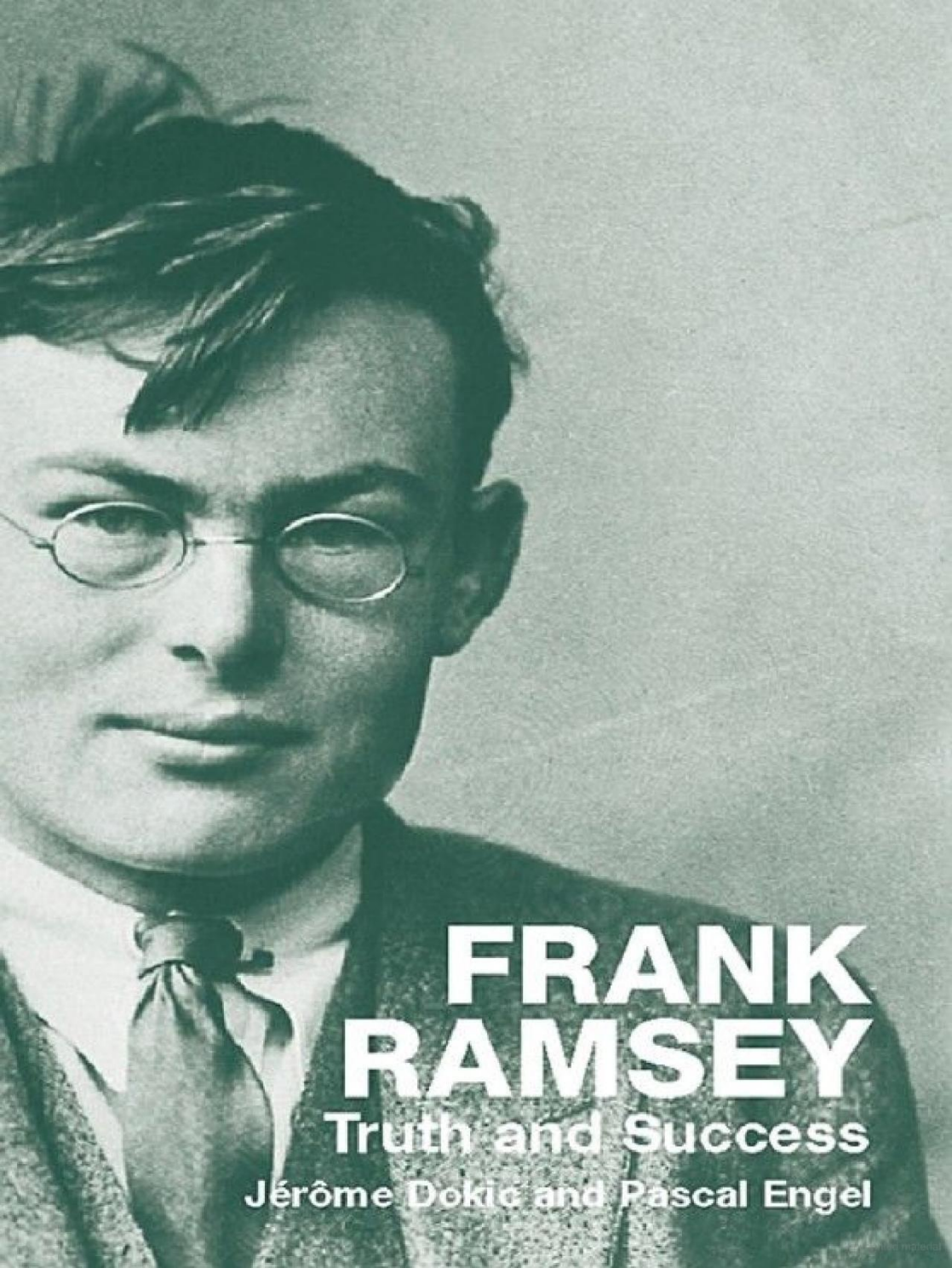

FRANK RAMSEY

Truth and Success

Jérôme Dokic and Pascal Engel

FRANK RAMSEY

Truth and success

Jérôme Dokic
and Pascal Engel

Routledge
Taylor & Francis Group
LONDON AND NEW YORK

First published 2001 as *Ramsey: Vérité et succès*
by Presses Universitaires de France
6 Avenue Reille, 75685 Paris, France

First published in English 2002
by Routledge
11 New Fetter Lane, London EC4P 4EE

Simultaneously published in the USA and Canada
by Routledge
29 West 35th Street, New York, NY 10001

Routledge is an imprint of Taylor & Francis Group

This edition published in the Taylor & Francis e-Library, 2003.

