fresh breath with peppermint, so cues that indicate which packet of sweets are peppermint will point the shopper in the right direction. In our example the first cue found is that of a label that clearly differentiates the two packets as "Peppermint" and "Musk". But what if the packet was mislabelled? The cue would then be valid, but not true, and lead the shopper to buy something that they didn't want.

We can change the example to include the concept of aspiration levels: The shopper has a particularly potent combination of onions and garlic for lunch and are on their way to a job interview. They enter the shop with the same goal namely that they need fresh breath, however, in this scenario the options for sweets are as follows:

- Packet 1 is musk flavoured and is labelled accordingly.
- Packet 2 is a well-known brand of mint flavoured sweets and is labelled "Strong Mint Lozenges."
- Packet 3 is a new brand of mint flavoured sweets and is labelled "Super Mints" with a tagline that states "Fresh Breath for up to 8 hours!*"

The shopper takes in the cues presented and eliminates Packet 1 as an option. The shopper has had previous experience with Packet 2 and knows that it works, but the effects of a single lozenge only lasts for around an hour. Based on the cues presented by Packet 3, namely that it lasts for up to eight hours, the shopper may be led to believe that this packet of sweets contains ingredients that are stronger than that of Strong Mints and chooses this packet instead. Within the F&FH framework one of the major constraints is that of time[162] – the shopper didn't notice the asterisk which, in very small print, provides an internet address to a web page that explains how the claim is substantiated. If the shopper had the time and immediate access to the internet, he would have found laboratory tests proving that the effects of each sweet lasts up to 30 minutes, and that one needs 2 sweets per hour to maintain a fresh breath. It is not incidental that the packet contains precisely 16 sweets, therefore

[162] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 292

allowing for "up to 8 hours of fresh breath". Here too the cue was valid and fulfilled the higher aspiration level to mask onion and garlic odour on the shopper's breath. The experience of using the product however proves that the aspiration level was not fully met and that "Super Mints" are in fact, about half as strong as "Strong Mints". What adds complexity to this example is the fact that the cue was not false – the claim that the mints will give you fresh breath for up to eight hours was completely true, yet it was presented in a way that *implied* greater efficacy than that of its rival product when in fact it was not the case.

F&FH might explain the decision making process in the second example as a case of "Tallying". Gigerenzer describes tallying as a heuristic where cues are randomly searched and tallied to show which object has the greater positive cue value. The object with the highest cue value is predicted to be the best option.[163] The following figure clarifies how Tallying applies in our example:

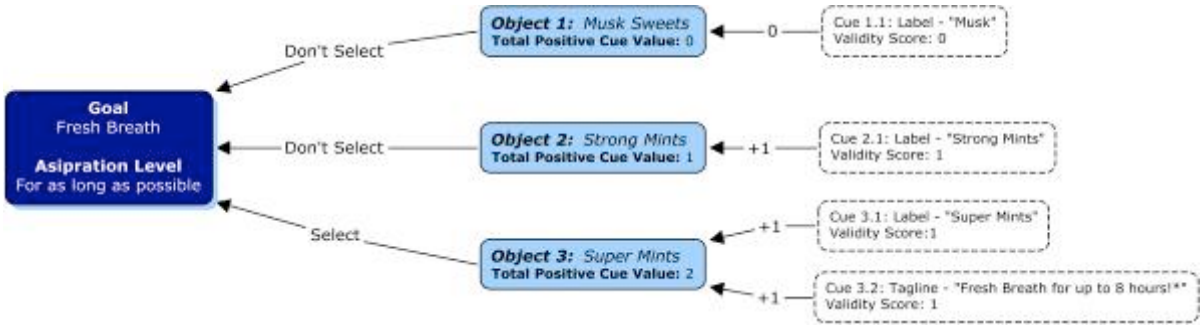

Figure 5 - The Tallying Heuristic

In our example we had three objects that could potentially fulfil the goal of "fresh breath" with an aspiration level of "for as long as possible". Object 1 was the packet of musk flavoured sweets that presented a single cue, namely its label ("Musk") that carries a 0 value for cue validity. Object 2 was the first packet of mint flavoured sweets that presented a single cue, namely its label ("Strong Mints") which carries a +1 value for cue validity. Object 3 was the second packet of mint flavoured sweets that presented two cues namely a) its label ("Super Mints") which carries a +1 value for cue validity and b) its tagline ("Fresh breath or up to 8 hours!*") which carries an additional +1 value for cue validity.

By simply tallying the valid or positive cues, the shopper finds that Musk has no positive cues for satisfying the goal. Strong Mints can potentially satisfy the goal at a known

[163] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 74

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aspiration fulfilment of one hour (as previous experience taught) and presents one positive cue. Super Mints can potentially satisfy the goal and presents a cue that claims aspiration fulfilment for up to 8 hours thereby presenting two positive cues (the label and the tagline). The tagline nullifies the known aspiration level of Strong Mints with its claim. The shopper tallies the positive cues and chooses Super Mints as it both fulfils the goals and purportedly satisfies the aspiration level more than would Strong Mints. As mentioned however, Strong mints are in reality the better option. The way in which Super Mints presented the cue affected the shopper's judgment and eventually provided an unsatisfying experience.

From the example two key problems arise – firstly the cues on the Super Mints packaging was manipulated to elicit a response based on a comparison to the more established brand of Strong Mints. The shopper did not find any cues indicating that the information was manipulated in this manner, and had no heuristics that would allow him to make such a judgment. Secondly, the information, albeit it factually true, had implications that were not necessarily true. The fact that the makers of Super Mints knew that their product would be placed in the vicinity of Strong Mints, gave them an opportunity to elicit an inference through comparison that *implied* a superior product, when in actual tests Strong Mints would still be a superior product. The example therefore raises the following questions namely:

1. How does the manipulation of meaning affect the perception of cues?
2. Can the veracity of cues be determined using the F&FH framework?

3.8 Conclusion

This chapter presented an overview of the F&FH programme of Gerd Gigerenzer in an attempt to raise specific questions regarding the ability of F&FH to uncover disinformation. Initially F&FH was juxtaposed against the H&B programme to show how the former was a response to the latter. The two programmes differ primarily 1) in terms of the selection of norms and the way it they are used to define rationality, and 2) the role that heuristics play in the decision making process. The two programmes share a common origin namely that of the behaviouristic approach in psychology.

The F&FH programme was described in terms of the three areas of research defined by the founding researchers namely that of the adaptive toolbox, ecological rationality and practical application of the resultant theories. It was shown that the adaptive toolbox consists of heuristics that adapt to the environment as required. Ecological rationality was described as a

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form of bounded rationality where the environmental structure acts as the bounds to the decision maker's ability to make rational decisions. It was shown that F&FH is regarded as a programme that can deliver normative insights, descriptive theories in terms of the adaptive toolbox and ecological rationality, and can be used in a prescriptive manner.

The search function was introduced in a comparative analysis of the approaches by Herbert Simon and Gigerenzer where it was found that cues provide information to the decision maker about the structure of the environment that could be used to determine an alternative that would satisfy a goal. It was proposed that cues are neutral in as much as they don't carry explicit truth value, but rather provides information that still needs to be interpreted by the decision maker. Various criticisms were discussed, both from researchers within the programme and from researchers outside of the programme. A speculative example was provided to show how cues can be valid, but not true. A second speculative example was provided to show how cues are valid and true, but lead to suboptimal decisions through false inferences based on implied information. Two key questions have been identified for further discussion in following chapters.

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Chapter 4

Disinformation: A language use strategy

4.1 Introduction

People use language to achieve goals. More importantly, in using language they may in fact be using disinformation to achieve their goals. The focus of this chapter is to show, through a careful historical and conceptual overview, that enterprises with a profit motive may use implicature-type disinformation as a means to create a competitive position for their product or service. The chapter will start off by discussing the use of *language as an act*; it will then be followed by a discussion on the use of *language as a strategic joint activity* that achieves goals. The concept of *implicature* is introduced along with the *Cooperative Principle* developed by Grice after which *motive* is discussed in terms of its definition and characteristics. A discussion around *profit motive* follows that leads into the forces experienced by enterprises that results in the use of *advertising* to gain a competitive position.

The chapter then provides an overview of the *historical development* of advertising and propaganda as an extension of rhetoric and its persuasive mechanisms for the purpose of contextualising the concept of disinformation. The argument is developed that current advertising strategies are heavily influenced by the development of rhetoric through the integration of the Jewish and Greco-Roman traditions, carried into the era of capitalism. A short overview of the salient historical events related to advertising is provided along with a brief discussion of the *major theories* related to persuasion that has been developed over the last century.

After the historical overview the chapter leads into a *definition of disinformation* followed by the *differentiation* of disinformation from misinformation, persuasion and deception. Finally a short discussion follows that indicates how implied information, or *implicata,* can be a form of disinformation.

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4.2 Using language

Language is "a finite system of elements and principles that make it possible for speakers to construct sentences to do particular communicative jobs."[164] This definition refers to the fact that language is something (a finite system of elements) that human beings *use* (to do particular communicative jobs). Herbert C. Clark confirms this notion when he says: "Language is used for doing things. People use it in everyday conversation for transacting business, planning meals and vacations, debating politics, gossiping…All these are instances of *language use*…"[165]

In its most fundamental form, language is used to convey meaning. Jeff Speaks discusses two theories of meaning namely theories that seek the semantic meaning of expressions (the meaning of specific symbols within the system of language) and foundational theories of meaning that pertains to how a social grouping gives meaning to the symbols they use in communication. Speaks clarifies the difference between these two theories as follows: "To see the distinction between semantic theories and foundational theories of meaning, it may help to consider an analogous one. Imagine an anthropologist specializing in table manners sent out to observe a distant tribe. One task the anthropologist clearly might undertake is to simply describe the table manners of that tribe—to describe the different categories into which members of the tribe place actions at the table, and to say which sorts of actions fall into which categories. This would be analogous to the task of the philosopher of language interested in semantics; her job is to say what different sorts of meanings expressions of a given language have, and which expressions have which meanings.

But our anthropologist might also become interested in the nature of manners; he might wonder how, in general, one set of rules of table manners comes to be the system of etiquette governing a particular group. Since presumably the fact that a group obeys one system of etiquette rather than another is traceable to something about that group, the anthropologist might put his new question by asking, 'In virtue of what facts about a person or group does that person or group come to be governed by a particular system of etiquette, rather than

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[164] Fasold, R. & Connor-Linton, J. 2006. "Introduction" in *An Introduction to Language and Linguistics*: 9

[165] Clark, H.C. 1996. *Using Language*: 3

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another?' Our anthropologist would then have embarked upon the analogue of the construction of a foundational theory of meaning: he would then be interested, not in which etiquette-related properties particular action types have in a certain group, but rather the question of how action-types can, in any group, come to acquire properties of this sort."[166] For the purpose of this study we will be more interested in the foundational approach to meaning, namely that we want to understand how communicators add meaning to, or generating meaning from, communicative acts. Meaning relates to our experience of the world, which includes people around us. Prashant Parihk explains it as follows: "What seems to be common amongst most uses of language is intended information flow between agents, via language. It has three aspects: intention, information and flow. [Information] has to do with how language refers to or connects with the world."[167]

J.L. Austin distinguishes three language acts namely locutionary, illocutionary and perlocutionary acts. Locutionary acts are performed when language is used to make a statement about something. Austin explains how using language is to do something, in other words, using language is an act in itself: "…to say something is in the full and normal sense to do something – which includes the utterance of certain noises, the utterance of certain words in a certain construction, and the utterance of them with a certain 'meaning' in the favourite philosophical sense of that word, i.e. with a certain sense and with a certain reference. The act of 'saying something' in this full normal sense I call, i.e. dub, the performance of a locutionary act…"[168]

An illocutionary act is performed along with a locutionary act and is the character of the locutionary act performed. Where a locutionary act is to make a statement, the accompanying illocutionary act is how it is said. Austin uses the example of the utterance: "Shut the door" - he means that at face value it isn't clear whether this is a statement or a warning: "To determine what illocutionary act is so performed we must determine in what way we are using the locution:

asking or answering a question,

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[166] Speaks, J. 2011. "Theories of Meaning" in *The Stanford Encyclopedia of Philosophy (Summer 2011 Edition)*: http://plato.stanford.edu/archives/sum2011/entries/meaning/. Accessed 25 October 2011

[167] Parihk, P. 2001. *The use of language*: 3

[168] Austin, J.L. 1955. *How to do things with words*: 94

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giving some information or an assurance or a warning,

announcing a verdict or an intention,

pronouncing sentence,

making an appointment or an appeal or a criticism,

making an identification or giving a description,

And the numerous like."[169]

Austin proceeds to clarify the point further by defining an illocutionary act as follows: "I explained the performance of an act in the new and second sense as the performance of an 'illocutionary' act, i.e. performance of an act *in* saying something as opposed to performance of an act *of* saying something…"[170]

Perlocution is the act of bringing about consequences with how we use language. Austin develops an in-depth argument around the definition of perlocution and provides this short description: "Thirdly, we may also perform perlocutionary acts: what we bring about or achieve by saying something, such as convincing, persuading, deterring, and even say, surprising or misleading."[171]

Austin provides the following example as a means to differentiate between the three kinds of language acts:

"Act (A) or Locution

He said to me 'Shoot her!' meaning by 'shoot' shoot and referring by 'her' to *her.*

Act (B) or Illocution

He urged (or advised, ordered, &c.) me to shoot her.

Act (C. *a*) or Perlocution

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[169] Austin, J.L. 1955. *How to do things with words*: 98.

[170] Austin, J.L. 1955. *How to do things with words*: 99.

[171] Austin, J.L. 1955. *How to do things with words*: 108

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He persuaded me to shoot her.

Act (C. *b*)

He got me to (or made me, &c.) shoot her."[172]

Using language therefore means that we are performing acts that provide information (locution), in a given way (illocution) that has a specific consequence (perlocution). This is all achieved by the use of a language system that consists of symbols, signs and sounds that carry some form of meaning about our experiences of the world.

4.3 The strategic use of language

The use of language is generally not something that happens in a vacuum or at random. In reference to Austin's description above, we use language in different contexts to convey information, in a specific manner, in order to achieve a result. Clark expands on this idea when he says: "What people do in arenas of language use is take actions. At a high level of abstraction, they negotiate deals, gossip, get to know each other. At a lower level, they make assertions, requests, promises, apologies to each other. In doing that they categorize things, refer to people and locate objects for each other. At yet a lower level, the produce utterances for each other to identify. And at the lowest level, they produce sounds, gestures, writing for each other to attend to, hear, see."[173] Clark's description of the levels of language use correlates with that of Austin (Figure 6):

[172] Austin, J.L. 1955. *How to do things with words*: 102

[173] Clark, H.C. 1996. *Using Language*: 18

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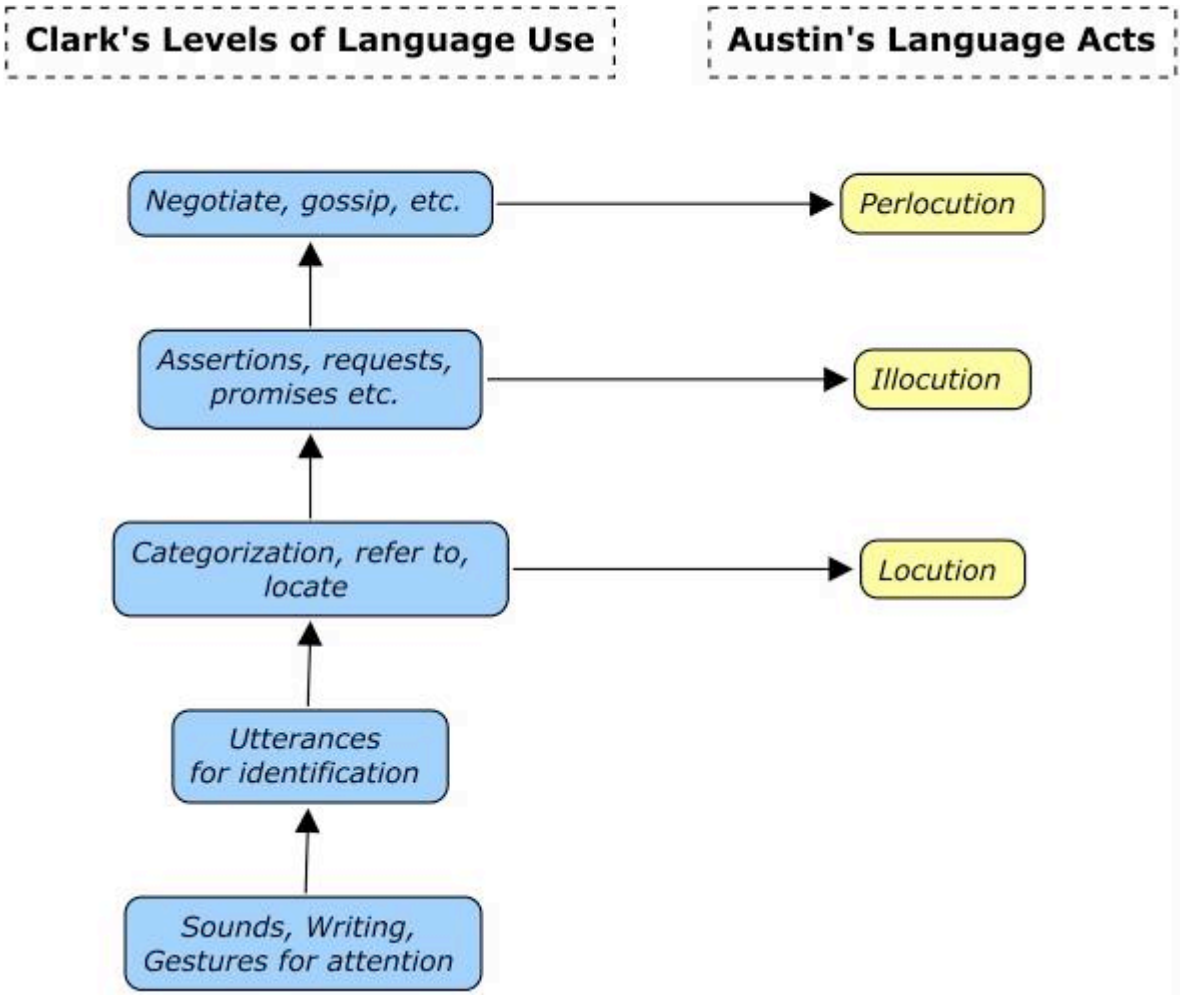

Figure 6 - Levels of Language Use and Language Acts

4.3.1 Language as a joint action

Both Clark and Austin's perspectives have two major points in common namely the idea that language is used for a purpose, and that this purpose is generally to achieve a goal.[174] Clark however, takes the idea further and provides a comprehensive study on the use of language as a joint action: "Language use is really a form of joint action. A joint action is one that is carried out by an ensemble of people acting in coordination with each other….It is a joint action that emerges when speakers and listeners – or writers and readers – perform their individual actions in coordination, as ensembles."[175] When we use language, we use it together, not as random actors uttering random sentences, but within a given context in coordination with each other. Clark states that joint activities and language use are in fact

[174] In line with the concept of perlocution.