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
A catalog record for this book has been requested

ISBN 0-203-27343-5 (Adobe eReader Format)
ISBN 0–415–28719–7 (Print Edition)

CONTENTS

Acknowledgements
References and Abbreviations

Introduction: A meteor in the philosophical sky

1. Belief, probability and truth

1.1 Logic and the foundations of mathematics

1.2 Probability and the logic of decision

1.3 Human logic

1.4 Truth, belief and action

Chapter summary

2. Realism and pragmatism

2.1 Knowledge

2.2 Laws and causality

2.3 Conditionals and the Ramsey test

2.4 Theories and Ramsey sentences

2.5 Universals and reality

Chapter summary

3. Ramsey's Principle

3.1 Success semantics

3.2 Some complications

3.3 The limits of pragmatism

3.4 Success semantics and teleosemantics

Chapter summary

4. The satisfaction of desires

4.1 The problem of the satisfaction of desires

4.2 An asymmetry between desire and belief

4.3 Satisfaction as extinction

4.4 Motivational foundationalism

4.5 Toward an anti-reductionist conception of desire

Chapter summary

5. The situation of action

5.1 The cognitive overload objection

5.2 The perception of instrumental relations

5.3 Action as a source of knowledge

5.4 The Principle of Informational Equilibrium

Chapter summary

Conclusion: The future of pragmatism

Notes

Bibliography

Index

ACKNOWLEDGEMENTS

The present book is a revised and slightly augmented version of a book which appeared in French (*Ramsey: Vérité et succès*, Paris: Presses Universitaires de France, 2001). We are indebted to a number of people, both for the French version of this book and for the present one.

We first learnt about Ramsey through the writings of Donald Davidson, Richard Jeffrey and John Vickers. We owe them much. Our deepest debt is to Hugh Mellor and to Nils-Eric Sahlin, to whom we dedicate this book. Not only would this book not have been possible without their pioneering work on Ramsey, but they also gave us much advice, encouragement and help with both the substance of this manuscript and its publication. Many thanks to Tim Crane for his support, and to Tony Bruce and Muna Khogali for their patience and their help. We also thank Kevin Mulligan and Pierre Livet for their remarks on the French version, the participants in Nils-Eric Sahlin's seminar in Lund, especially Ingar Brinck and Anna-Sofia Maurin, as well as Manuel Garcia Carpintero, Josep Luis Prades and participants in a seminar in Barcelona for their remarks on versions of Chapter 5. Pascal Engel also thanks Mathieu Marion, François Schmitz and Jacques Dubucs, with whom he translated Ramsey's essays into French.

REFERENCES AND ABBREVIATIONS

The references are indicated in the bibliography. We have used the following abbreviations for Ramsey's works:

FM:	Braithwaite edition of *Foundations of Mathematics* (1931)
F:	Mellor edition of *Foundations* (1978)
PP:	Mellor edition of *Philosophical Papers* (1990)
NPPM:	M.C. Galavotti edition of *Notes on Philosophy, Probability and Mathematics* (1991)
OT:	N. Rescher and U. Majer edition of *On Truth* (1991)
U:	"Universals" (FM, F, PP)
FP:	"Facts and propositions" (FM, F, PP)
TP:	"Truth and probability" (FM, F, PP)
K:	"Knowledge" (FM, F, PP)
T:	"Theories" (FM, F, PP)
GPC:	"General propositions and causality" (FM, F, PP)
TFM:	"The foundations of mathematics" (FM, F, PP)

Unless indicated otherwise, the references to Ramsey's papers are to PP.