[175] Clark, H.C. 1996. *Using Language*: 3

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inseparable: "Two or more people cannot carry out a joint activity without communicating, and that requires language use in its broadest sense. Yet whenever people use language, they are taking joint actions. Language use and joint activity are inseparable."[176] He further notes the following: "What makes an action a joint one, ultimately, is the coordination of individual actions by two or more people. There is coordination of both *content,* what the participants intend to do, and *processes*, the physical and mental systems they recruit in carrying out those intentions."[177]

What we can derive from the views of Clark is that language use as a joint action involves role players that are coordinated in terms of content and process towards the fulfilment of a goal.

4.3.2 Achieving goals

We know from the above that joint actions are goal oriented. Clark confirms the point and expands the idea further by identifying the different types of goals that exist in joint activities.[178] He mentions

1. the domain goal, which is the overall goal of the joint activity, such as transacting business, winning a chess game etc.
2. procedural goals, such as finishing the joint activity efficiently.
3. interpersonal goals such as being polite.
4. possible private agendas such as deception.

He then proceeds to divide these goals into public and private goals. He defines public goals as "openly recognized by all the participants" and private goals as "hidden from view".[179]

4.3.3 Cooperation

Paul Grice is credited with the discovery of the field of implicature.[180] Wayne Davis provides the following definition: "He [Grice] introduced the verb *implicate* and the cognate

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[176] Clark, H.C. 1996. *Using Language*: 29

[177] Clark, H.C. 1996. *Using Language*: 59

[178] Clark mentions that joint activities consist of joint actions in: Clark, H.C. 1996. *Using Language*: 59

[179] Clark, H.C. 1996. *Using Language*: 34 - 35

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noun *implicature* as technical terms denoting 'the act of meaning or implying something by saying something else.'"[181] Consider the following example:

Joe: I am hungry

Jack: There's a restaurant just down the street

Jack may have implied that the restaurant has food for Joe, but the sentence does not carry that information directly. Recognising the fact that language use is typically social and will involve other individuals, Grice developed the so-called Cooperative Principle that specifies four maxims [182] that will lead to effective communication. The four maxims are:

1. **Maxim of Quality**: Make your contribution true.
    a. Do not say what you believe to be false .
    b. Do not say that for which you lack evidence.
2. **Maxim of Quantity**: Be as informative as necessary
    a. Make your contribution as informative as required.
    b. Do not make your contribution more informative than is required.
3. **Maxim of Relation**: Be relevant.
4. **Maxim of Manner**: Be perspicuous.
    a. Avoid obscurity.
    b. Avoid ambiguity.
    c. Be brief.
    d. Be orderly.

Grice goes on to expand these maxims beyond conversational exchanges: "I have stated my maxims as if this purpose [of talk and talk exchange] were a maximally effective exchange of information; this specification is, of course, too narrow, and the scheme needs to be

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[180] Davis, W.A. 1998. *Implicature – Intention, Convention, and the Principle in the Failure of Gricean Theory:* 1

[181] Davis, W.A. 1998. *Implicature – Intention, Convention, and the Principle in the Failure of Gricean Theory:* 5

[182]Davis, W.A. 1998. *Implicature – Intention, Convention, and the Principle in the Failure of Gricean Theory:* 11 – 12

Grice, P. 1989. *Studies in the way of words*: 26 – 28

Clark, H.C. 1996. *Using Language*: 142

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generalized to allow for such general purposes as influencing or directing the actions of others."[183] The Cooperative Principle provides a broadly accepted norm against which effective information exchanges can be measured. On Grice's suggestion, these maxims can also be applied to other forms of exchange such as mending a car.[184]

Based on the information at hand we can define *language use* as: A series of *joint actions coordinated in terms of content and process* that make up a *joint activity* between two or more participants who want to *achieve* a variety of *private and public goals*.

4.4 Motive

Motive is defined as "a state of arousal that compels an organism to act"[185]; in relation to goals, it is also defined as "a highly aggregated class of goals, with variants of a basic theme being common to all of them."[186] Coon & Mitterer provides a more in-depth explanation: "Many motivated activities begin with a need, or internal deficiency… Needs cause a drive (an energized motivational state) to develop… Drives activate a response (an action or series of actions) designed to attain a goal (the 'target' of motivated behavior)."[187] Earlier it was confirmed that language use is a series of coordinated joint actions that make up a joint activity between two or more participants who want to achieve a variety of private and public goals. This section looks at the role of motive during language use as it relates to both the arousal to act and the aggregation of goals with a common theme.

4.4.1 The intersection of information, goals and action

The following figure provides a summary of what has been found in this study of language use so far:

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[183] Grice, P. 1989. *Studies in the way of words*: 28

[184] Grice, P. 1989. *Studies in the way of words*: 28 - 29

[185] "Motives and Goals" in *Encyclopedia of Applied Psychology:* http://www.credoreference.com.ez.sun.ac.za/entry/estappliedpsyc/motives_and_goals. Accessed 22 August 2011

[186] "Motives and Goals" in *Encyclopedia of Applied Psychology:* http://www.credoreference.com.ez.sun.ac.za/entry/estappliedpsyc/motives_and_goals. Accessed 22 August 2011

[187] Coon, D. & Mitterer, J.O. 2010. *Introduction to Psychology – Gateways to mind and behavior*: 320

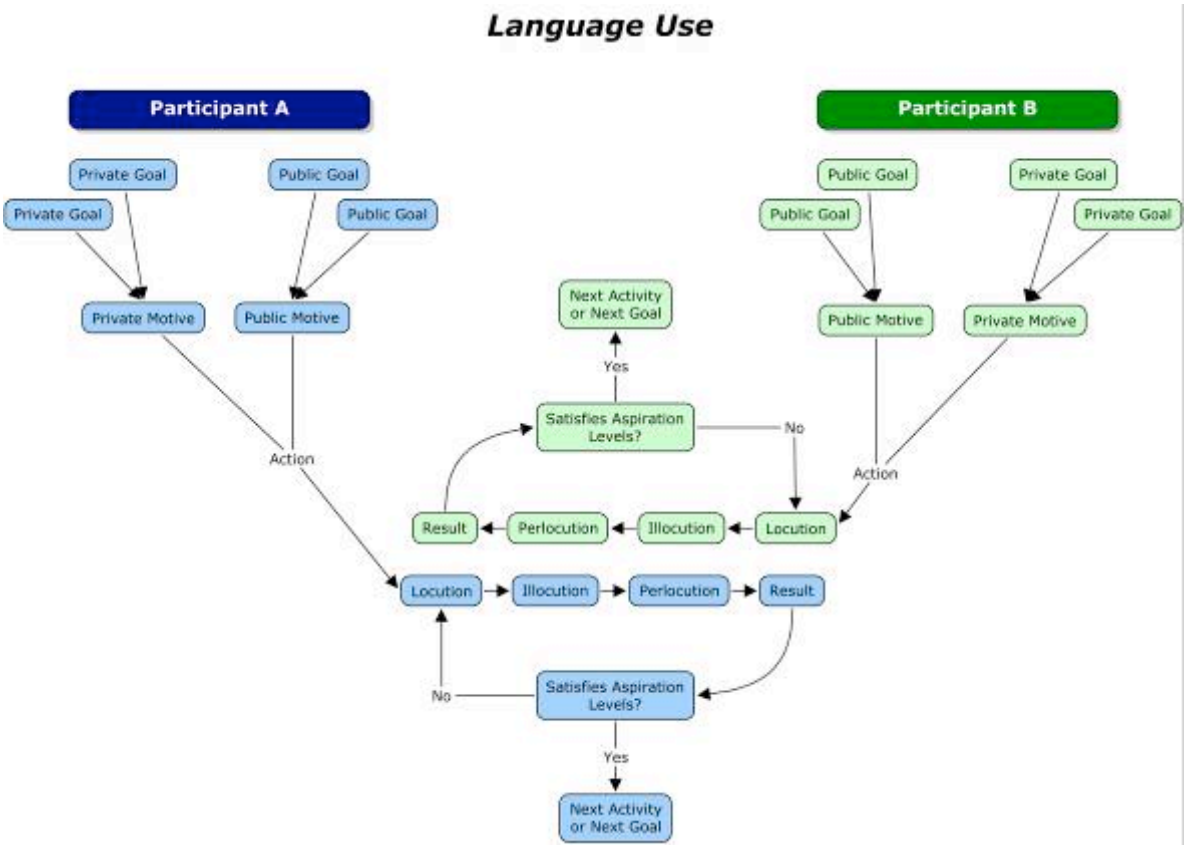

Figure 7 - Language Use in Summary

When language is used, information is transferred between two or more participants in a joint activity. This information can be explicit (locution), implicit (illocution and implicature) and is intended to result in a response, action or consequence (perlocution). The goals of the participants can be public or private. We can deduce from the definitions above that the goals of the participants are aggregated into motives, and that these motives spur them to action. If goals are public and private, then motives, as an aggregated class of goals, should also be public or private. It follows that the result of the joint activity is determined by the information exchange, the motives, the specific goals and the actual joint actions performed during the exchange.

4.4.2 Self-serving and selfless

Thomas Hobbes held the belief that humans are inherently self-serving. He developed an entire philosophy that defined humans as beings who, responding to their natural instincts, desire only to fulfil what he called *appetites*.[188] His perspective on human beings is

[188] "Hobbes, Thomas." in *The Essentials of Philosophy and Ethics*: http://www.credoreference.com.ez.sun.ac.za/entry/hodderepe/hobbes_thomas. Available 23 August 2011

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mechanistic and he compares people to *automata*[189]: "Nature (the art whereby God hath made and governes the world) is by the art of man, as in many other things, so in this also imitated, that it can make an Artificial Animal. For seeing life is but a motion of Limbs, the begining whereof is in some principall part within; why may we not say, that all Automata (Engines that move themselves by springs and wheeles as doth a watch) have an artificiall life? For what is the Heart, but a Spring; and the Nerves, but so many Strings; and the Joynts, but so many Wheeles, giving motion to the whole Body, such as was intended by the Artificer?" [190] Gregory Kavka discusses the philosophy of Thomas Hobbes and at one point discusses the validity that Hobbes was a *psychological egoist* [191]: "According to traditional interpretations, Psychological Egoism is one of the central elements of Hobbes's philosophy. It is derived from his mechanistic thery of human action and serves as a vital premise in Hobbes's famous arguments against anarchy, which ground his entire political theory."[192] He used this argument as a means to justify the creation of an authoritarian regime that has absolute control over people because "the Desires, and other Passions of man, are in themselves no Sin. No more are the Actions, that proceed from those Passions, till they know a Law that forbids them; which till Lawes be made they cannot know: nor can any Law be made, till they have agreed upon the Person that shall make it."[193] In other words, our motives that drive our actions, at least from Hobbes' point of view, must be governed by a law in order to establish some semblance of security from those very motives.

In contrast to Hobbes, Joseph Butler takes the concept of natural desires and provides a more selfless perspective.[194] He seems to agree that human nature contains "internal principles" that govern self-preservation, happiness and so forth. Different to Hobbes he extends the

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[189] Please note that the spelling was taken verbatim from the original document provided by The Gutenberg Project, referenced below

[190] Hobbes, T. 1651. "Introduction" in *Leviathan*: http://www.gutenberg.org/files/3207/3207-h/3207-h.htm. Accessed 23 August 2011

[191] Psychological Egoism is defined by Kavka as follows: "…the doctrine that all hman action is selfishly motivated." in: Kavka, G.S. 1986. *Hobbesian Moral and Political Theory*: 29

[192] Kavka, G.S. 1986. *Hobbesian Moral and Political Theory*: 44

[193] Hobbes, T. 1651. "The Incommodities Of Such A War" in *Leviathan*: http://www.gutenberg.org/files/3207/3207-h/3207-h.htm. Accessed 23 August 2011.

[194] Great Thinkers A-Z. 2004. *Joseph Butler*: http://www.credoreference.com.ez.sun.ac.za/entry/contgt/joseph_butler. Accessed 23 August 2011

"parts of man" that is served by the internal principles beyond the individual by saying that, in the same way as man has parts that make up the body, individuals make up similar parts of society. As a consequence, the individual desire to survive and live a happy life translates into selfless acts as the internal principles extend towards other members of society. Butler says: "The relation which the several parts or members of the natural body have to each other and to the whole body is here compared to the relation which each particular person in society has to other particular persons and to the whole society; and the latter is intended to be illustrated by the former. And if there be a likeness between these two relations, the consequence is obvious: that the latter shows us we were intended to do good to others, as the former shows us that the several members of the natural body were intended to be instruments of good to each other and to the whole body."[195]

In summary – motive may be seen as self-serving where individuals strive to fulfil only their personal goals, possibly at the detriment of those around them. Alternatively, the notion of selfless motive reflects the idea that the same drivers that urge individuals to do things for themselves, extends automatically towards the rest of society e.g. the drive to survive as an individual extends towards society in the form of medical services, food markets or any other such activity.

4.4.3 The profit motive

Adam Smith provided perhaps some of the most influential ideas of classical economics when he proposed the theory of an invisible hand that guides a free and open economy. In essence his position was that if all people were self-interested and motivated by profit, then the whole of society would prosper.[196] His perspective on the consequences of the self-serving nature of man reflects that of Butler – the good we afford ourselves naturally extends towards the rest of society. When one reads Smith's words, one finds that he was referring specifically to the employment of capital in *domestic* industry as opposed to importing goods

[195] Butler, J. 1887. "Sermon I: Upon Human Nature" in *Human Nature and Other Sermons*: http://www.gutenberg.org/files/3150/3150-h/3150-h.htm. Accessed 23 August 2011.

[196] Bloomsbury Guide to Human Thought. 1993. *Invisible Hand*: http://www.credoreference.com.ez.sun.ac.za/entry/bght/invisible_hand. Accessed 23 August 2011

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from elsewhere.[197] The benefits of the invisible hand seemed to have definite limits in terms of where it operated and who will benefit from the profit motive.

Kenneth Lux launches a searing attack on the profit motive in his article named *The failure of the profit motive* where he juxtaposes the concept of infinite growth to limited resources. In doing so he shows that, due to the fact that our natural resource system is closed, and the fact that economic growth equates to increases in material resource requirements, it is impossible to sustain infinite growth with in a finite system. He explains that the profit motive is directly related to an increase in wealth, which is directly related to an increase in resource consumption. Since the profit motive is central to the current economic culture, the implication is an unsustainable future. His solution is that we move away from self-interest towards the *common good* in order to attain sustainability.[198] Lux points out that the concept of self-interest found in Adam Smith's work can be translated into the concept of profit motive: "If self-interest is to have any useful meaning at all we must see that in economic practice it means what everyone takes it to mean, the profit motive, which is the desire to increase one's financial wealth."[199] Note that Lux does not define profit motive as the *maximisation* of financial wealth, but rather as *increasing* one's financial wealth. This distinction is important since it correlates with the concept of satisficing. Simon levels various criticisms even against the idea that firms aim for the maximisation of profits[200] and shows that firms often acted to increase profits only when difficulties arose or profits were falling below expectations.[201]

It has already established that a motive is an aggregated class of goals. Moreover, it was shown that there is credible criticism against the concept of maximisation of utility. It is accepted in this study that many different types of organisations of which some do not exist for the sake of making profits. The typical function of a *business enterprise* is to sell goods

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[197] Smith, A. 1776. *Inquiry into the Nature and Causes of the Wealth of Nations:* http://www.gutenberg.org/files/3300/3300-h/3300-h.htm. Accessed 23 August 2011

[198] Lux, K. 2002. "The Failure of the Profit Motive" in *Ecological Economics* 44: 1 - 9

[199] Lux, K. 2002. "The Failure of the Profit Motive" in *Ecological Economics* 44: 2

[200] He mentions that firms may seek to maximize some quantity other than profits, that executives may seek to maximize their own utility that may contradict that of the firm and that executives and other participants may identify with and attempt to maximize various sub-goals of a firm in: Simon, H.A. 1997. *Models of Bounded Rationality* (3): 282 – 284.

[201] Simon, H.A. 1997. *Models of Bounded Rationality* (3): 410

or services at a profit – Veblen states that "[t]he motive of business is pecuniary gain, the method is essentially purchase and sale. The aim and usual outcome is an accumulation of wealth."[202] The way wealth accumulates is through profits, generated by selling goods or services at a higher price than the cost of producing such goods or services.[203] In a business enterprise a profit motive exists, whether it is the maximisation or maintenance thereof is for the purpose of this study of no consequence other than the fact that in order to generate profits, sales must be made that would generate revenues in excess of costs.

In summary, it was shown that the aim of an enterprise is to make profit, and that this can be seen as a motive that consists of various goals that would satisfy the motive. There exists two perspectives on the profit motive that correlates with the views of Hobbes and Butler namely that of the self-interested economic agent to the detriment of society (Hobbes and Lux) and the economic agent concerned with the common good (Butler and Smith).

4.4.4 Competition, profits and the strategic use of language

If profits depend on the enterprise's ability to sell goods to a sufficiently large market then, within the profit motive of a business, there exists the goal of sales with an aspiration level that correlates with the expectation that income made from sales should exceed costs.

If sales were the only determinant of success, then business and economics as a subject would not have been the focus of hundreds of years' worth of study. Much rather the ability to sell goods and services is subject to various forces that pressure an enterprise to perform various activities that could counter the influence of these forces. Michael Porter defines the success of a firm as follows: "…firm success is manifested in attaining a competitive position or series of competitive positions that lead to superior and sustainable financial performance." [204] It can be inferred that this competitive position is a) related to other competitors that b) sell equivalent goods in c) the same market space.