INTRODUCTION

A meteor in the philosophical sky

The philosopher and mathematician Frank Plumpton Ramsey (1903– 30) is the least well known of the Cambridge philosophers who contributed to the rise of analytic philosophy during the first half of the twentieth century. This is due in part to the shortness of his life and career – he died at the age of 26 – and also probably to the fact that his work has long seemed to be mainly of technical interest. He was, however, recognised by his contemporaries as one of the most remarkable and productive minds of his generation. From his very first years in Cambridge, he was admitted into the famous group of the Cambridge Apostles, appointed as a fellow of King's College at the age of 21 and as a lecturer in mathematics two years later. His contributions ranged over most of the domains which were at the centre of intellectual interest in Cambridge at that time: mathematics, logic and what was not yet known as analytical philosophy, but also economy. He quickly became one of the main interlocutors of Russell, Moore and Wittgenstein, and especially Keynes, who all recognised his genius at once. When he died (of jaundice) in 1930, his friend and disciple Richard Braithwaite published a collection of his main essays, under the

title *Foundations of Mathematics*. Some of these essays, such as the one which gives its title to the volume, and which discusses Russell's theory of types, or "Universals" and "Facts and propositions", which discussed Russell and Wittgenstein's early doctrines, quickly became classics. But others, such as "Truth and probability", which establishes the foundations of the subjective theory of probability, or "Theories", only later revealed their riches and their scope. It was only when Ramsey's theory of probability and decision was rediscovered by mathematicians and economists who, following Von Neumann and Morgenstern (1944), founded the modern versions of game and decision theory, that the importance of the former essay was understood. It was only when Carnap drew the attention of philosophers of science to the originality of Ramsey's conception of scientific theories in the latter essay, that this conception came to be appreciated. Ramsey's essays on taxation and savings, which today belong to the classics of mathematical economy, had more or less the same fate. Ramsey's contributions would be considerable even if they were limited to these apparently diverse fields and considered separately. But the publication of his posthumous writings in the 1990s and a number of commentaries on his work revealed the systematic character of his thought, even when his doctrines take only the form of sketchy notes or (in many cases) of merely elliptical suggestions. Since Hugh Mellor's (1983) and Nils-Eric Sahlin's (1990) pioneering work in particular, it is today possible to talk of Ramsey's philosophy as forming a more or less systematic whole. The aim of this book is to present the main lines of this philosophy and to discuss some of its recent developments. We

intend to show in particular that most of Ramsey's specific doctrines on logic, the nature of belief, truth, action, probability, decision, theories, universals and knowledge played a major role in shaping a number of doctrines currently discussed within contemporary analytic philosophy. Indeed, Ramsey may have been one of the first self-conscious "technical" analytic philosophers in the contemporary sense.[1] We shall, however, say little here about his contributions to mathematics and logic, because they would require a separate treatment, and we shall, for the same reason, also leave aside his contributions to mathematical economics. This book is not meant to be a contribution to Ramsey's scholarship, this has been done elsewhere and much better by other writers, to whom we are indebted, in particular Hugh Mellor and Nils-Eric Sahlin.[2] Because Ramsey's work is so creative, there is a temptation to find, in many sectors of contemporary philosophical research, what Davidson has called "the Ramsey effect": for any theory that X believes to have discovered, it is likely that it was anticipated in some form by Ramsey.[3] Although we wanted to indicate, in the first part of the book, how pervasive the Ramsey effect can be, we have tried to resist the temptation, and we have concentrated our attention upon a specific set of his views: his "pragmatist" thesis that the truth of an agent's belief guarantees the success of his actions. From it one can draw a principle for the analysis of the contents or of the truth conditions of beliefs: a belief 's content is constituted by the success conditions of the actions of an agent. This thesis, that may be called *Ramsey's Principle*, was rediscovered not only by Ramsey's main interpreters, Hugh Mellor and Nils-Eric Sahlin, but also by a

number of philosophers who attempted to give a naturalistic analysis of intentional mental states in "teleological" or "teleosemantical" terms, such as David Papineau (1987, 1993), Ruth Millikan (1984, 1992) and Fred Dretske (1988). According to this analysis, the success conditions of a belief are constituted by *functions*, in the biological sense, that are somehow associated with this belief within an organism, and by their contribution to the survival of this organism. This evolutionary conception of mental representation has received many sophisticated formulations which we shall not discuss in detail here. But it seems to us that in tracing its origins in Ramsey, and by discussing its relationships with Ramsey's own formulations of a similar (but, as we shall see, distinct) doctrine, we shall have the means to evaluate it. Overall, the study of Ramsey's philosophy allows us to understand better the originality of his own form of pragmatism, its links with Peirce's pragmatism, and its distance from more well known versions of this doctrine. Just like Galois or Herbrand, who also died in their twenties, Ramsey was a meteor in the sky of philosophy and mathematics. But the trace that he left is still visible from all sides. Actually Ramsey would not have approved of this image of a star in the philosophical heavens. Unlike Wittgenstein, who liked to see a "W" in the constellation of Cassiopeia, Ramsey would have been unimpressed if he could have contemplated his own star. He was more rooted down to the earth:

> Where I seem to differ from some of my friends is in attaching little importance to physical size. I don't feel in the least humble before the vastness of the heavens. The

stars may be large, but they cannot think or love; and these are qualities which impress me far more than size does. I take no credit for weighing nearly seventeen stone. My picture of the world is drawn in perspective, and not like a model to scale. The foreground is occupied by human beings and the stars are all as small as threepenny bits. I don't really believe in astronomy, except as a complicated description of part of the course of human and possibly animal sensation. I apply my perspective not merely to space but also to time. In time the world will cool and everything will die; but that is a long time off still, and its present value at compound discount is almost nothing.

("Epilogue", PP: 249)

1
BELIEF, PROBABILITY AND TRUTH

1.1 Logic and the foundations of mathematics

Ramsey's philosophical and mathematical background was almost entirely shaped by the intellectual atmosphere of Cambridge during the 1920s, and by the writings of the great Cambridgians who surrounded him: Russell, whose *Principia Mathematica* he read quite early; Moore, whose essays he discussed and with whom he participated in the *Moral Sciences Club*; John Maynard Keynes, his mentor, whose *Treatise on Probability* he discussed as soon as it was published (1921); C.D. Broad, whose *Scientific Thought* had appeared in 1923; his friend Richard Braithwaite, but also logicians such as W.E. Johnson[1] and philosophers such as C.K. Ogden. Russell and Moore had launched a *perestroïka* in all sectors of philosophy. Ramsey borrowed their conception of philosophy as analysis, definition and clarification. Like Russell, he held that logic is the essential instrument of such an enterprise. Thus he considered Russell's theory of definite descriptions as a "paradigm of philosophy" and he largely subscribed to his program of replacing "inferred entities" by "logical constructions".[2] The philosopher, however, to

whom he considered himself to be the closest, was Wittgenstein. In 1921, C.K. Ogden associated Ramsey with the translation of the *Logisch-Philosophische Abhandlung*, and he reviewed the book for *Mind* in 1923 (FM). He met Wittgenstein in Puchberg the same year, and then again in Vienna in 1924, and they started an extensive correspondence, before meeting again in Cambridge in 1929. Wittgenstein said that one of the reasons why he returned to Cambridge was the possibility of discussing with Ramsey, and that the latter's criticisms contributed very much to the evolution of his own ideas. The influence was mutual and deeply felt on each side.[3]

One of Ramsey's first essays, "The foundations of mathematics" (1925), defends Russell and Whitehead's logicist program against Brouwer's intuitionism and Hilbert's formalism, through the use of certain of Wittgenstein's views. From the latter, Ramsey borrows the idea that the propositions of mathematics are not, contrary to what Russell held, utterly general propositions, but mere tautologies, completely devoid of any factual content. Two of Russell's axioms pose a problem in this respect: the axiom of reducibility and the axiom of choice. Russell was led to postulate the second from his solution to the paradoxes of set theory, such as the one that he had discovered in 1901 – the paradox of the set of all sets which do not contain themselves. The solution consisted in distinguishing first a hierarchy of types of entities (individuals, sets of individuals, sets of sets of individuals, etc.) and to forbid the formation of sets which would give rise to paradoxes by rejecting as meaningless statements, to the effect that x is a member of y when the type of x is not directly below the type of y. Later, Russell combined this