Porter presents a model of five forces that erode long term profitability – Figure 8 refers:

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[202] Veblen, T. 1904. *The Theory of Business Enterprise*: 20

[203] The Hutchinson Unabridged Encyclopedia with Atlas and Weather Guide. 2010. *Profit*: http://www.credoreference.com.ez.sun.ac.za/entry/heliconhe/profit. Accessed 23 August 2011

[204] Porter, M.E. 1991. "Towards a dynamic theory of strategy" in *Strategic Management Journal*, 12: 96

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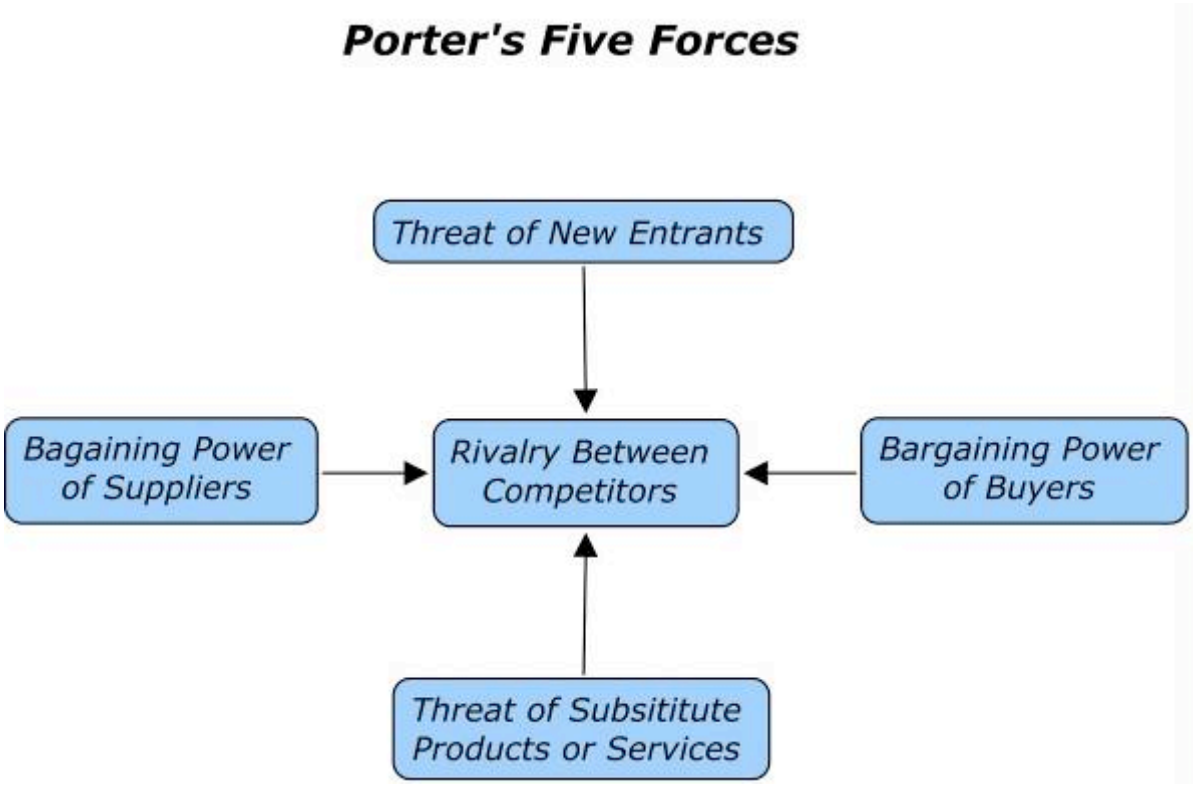

Figure 8 - Porter's Five Forces

Based on the above model we see that there are numerous participants involved in the process of establishing a successful firm namely Competitors, Suppliers, Buyers and New Entrants. As enterprises conduct their business, they will engage in joint activities with the various participants, which, according to Clark, imply the use of language. It is assumed that the "conversations" or communication between the enterprise and a given participant will change according to the context, for example, an enterprise will negotiate costs when engaging suppliers or discuss value when engaging buyers.

The conversation an enterprise engages the buyer on is one that constitutes the question of value. Peter Doyle explains the importance of customer value: "In a free-enterprise system individual consumers choose how to spend their money. In turn firms compete with one another to attract the patronage of customers. Firms making offers that do not appeal to customers go out of business because they do not generate cash flow to pay their suppliers of materials, labour and capital." [205] Weinstein & Johnson defines customer value as consisting of three core aspects namely product quality, service quality and value-based prices. They

[205] Doyle, P. 2008. *Value Based Marketing*: 74

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refer to this as the customer value triad.[206] An enterprise may be fully equipped to deliver customer value, but how do they communicate this value to the market? More specifically, how do the forces discussed above influence the message of value delivered by an enterprise?

What was shown in this section so far is that joint activities imply language use, that language use involves public and private goals and that these goals influence the information sent between the speaker and the listener. It was also shown that enterprises have a profit motive that implies the goal of making sales. Furthermore it was shown that the key to continued business success is to provide value. With competitive forces at play however, with other organisations vying for the same money, an organisation is required to send a message that strategically enhances the possibility of generating sales and retaining customers. This message normally comes in the form of *advertising*.

4.4.5 The problem with advertising: an example of a baker

The problem of information in advertising discussed in this study is perhaps better clarified with the following thought experiment: Let us imagine a bakery where cakes are sold. There is no sense for a baker to put out a sign saying "Cake" when he is competing with other bakers and grocers who all sell cakes within the same general vicinity of where his bakery is located. As a first strategic response, according to Weinstein & Johnson, he should be creating customer value. Presuming that his competitors are all roughly equal in the customer value triad of product quality, service quality and value-based pricing, how should he respond? He needs to sell cakes to sustain his business and in order to do so he must create a reason for his customers to buy from him. Should he use advertising as a means he may resort to various techniques of persuasion that could elicit a better response. The baker is an honest man, he won't lie about the superiority of his cakes – he must however find a way to put his best foot forward and cast a good light on his cakes that would attract customers. Instead of his normal sign that simply states "Cake", he orders an advertisement in the local paper with the heading (locution) "Great Cakes make for Happy Birthdays" which is presented alongside a picture of a small boy with a large grin and a big birthday cake (illocution). The advertisement ends with a directive: "Call early to place your order" with a telephone number for the bakery (perlocution):

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[206] Weinstein, A. and Johnson, C.J. 1999. *Designing and Delivering Superior Customer Value: Concepts, Cases, and Applications*: 5

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Figure 9 - Advertisement for cakes[207]

The baker didn't lie about the cakes, but he did create associations between successful birthday parties and the cakes he sells. Of course, he cannot provide a guarantee that buying his cakes will in fact make for a successful birthday party – the implication can therefore be regarded as possibly misleading. Moreover, he created a sense of urgency with the closing line that provides the idea that he is busy – if you want a successful birthday party for your child you need to call as soon as possible to avoid disappointment.

What the baker did was to create an imperative for action with a positive association that differentiates him from other bakers and grocers in the area even though all of his competitors in reality provide similar quality products, similar quality service and value for money. In effect the baker provided cues that, even though not explicitly false, established connotations that cannot be confirmed. By providing cues that are aligned with his market's needs, he gained an edge.

[207] Please note that all advertisements in this study was specifically created using established advertising design techniques noted in Chapter 5 for the purpose of substantiating the core argument

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4.5 Defining disinformation

This section aims to provide an overview of the concept of disinformation in terms of its history, key characteristics and how it is differentiated from misinformation, persuasion and deception. Finally implicatures and their relation to disinformation will be discussed.

4.5.1 Historical overview

The purpose of this historical overview is to provide context in terms of the origins of disinformation in Western society. It is not intended to be an exhaustive or complete representation of the subject of rhetoric, nor does it provide critical information to the definition of disinformation. Rather, it consists of a coherent story based on the perspectives of J.J. Murphy and a few other writers.

4.5.1.1 From ancient rhetoric to a Cold War weapon of mass delusion

The use of information to deceive or mislead is a practice that is possibly as old as the use of language. Galasinski notes: "It seems that it would be wrong to speak of deception as some strange, unnatural or occasional behavior. Deception is firmly situated in our everyday actions. Although we know we should not deceive others, our cultural practices, our traditions, provide us with a multitude of situations not only in which one deceives the other but, indeed, in which such actions are decidedly positive or, at the least, are not considered negative."[208] In this section we will develop a historical perspective on the use of language as a tool for misleading people. The history of disinformation will be reviewed mainly from the point of view of its development through Christianity via the perspectives of ancient rhetoric in the Catholic Church through to the migration of the Purists in the United States. This route is chosen in an attempt to show the link between the origins of the rhetorical methods employed by the modern day advertising and the culture of commercial consumerism that originated in the United States and consequently spread through the rest of the world.

4.5.1.2 Ancient Greece and Rome

Pratkanis & Aronson reveals that a primary purpose of propaganda is the aim to persuade: "The term *propaganda* did not see widespread use until the beginning of the twentieth century, when it was use to describe the persuasion tactics employed during World War I and

[208] Galasinski, D. 2000. *The Language of Deception – A Discourse Analytical Study*: 11 - 12

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those later used by totalitarian regimes. *Propaganda* was originally defined as the dissemination of biased ideas and opinions, often through the use of lies and deception… The word *propaganda* has since evolved to mean mass 'suggestion' or influence through the manipulation of symbols and the psychology of the individual. Propaganda is the communication of a point of view with the ultimate goal of having the recipient of the appeal come to 'voluntarily' accept this position as if it were his or her own."[209] Carl Hausman provides a more informal definition: "Propaganda has various definitions, but we usually think of it as a one-sided, deliberately misleading message, often designed to be hurtful to a person or group."[210] Finally the Greenwood Encyclopaedia of International Relations defines propaganda as: "The deliberate spread of ideas, images, and information which may (but need not) be untrue, to advance one's cause and undermine the interests of opponents."[211]

From the above we know that propaganda has at its goal to persuade through the provision of information. Persuasion as a formal method of communication has a history that can be traced back to the sophists of Ancient Greece. Taylor & Mi-Kyoung provides us with some insight into that era: "… the period saw the flourishing of a challenging, rationalistic climate of thought on questions including those of morality, religion and political conduct, to which the sophists both responded and contributed. It is important to emphasize the individualistic character of the sophistic profession; its practitioners belonged to no organization, shared no common body of beliefs and founded no schools, either in the sense of academic institutions or in that of bodies of individuals committed to the promulgation of specific doctrines."[212] The fact that they charged money for their knowledge, along with the fact that they generally held the belief that there is no objective truth, but only a good argument, led to Plato and Aristotle's general disdain for their practices. Their skills were of particular value in Ancient Greece society: "The emergence of this new profession, which was an extension to new areas of the tradition of the itinerant rhapsode (reciter of poems, especially of Homer), was a response to various social, economic, political and cultural developments of the period. The

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[209] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 9

[210] Hausman, C. 2000. *The Lies We Live by – Defeating Double Talk and Deception in Advertising, Politics, and the Media*: 136

[211] Greenwood Encyclopedia of International Relations. 2002. *Propaganda*: http://www.credoreference.com.ez.sun.ac.za/entry/abcintrel/propaganda. Available 24 August 2011

[212] Taylor, C.C.W. and Lee, M. "The Sophists" in *The Stanford Encyclopedia of Philosophy (Winter 2011 Edition: http://plato.stanford.edu/archives/win2011/entries/sophists/.* Accessed 25 October 2011

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increasing wealth and intellectual sophistication of Greek cities, especially Athens, created a demand for higher education beyond the traditional basic grounding in literacy, arithmetic, music and physical training. To some extent this involved the popularization of Ionian speculation about the physical world… which was extended into areas such as history, geography and the origins of civilization. The increase in participatory democracy, especially in Athens, led to a demand for success in political and forensic oratory, and hence to the development of specialized techniques of persuasion and argument."[213]

Pratkanis & Aronson writes that "Aristotle reconciled the view of the Sophists and the position of his teacher, Plato, in *Rhetoric* – the first comprehensive theory of persuasion." According to the writers, Aristotle believed that the purpose of persuasion was the communication of a point of view or position which, his position on discovering the truth through a rational process of reasoning notwithstanding, he believed was needed to "communicate the truth to them [men of lesser intellect] in such a manner that they might come to the *right* conclusion."[214] In this volume on rhetoric, Aristotle identified requirements for successful persuasion namely: the speaker or source (ethos), the emotions of the listener (pathos) and the message or logic (logos).[215] For each requirement there is a method that adds to the potential success to persuade. Rapp explains that, firstly, the credibility of the speaker comes into play – for Aristotle, credibility meant three particular characteristics that must all be present namely that of practical intelligence, a virtuous character and good will. Secondly Aristotle defines a number of specific emotions and ways in which they could be elicited. Underlying to these methods for many of the emotions he defined there are three things to keep in mind namely the state of mind required for a given emotion, the target of the emotion and the reason for the emotion. Thirdly persuasion happens through a logical argument in the form of induction (arguing from the particular towards the universal) or deduction (arguing that, given certain assumptions, a logical truth may be deduced from said

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[213] Taylor, C.C.W. and Lee, M. "The Sophists" in *The Stanford Encyclopedia of Philosophy (Winter 2011 Edition: http://plato.stanford.edu/archives/win2011/entries/sophists/.* Accessed 25 October 2011

[214] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 11

[215] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 18 – 19

Rapp, C. 2010. "Aristotle's Rhetoric" in *The Stanford Encyclopedia of Philosophy (Spring 2010 Edition):* http://plato.stanford.edu/archives/spr2010/entries/aristotle-rhetoric/. Accessed 24 August 2011

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assumptions).[216] Pratkanis & Aronson further notes that Aristotle identified one last factor influencing persuasion namely that of *atechnoi* (from *atechnoi pisteis* or "artless proofs"[217]) which refers to facts and events outside of the speaker's control such as contracts and laws.[218] In essence it refers to the favourable elements in the context of the argument that acts as a platform from which a persuasive argument can be built. The table below provides a summary of Aristotle's persuasion techniques:

Aspect	**Technique**
The Source (Ethos)	All three must be present to prove credibility of the source (the speaker): 1. Practical intelligence 2. Virtuous character 3. Good will
The Emotion of the Audience (Pathos)	The speaker can elicit specific emotions if he can effectively engage: 1. The mindset of the emotion 2. The target (e.g. anger at a specific person) of the emotion 3. The reason for the emotion
The Argument (Logos)	Arguments can successfully be developed through 1. Induction – arguing from the specific towards the universal 2. Deduction – deducing truths that follow naturally from, or due to the truth of,

[216] Rapp, C. 2010. "Aristotle's Rhetoric" in *The Stanford Encyclopedia of Philosophy (Spring 2010 Edition):* http://plato.stanford.edu/archives/spr2010/entries/aristotle-rhetoric/. Accessed 24 August 2011

[217] Carey, C. 1996. "Nomos in Attic Rhetoric and Oratory" in *The Journal of Hellenic Studies*, 116: 33

[218] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 19

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	presuppositions
The Contextual Elements (Atechnoi Pisteis)	The speaker must take note of specific elements within the context of the argument that will provide a basis for a good argument e.g. the way in which a law or contract has been written.

Table 1 - Aristotle's Techniques for Persuasion

In line with Aristotle's techniques for persuasion, the Roman lawyer and orator Cicero identified three duties of the orator namely to charm or give pleasure, to instruct or teach and to move the audience.[219] Pratkanis & Aronson notes that Cicero (who was heavily influenced by Greek philosophy, especially on the matter of rhetoric) expanded on the concept of atechnoi by developing a theory called *statis* [sic][220] which concerns the status of the issue at hand. "The task of an orator or a lawyer is to provide a definition of the situation that is most advantageous for one's point of view."[221] Following closely in Cicero's footsteps was Quintillian who provided an educational programme aimed at the development of an ideal orator. In this programme he establishes a strong connection between *grammatica* and *rhetorica* proposing that the literary arts should be the foundation of the development of oratory arts.[222]

4.5.1.3 Medieval rhetoric

Murphy notes that rhetoric too has suffered much criticism after its zenith during and following Cicero. He specifically makes note of Titian: "Another fourth-century figure,

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[219] Pratkanis & Aronson interprets the concept of charm as equal to creating credibility – this has not been reflected in other sources in: Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 19

Schenkeveld, D. M. 1988. "Cicero, De oratore 3.195ff. and Brutus 183ff." in *Rhetorica: A Journal of the History of Rhetoric*, 6(3): 297

[220] Based on other sources this term is probably *status* which is directly translated to mean "stage". An example of usage is: "The rhetoricians of the Middle Ages followed Cicero or suggestions found in his works when they discussed civil philosophy as the subject matter of rhetoric, or divided that subject matter according to the three kinds of oratory - deliberative, judicial, demonstrative - or when they sought to determine it more generally by means of the distinction between *propositum* and *causa* (or thesis and hypothesis as the Greek terms were Latinized), or by consideration of the characteristics of controversies and the constitutions (or *status*) of questions." in: McKeon, R. 1942. "Rhetoric in the Middle Ages" in *Speculum,* 17(1): 4

[221] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 19

[222] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 22 - 23

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Titian, rails against literature in general and rhetoric in particular: 'You have invented rhetoric for injustice and calumny…you have invented poetry to sing of battles, the love of gods, of everything that corrupts the spirit.'"[223] However, St. Augustine's *De doctrina christiana* is widely regarded as a return to rhetoric, specifically for the purpose of enhancing the preaching skills of the clergy. *De doctrina* consisted of four volumes, the first three covering the subject of *materia* or the way in which the scripture is to be understood, and the last volume discusses amongst other things the benefits of using *eloquentia* as an oratory tool.[224] Augustine motivates the point by saying that rhetoric can be used as effectively to spread the truth as it can be used to spread lies, why then should those who wish to speak the truth avoid rhetoric and be ineffectual speakers?[225] He mostly followed the basic tenets of Cicero which he transformed into an acceptable doctrine for the Christian church of the time.[226]

According to Murphy, from Augustine forwards writers in the middle ages mostly replicated his efforts with emphasis on different aspects of the learning process including Cassiodorus (480 – 575 who wrote *Institutions divinarum et saecularium litterarum*), Boethius (480 – 524 who translated some works of Aristotle and added a commentary on the Topics known as *Topica Boetii*), Priscian (an Eastern European contemporary of Boethius who was famous for creating the *Institutionum Grammaticae*) and Bishop Isidore (570 – 636) who wrote *Origines* as a whole system of education). Most of these works were intended as educational systems that, amongst other disciplines, focused on the use of language with increasingly less emphasis on the subject of rhetoric.[227]

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[223] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 46

[224] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 58

[225] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 46

[226] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 58

McKeon, R. 1942. "Rhetoric in the Middle Ages" in: *Speculum*, 17(1): 3

[227] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 64 - 76

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The subject of rhetoric is brought back to the mainstream through the work of Alcuin (735 – 804) who, at the request of Emperor Charlemagne, wrote *Disputatio de rhetorica et de virtutibus*.[228] Based on Murhpy's analysis, this work seems for the most part a rehash of Cicero's work – he points out that, as such, it did not have notable direct influence on later works. However, it did have influence on Alcuin's pupil, Rabanus Maurus (776 – 856). "The work of Rabanus is a significant milestone in the history of preaching because he is the first of many medieval writers to make a pragmatic choice of only those ideas which are useful to him without swallowing the whole system which gave birth to the ideas… [according to Rabanus] Those who would take up holy orders must have 'fullness of science, rectitude of life, and perfection of learning'".[229] In this statement of Rabanus we see similar requirements for being a good speaker than that of the rhetoric of Aristotle (and consequently the officia oratoris of Cicero) of knowledge, virtue and the ability to teach.

It seems from Murphy's exposition on the subject that the key point in the history of medieval rhetoric is the fact that the classical works of especially Cicero survived and found acceptance as the cardinal works that established the foundation of rhetoric in the times that followed. "In summary, then, the history of the arts of discourse in the middle ages is at least in part the history of th survival of classical works. The most important ancient author in this connection is Cicero, the acknowledged *magister eloquentiae*."[230]

4.5.1.4 The Christian pedagogy

It was shown that rhetoric in the middle ages was heavily reliant on the works of Cicero who in turn learned much of his knowledge from the Greeks. Murphy explains that the Greek methodology of rhetoric was not based on any strong set of beliefs in a given truth, but rather aimed at plausibility: "It will be recalled that Greek and Roman rhetoric purported to deal with what Aristotle described as nonapodeictic proofs – that is, means by which an audience could be led to believe an assertion without formal logical demonstration…Cicero and other Romans sought to make a case 'plausible' (believable) mainly through probabilities. No

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[228] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 80

[229] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 80 - 83

[230] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 132

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ancient pagan rhetorician ever conceived of any single mode of proof as being conclusive or binding… Topics are indistinguishable only by their varied suitability for this or that audience. But all share one major rhetorical fault: their maximum expectation is the creation of probability."[231] Any discussion that takes the Church (in direct reference to the Roman Catholic tradition) into account cannot ignore the influence of the teaching methods implemented by Jesus Christ. The Judaic method of discussion was already heavily entrenched by the time that Jesus was born. The methods employed by the Jews inside and outside of the synagogue typically consisted of two parts namely that of "teaching (exposition of doctrine) and preaching (hortation to action)."[232] Murphy explains that, since the Jews firmly believed in the truth of the Scriptures (and their task to safeguard it), their method of discussion was not to establish probability, but rather to discuss and seek meaning in the Scriptures themselves. Christ, being the fulfilment of prophecy from the scriptures, therefore took the whole of the Testament as absolute proof of its truth. He further notes that the fact that Christianity was founded outside of the synagogue where learned men spoke, but rather where laymen sought to live better lives, meant that Christ instituted the use of parables as a means to convey the meaning of the scriptures.[233] There are a number of critical differences between the approach to rhetoric of Greek and Roman descent and the approach introduced by Christ that has relevance to our definition of disinformation:

1. As stated, Greeks and Romans sought maximum probability to convince the audience through the development of a viable argument. Christ's point of departure was that an absolute truth has already been established and that meaning should be sought in the scriptures.

2. Greeks and Romans applied rhetoric only amongst the higher strata of the community. Christ preached to the unlearned masses.[234]

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[231] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 276

[232] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 277 - 278

[233] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 279 - 280

[234] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 273

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3. Greeks and Romans expected a decision in favour of or against a proposed argument. Christ introduced a rhetorical element that was never seen before (in neither Jewish nor Greek/Roman culture) namely that of "a direct command to his followers to spread his ideas through speech."[235]

Murphy proceeds to show how the teachings of Christ, and more specifically the ways in which he taught, became intertwined with the dual Roman/Jewish education of Paul (3 – 68 AD). According to Murphy: "The metarhetoric of Saint Paul – that is, his foundation for a theory of preaching – thus includes several new elements not found in pagan rhetoric. First his keen appreciation of the responsibility for persuasion which Christ's mandate thrust upon the Church. He is also acutely conscious of God's possible intervention during the preaching event itself, in other words, of the possibility that the efficacy of a preaching discourse might depend not on the rhetorical skill of the speaker but on God's gift of grace to speaker and hearer. The possibility of grace also tends to derogate the human skill derived from rhetoric, since God's message is so powerful that its mere utterance will be persuasive. This is quite different from Plato's idea of truth being persuasive in itself, or the Stoic-Senecan view that a speaker should speak with utter simplicity to let the message transmit itself. It is also different from Aristotle's dictum that the truth will prevail if opponents have equal skill. What Paul means is that the message itself has divine power. One practical result of this principle was that for a dozen centuries the Church was almost exclusively concerned with *what* to preach – not *how*."[236] This is most evident in the fact that St. Augustine dedicated three quarters of the *De doctrina* on *materia*.

4.5.1.5 The Renaissance

This aspect of medieval rhetoric, namely that (at least in European circles) it was the domain of the Church and that the Church was generally more concerned with content rather than process, was changed when two documents were discovered in the 1400's. Murphy explains that the first was the discovery of a complete copy of the *Institutio oratoria* of Quintillian by Poggio Bracciolini in a dungeon in St. Gall. The second was the discovery by Bishop Gerardo Landriani, in the city of Lodi, of a manuscript containing five Ciceronian rhetorical

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[235] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 273

[236] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 282

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works namely *De inventione, Rhetorica ad Herennium, Brutus, Orator,* and a complete text of Cicero's *De oratore.* Intense interest sprung from these two discoveries and created a sudden influence on rhetoric throughout the Renaissance and beyond.[237]

The discovery of the manuscripts came at the near conclusion of the *Great Schism* within the Catholic Church. Even though the Schism was purely of a political nature, the increasing pressures that resulted in the birth of the Renaissance resulted in European society to fragment into different directions.[238] Most notable was the development of humanism that can be directly related to the rediscovery of the classical works: "The Renaissance…was partly brought about by a renewed interest in classical thought. The ideas and arguments of Ancient Greek and Roman thinkers were sought out, and gave enormous impetus to intellectual inquiry, which now broadened out far beyond the boundaries of Christian theology."[239] The renewed interest in the individual as a being unto himself firmly established the notion of individualism that was formalised in the philosophical musings of Immanuel Kant.[240]

Humanism, as it developed during the Renaissance, was not specifically secular – rather it was a shift away from the authoritarian (and corrupt) nature of the then Catholic Church through the rediscovery of ancient philosophy. Enno van Gelder notes: "The Humanist was religious in the broad sense of the word, in that he felt himself attached to powers and values outside his own ego. He was…a convinced confessor of the Christian faith, except for a few who were either completely converted by what they found in the writings of the Greeks and Romans, or who evolved still further in the modern direction."[241] Through the original

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[237] Murphy, J.J. 1974. *Rhetoric in the Middle Ages – A History of Rhetorical Theory from Saint Augustine to the Renaissance:* 357 - 363

[238] Kilcullen, J. 2010. "Medieval Political Philosophy" in *The Stanford Encyclopedia of Philosophy (Fall 2010 Edition)*: http://plato.stanford.edu/archives/fall2010/entries/medieval-political/. Accessed 25 October 2011

[239] Law, S. 2011. *Humanism – A Very Short Introduction*: 15 - 16

[240] Axinn confirms this in a discussion of the individualist nature of Kant's work when he says: "There is hardly a more precise, compelling, and beautiful formulation of individualism than in Kant's kingdom of ends." in: Axinn, S. 1958. "Kant, Logic, and the Concept of Mankind" in *Ethics,* 68(4): 290

[241] Enno van Gelder, H.A. 1964. *The Two Reformations in the 16th Century – A Study of the religious aspects and consequences of Renaissance and Humanism*: 6 - 7

criticisms of John Wycliffe (1330 – 1384) of the abuses by the church[242] and later through those of Jan Hus (1369 – 1415) who wrote *De Ecclesia* that discussed the reformation of the Church)[243] the increasing dismay with the state of the Church resulted in the initiation of the Protestant Reformation. Desiderius Erasmus (1496 – 1536) was heavily influenced by the undercurrents of humanism. He was an educator who held true to his Catholic vows, yet became disenchanted with the scholastic method of education used by the Church as a method for education and later proposed a reform of theological studies that emphasised the humanist agenda in the form of a return to the classics (in the form of ancient Greek and Roman teachings). He was regarded as a major influence on Martin Luther who is known as the founder of the Protestant movement.[244] In this analysis of the foundations of disinformation, this is a critical point – historically it was the rediscovery of classical literature and motifs that not only inspired a final schism in the form of Catholicism versus Protestantism, but as one of the sparks that led to the Protestant movement, remained an integral part of the rhetorical nature of the way in which the church's message was delivered.

The term *propaganda* is first seen in the context of the efforts of the Roman Catholic Church to re-establish the religion through a form of education: "The first documented use of the term occurred in 1622 when Pope Gregory XV established the Sacra Congregatio de Propaganda Fide…the papal [established] propaganda as a means to of coordinating efforts to bring men and women to 'voluntary' acceptance of church doctrines." Due to its origins however, the term garnered a negative connotation in Protestant circles, whereas in Catholic contexts it was seen in the same light as preaching.[245]

Within the English Protestant movement, a growing questioning of the Church of England led to the development of the Puritan movement, which first started amongst others with a well-supported group of highly educated members of the Church of England. Crous explains that, as the movement developed, it was put under tremendous pressure by the exclusively

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[242] Who's Who in Christianity. 2001. *Wycliffe, John (c. 1330 - 1384):* http://www.credoreference.com.ez.sun.ac.za/entry/routwwchr/wycliffe_john_c_1330_1384. Accessed 25 August 2011

[243] Philip's Encyclopedia 2008. 2008. *Hus, Jan*: http://www.credoreference.com.ez.sun.ac.za/entry/philipency/hus_jan. Accessed 25 August 2011

[244] Philosophy of Education: An Encyclopedia. 1996. *Erasmus, Desiderius*: http://www.credoreference.com.ez.sun.ac.za/entry/routpe/erasmus_desiderius. Accessed 25 August 2011

[245] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 9

Catholic British monarchy, and specifically under the auspices of Archbishop William Laud, to the extent that it contributed heavily to what has been called *the Great Migration* from 1630 to 1640. An estimated 24 500 British colonists, of which an undetermined number were Puritans, settled in America where they became firmly established.[246] One may speculate that, in this way, the rhetorical methodologies that accompanied the Protestant movement became entrenched in American society.

The following figure provides a summary of the history of pre-modern rhetoric as the foundations of propaganda:

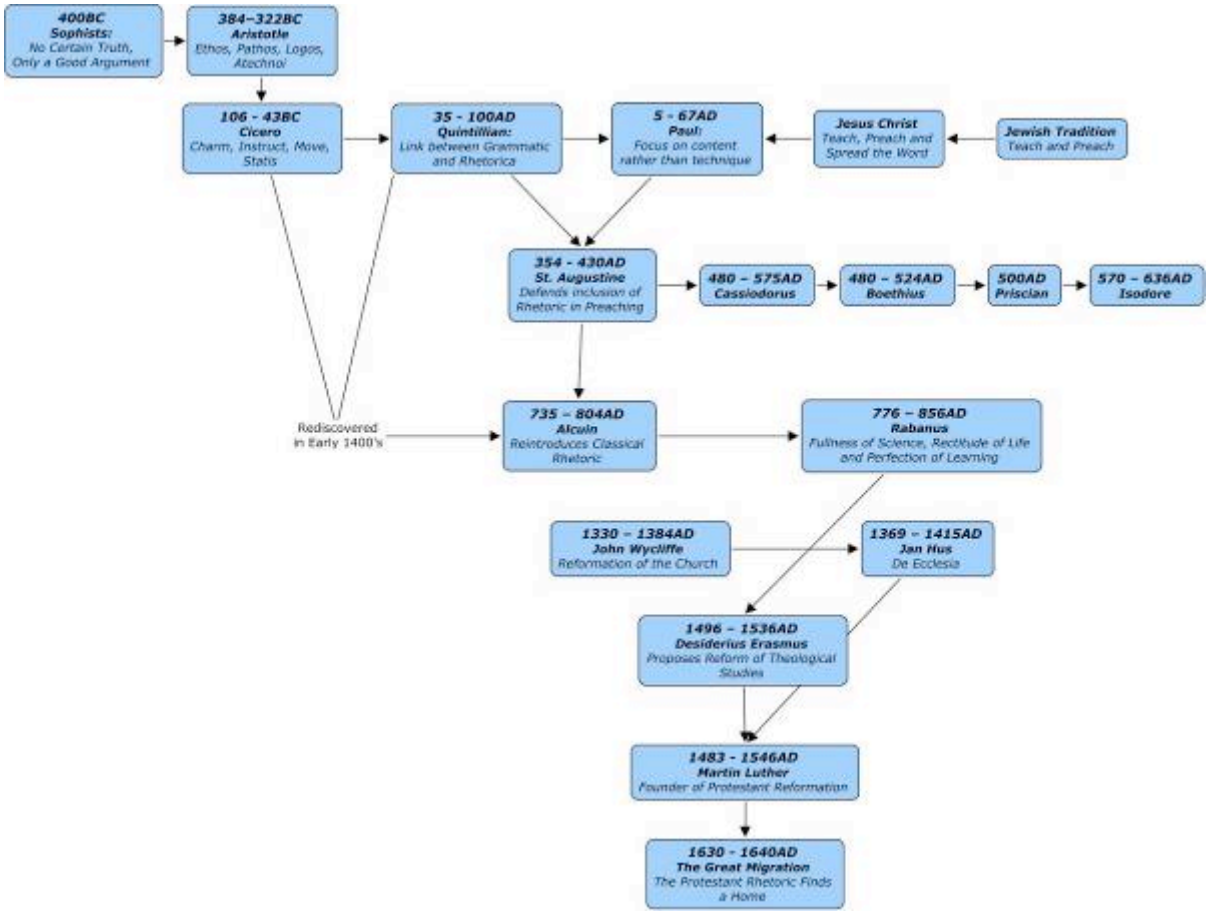

Figure 10 - The development of rhetoric in pre-modernity

4.5.1.6 Advertising and Propaganda in Modernity

With the Puritans settled after the Great Migration and the intellectuals of Britain and elsewhere making increasingly spectacular advances in technology, it wasn't long before the

[246] Crous. N.M.1932. "Causes of the Great Migration 1630—1640" in *The New England Quarterly,* 5(1): 3-36

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advent of the Industrial Era created the fertile grounds in which advertising was to sprout and grow. One cannot ignore the fact that there were limited forms of advertising in earlier times: "There is evidence that the criers and hawkers were shouting their wares as far back as the days of the early Greeks, Romans, and Phoenicians. This primitive advertising, refined over the centuries, has carried down to the present day… Before long, competition and the need for identification necessitated signs. Signs used for identifying shops, with such appropriate illustrations as a goat (for dairy) or a mule driving a mill (for a baker), were unearthed in the ruins of Pompeii. There is also evidence of announcements painted on walls during this period."[247] It was however the Industrial Revolution and the social and technological advances that came with it, which prompted a need for advertising on a massive scale: "The Industrial Revolution was an economic force that yielded the need for advertising. Beginning in about 1750 in England, the revolution spread to North America and progressed slowly until the early 1800's, when the War of 1812 in the United States boosted domestic production…. The Industrial Revolution was a basic force behind rapid increase in mass-production goods that required stimulation of demand, something that advertising can be very good at."[248]

In the late 1800's and early 1900's modern advertising emerged in what is known as the "P.T. Barnum Era". During this time Max Weber, in a response to Karl Marx, wrote his famous essay around the influence of the Protestant work ethic on the development of capitalism, which purportedly followed a successful visit to America.[249] It is possibly not coincidental that the most well-known individuals in advertising at that time were all sons of church ministers.[250] At the same time, as noted before, propaganda first appeared in World War I which was fully supported by the advertising industry.[251]

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[247] Mandell, M.I. 1984. *Advertising*: 22

[248] O'Guinn, T.C et al. 2009. *Advertising and Integrated Brand Promotion*: 77

[249] Barbalet, J. 2008. *Weber, Passion and Profits – 'The Protestant Ethic and the Spirit of Capitalism' in Context*: 3

[250] O'Guinn, T.C et al. 2009. *Advertising and Integrated Brand Promotion*: 81

[251] O'Guinn, T.C et al. 2009. *Advertising and Integrated Brand Promotion*: 82

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Since then advertising (specifically in America) went through various revolutions in a response to the changes in society[252]:

- The "Roaring Twenties" known for its underlying theme of overindulgence.
- The Great Depression in the 1930's that created tremendous mistrust amongst consumers in big business and their advertising cohorts.
- World War II that created an opportunity for redemption of the advertising industry.
- The 1950's that taught advertisers to focus on women as they are the major buying power whilst men are away at work.
- The liberal revolution of the 1960's.
- The 1970's with another wave of excess and the introduction of minorities into mass media as well as the introduction of new advertising regulations.
- The great amounts of expendable income of consumers and increased use of the mass media for political efforts during the 1980's.
- The introduction of interactive media in the 1990's that brought higher degrees of consumer awareness.
- The increase in consumer empowerment in the last decade through new media and the closer integration of advertisement with entertainment and online social interaction.

4.5.1.7 An overview of major theories of persuasion in recent history

During the 20th century various theories were developed that attempted to explain the way in which people respond to media. Most of these theories had an impact, not just on the way that advertisers communicated information to consumers, but also in the way that consumers saw the advertising industry. Pratkanis & Aronson provides a short overview of the most notable theories: "Modern theories of persuasion rely extensively on principles developed within at least one of the three major schools of thought in psychology – psychoanalysis,

[252] A summary of the historical overview provided by O'Guinn, T.C et al. 2009. *Advertising and Integrated Brand Promotion*: 82 - 103

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learning theory, and cognitive approaches."[253] In the psychoanalytic approach it is believed that objects all have hidden meanings and connotations that, in the right combination, can elicit a powerful response from the audience. This view was popularised by Vance Packard in his bestselling book *The Hidden Persuaders*. Pratkanis & Aronson notes that, even though advertisers during the 1950's used the psychoanalytic approach, they discarded it by the mid-1960's because it didn't deliver results.[254] O'Guinn et al. confirms the point when they provide a footnote on Packard's writings: "With respect to the effects of 'subliminal advertising,' researchers have shown that while subliminal communication is possible, subliminal persuasion, in the typical real-world environment, remains all but impossible."[255]

Learning Theory on the other hand is readily used by propagandists and advertisers to effectively persuade and elicit a desired response: "According to learning theory, a persuasive message is persuasive when it is learned and accepted by the recipient; propaganda must be seen, understood, learned, remembered, and acted upon."[256] According to Pratkanis & Aronson there are stages that facilitates learning namely

1. Attracting the recipients' attentions.
2. Logical arguments that must be understood and comprehended.
3. Acceptance of the message as true.
4. Action that results from the message.[257]

The writers proceed to define persuasion from the cognitive response perspective as follows: "The successful persuasion tactic is one that directs and channels thoughts so that the target thinks in a manner agreeable to the communicator's point-of-view; the successful tactic disrupts any negative thoughts and promotes positive thoughts about the proposed course of action." [258] When looking at this description, it is interesting to note the correlation with the

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[253] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 21

[254] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 21 – 22

[255] O'Guinn, T.C et al. 2009. *Advertising and Integrated Brand Promotion*: 89n

[256] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 22

[257] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 23

[258] Pratkanis, A. R. & Aronson, E. 1992. *Age of propaganda*: 24

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rhetorical methods we already found namely that there is a message that moves the target to an agreeable state of mind which will result in a favourable result.

In *The Persuasion Handbook* edited by James Price Dillard & Michael Pfau a more comprehensive overview of current persuasion theories is provided. The major theories are summarised here as presented by contributing authors:

1. **Cognitive Dissonance Theory**: Developed in the late 1950's the theory is still actively used and revised. It was originally explained as follows: "…the presence of a cognitive inconsistency of sufficient magnitude will evoke an aversive motivational state – dissonance – that drives cognitive work aimed at reducing the cognitive inconsistency." In essence then, when we are given information that challenges our understanding of the world, we will actively rationalise the information at hand so as to explain it or fit it into our current world view. The value of this theory, and more specifically studies that rely on this theory, is the way that it can assist in amongst others in understanding how attitudes change.[259]

2. **Language Expectancy Theory**: This particular theory, developed in the 1970's, focuses on the way in which variations within language affects the persuasiveness of a message. The following definition is provided by Burgoon et al: "Language expectancy theory is an axiomatic theory that… expounds on the effects of linguistic variations on message persuasiveness. It is a message-centered theory."[260] Its usefulness in understanding persuasion is obvious – if we know how different kinds of messages persuade people, then advertisers and propagandists alike can develop messages according to these theories.