"simple" hierarchy of types with a hierarchy of "propositional functions" of various "orders", which is called the "ramified" theory of types. But the price to pay for this second hierarchy is that certain parts of mathematics can no longer be expressed within the system. They can, however, be restored through the axiom of reducibility, which says that for all functions, whatever their order, there is an equivalent predicative function.[4] According to Ramsey, however, this axiom is probably false and moreover it is not a tautology. He is thus led to propose another theory of types, sometimes called the "ramsified" theory, which gets rid of Russell's ramified hierarchy, and which redefines the notion of predicative function as a truth function, finite or infinite, of atomic functions of individuals or of propositions, which makes the axiom of reducibility redundant, and also avoids the use of the identity sign in the definition of classes (in this, Ramsey was also following Wittgenstein's criticism of Russell). Another important Ramseyan contribution consists in his distinction between two kinds of paradoxes: the purely logical ones (such as Russell's class paradox) and the "semantical" ones, such as the Liar. He holds that the simple theory of types solves the first ones, but that it is irrelevant for the second. For these, Ramsey proposes to replace the hierarchy of functions by a hierarchy of symbols, thus sketching the linguistic hierarchy of languages and metalanguages later used by Tarski in order to solve the semantic paradoxes.

In FM as well as in ML (1926), Ramsey seems to adopt without reservation the program of reduction of mathematics to logic. He seems to subscribe to a form of mathematical platonism or to what Dummett (1978) calls a "realist" view of the meaning of

mathematical statements, according to which the truth conditions of these statements transcend their verification conditions. His acceptance of the axiom of infinity seems to testify to this. He also supports the (Wittgensteinian) thesis that a general proposition is equivalent to a conjunction (possibly infinite) of atomic propositions. In 1929, however, he seems to be a convert to an intuitionist and finitistic position; he ceases to consider the law of excluded middle as a tautology, and shows an increasing interest in Brouwer and Weyl's work.[5] But if one considers his other doctrines, in particular his criticism of the "absolute" conception of truth and its reduction of the notion of truth to the notion of judgement or of assertion, as well as his reference to Peirce's pragmatism, this change is by no means surprising. As early as in "Truth and Probability" (1926), he accepts a distinction (taken from Mill) between formal logic proper, which he considers with Wittgenstein as purely made up of tautologies, and which he calls "the logic of coherence", and inductive logic, or "the logic of truth". If the latter "human" logic, which deals with probability and belief, has a meaning, there are, Ramsey tells us, some propositions the truth or the falsity of which is not clear, because their truth conditions depend upon our merely probable beliefs and upon our actions, which are finite. In the wide sense, which includes the logic of partial belief, logic cannot be considered as consisting merely in tautologies, and one will have to consider another sort of inference than purely deductive inference.

1.2 Probability and the logic of decision

"Truth and probability" is generally considered as the most pioneering of all of Ramsey's essays. One finds in it the foundations of what was to be called the "Bayesian" or "subjective" conception of probabilities and of decision theory. There Ramsey describes a method for measuring the beliefs and desires of agents based on their betting behaviour, and he shows that if one adopts certain principles of rationality for agents, the measure of their degrees of belief will satisfy the laws of probability. Of course Ramsey is not the sole inventor of the subjectivist or "personalist" conception of probabilities, for it can be traced back to Pascal, Bernoulli, Bayes, Hume, and even, to a certain extent, to Cournot.[6] Likewise, he is far from being the first to remark that degrees of beliefs can be measured through betting quotients.[7] And at about the same time, Bruno de Finetti, who is today considered, with Ramsey, to be the main founder of the subjective theory, developed similar ideas.[8] Although Ramsey was the first to give these ideas their complete expression, they were rediscovered only during the 1950s, in particular under the influence of Von Neumann and Morgenstern, and especially of Savage, Carnap and Jeffrey. Today they belong to the usual equipment of game and decision theorists and of rational choice theorists.[9]