3. **Functional theories of attitude**: Simply put, this class of theories developed in the 1950's and 1960's look into the role that attitude plays in the process of learning and decision making. According to Shavitt & Nelson functional theories "were the first to recognize attitudes as instrumental constructs designed to serve individuals' physical, social and emotional needs." They also mention that this theory is useful as a

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[259] Harmon-Jones, E. 2002. "A Cognitive Dissonance Theory Perspective on Persuasion" in *The Persuasion Handbook – Developments in Theory and Practice:* 99 - 100

[260] Burghoon et al. 2002. "Language Expectancy Theory" in *The Persuasion Handbook – Developments in Theory and Practice:* 121

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predictive tool of message effectiveness.[261] A deeper understanding of attitudes provide persuaders a base to work from – if they know what the attitude of a given audience is towards a given subject, they may be able to construct a message that will leverage that attitude towards a given goal.

4. **The Elaboration Likelihood Model**: This model developed during the 1980's and 1990's attempts to integrate a diverse array of studies that primarily focus on the processes involved during communication for each variable in the standard communications model (source → message → receiver). Booth-Butterfield & Welbourne provides this insight: "The ELM assumes that people are bombarded with so many different persuasive communications that it is nonadaptive, if not impossible, to carefully evaluate the merits of each and every one of these attempts at persuasion." ELM shows that there is a correlation between the motive/ability of an individual to elaborate on the merits of a message and the likelihood that they will be engaged by said message. Similar to the Heuristic-Systematic Model below, instead of assessing all the information, ELM shows that people will use "peripheral route processes" to process messages.[262]

5. **The Heuristic-Systematic Model (HSM)**: This model developed concurrently to ELM (and often referencing it) posits that people process messages through scrutiny as well as through the use of heuristics: "The critical assumption of the HSM is that people can engage in systematic or heuristic processing. People can scrutinize cues peripheral to the message content, or the can process the message content heuristically." They further show that these two modes of information processing can occur simultaneously.[263] Applied to persuasion this theory can be useful in developing messages that are congruent on both levels which the recipient of the message will engage on.

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[261] Shavitt, S. and Nelson M.R. 2002. "The Role of Attitude Functions in Persuasion and Social Judgment" in *The Persuasion Handbook – Developments in Theory and Practice:* 137, 140 - 142

[262] Booth-Butterfield, S. and Welbourne, J. 2002. "The Elaboration Likelihood Model – Is Impact on Persuasion Theory and Research" in *The Persuasion Handbook – Developments in Theory and Practice:* 156

[263] Todorov et al. 2002. "The Heuristic-Systematic Model of Social Information Processing" in *The Persuasion Handbook – Developments in Theory and Practice:* 195, 203

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6. **The Theory of Psychological Reactance**: Burgoon et al defines this theory, developed in the 1960's, as follows: "It is a theory of social influence that focuses on how individuals act when their realm of free behavior is limited. A form of psychological arousal, reactance is considered a motivational state directed towards the reestablishment of free behaviors that have been eliminated or threatened by elimination." The authors also state that the underlying premise is the assumption that humans need to fulfil basic needs and will react when their freedom to do so is restricted.[264] Both advertising and propaganda makes use of the basic motivational factors of human needs and fears in order to elicit a response – in this way reactance theory provides deeper insight into how restriction of freedom affects the persuasive message.

7. **Inoculation Theory**: The theory developed by McGuire in the 1960's holds that people could be "inoculated" to promote resistance against persuasive messages: "The guiding idea of inoculation theory is taken from the health practice of administering a weakened form of a virus to activate the body's immune system against the virus. Based on this analogy, McGuire (1964) reasoned that people can be stimulated to build up resistance to attacks on attitudes by being exposed to weakened attitude-threatening messages."[265] Understanding how resistance builds up against persuasion provides a means to develop message strategies that will not be resisted over time.

8. **The Theory of Reasoned Action (TRA)**: "The aim of the TRA is to explain volitional behaviors… It posits that the best predictor of volitional behavior is one's behavioral intention." This behavioural intention flows from an individual influence and a normative influence. The theory excludes behaviours that can be classified as habit or impulse and purely focuses on those actions that involve conscious decisions.[266] Understanding the elements that influence conscious decisions allow persuaders to speak to those elements through their message.

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[264] Burgoon et al. 2002. "Revisiting the Theory of Psychological Reactance – Communicating Threats to Attitudinal Freedom" in *The Persuasion Handbook – Developments in Theory and Practice:* 215 - 216

[265] Szabo, E.A. and Pfau, M. 2002. "Nuances in Inoculation – Theory and Applications" in *The Persuasion Handbook – Developments in Theory and Practice:* 234

[266] Hale, J.L. et al. 2002. "The Theory of Reasoned Action" in *The Persuasion Handbook – Developments in Theory and Practice:* 260

From this overview we can see that the most prominent element not yet fully identified in the previous sections of this study, is that of attitude and its role in the way a receiver will process and react to a message. That said, when we refer to the original *Rhetoric* of Aristotle (pathos) and Cicero's *officia oratoris* (to move the audience), that attitude plays a major role in the likelihood of persuasion.

4.5.2 Key characteristics of disinformation

In this section we will summarise the key characteristics of disinformation at the hand of the previous sections as well as by introducing a number of authors on the subject. This will be done in an effort to provide a more fundamental definition of the concept and move it away from its Cold War connotations.

Disinformation can be defined as follows: "Disinformation means false, incomplete, or misleading information that is passed, fed, or confirmed to a targeted individual, group, or country. Disinformation is not merely misinformation that is erroneous. Disinformation is comprised of news stories deliberately designed to weaken opponents, which are often planted in newspapers by secret agents of a foreign country masquerading as journalists. The intention is to obscure the identity of the originator of the message in order to foster a high degree of credibility for both the message that is being planted and the apparent source that is giving it credence." The term is derived from the Russian word *dezinformatsia* which originated as a part of Cold War methods to discredit the United States.[267] Disinformation is regarded as a covert form of propaganda or "black propaganda".[268] A critical characteristic of disinformation is that of *intent*. James H. Fetzer brings in this element of intent when he says that disinformation "entails the distribution, assertion, or dissemination of false, mistaken, or misleading information in an intentional, deliberate, or purposeful effort to mislead, deceive or confuse…"[269] In another article Fetzer affirms his perspective when he defines disinformation as "[involving] the dissemination of incomplete, inaccurate, or

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[267] Propaganda and Mass Persuasion: A Historical Encyclopedia, 1500 to the Present. 2003. *Disinformation*: http://www.credoreference.com.ez.sun.ac.za/entry/abcprop/disinformation. Accessed 24 August 2011

[268] The Concise Corsini Encyclopedia of Psychology and Behavioral Science. 2004. *Propaganda*: http://www.credoreference.com.ez.sun.ac.za/entry/wileypsych/propaganda. Accessed 24 August 2011

[269] Fetzer, J.H. 2004. "Disinformation: The Use of False Information" in: *Minds and Machines*, 14: 231

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otherwise misleading information with the objective, goal or aim of deliberately deceiving others about the truth."[270]

In this chapter it was shown that language use is a social activity – this implies that there are at least two people and a backgound of social context involved when language is being used, and also that there is a series of actions taking place when language is being used. A further implication is that decisions precede actions – in essence therefore language use may be regarded, at least in part, as a social activity that reflects a series of decisions made by the participants in the activity.

When any of the actors taking part in the social activity of language use has one or more goals, then language use becomes strategic. Strategic language use implies that a) there is one or more preconceived goals present in the minds of the participants and b) that the given participant or participants are consciously selecting appropriate actions of responses to achieve the goals. It was also shown that goals can be public or private, where private goals may indicate the possible intent to deceive.

Goals aggregate into motives, and motives compel action. It was shown that motives can be selfless (serving others in spite of self) or self-serving (serving self, often in spite of others). When applied to the profit motive of business enterprises the same may be true – some enterprises operate from a selfless position and others from a self-serving position. An argument was developed to show that the forces of competition place pressure on enterprises to use strategic language as a means to communicate value through marketing and advertising. In mature industries there is little or no distinction between different enterprises in terms of real value delivered in which case the language strategy may involve the use of disinformation to create the impression of greater value where none may exist.

Don Fallis provides an in-depth conceptual analysis of disinformation by stipulating the activity of disinforming others. His analysis results in the following definition of the activity of disinforming:

"(D7) You *disinform* X if and only if:

1. You disseminate information *i*.
2. You believe *p* to be false.

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[270] Fetzer, J.H. 2004. "Information: Does it Have To Be True?" in: *Minds and Machines*, 14: 228

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3. You foresee that X is likely to infer from the content of information *i* that *p*.
4. *p* is false.
5. It is reasonable for X to infer from the content of information *i* that *p*." [271]

In other words, the originator of the message is disinforming their target if they a) are disseminating information that b) they believe is false, c) they foresee the target will infer as true, d) that is actually false and that e) it is reasonably expected that the target will infer that the information is true.

With this in hand Fallis defines disinformation as "the information (i.e. the stuff with representational content) disseminated by someone who is disinforming." He adds a critical perspective to this definition when he says: "In order for something to count as disinformation, it clearly does not have to be the immediate source of the information who believes that the information is misleading."[272] In this way he removes the requirement that only the originator can disinform – when the same information is passed along by somebody who also knows of the untruthful nature of the information, then it still remains disinformation. For Fallis disinformation is the information provided in the act of disinforming.

Using the points above it becomes clear that disinformation can be seen as the content of a language act that has been strategically constructed to serve the private goals of the source and/or disseminator with the specific intent to mislead the recipient in order to achieve these private goals. For the purpose of this study, the definition provided by Fallis will be used as it represents the most fundamental found in the sources consulted.

4.5.3 Differentiating disinformation

In this section disinformation will be compared to misinformation, persuasion and deception as a means to clearly delineate the extent of the concept. This section ensures that disinformation is understood within the context of its relationship to other forms of false information.

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[271] Fallis, D. 2009. *A Conceptual Analysis of Disinformation*: 6

[272] Fallis, D. 2009. *A Conceptual Analysis of Disinformation*: 6

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4.5.3.1 Misinformation

Fetzer defines misinformation as "false, mistaken, or misleading information."[273] Fallis informally notes that misinformation is "inaccurate and misleading information… [where] the source made an honest mistake."[274] Taking Fallis' definition of disinformation into account one finds that the key difference between these two concepts lies in that misinformation clearly lacks intent.

4.5.3.2 Persuasion

The difference between disinformation and persuasion is somewhat more complex. One possible definition of persuasion is provided by Gerald R. Miller: "…the phrase 'being persuaded' applies to *situations where behavior has been modified by symbolic transactions (messages) that are sometimes, but not always, linked with coercive force (indirectly coercive) and that appeal to the reason and emotions of the person(s) being persuaded.*"[275] He admits that this definition does not provide an all-encompassing solution to the debate around the question of what constitutes persuasion, however for the purpose of this study it would suffice.

There are two key differences that can be identified between the concepts: in persuasion we see that there is information that is used to *change the behaviour of the audience*. This differs with disinformation that as its primary outcome does not require a change in behaviour, but more a *change in belief or sentiment*. It can be argued that a change in beliefs will ultimately result in a change in behaviour, but that is rather a consequence of disinformation and not its primary goal. Secondly, the messages used in persuasion may be either true or false – as such it seems that disinformation may to some degree be a subset of persuasion in that persuasive techniques may utilise disinformation.

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[273] Fetzer, J.H. 2004. "Disinformation: The Use of False Information" in: *Minds and Machines*, 14: 231

Fetzer, J.H. 2004. "Disinformation: The Use of False Information" in: *Minds and Machines*, 14: 228

[274] Fallis, D. 2009. *A Conceptual Analysis of Disinformation*: 1

[275] Miller, G. R. 2002. "On Being Persuaded- Some Basic Distinctions" in *The Persuasion Handbook – Developments in Theory and Practice:* 6

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4.5.3.3 Deception

An even more complex question is how disinformation differs from deception for the simple reason that consensus amongst academics as to what the definition of deception is differs so widely.[276] Robinson provides a cautious definition of deception as follows: "Here, the definition of deception will follow Mitchell (1986):

1. An organism R registers (or believes) something Y from some organism S, where S can be described as benefiting when (or desiring that).
2. R acts appropriately toward Y, because
    a. Y means X; and
3. it is untrue that X is the case."[277]

This definition is very broad as it includes the actions of non-human organisms for the purpose of survival. In essence however the definition states that a sender (S) of information (Y) deceives the receiver (R) of the information when the information sent is untrue and elicits a response from the receiver that somehow benefits the sender. By this definition any action that transmits falsity for the purpose of gaining a benefit from another participant will therefore be deception.

Fallis comments that "disinformation does not include all deceptive behaviour. For example, it excludes certain parts of the disinformation campaign used by the Allies during World War Two. In addition to sending fake radio transmissions, the Allies built fake tanks and airplanes out of rubber and canvas to give the false impression that a huge force was preparing to attack Calais. In this case the Allies were not disinforming because they were not disseminating information."[278] Taking his original definition of disinformation into account, disinformation is by all means a subset of deception, but not the other way around.

Figure 11 summarises the differentiation of disinformation:

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[276] Robinson identifies at least five different approaches to defining deception. Robinson, W.P. 1996. *Deceit, Delusion and Detection*: 28 - 37

[277] Robinson, W.P. 1996. *Deceit, Delusion and Detection*: 44

[278] Fallis, D. 2009. *A Conceptual Analysis of Disinformation*: 6

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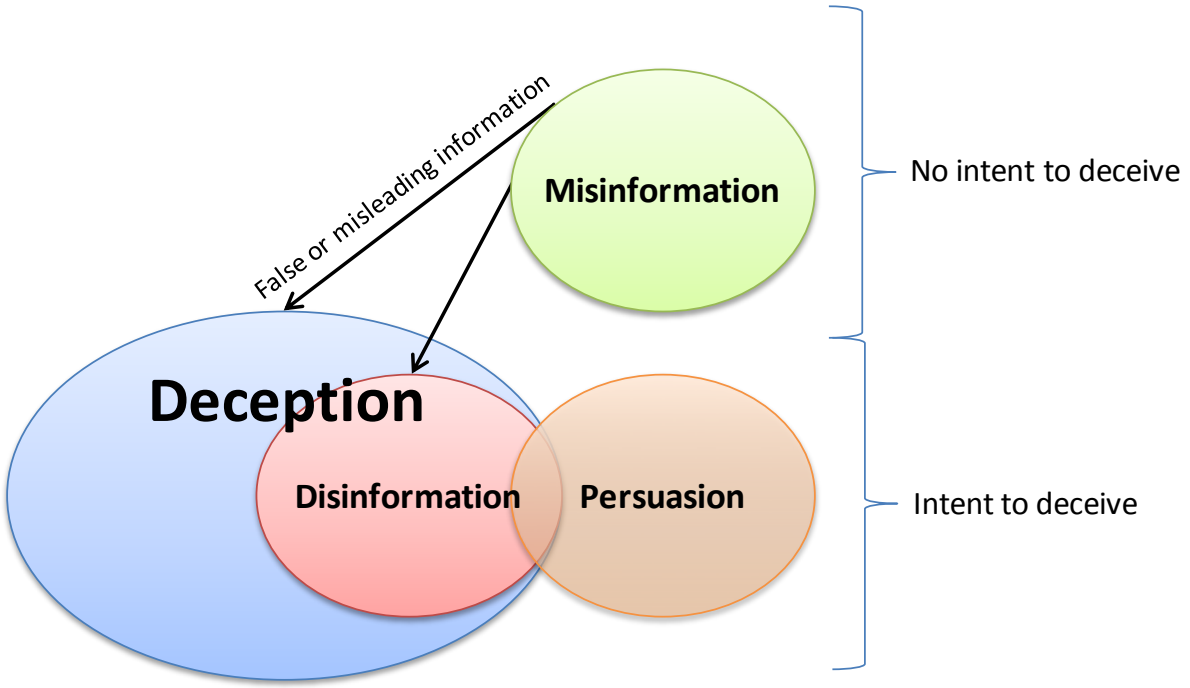

Figure 11 – Differentiation of disinformation

4.5.4 Implicata as disinformation

Grice introduces three terms in his lecture on implied meaning namely "the verb *implicate*, and the related nouns implicature (cf. *implying*) and *implicatum* (cf. *what is implied*)." In this section the plural of implicatum will be called *implicata.* Grice proposed that implied information, or implicata, can lead to misunderstanding on the one hand or deception on the other hand – for this purpose the Cooperative Principle and its maxims can be used as a means to discover whether there is a potential quality issue with an information exchange. Grice says: "A participant in a talk exchange may fail to fulfil a maxim in various ways, which include the following:

1. He may quietly and unostentatiously *violate* a maxim; if so, in some cases he will be liable to mislead.
2. He may *opt out* from the operation both of the maxim and of the Cooperative Principle; he may say, indicate, or allow it to become plain that he is unwilling to cooperate in the way the maxim requires. He may say, for example, *I cannot say more; my lips are sealed*.
3. He may be faced by a *clash*: He may be unable, for example, to fulfil the first maxim of Quantity (Be as informative as is required) without violating the second maxim of Quality (Have adequate evidence for what you say).

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4. He may *flout* a maxim; that is, he may blatantly fail to fulfil it. On the assumption that the speaker is able to fulfil the maxim and to do so without violating another maxim (because of a clash) is not opting out, and is not, in view of the blatancy of his performance, trying to mislead, the hearer is faced with a minor problem: How can his saying what he did say be reconciled with the supposition that he is observing the overall Cooperative Principle? This situation is one that is characteristically gives rise to a conversational implicature; and when a conversational implicature is generated in this way, I shall say that a maxim is being *exploited.*"[279]

Grice admits that in violating one or more of the maxims a speaker may mislead the listener. The conversational act is by its very nature one that includes the dissemination of information and, by Grice's explanation, will include implicature as part of the information that is disseminated. Presuming the intent to mislead, the belief that the implicatum is false, the fact that the implicatum is false and the expectation that the listener will in fact believe the implicatum, it follows that implicata may indeed be a form of disinformation.

4.6 Conclusion

Language is used for doing things. Language is the systematic communication by vocal symbols meaning that people us it to transfer knowledge between each other. J.L. Austin identified three language acts namely locution (providing information), illocution (in a specific way) and perlocution (that has a related consequence).

Language is a joint activity performed by the coordination of language content and process with the purpose of achieving public and private goals. Language is used with motive which is defined as a highly aggregated class of goals with a common theme. As with goals, motive can be public and private. Motive can also be viewed as intrinsically self-serving or intrinsically selfless.

Grice introduces the concept of implicature which refers to implied meaning during conversation. He proposes the Cooperative Principle with a set of maxims as a norm against which effective communication can be measured.

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[279] Grice, P. 1989. *Studies in the way of words*: 30

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Business enterprise has a profit motive. The profit motive can also be seen as self-serving or selfless. The profit motive is not equated with the maximisation of profits necessarily, but rather with the increase of wealth. Enterprises are subject to various forces which leads to two major goals namely a) to generate sales and b) to achieve a competitive position by doing so. In highly mature markets where all competitors have roughly the same value offering at roughly the same price, the pressure generated by the profit motive requires an enterprise to differentiate itself from the competition. One avenue of doing so is through the use of advertising. It is shown that advertising is used as a means to persuade customers to buy a product or service. The highly mature market forces differentiation through implication where, even though the information in the advertisement is true, the implicature may be false.