At the time when Ramsey wrote, there were two kinds of theories of probability discussed at Cambridge: the frequency theory, the main exponent of which was Venn, and Keynes' (1921) "logical" theory. Writing about the first, which associates the probability of an event to its frequency, he admits that it corresponds to the meaning of the word "probability" in ordinary language as well as in the sciences, such as statistical mechanics.

He leaves it on one side wanting to return to it once he has formulated his theory of partial belief, in order to make comparisons. He attacks frontally, however, Keynes' theory. According to Keynes the probability of a proposition is always relative to a given set of propositions, which constitute the evidential reasons for which we assert it. The probability of *a* given *h* is a relationship, the degree or the intensity of which lies between 0 and 1 and P(*a*/*h*) = 1 if and only if *a* is a logical consequence of *h*.[10] Ramsey raises two criticisms against Keynes. The first is that, for practically every pair of propositions, such as "This is red" and "This is blue", we do not have the slightest idea of the probability relation between them. The second is that, contrary to what Keynes holds, we cannot perceive these probability relations through introspection: we simply suppose that our beliefs are true, then assign a degree of belief to our hypotheses. The problem is to know how it can be measured.

The first step consists of reconsidering the notion of belief. On this point we have to anticipate what Ramsey will say in "Facts and propositions". In the tradition of British empiricism, and in particular in Hume, it is natural to associate belief with a certain "vivid idea" in our mind or with a certain introspectible feeling towards some representations. But Ramsey objects, together with Russell and Moore, to such a conception, and considers belief to be a propositional attitude, involving a relationship to a *proposition*, of the form "X believes that *p*". The degree of belief is thus ascribed to the attitude, not to its propositional object. Ramsey considers the view that a degree could be assigned to the intensity of the feeling of belief, in the sense in which one says, for instance, that one "strongly", or "weakly" believes something.

But we then fall back upon the difficulties of Keynes' position, for certain very strong beliefs are accompanied by virtually no feeling. There is no hope to measure perceptible degrees of belief by relating them to degrees of probability. The solution consists in relating belief to its objective, and not to its subjective, properties, in particular to its "causal properties" or to its causal "efficacy": the degree of a belief lies in "how far we should act" on it. This conception of belief is not new. It is already present in Hume, in so far as Hume considered two independent factors which cause actions: beliefs and desires. According to the so-called "Humean theory of motivation", an agent's actions are a function, in the causal sense, of certain desires and values, and of the instrumental beliefs of the agent about the means through which he will be able to bring out the satisfaction of these desires. It is this Humean conception which is the basis of modern decision theory.[11] The conception of belief as a disposition to act was first explicitly proposed by Alexander Bain, and taken up by Peirce. It is in reading the latter that Ramsey became familiar with this view, which forms one of the main bases of pragmatism.[12] A familiar objection to it, voiced by Russell, is that not all beliefs lead to action.[13] To this Ramsey answers that the point is not that "a belief is not an idea which does actually lead to action, but one which would lead to action in suitable circumstances; just as a lump of arsenic is called poisonous not because it actually has killed or will kill anyone, but because it would kill anyone if he ate it." (TP: 66). The true nature of belief as a disposition to act is that it can be expressed by counterfactual conditionals. Not only is a belief a disposition to act *if* certain circumstances were present, but also a

disposition, on the part of the subject, to act *as if* the proposition believed were true. This point will also be at the core of Ramsey's analysis of causal statements (see below §2.2).