Disinformation has a long history dating back to the sophists of Ancient Greece that formalised the art of rhetoric. This history was provided to contextualise the possible origins of disinformation as a consequence of rhetoric. Aristotle consolidated the views of Plato and the sophists with the writing of his Rhetoric that distinguishes the requirements for persuasion. Cicero the Roman lawyer learns these principles from the Greeks and develops the *officia oratoris* (duties of the orator) that closely resembles Aristotle's Rhetoric. Quintillian formalises Cicero's work into an educational programme that links the role of language in the development of rhetoric.

Jesus Christ enhances the Jewish rhetorical tradition of "teach and preach" by adding the command to spread His message. His disciple Paul combines Roman rhetorical tradition with Christ's methodology. The Roman Catholic Church retains Paul's teachings that focused on content rather than delivery and initially rejects the pagan traditions of rhetoric. St. Augustine attempts to reincorporate the rhetorical tradition in his *De doctrina* but later medieval scholars seems to retain merely the educational aspect of Augustine's writings letting the classical tradition slowly fall by the wayside.

The Renaissance is ushered in with the rediscovery of classical rhetorical works. The growing discontent with the Catholic Church, along with new insights from the classical teachings of Cicero and Quintillian motivates writers such as Wycliffe, Hus and Erasmus. With the humanist influence changing perspectives on the character of the church, Luther establishes the Protestant movement that eventually results in the Great Migration of British Puritans to America.

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With the advent of the Industrial Revolution, the art of advertising gains fertile grounds and becomes a most fashionable occupation. Advertising becomes increasingly politicised and is eventually used in World War I in the form of propaganda. Advertising goes through many revolutions, and propaganda turns into a form of covert operation known during the Cold War as disinformation. There are a number of theories that underlie the concept of persuasion that influences the way in which propaganda and advertising is developed.

Don Fallis provides an insightful analysis of the concept of disinformation and provides a clear definition that includes the following requirements:

1. Information is disseminated.
2. The sender of information believes it to be false.
3. The sender foresees that the target will infer that the information is true.
4. The information is actually false.
5. There is a reasonable expectation that the target will infer that the information is true.

Disinformation can be seen as the content of a language act that has been strategically constructed to serve the private goals of the source and/or disseminator with the specific intent to mislead the recipient in order to achieve these private goals.

Disinformation differs from misinformation (providing false or misleading information with the intent to deceive), from persuasion (which may or may not use false information to achieve a result, and also may be focused on consequences other than generating a belief), and from deception (which includes non-verbal acts that deceive).

Implicata (the plural of implicatum, which is the implied information generated by an implicature) is information that, should the Cooperative Principle not be fulfilled, may be misleading. If the intent of the speaker is to mislead and the information and expectations correlate with those of disinformation, then the implicata may be disinformation.

The purpose of this chapter was to develop a sound argument for the role of implicata as disinformation. This provides the foundations for the development of the argument of implicata in advertising that may disinform consumers and the question whether F&FH has a mechanism to process this kind of information.

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Chapter 5

Disinformation and Fast & Frugal Heuristics

5.1 Introduction

Advertising uses numerous techniques to elicit a desired response from the consumer, namely that the consumer will be enticed to buy a specific product or service brand. This chapter focuses on two issues, namely the use of implicature-type disinformation in advertising as well as how the F&FH framework processes such information. The chapter initially discusses the truth condition for F&FH after which the manipulation of meaning is discussed within the context of advertising. Various deceptive techniques are identified, specifically with reference to pictorial metaphor, with examples provided. In the form of a thought experiment, two of the examples discussed throughout the study are then used for the purpose of analysing the way in which F&FH may be applied to the problems found within the examples. Through these analyses a number of conclusions are reached regarding the ability of the F&FH framework to uncover disinformation. Various shortcomings in the theory are discussed and a final conclusion reached.

5.2 The truth condition for F&FH

As a means to juxtapose the F&FH programme from other perspectives on decision making, Gigerenzer introduces the topic in this manner: "I will introduce you to the study of cognitive heuristics: how people actually make judgments and decisions in everyday life, generally without calculating probabilities and utilities."[280] Selten makes the following claim: "Modern mainstream economic theory is largely based on an unrealistic picture of human decision making. Economic agents are portrayed as fully rational Bayesian maximizers of subjective utility. This view of economics is not based on empirical evidence, but rather on

[280] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 62

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the simultaneous axiomization of utility and subjective probability… However, it is wrong to assume that human beings conform to this ideal."[281] Gigerenzer expands on this perspective when he says: "Humans and animals make inferences about unknown features of their world under constraints of limited time, limited knowledge, and limited computational capacities. Models of rational decision making in economics, cognitive science, biology, and other fields, in contrast, tend to ignore these constraints and treat the mind as a Laplacean superintelligence equipped with unlimited resources of time, information, and computational might."[282] The emphasis of the F&FH programme is clearly that of constraints and how decision makers deal with them.

F&FH postulate a form of ecological rationality that relies on the search for cues in order to identify an alternative that would satisfy the aspiration levels of a given goal. It was shown in Chapters 2 and 3 that F&FH corresponds with the philosophical theory of Empiricism and consequently that the underlying truth theory is that of correspondence. However, it assumed that cues act as neutral pieces of information, and that they are processed through a set of heuristics that are contextual and adaptive with the implication that truth is seemingly irrelevant as a characteristic of cues. Based on this analysis the following questions were raised:

1. How does the manipulation of meaning affect the perception of cues?
2. Can the veracity of cues be determined using the F&FH Framework?

These question support the research question of this paper by investigating the effects of information manipulation on the decision maker after which an argumentative test is performed to investigate to what extent the veracity of truth can be determined within the F&FH framework. The purpose of this is to determine whether F&FH is truly capable of effective normative and prescriptive insights as claimed by Gigerenzer.

In preparation to answer the questions above, a study on the nature and definition of disinformation was conducted. In the following sections the questions will be answered in terms of the findings in Chapters 3 and 4 and as directly related to the interaction between advertisements and consumers.

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[281] Selten, R. 2002. *Bounded Rationality – The Adaptive Toolbox*: 13

[282] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 37

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5.3 The manipulation of meaning

5.3.1 Advertising

Percy & Elliot provide the following definition of advertising: "In a very real sense, advertising is meant to turn us towards a product or service by providing information or creating a positive feeling – something that goes well beyond simply calling our attention to it."[283] In this definition we find locution (providing information), illocution (creating a positive feeling) and perlocution (turning us toward a product or service). All the language acts are completely represented in advertising with the implication that it is somehow a joint activity with the public goal by the sender (the enterprise) to get and keep your attention on the product or service they offer to which the customer responds with a "yes I will buy this product", "no I won't buy this product", "I will keep it in mind for the future" or complete disinterest.

With so much at stake (including the possible demise of the business enterprise) and with so much pressure from the various participants in the overarching activity of doing business, it is small wonder that advertising has become an art of persuasion. Jules Henry attributes much of the problems in the American consumerist culture to advertising when he names two "commandments" of the "new era" (the new era is in reference to what is known today as *consumerism* which he describes in more detail). The first commandment is that of "create more desire" and the second is that of "thou shalt consume". He posits that advertising entices people to buy things they don't need and drives them to ever higher levels of consumption.[284] Percy & Elliot provide more insight into Henry's arguments and provide additional criticisms of advertising. Their four criticisms include 1) the creation of unnecessary desires, 2) the misleading nature of advertising, 3) that advertising insults the consumer's intelligence and finally 4) that advertising has a negative effect on the economy (e.g. driving up the costs of products).[285] What is interesting about these particular criticisms of advertising is that they all focus on parties external to the enterprise, and more specifically from a consumer/customer perspective. Using Percy & Elliot's main points as a guide we can deduce the following:

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[283] Percy, L. and Elliot R. 2005. *Strategic Advertising Management*: 4

[284] Henry, J. 1972. *Culture Against Man*: 25 - 28

[285] Percy, L. and Elliot R. 2005. Percy, L. and Elliot R. 2005. *Strategic Advertising Management*: 12 - 14

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1. Where unnecessary desires are created, they are created within the market.
2. Where advertising is misleading, it misleads the market.
3. Where advertising insults intelligence, it does so in the market.
4. Where advertising has a negative effect on the economy, the effect is directly experienced by the market.

O'Guinn et al.[286] provides a more balanced perspective on the pros and cons of advertising. Their conclusions have been summarised in the following table with the headings provided by the authors:

Claim	Pros	Cons
Advertising educates consumers	**Advertising informs**: "Supporters of advertising argue that advertising educates consumers, equipping them with the information they need to make informed purchase decisions."	**Advertising is superficial and intrusive**: "Critics argue that advertising does not provide good product information at all and that it is so pervasive and intrusive to daily life that it is impossible to escape."
Advertising improves the standard of living	**Advertising lowers the cost of products**: Advertising contributes to economies of scale; consumers have greater choice; due to competitive pressure firms are motivated to create better products and; advertising aids in the diffusion of innovation.	**Advertising wastes resources and raises the standard of living for only some**: "One of the traditional criticisms of advertising is that it represents an inefficient, wasteful process that channels monetary and human resources in a society to the 'shuffling of existing total demand,' rather than to the expansion of total demand."
Advertising affects happiness and general well-being	**Advertising addresses a wide variety of basic human needs**: Most, if not all products, can be	**Advertising creates needs**: "A common cry among critics is that advertising creates need

[286] O'Guinn, T.C., Allen, C.T. & Semenik, R.J. 2009. *Advertising & Integrated Brand Management:* 111 - 122

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	related to Maslow's hierarchy of needs.	and makes people buy things they don't really need or even want."
	Advertising only reflects society's priorities: "While we clearly live in the age of consumption, goods and possessions have been used by all cultures throughout history to mark special events, to play significant roles in rituals, and to serve as vessels of special meaning…"	**Advertising promotes materialism**: "The long-standing argument is that in societies characterized by heavy advertising, there is a tendency for conformity and status-seeking behavior, both of which are considered materialistic and superficial."
Advertising: demeaning and deceitful, or liberating and artful?	**Advertisers are showing much more sensitivity**: "Advertisers are realising that a diverse world requires diversity in the social reality that ads represent and help construct."	**Advertising perpetuates stereotypes**: "Advertisers often portray people in advertisements that look like members of their target audience…Critics charge that…it perpetuates stereotypes."
	Advertising is a source of fulfilment and liberation: "…some argue that the consumption that advertising glorifies is actually quite good for society…Observers argue that there is a liberating quality to advertising and consumption that should be appreciated and encouraged."	**Advertising is often offensive**: "A long-standing criticism of advertising is that it is often offensive and the appeals are in poor taste. Moreover, some would say that the trend in American advertising is to be rude, crude, and sometimes lewd…"
	Advertising is a democratic art: "Some argue that one of the best aspects of advertising is its	**Advertisers deceive via subliminal stimulation**: The authors refute this by stating:

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	artistic nature…Some of this art critiqued consumer culture and simultaneously celebrated it."	"…let us clarify: No one ever sold anything by putting images of breasts in ice cubes or the word *sex* in the background of an ad."
Advertising has a powerful effect on the mass media	**Advertising fosters a diverse and affordable mass media**: "Advertising fans argue that advertising is the best thing that can happened [*sic*] to an informed democracy. Magazines, newspapers, television and radio stations, and web sites are supported by advertising."	**Advertising affects programming**: "Critics argue that advertisers who place ads in the media have an unhealthy effect on shaping the content of information contained in the media."

Table 2 - Pros and cons of advertising

Pros and cons taken into account, the ultimate purpose of advertising is to entice consumers to buy products or services. This becomes an especially difficult task in a market space where competing firms are on par with regards to the value triad. Burke et al. used ibuprofen based products as a class of consumer product to test deceptive advertising precisely because of this reason – in terms of ingredients and effectiveness, there is little difference between various products on the market, forcing manufacturers to revert to deceptive advertising techniques: "In the case of products such as analgesics, where a set of competing brands has similar or identical chemical compositions, advertisers often rely on exaggerated and ambiguous advertising claims to differentiate brands in the minds of consumers…"[287]

5.3.2 Manipulation and consumer behaviour

The concept of ecological rationality in F&FH determines that heuristics adapt to the structure of the task environment in order to provide the decision maker with information (cues) when selecting an alternative. It was also noted that emotions are regarded as a subset of the heuristics used in the decision making process. Although not the focus of this study it

[287] Burke, R.R., DeSarbo, W.S., Oliver, R.L., Robertson, T.S. 1988. "Deception by Implication: An Experimental Investigation" in: *Journal of Consumer Research*, 14 (4): 485

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is important to note that manipulation of the environment, as well as emotions, have an affect on the way that consumers act. Ronald Milliman created a study that measured the effect of music on supermarket shoppers. His findings were that slow music results is slower pace of in-store traffic, and results in higher sales volumes. Conversely, fast paced music resulted in a higher pace of in-store traffic and lower sales volumes.[288] Manipulating the auditory aspects of the environment directly affected shopping behaviour. In another study on ambient scent it was found that pleasant scents increased attention and memory, and improved evaluations for unfamiliar brands.[289] The consequence is that, when launching a new brand, shoppers' attitudes may be affected by its smell.

The manipulation of emotions is also well studied. As an example, Yoo & MacInnis found that, whether an advertisement is emotional or informational, the credibility of these advertisements are subject to the feelings of the audience, resulting in the conclusion that people cannot be seen as mere information processing mechanisms.[290] In another example, Lin et al manipulated the emotions of their audience between "good" and "bad" in an effort to gauge its role in the endowment effect. The endowment effect is "the tendency for minimum selling price to exceed maximum buying price for a particular object".[291] The researchers found that the endowment effect occurs when good emotions are induced, whereas it is absent when bad emotions are induced.[292] In essence then, making people feel good allows the seller to gain profits because people who feel good are more willing to pay higher prices.

5.3.3 The manipulation of meaning in advertising

Paul Ricoeur developed an in-depth philosophy concerning the creation of meaning through the use of metaphor. He explains: "The maker of metaphors is this craftsman with verbal skill *who*, from an inconsistent utterance for a literal interpretation, draws a significant

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[288] Milliman, R.E. 1982. "Using Background Music to Affect the Behavior of Supermarket Shoppers" in *The Journal of Marketing*, 46(3): 86 - 91

[289] Morrin, M. & Ratneshwar, S. 2000. "The Impact of Ambient Scent on Evaluation, Attention and Memory for Familiar and Unfamiliar Brands" in *Journal of Business Research* 49: 157 - 165

[290] Yoo, C. & Macinnis, D. 2005. "The brand attitude formation process of emotional and informational ads" in *Journal of Business Research*, 58: 1397 - 1406

[291] Lin, C., Chuang, S., Kao, D.T. & Kung, C. 2006. "The role of emotions in the endowment effect" in *Journal of Economic Psychology*, 27: 589

[292] Lin, C., Chuang, S., Kao, D.T. & Kung, C. 2006. "The role of emotions in the endowment effect" in *Journal of Economic Psychology*, 27: 589 - 597

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utterance for a new interpretation which deserves to be called metaphorical because it generates the metaphor not only as deviant but as acceptable. In other words, metaphorical meaning does not merely consist of a semantic clash but of the *new* predicative meaning which emerges from the collapse of the literal meaning, that is, from the collapse of the meaning which obtains if we rely only on the common or usual lexical values of our words."[293] Metaphor happens when something is said in such a way that the literal meaning gives way to a newly created meaning.

In a recent study McQuarrie & Phillips combines the concept of implicature with metaphor and studies what one may call the perlocutionary effect thereof in advertising: "We shall argue that indirect claims, such as those using metaphor, may be advantageous because they render the consumer more receptive to multiple, distinct, positive inferences about the advertised brand." They extend metaphor to the use of images when they say: "In addition, an indirect metaphorical claim presented in a picture enjoys a further advantage because such inferences are more likely to be generated spontaneously at the time of ad exposure."[294] They state that "[m]etaphors represent a type of indirect claim because they make claims in a figurative way rather than a literal way – the advertising message is not stated outright but only implied…"[295] Their study proceeds to test the hypothesis that indirect claims through visual metaphor provides a specific advantage to the advertiser. This advantage lies in the way that the consumer processes the indirect claims. In essence, the use of visual metaphor elicits the generation of strong and weak implicatures: "According to linguists Sperber and Wilson (1986), there are two basic kinds of inferences that can be drawn in response to a message: (1) strong implicatures, and (2) weak implicatures."[296] A strong implicature is the single most obvious inference that one is likely to make when faced with a visual metaphor, whilst weak implicatures are inferences that are peripheral to the strong implicature. McQuarrie & Phillips state that weak implicatures "are best thought of as inferences

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[293] Ricoeur, P. 1978. "The Metaphorical Process as Cognition, Imagination and Feeling" in *Critical Inquiry*, 5(1): 146

[294] McQuarrie, E.F & Phillips, B.J. 2005. "Indirect Persuasion in Advertising: How Consumers Process Metaphors Presented in Pictures and Words" in *Journal of Advertising*, 34(2): 7

[295] McQuarrie, E.F & Phillips, B.J. 2005. "Indirect Persuasion in Advertising: How Consumers Process Metaphors Presented in Pictures and Words" in *Journal of Advertising*, 34(2): 8

[296] McQuarrie, E.F & Phillips, B.J. 2005. "Indirect Persuasion in Advertising: How Consumers Process Metaphors Presented in Pictures and Words" in *Journal of Advertising*, 34 (2): 10

generated as part of an attempt to comprehend advertiser intent."[297] From their study the following to conclusions are relevant namely: a) "...the findings show that the use of metaphorical claims in ads appears to make consumers receptive to multiple, distinct, positive inferences about the advertised brand (i.e. weak implicatures), while still conveying the main message of the ad (i.e. strong implicature). Furthermore, metaphors presented in pictorial form are able to elicit these multiple inferences spontaneously at the time of ad exposure." and; b) "A further implication of this study is that verbal rhetorical figures in ads may be less effective that visual figures."[298]

From the above it follows that implied information through the use of visual metaphors generates a positive experience for consumers through the spontaneous generation of weak implicatures. The question however remains whether or not these implicatures are truthful.

5.3.4 Problem of measuring disinformation in implicatures

Dariusz Galasinki distinguishes two types of deception – the first, omission, is the act of withholding information that will induce a false belief: "Withholding information, controlling it, is the essence of deception in general – if the target had access to all information relevant in a given communicative situation, deception would be impossible. A passive deceiver, however, offers nothing to distort or falsify reality; the passive deceiver is silent and merely conceals a piece of information…"[299] On the other hand Galasinki shows that deception can be an act of commission: "An active deceiver, one who engages in an act of deception by commission, causally contributes to the target's acquiring or continuing a belief that suits the purposes of the deceiver. This can be done in two ways: by information explicitly conveyed in the utterance or by information that is implicit."[300] Implicatures are then by default acts of commission.