Now, what kinds of actions could constitute the observable effects of causal determinants such as beliefs and be correlated to degrees of probability? Clearly "the old established way of measuring a person's belief is to propose a bet, and see what are the lowest odds which he will accept." (TP: 68). Thus suppose that Jones is ready to bet at 3 to 1 that a certain proposition *p*, say that it will rain tomorrow, is not true. The degree of belief that he assigns to *p* is 3/ (3+1), i.e. 0.75. In three cases out of four, Jones believes that it will not rain. Hence his degree of belief in *p*, that it will rain, is 0.25. Ramsey, however, notes that the betting method is not completely reliable, because money has diminishing marginal utility, and because individuals might be more or less aversive to risk.[14] For the method of assigning precise quantities to beliefs to work, we also need to know the nature of the utilities, desires, and values that an agent is ready to associate with certain results of his actions. Here too Ramsey is a Humean: he proposes to take as a basis "a general psychological theory, which is now universally discarded, but nevertheless, comes [...] fairly close to the truth in the sort of cases with which we are most concerned, [...] the theory that we act in the way we think most likely to realise the objects of our desires, so that a person's actions are completely determined by his desires and opinions" (TP: 69). The theory, he tells us, is an idealisation: "we seek things we want, which may be our own or other people's pleasure, or anything else whatever, and our actions are such as we think most likely to realise those goods"

(*ibid.*). Ramsey here clearly formulates what is today known as the "Bayesian" principle of the "maximisation of expected utility", that agents choose the act which is for them the greatest utility, given their desires and their degrees of beliefs, and whatever these utilities can be. It is not necessary, as he points out, to take the utilitarian view that the ultimate goods of an agent are his quantities of pleasure, but we have only to suppose that agents seek "goods", without any specification of their nature. Modern decision theory speaks in this neutral sense of the "preferences", "desirabilities" or "utilities" of agents (Jeffrey, 1965). Ramsey's problem can be formulated thus. The choices made by an agent between bets are the results of two psychological factors, the values that he places on their results and the probabilities that he assigns to these results. Given the degrees of belief of the agent (his subjective probabilities), it is easy to calculate his values (his subjective utilities) from his choices, and given his values, it is easy to infer his degrees of belief. But from his choices only, how can one calculate his values and his beliefs?[15] We should note here that the degrees of belief and the degrees of desire need not be properties of real states of individuals, but could well be *theoretical* entities postulated in order to explain choice behaviour. Ramsey's decision theory is thus open to an instrumentalistic interpretation of the common sense psychology of belief and desires, instead of a realist one. We shall come back to this (see *infra, §*2.4). We need also to spell out the exact nature of the entities which are the terms of the preferences or the choices observed. Here contemporary decision theory often speaks of acts, of states of the world or events, and of consequences. Using a surprisingly

identified as the desirability of a third choice: C if N, B if not. And so on. Probabilities can then be measured. If the agent is indifferent between getting α for certain, and β if *p* is true and γ if *p* is false, the degree of the belief in *p* will be the quotient (α - γ)/(β - γ). In other terms the degree of belief in *p* will be "the odds at which the subject would bet on *p*, the bet being conduced in terms of the differences of values as defined" (TP: 76), or, as it is often said, his betting quotient on *p*.[18]

Once we have supposed that there exists a probability function P(.) defined on propositions, a utility function U(.) defined on values, and that a rational agent acts by maximising his expected utility (which is the sum of the products of his probabilities and of his subjective probabilities),[19] we still have to show that these subjective degrees of belief correspond to the laws of the probability calculus and that an agent's preferences obey certain axioms. These demonstrations are called "representation theorems". From the previous axioms one can derive the "fundamental laws of partial belief":

(1) degree of belief in *p* + degree of belief in *not p* = 1.
(2) degree of belief in *p* given *q* + degree of belief in *not p* given *q* = 1.
(3) degree of belief in *(p* and *q)* = degree of belief in *p* × degree of belief in *q* given *p*.
(4) degree of belief in *(p* and *q)* + degree of belief in *(p* and *not q)* = degree of belief in *p*.