Earlier in the study it was shown that, when the maxims of the Cooperative Principle are violated, a speaker is liable to mislead. Galasinski notes the following: "Having established

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[297] McQuarrie, E.F & Phillips, B.J. 2005. "Indirect Persuasion in Advertising: How Consumers Process Metaphors Presented in Pictures and Words" in *Journal of Advertising*, 34 (2): 10

[298] McQuarrie, E.F & Phillips, B.J. 2005. "Indirect Persuasion in Advertising: How Consumers Process Metaphors Presented in Pictures and Words" in *Journal of Advertising*, 34 (2): 17 - 18

[299] Galasinksi, D. 2000. *The language of deception: a discourse analytical study*: 22

[300] Galasinksi, D. 2000. *The language of deception: a discourse analytical study*: 22

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the Gricean conceptual framework, McCornack (1992) shows messages that violate the four conversational maxims. Thus, omissions as well as messages involving varying degrees of informativeness violate the maxim of quantity; quality violations, being the prototypical 'deceptive messages', involve 'distorted' versions of the sensitive information or the presentation of completely fabricate information; speakers who violate the maxim of relation attempt to divert the course of conversation from potential disclosure of 'dangerous' information; finally, manner violations involve ambiguity."[301]

Using the Gricean framework as a tool to identify disinformation may not be effective. Disinformation is defined as the information that is disseminated during the process of disinforming. The process of disinforming has the following characteristics:

1. The act of information dissemination.
2. The belief by the source that the information is false.
3. The source foresees that the target will believe the information.
4. The information is in fact false.
5. It is reasonably expected that the target will believe the information.

When the Gricean framework is applied to visual metaphor it is problematic in the following ways:

1. It cannot measure the motive to mislead (foreseeing that the target will believe the information and the reasonable expectation that the target will believe the information).
2. It cannot measure the belief by the source that the information is misleading or deceptive.

The second of these shortcomings is further complicated by the fact that advertising is in general heavily regulated in order to curb deception. For example, advertising in the United States is regulated by the FTC – they provide the following general guidelines for advertisers: "Under the Federal Trade Commission Act:

- Advertising must be truthful and non-deceptive;
- Advertisers must have evidence to back up their claims; and

[301] Galasinksi, D. 2000. *The language of deception: a discourse analytical study*: 27

- Advertisements cannot be unfair."[302]

The FTC also provides a definition for when an advertisement is regarded as deceptive:

"According to the FTC's Deception Policy Statement, an ad is deceptive if it contains a statement - or omits information - that:

- Is likely to mislead consumers acting reasonably under the circumstances; and
- Is 'material' - that is, important to a consumer's decision to buy or use the product."[303]

Advertisers have learned that, in order to remain legally clear in their advertising, they should avoid making false statements. What is interesting about this definition for deceptive advertising is that it refers to a false statement; however, there seems to be very little in the way of regulating implied information. One possible reason for this is that the implicatures are generated by the audience – this has two possible implications, firstly, when something is unstated an advertiser could easily maintain that the interpretation was simply a by-product of the imagination of the complainant and secondly, deception can only be measured after the fact. McQuarrie & Phillips took up the issue of regulation: "If it is true that consumers are peculiarly vulnerable to pictorial metaphors, then legal protections may need to evolve beyond a focus on whether a claim made in words is true or false towards an emphasis on whether a population of typical consumers does or does not spontaneously draw certain inferences from the ad in its entirety, including its pictorial components… Whether the legal system can evolve to address the possibility of misleading pictorial claims remains to be seen. At the least, this study argues for efforts to educate consumers to attend more closely to pictorial claims and to scrutinize them more critically…"[304] Reece & Ducoffe echoes a similar sentiment in their study of implied meaning in brand names: "If standardization of meaning is not possible, then one public policy alternative is simply to encourage

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[302] FTC. 2001. *Advertising FAQ's: A Guide for Small Business*: http://business.ftc.gov/documents/bus35-advertising-faqs-guide-small-business. Accessed 30 August 2011.

[303] FTC. 2001. *Advertising FAQ's: A Guide for Small Business*: http://business.ftc.gov/documents/bus35-advertising-faqs-guide-small-business. Accessed 30 August 2011.

[304] McQuarrie, E.F & Phillips, B.J. 2005. "Indirect Persuasion in Advertising: How Consumers Process Metaphors Presented in Pictures and Words" in *Journal of Advertising*, 34(2): 19

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manufacturers to be explicit in their advertisements and on their packages as to the claims and benefits inherent in the brand names. If guidelines are instituted for other terms used in brand names, a consumer education program should be built into the new regulations. Such a program might be federally funded or might be a joint effort of manufacturers and grocery store chains. Any activity undertaken should have as its goal improving consumer understanding for better decision making."[305]

5.3.5 A solution for consumers: ask the right questions

What follows from the above is that, due to the fact that the implicatures are generated by the audience, it seems that it is difficult to determine whether or not implied information can be defined as disinformation before the fact or at the time of ad exposure. Disinformation, however, can be easily determined after the fact as shown in the studies of McQuarrie & Phillips as well as Reece & Ducoffe. Lord & Kim conducted a study on the effects of the executional style of advertisements on consumers, and suggested that, contrary to the findings above, there may be a way to *inoculate* consumers against deception through a method of framing. In essence they studied two framing styles of advertisements (attribute vs. emotional) and found that, when an advertisement aligns with the framing preference of the subject they will be more susceptible to deception. They conclude the following: "Since framing-style consistency leaves consumers disproportionately susceptible to deception, consumers may benefit from an educational program which alerts them to the danger of confusing expectancy confirmation with credibility in the evaluation of advertising claims."[306] In other words, if the consumer understands that the credibility of an ad is not dependent on whether it provides information in the way that consumer prefers, one might be less susceptible to deception. In the manner of Austin – illocution consistent with the expectations of the consumer is not equal to truth in the stated or implied claims of the advertisement.

Lord & Kim provide us with the three additional examples of deceptive advertising that is difficult to regulate and often appears in advertisements namely 1) puffery, 2) incomplete

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[305] Reece, B.B. & Ducoffe, R.H. 1987. "Deception in brand names" in *Journal of Public Policy & Marketing*, 6: 102

[306] Lord, K.R. & Kim, C.K. 1995. "Inoculating Consumers Against Deception: The Influence of Framing and Executional Style" in *Journal of Consumer Policy*, 18: 17

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comparisons and 3) implied-superiority claims.[307] Kamins & Marks define puffery as follows: "As noted by Preston (20), puffery is legally defined as 'advertising or other sales representations which praise the item to be sold with subjective opinions, superlatives, or exaggerations, vaguely and generally, stating no specific facts.' Examples of puffery include some slogans which are extremely familiar to the consumer, such as 'Nestles [sic] makes the very best chocolate,' 'You can't beat the experience…Pan Am' and 'Count on the leader, Bank of America.'"[308] The authors studied the effects of puffery, specifically what they call two-sided claims, on product evaluations by consumers: "A two-sided appeal typically presents the product in a positive fashion on attributes which are salient or important to brand choice, but disclaims or limits product or brand performance claims on some attributes which are of relatively minor significance to the consumer. The intent is to establish credibility without deterring purchase… Two-sided appeal can be either refutational or non-refutational. In a refutational form, the product's weaknesses or its limitations are refuted in the context of the communication, whereas in a non-refutational form, the weakness is presented without any attempt at refutation."[309] In essence their study found that extreme puffery is ineffective, however moderate one-sided puffery influences consumer ratings of products and that two-sided refutational puffery has the greatest influence.[310]

Shimp defines incomplete comparisons as follows: "Incomplete comparative advertising is illustrated by such unqualified advertising claims as 'Brand X is better' and 'Brand Y will get your dishes cleaner.' The receiver of such claims must infer what brands X and Y are better than and with regard to what… such claims are misleading by virtue of being inherently susceptible to multiple interpretations, some of which may be false."[311] He goes on to prove in his study that subjects made inferences, not just that of completing the statement, but even

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[307] Lord, K.R. & Kim, C.K. 1995. "Inoculating Consumers Against Deception: The Influence of Framing and Executional Style" in *Journal of Consumer Policy*, 18: 171

[308] Kamins, M.A. & Marks, L.J. 1987. "Advertising Puffery: The Impact of Using Two-Sided Claims on Product Attitude and Purchase Intention" in *Journal of Advertising,* 16(4): 6

[309] Kamins, M.A. & Marks, L.J. 1987. "Advertising Puffery: The Impact of Using Two-Sided Claims on Product Attitude and Purchase Intention" in *Journal of Advertising,* 16(4): 7

[310] Kamins, M.A. & Marks, L.J. 1987. "Advertising Puffery: The Impact of Using Two-Sided Claims on Product Attitude and Purchase Intention" in *Journal of Advertising*, 16(4): 13

[311] Shimp, T.A. 1978. "Do Incomplete Comparisons Mislead?" in *Journal of Advertising Research*, 18 (6): 21

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beyond that.[312] His study reflects the findings of McQuarrie & Phillips who found evidence for strong and weak implicatures. As an introduction to the title of his study, Shimp suggests that, when commercials fail to complete the comparison, the question that needs to be asked is "Better than what?"[313]

The third type of deceptive technique identified by Lord & Kim is implied-superiority claims. Rita Snyder defines implied-superiority claims as follows: "An implied superiority claim, such as 'No leading brand gets rid of dandruff better than Selsun Blue,' presents a statement of parity that may be understood as suggesting superiority."[314] Snyder found that implied-superiority claims may be misleading to a degree: "…between 28 and 75 percent of the subjects in any experimental condition interpreted implied-superiority claims to mean that the advertised brand was the best or better than others."[315]

From the four points presented, it follows that consumers can to some degree be educated on how to interpret advertising in order to avoid being deceived. Firstly the consumer can become more aware of their illocutionary preference and become more sensitive to their response to advertisements that play to this preference. Secondly, the consumer can learn to recognise two-sided refutational appeals and choose to remain as objective in their buying choices as possible. Thirdly, consumers can learn to recognise incomplete comparisons and ask the question "Better than what?" Finally consumers can learn to recognise implied-superiority claims and seek out information that can help them make factual comparisons between brands.

The same deceptive techniques can be applied to pictorial advertisements. The following examples have been created specifically for this study:

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[312] Shimp, T.A. 1978. "Do Incomplete Comparisons Mislead?" in *Journal of Advertising Research*, 18 (6): 27

[313] Shimp, T.A. 1978. "Do Incomplete Comparisons Mislead?" in *Journal of Advertising Research*, 18 (6): 21

[314] Snyder, R. 1989. "Misleading Characteristics of Implied-Superiority Claims" in *Journal of Advertising*, 18(4): 54

[315] Snyder, R. 1989. "Misleading Characteristics of Implied-Superiority Claims" in *Journal of Advertising*, 18(4): 60

Figure 12 - Example of an emotional frame

Earlier in the study we used the baker's advertisement as way to state the problem of how implied information can be generated without direct or stated falsity. The way in which it has been designed is also a very good example of an emotional frame. Rather than provide attributes of the cakes he sells, Ben Baker makes an emotional case – one that exudes the happiness of a birthday boy, and the urgency to place the order.

Figure 13 - Example of a two-sided refutational appeal

In Figure 13 we see a good example of a two-sided refutational appeal. The advertisement clearly highlights the underpowered engine, but appeals to the style conscious market on a budget. In contrasting the ugly military style vehicle with the more stylish LX1300, the advertiser emphasis style over power. Moreover, with the statement that "Style is better" there is another incomplete comparison.

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Figure 14 - Example of an incomplete comparison

Figure 14 shows an example of an incomplete comparison – in a sea of brown beer bottles; the green bottle used by Brewers Premium Beer stands out in comparison. But it leaves the question open – in comparison to what? In this way the consumer is allowed to infer the comparison which may lead to deception – the bottle, after all, is not what makes the beer.

Figure 15 - Example of an implied superiority claim

In Figure 15 we meet Darren Beuer a fictional five-time gold medallist in men's swimming (in an unknown tournament). He uses Arum cologne and since Darren is a superior swimmer, this must mean that he makes superior choices with regards to the scent he wears. The implied claim that Arum is somehow superior to other colognes by virtue of its association with a sport star makes no sense in an empirical manner, yet it remains an effective advertising technique.

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5.4. Disinformation in the Adaptive Toolbox

5.4.1. Analysing disinformation using the F&FH frame

Implicatures can be misleading. If metaphors have been created specifically for the purpose of generating misleading weak implicatures, then said implicatures can be defined as disinformation. It has been shown that brands are often forced to resort to such tactics of persuasion as they may not have a unique competitive position in the market for a given product, because all of the competing brands provide similar quality and composition of the given product.

When faced with such an advertisement, can one use the principles of F&FH to identify disinformation? Stated differently – it is possible to determine cue veracity using the principles of F&FH? There are two ways of approaching this question – the first is to define "truth" and argue according that definition, alternatively one could use the definition of disinformation and test the principles of F&FH accordingly. It was shown in this study that the concept of truth is not only difficult to define, but has been a key question in philosophy for millennia. This study will therefore not attempt a definition beyond correspondence and coherence. However, disinformation has been well defined – this definition will be used to test the principles of F&FH through using examples provided throughout the study.

5.4.2.1 The mints problem

As a thought experiment, earlier in the study an example was provided of a shopper wanting to buy mints. It was shown that, using the heuristic of Tallying, the shopper would select a product he deems as satisfying to his goal of "fresh breath" for "as long as possible". In the particular instance it was speculated that the heuristic of Tallying might have been used to deduce which packet of sweets to buy. For the purpose of description the example may as well have used the heuristic of Take The Best (where cues are sequentially analysed to determine which alternative is the best)[316], Imitation (where the shopper would have imitated another person in his selection)[317] or even Take The First (where he did not spend much time analysing the environment and simply took the first option that, from experience, would

[316]Todd, P.M. 2002. *Bounded Rationality – The Adaptive Toolbox*: 59

[317] Goldstein, D.G. et al. 2002. *Bounded Rationality – The Adaptive Toolbox*: 174

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satisfy his aspiration)[318]. Even though some questions were derived from this example, it was shown that F&FH could be used to describe how the shopper came to make his choice. The purpose of this, and the next, example is to investigate to which extent the F&FH framework can support better decisions when a person is faced with implicature-type disinformation.

In the example in Chapter 3 the shopper decided to buy Super Mints, the new product, that was selected based on tallying the cues that related to the shopper's requirement for fresh breath. It was shown however that the shopper selected an inferior product and therefore, even though the tallied cues in the environment led him to Super Mints, he made a wrong choice.

If the shopper was to use the Take The Best Heuristic he would have processed cues sequentially until one cue directed him to one or the other product. In this case, if he approached the sweets from one end of the aisle he might have encountered the sweets in the following sequence: Musk, Strong Mints, Super Mints. In this case he would possibly have stopped his search at Strong Mints as it contained the first cue that indicated a possible alternative to satisfy his aspiration level. If he approached the sweets from the other end of the aisle he would have encountered Super Mints first and selected that.

If he relied on his previous experience of Strong Mints the Recognition Heuristic might have been induced – in this case he would have walked to the sweets aisle and selected Strong Mints as the only option, and only have considered Super Mints if Strong Mints were out of stock. The Recognition Heuristic exploits the lack of knowledge[319] – the shopper did not know anything about the new brand of breath mints and, presuming the Recognition Heuristic was induced, would select the mints he recognizes from previous experience.

In yet another scenario the Imitation Heuristic might have been induced where he might have imitated his favourite movie star, his girlfriend or his best friend in their choice of breath mints – if the movie star preferred Super Mints, then the shopper might have imitated him and selected the same product. The "imitate if better" rule might apply since it assumes that people will follow the decisions by those they regard more successful than themselves.[320]

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[318] Goldstein, D.G. et al. 2002. *Bounded Rationality – The Adaptive Toolbox*: 177

[319] Goldstein, D.G. et al. 2002. *Bounded Rationality – The Adaptive Toolbox*: 187

[320] Goldstein, D.G. et al. 2002. *Bounded Rationality – The Adaptive Toolbox*: 175

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As much as it is speculative, the argument shows that the programme of F&FH at the very least shows some potential in its descriptive attempts of how decisions are made using these mental shortcuts, presuming that one accepts the concept of heuristics in the first place. The heuristic that will normally be induced would depend on the environment (which sweets are available, how they are displayed etc.) and the limitations of the shopper's knowledge of different mint brands and the time he has to gather information about his selection.

Prescriptive models in JDM prescribe methods for decision making improves the chances of a better decision.[321] From this perspective it must first be clear what the decision making problem is – it was stated in the example that the shopper had a goal of "fresh breath" with an aspiration level of "for as long as possible" and that two products competed for his attention. The first, Strong Mints, lasts an hour per lozenge and the second, Super Mints, lasts for 30 minutes. Based on this information, the best decision would have been to take Strong Mints because that would in reality have been the best option. The problem is that Super Mints presented information is such a way as to elicit implicature-type disinformation that will mislead the shopper in terms of the actual strength of the product. Could the study of ecological rationality prescribe a better heuristic to help the shopper identify implicature-type disinformation and the lead him to a better decision? As has been discussed in the study, proponents of the F&FH programme claim that the environment must be studied in order to match it with the best heuristic.

Two questions arise: firstly, if implicature-type disinformation is generated by the perceiver of a metaphor or text, does this newly generated piece of information exist in the ecology of the decision maker? Gigerenzer may argue that the information exists in the memory of the decision maker and therefore could act as a cue.[322] If this is the case, then any heuristic that relies on this cue will be bound to lead to an inferior decision as the cue provides misleading information. Secondly, if one were to prescribe analysis of a cue, would the prescribed process still be fast and frugal? Heuristics are fast because they act as shortcuts and as such they preclude any extended analysis of cues. They are frugal because they do not use a lot of resources (processing power and knowledge). If cues are to be analysed then the rational

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[321] As discussed in Chapter 2

[322] For a discussion on memory within the F&FH context see: Hoffrage U. & Hertwig, R. 1999. "Hindsight Bias – A Price Worth Paying for Fast and Frugal Memory" in *Simple Heuristics that Make Us Smart*: 195

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process involved will take more time and processing power. Applied to the mints problem, the shopper would have to take the time to visit the web site on the Super Mints package to ascertain whether or not it is truly a superior product. This would be an approach that is neither fast nor frugal.

If the F&FH provides normative insights in terms of the rationality of choices made with heuristics that are well matched to environments, then the mints problem highlights a key issue – it may happen that, using only heuristics to make decisions, people select alternatives that do not satisfy an aspiration level of a specific goal. It was noted earlier in the study that neither Gigerenzer, nor other researchers in the programme, claim that heuristics are always effective or accurate, only that they may be as accurate as the norms suggested by the H&B programme in certain situations. As a norm, the match between heuristics and an environmental structure will obviously not fare well where implicature-type disinformation is present due to an exclusive reliance on cues of which the veracity is not tested. Even if the heuristic is well matched to the environment (e.g. the mints problem) it may result in the decision maker selecting an alternative that may not satisfy his aspiration level – the decision maker would have acted rationally and still have made a bad decision. The question that arises from this analysis is then as follows: what value does ecological rationality provide in the normative sense other than being descriptive of what a rational (yet potentially fallible) choice consists of?