These are the elementary principles of the probability calculus. The way Ramsey establishes this is only mentioned in passing in (TP: 78), but it has become the fundamental tool for the Bayesian

theorists of probability for showing that the degrees of belief as they define them satisfy the axioms of probability, i.e. can be represented by a unique probability measure. This is done by using the concept of *coherence.*

The laws of partial belief must be necessarily true of any coherent system of belief. If a system of beliefs, or of preferences, is not coherent, a clever bookie could make a bet against the agent, who would lose whatever happens. A "*Dutch Book"* could be made against him.[20] That coherence in the degrees of belief and in the preferences yields the probability axioms not only corresponds to Ramsey's representation theorem, but is also a criterion of rationality. Coherence or, as Ramsey calls it, "consistency" within subjective probabilities, utilities and preferences *is* rationality.[21] Of course, coherence or consistency is a traditional criterion of rationality. But he usually pertains to deductive relations between full beliefs. Ramsey makes an important step in extending it to partial belief. With him rationality ceases to be a feature of beliefs which are certain, or which are closed under logical implication in the deductive sense. The result is an important change in our conception of logic. Formal logic rests upon the principle that if p and *not* q are inconsistent, q follows from p, and is a tautology, logic being constituted by objectively necessary propositions. But if we extend formal logic as "the logic of consistency", which bears only on full beliefs (true or false, or of degree 1 or 0) in order to make it include the "logic of partial belief", this objective interpretation of logic is lost. For Frege and Russell, logic had to state absolutely necessary axioms or "the laws of being-true" and was the certain basis of knowledge. Ramsey, in renouncing this

conception, rejects the foundationalist epistemology which goes with it. But he also rejects Wittgenstein's conception of logic according to which logic says nothing about what there is, and is made of pure tautologies.

> If we believe *p* & *q* to degree 1/3 and *p* & *not q* to the extent of 1/3, then we are bound by consistency to believe *not p* also to the extent of 1/3. This is the ἀνάγκη λέγειν but we cannot say that if *p* & *q* is true to degree 1/3, and *p* & *not q* is 1/3 true, *not p* must also be 1/3, for such a statement would be sheer nonsense. There is no corresponding ἀνάγκη εἶναι. Hence, unlike the calculus of consistent full belief, the calculus of objective partial belief cannot immediately be interpreted as a body of objective tautology.
>
> (TP: 83)

As we have seen, Ramsey contrasts the "logic of consistency" which he assimilates to formal logic in the narrow, deductive sense, with "the logic of truth" or "human logic". The first tells us whether our (full) beliefs are consistent with each other. The second tells us also whether our beliefs are consistent with the facts. Of course, the logic of partial belief is also a logic of consistency, since it rests upon a criterion of coherence between partial beliefs. So the distinction between a logic of consistency and a logic of truth does not coincide with the distinction between full beliefs and partial beliefs. But the latter, human logic, is a logic of subjective probability, and not a logic of the objective relations between propositions. It tells us how we can sometimes be "humanly right" to entertain a certain degree of

belief on inductive grounds, and it must be prepared sometimes to go against formal logic (TP: 87). Human logic, then, should be also an inductive logic, or logic of discovery. The reason why it is "human" is that it "tells us how humans should think". The criterion of this "should" is clearly pragmatic: for it is not clear "that consistency is always advantageous: it may well be better to be sometimes right than never right" *(ibid.)*. Here too we have a contrast between two views of the normativity of logic. On the first view, which is represented by Frege, the laws of logic are normative because they are "the laws of being true": they prescribe absolutely what one ought to think.[22] On the second view, Ramsey's, logic is also concerned with what one ought to believe, or what it would be reasonable to believe. Ramsey tells us that he is unable to assign to this idea any other meaning than "that reasonable opinion [is to be identified] with the opinion of an ideal person in similar circumstances". But he adds:

> What, however, would this ideal person's opinion be? […] The highest ideal would be always to have a true opinion and be certain of it; but this ideal is more suited to God than to man. We have therefore to consider the human mind and what is the most we can ask for it.
>
> (TP: 89-90)

So, unlike Frege's logic, "human logic" so conceived would have to be psychologistic, because it would be essentially tied to the actual human capacities to think. We do not pretend by saying this that Ramsey is ready to come back to the psychologistic conception of logic that Mill and other naturalisitic thinkers of the nineteenth century entertained. For