5.4.2.2 The baker problem

In another thought experiment, Ben Baker was introduced with a specific problem. The problem was that he faced competition from other bakeries and grocery stores with cake sales and needed a way to gain a competitive advantage. In terms of service quality, product quality and value-based pricing Ben is on par with the competitors and has very little that differentiates him from the competition. Ben decides to take out an advertisement in the local paper to boost sales (Figure x) that depicts a small boy that is celebrating his first birthday. The advertisement states in its heading “Great cakes make for happy birthdays” and has a subheading that states “Call early to place your order.” None of these sentences provide false information, however it doesn’t provide any factual information about Ben’s bakery either. As such it is an emotionally framed advertisement that is aimed to elicit a response from mothers who have small children. Ben knows from experience that mothers become very stressed when putting together a children’s party and created this advertisement to speak to

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this need for having a successful party. The subheading is a directive that makes it clear that Ben Baker has a full schedule and requires mothers to order early.

Figure 16 - Ben Baker's Advertisement

The baker problem is different to the mints problem in one critical aspect, namely that the advertisement is not necessarily read at the time when the decision to buy a specific cake is made. Rather, the advertisement acts as a piece of information that aims to create a positive attitude towards Ben Baker with potential customers. This advertisement will form part of the internal framework of decision makers when their child's birthday comes around. The strong implicature in this advertisement is "Ben Baker sells cakes" with potential weak implicatures that can range from "the cakes will help me host a good children's party" to "my child will be happy with this cake."

This kind of advertisement highlights perhaps the greatest shortcoming of the F&FH programme namely its inability to properly account for internalised cues. Some researchers do make note of memory as a point of retrieval[323] however the lack of a unified theory on bounded rationality and ecological rationality (specifically with regards to the description of

[323] Martignon, L. 2002. *Bounded Rationality – The Adaptive Toolbox*: 170

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the environmental structure[324]) makes it difficult to pinpoint the role of memory and internal cues to the decision making process. Following the concept of ecological rationality, there is little clarity how internalised information (knowledge, beliefs, attitudes and so forth) is accounted for during the decision making process.

Not only does Ben Baker succeed in creating a competitive position through an emotional frame, he succeeds in creating an internal point of reference – a good memory that was developed through the manipulation of emotions – that becomes part of the information that the decision maker will use when they need to buy a birthday cake for a toddler. Ben cannot guarantee the success of a party, but through association he created the impression that his cakes will contribute to "happy birthdays". He didn't lie, but the inference following from this, as well as the emotional attachment, creates a differentiation that does not necessarily reflect a good decision. For example, it might be that for a specific customer, Ben's bakery is quite far away when a grocery store selling a similar product may be just around the corner. As such the cake from Ben's bakery would potentially satisfy the goal, but it may not be the best alternative because of opportunity costs.

As mentioned before, Gigerenzer is quite clear that the use of fast and frugal heuristics does not necessarily lead to better decisions: "The moral is not that people would never err, but that in order to understand good and bad judgments, one needs to analyze the structure of the problem or of the natural environment."[325] Gigerenzer might argue that one could understand why the decision to buy from Ben's Bakery is a less optimal one as the heuristics employed did not cater for additional variables such as travelling distance. In this manner it would perform a descriptive function. That said, even if the F&FH programme helped explain why the decision was less optimal it may not be able to provide a better way of making decisions in the context of daily tasks or decisions that are somewhat less critical than heart patients. [326]

Taking the prescriptive issue a step further one might ask: what prescriptive solution would the F&FH programme recommend for better decision making in this scenario? There are a

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[324] As noted by Goldstein et al. in the discussion on the shortcomings of F&FH in: Goldstein, D.G. et al. 2002. *Bounded Rationality – The Adaptive Toolbox*: 188

[325] Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 66

[326] In reference to an example of a fast and frugal tree designed for coronary care unit decisions in: Gigerenzer, G. 2007. *Blackwell Handbook of Judgment & Decision Making*: 81

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few references to examples of the prescriptive application of fast and frugal decision trees in medical contexts as pointed out in the preceding paragraph, but can one develop a fast and frugal tree for buying cakes? What about buying bread, milk, cereal, dishwashing liquid, toilet paper, cars or any other product which is heavily marketed through the use of pictorial metaphor? Gigerenzer & Todd answers the question in this way: "…specificity can also be a danger: If a different heuristic were required for every lightly different decision-making environment, we would need an unworkable multitude of heuristics to reason with, and we would not be able to generalize to previously unencountered environments. Fast and frugal heuristics avoid this trap by their very simplicity, which allows them to be robust in the face of environmental change and enables them to generalize well to new situations."[327]

As with the mints problem, the cues in the environmental structure of the mom who wants to buy a birthday cake may include pieces of implicature-type disinformation. Heuristics, from the F&FH perspective, rely on cues and will lead to suboptimal decisions in the context of consumer choice. The same prescriptive issue therefore arises from the baker problem namely that no heuristic that fully relies on cues from the environmental structure differentiates the veracity of the cues – verifying cues will inherently require time and processing power as well as a conscious effort to find "true" cues. Once this conscious effort takes place it is no longer a heuristic that allows the decision maker to be rational. In addition, the baker problem highlights another issue, namely that the definition of heuristics seem self-contradictory. They are described as domain specific, yet they are also described as robust. It may be argued that a heuristic will apply to the domain of "shopping" and be robust in the sense that, for example Take The Best, would apply in most shopping situations. This leads to a further question however namely: how big can a domain be before a heuristic becomes domain general? For example, one may argue that shopping for a car is not the same as shopping for bread – how will the F&FH programme distinguish the boundaries of a domain to which a heuristic is matched?

5.5 Shortcomings in the Fast & Frugal Heuristics Programme

This study posed a question on the way in which the F&FH programme is useful in uncovering disinformation. From the two main examples it was firstly found that F&FH

[327] Gigerenzer, G. & Todd, P.M. 1999. "Fast and Frugal Heuristics" in *Simple Heuristics That Make Us Smart*: 18

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may not be able to effectively differentiate implicatures as part of the set of cues that assists decision makers in the process of selecting an alternative. Even though F&FH refers to emotions as powerful building blocks of heuristics[328], the implicatures are not necessarily emotional, and because they are not part of an experience based on the environment, it is difficult to say whether it is part of the memory or not. In the mints problem the shopper did not make an emotional choice over which packet of mints he wanted, he merely responded to the cues and generated implicatures that confirmed his choice in an informational manner. Secondly there seems to be no way to establish cue veracity – instead many studies in F&FH focus on cue validity which makes no statement about how a decision maker can differentiate between truth and deception. Thirdly it was found that the F&FH framework does not adequately describe the role of internalised information (in the form of knowledge, attitudes or beliefs amongst others) in the decision making process. Finally, in reference to social rationality, the F&FH framework may attempt to include cues that are socially generated however it remains focused on the individual agent as an independent entity rather than a relational being that is constantly influenced by other agents. It simply does not take the notion of language use as a joint activity fully into account.

The study of the two examples aimed to determine whether the F&FH framework carries the descriptive, prescriptive and normative power claimed by Gigerenzer when cues carry implicature-type disinformation. The examples given showed that heuristics have the ability to potentially describe how decisions are made but, due to emphasis on the environment, is unable to explain how the veracity of cues is determined. People have been deceiving each other for longer than history is recorded – if Galasinski is to be believed, deception is embedded in our societies and cultures. If heuristics are truly as adaptive and effective as Gigerenzer claimed, why is it that, after millennia of deception, people still believe lies? Why haven't we developed heuristics that can assist us in finding and processing disinformation? The conclusion is clear – the F&FH programme currently lacks the depth and coherence required to process some of the most basic information manipulation techniques used in everyday language. Any prescriptive force it may carry loses impotence in the face of inconsistencies in theories and related findings. Furthermore, due to the fact that the veracity of cues cannot be determined without higher computational costs and time, any prescriptive rule using fast and frugal heuristics will inevitably rely on false information

[328] Gigerenzer, G. 2002. *Bounded Rationality – The Adaptive Toolbox*: 45 - 45

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that will lead to potentially bad decisions. Finally, it was found that the F&FH programme, as a response to the H&B programme, is to some degree a repetition of an age old philosophical debate between rationalism and empiricism – it does not bode well for a theory that repeats the mistakes of the past, especially when its founding researcher is a proponent of interdisciplinary information exchange. The empirical approach effectively precludes a researcher in the F&FH programme to determine how things like meaning or attitude influences decisions as it is explicitly ignored.[329]

5.6 Conclusion

Chapter 5 started off with an investigation into the truth condition of the F&FH programme – early in the study it was confirmed that ecological rationality relates to the truth theory of correspondence, however it was also assumed that cues are "truth neutral" and that F&FH uses the concept of cue validity to indicate how decisions are made. The two key questions regarding the manipulation of meaning and cue veracity was reiterated as a starting point for the analyses that followed.

It was shown that advertising turns people towards a product or service – it is a complete language act that constitutes of locution, illocution and perlocution that attempts to persuade consumers through the establishment of beliefs through different frames. Various pros and cons of advertising were discussed. It was shown that manipulation of the environment has a measurable effect on consumers. It was further shown that manipulation of meaning through the creation of pictorial metaphors in advertising carry the most influence on consumers. Several pictorial examples were provided.

A thought experiment using two examples of advertisements was discussed in an attempt to apply the F&FH framework to implicature-type disinformation. The first example provided implicature-type disinformation at the point of decision, whereas the second example provided implicature-type disinformation that would influence future decisions. It was found that many of the cues in the first example cannot be fully defined as disinformation using the definition provided by Fallis as they are inferred rather than disseminated. Moreover, recollection of memories (cues from memory) is neither inferred nor disseminated which may

[329] "The ABC program dispenses with the focus on coherence criteria (e.g., the laws of probability) as the yardsticks of rationality. Instead, we study the correspondence-based performance of heuristics in real-world environments…" in: Gigerenzer, G. & Todd, P.M. 1999. "Fast and Frugal Heuristics" in *Simple Heuristics That Make Us Smart*: 22

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indicate a different class of information altogether. It was shown that, even though the F&FH framework succeeds in giving a plausible description of decision making processes, it poses its prescriptive and normative force in the light of implicature-type disinformation. In the second example it was shown that implied information may affect future decisions, but once again, due to a lack of integration between cues from memory and internalised information (such as attitudes, beliefs etc.), F&FH fails to fully describe how such decisions are made. More importantly, any prescriptive decision trees that rely strictly on cues from the environment will inevitably lead to suboptimal decision outcomes as the cues may contain disinformation. Finally it was shown that the insistence upon a fully independent rational agent inhibits a full exploration of the relational aspects of decision making.

The final conclusion reached is that the F&FH programme does not provide adequate and useful norms or prescriptions for decision making when a decision maker is faced with implicature-type disinformation. At the very best, presuming that one accepts heuristics as the decision making tools Gigerenzer proposes, F&FH can provide adequate descriptions of how decisions are made.

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Chapter 6

Conclusion

6.1 Summary of findings

Does the programme of F&FH provide adequate and useful norms, descriptions and prescriptions for decision making when the decision maker is faced with implicature-type disinformation?

Chapter 2 poses a seemingly simple question namely: "What are the underpinnings of Judgement and Decision Making?" The chapter takes a two-pronged approach to the question: firstly the philosophical history of the discipline is investigated in the form of rationalism and empiricism with their related theories of truth. Secondly the chapter identifies and examines the three underlying assumptions of JDM namely, that man is rational, decisions follow norms and that decisions have a utility fulfilment function. The duality of the underlying philosophies is kept by elucidating the differences between the two forms of rationality most often discussed in JDM namely unbounded (or pure) and bounded rationality. Various related terms (e.g. satisficing and search) are introduced. The chapter finds that JDM at the very least shows a clear rift between proponents of unbounded rationality and those of bounded rationality, and that this rift reflects similar arguments between that of rationalism and empiricism. As such is it concluded that the current debate between the two perspectives on rationality is a continuation of the original philosophical differences between Plato and Aristotle.

Chapter 3 posed the question: "What is the Fast & Frugal Heuristics programme?" The chapter introduces the H&B programme and proposes that the F&FH programme was developed as a response. The key differences between the two programmes are discussed to highlight why F&FH places emphasis on particular issues such as bounded rationality. F&FH is then discussed in terms of the three underlying questions posed by the founding researchers that relates to the nature of the adaptive toolbox, the character and function of ecological rationality and practical applications of the theory. The chapter finally investigates information and the truth condition of F&FH and relates an example of a

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problematic decision making process that relies on deceptive implied information. This chapter finds that the F&FH programme is seen by its founding researcher as capable of delivering normative, descriptive and prescriptive insights.

Chapter 4 poses the question: "What is disinformation" and answer it by contextualising the use of language as a joint activity. The chapter shows through a careful historical and conceptual overview how disinformation developed from rhetoric through advertising, and that it is used strategically by enterprises with a profit motive in order to establish a competitive advantage. The concept of disinformation is defined using the framework of disinforming provided by Fallis and is then applied to the notion of implicata to show that implied information may also be recognised as disinformation.

Chapter 5 poses the final question of the thesis namely: "Does Fast & Frugal Heuristics uncover disinformation?" The nature of advertising is discussed in more depth to establish an objective perspective on the benefits and drawbacks of the practice. Deceptive techniques in advertising and sales are highlighted with special reference to those techniques in advertising that relies on generating weak implicatures. The effect of weak implicatures is examined through the use of two examples in a thought experiment - one of a shopper faced with an immediate decision, and one of an advertisement that informs a future decision. The F&FH framework is applied to the examples to investigate to which extent F&FH provides normative, descriptive and prescriptive mechanisms to process disinformation. The chapter finds that F&FH can effectively describe how certain kinds of decisions are made, but with regards to the examples provided, fail in accommodating disinformation, and (due to a heavy reliance on environmental cues) struggles to deal with cues generated as inferences from implicatures. Various shortcomings in the theory of F&FH is discussed with the final conclusion made that F&FH in its current format cannot provide effective normative and prescriptive outcomes when implicature-type disinformation forms part of the environment, even when it can provide adequate descriptions of how decisions are made.

6.2 Conclusions reached

In terms of the key research question, it is concluded that the programme of F&FH lacks the necessary definition and depth to provide normative and prescriptive outputs that are useful under conditions of disinformation and specifically implicature-type disinformation. A number of remarks can be made with respect to this conclusion:

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Firstly, proponents of the F&FH programme are very positive about the work that has already been done with regards to a more realistic understanding of human decision making and resulting normative and prescriptive insights. At the same time most researchers will fully admit to numerous shortcomings in the theoretical foundations of the programme, in the approaches to testing theories as well as the results of currently available tests themselves.

Secondly, even though there is a general admission of the importance of social and cultural elements in decision making, F&FH still remains intrinsically individualist and does not take issues such as motive, attitude and intent fully into account. As such it will always fail to recognise deception and disinformation as those form part of a language act that is specifically designed around hidden motives and specialised persuasion techniques. As much as proponents of this programme claim it to reflect a more realistic perspective on human decision making, it still very much suffers from an attempt to establish a model that is somehow removed from the human experience.

Thirdly, F&FH will not be able to break free from the underlying issues it faces without breaking free from its philosophical underpinnings. F&FH still remains primarily empiricist through its behaviourist/positivist characteristics in its underlying assumptions and application and as such fails to recognise the validity of concepts such as meaning, belief and attitude. If George Ladd's observation in Chapter 2 is to be taken seriously, the kind of empiricism presented by F&FH that explicitly ignores the mentalistic issues that coherent, rational inquiry brings, is empty of scientific value. True advances in JDM will be had once the age old questions of rationalism versus empiricism are laid to rest and fresh perspectives on the concept of reality and truth surface.

Throughout the study a number of other questions and criticisms arise:

1. How would Gigerenzer defend the claim that F&FH represents real-world decision making when, due to his heavy reliance on laboratory tests and Peter Todd's admission that it is difficult to effectively reflect real-world conditions in a laboratory, his findings reflect laboratory results and not results from real-world environments?

   In the material presented Gigerenzer indicates that F&FH represents real-world decision making which, based on the evidence presented, is an indefensible position. It is clearly one thing to construct carefully planned laboratory situations that could

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potentially reflect real-world decision making whereas it is quite another to test decision making in actual day-to-day conditions. It is the conviction of the researcher that Gigerenzer overstates the descriptive power of the F&FH programme.

2. How is Gigerenzer's claim that heuristics allow people to make decisions under constraints of limited time and knowledge any more positive than the statement made by Kahneman, Tversky and Slovic to the same effect when Gigerenzer admits that heuristics are indeed fallible?

   Based on the findings in this study, it seems as if the major difference between F&FH and its predecessor, H&B, is a matter of emphasis in this regard. Kahneman, Tversky & Slovic are by no means completely only negative about the role of heuristics as a mechanism of decision making. F&FH is also not completely positive about precisely how effective heuristics are in decision making, openly admitting to its fallibility. The negative light shed on H&B by proponents of F&FH seems unfair to the contribution it made to research in the field of JDM.

3. How does the F&FH approach explain the role of active manipulation of the environment by people with intent when the underlying theory implies that the decision maker merely responds to environmental cues?

   With the capacity to manipulate environments, and consequently the actions of others, people cannot be described as merely reactive agents. The simple fact that advertisements exist points to the proactive abilities of companies to ensure that they achieve sales. Even though this study found that Gigerenzer makes no claim to defining the concept of bound rationality, evidence was found to indicate that proponents of F&FH regards the theory as effectively descriptive of real-word decision making. A theory that portrays humans as reactive agents lack the robustness to effectively describe decision making – this seems to be the case with F&FH.

4. How does the F&FH programme explain why people haven't evolved beyond disinformation when a) the adaptive toolbox is an evolutionary concept and b) people have been faced with all sorts of deception throughout the history of mankind?

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The issue of deception in decision making does not feature prominently in research conducted within the F&FH programme. No evidence was found that indicates how the adaptive toolbox as a concept withstands circumstances where evolutionary mechanisms are exploited at the cost of the decision maker. This study explored how advertising developed over centuries and have evolved to the fine art of eliciting desired consumer behaviour. Presuming that the adaptive toolbox functions as described, different forms of deception in advertising (content notwithstanding) should theoretically become less and less effective.

6.3 Contribution to the field of decision making

Any study in the ways of decision making has as an output some contribution to better decision making by normal people. F&FH is quite clear about its attempt to describe the way in which normal people make decisions and to provide prescriptive tools for better decision making and normative inputs through empirical findings.

This study highlighted a number of critical, fundamental flaws in the F&FH programme. It is hoped that the information in this study provides an impetus for the development of a more coherent ecological model that also integrates better with the non-empirical aspects of decision making.

6.4 Opportunities for future research

This study approached the question of disinformation in context of the F&FH programme through an in-depth investigation of the philosophical origins of JDM and the F&FH programme, as well as the historical development of disinformation. The two most prominent questions that follow from this study are:

1. Is there a way in which a coherent model for rationality can be developed that reflects both empirical and non-empirical aspects of decision making within a relational framework?
2. What is the nature of implicature-type disinformation, how is it used and how can people inoculate themselves against such methods of deception through the use of better decision making techniques?

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