The *New Theory of Vision* and its Role in Berkeley's Philosophical System

Órla Slattery

A Thesis Submitted for the Degree of Ph.D.

Department of Philosophy

Mary Immaculate College

Submitted to the University of Limerick

January 2017

Contents

Abbreviations

All references to Berkeley's writings are cited from the nine volume collection: A.A. Luce & T.E. Jessop, 1948-1957. *The Works of George Berkeley, Bishop of Cloyne.* (London: Thomas Nelson and Sons)

The following abbreviations will be used and in each case, the relevant section and page number will be footnoted:

Notebook	(1707-1708) *Notebooks* (or Philosophical Commentaries) in *Works* Vol. I
NTV	(1709) *An Essay Towards and New Theory of Vision* in *Works* Vol. I
Principles	(1710) *The Principles of Human Knowledge* Part 1 in *Works* Vol. II
Dialogues	(1713) *Three Dialogues between Hylas and Philonous* in *Works* Vol. II.
De Motu	(1721) *De Motu*, in *Works*, Vol. IV
Alciphron	(1732) *Alciphron, or the Minute Philosopher*, in *Works*, Vol. III.
TVV	(1733) *The Theory of Vision Vindicated*, in *Works*, Vol. I
Siris	(1744) *Siris: A Chain of Philosophical Reflexions and Inquiries* in *Works* Vol. V.

Abstract

This thesis examines George Berkeley's *New Theory of Vision* and considers its role within his overall philosophical system. While the core claims of the *New Theory* and their relation to the later works has engaged much scholarly attention, we will seek to address persistent exegetical difficulties which mask the complexity of Berkeley's account of visual spatial perception. While much of our discussion will focus on the relationship between the *New Theory* and the *Principles* and *Three Dialogues*, our analysis will extend to all of the works published between 1709 and 1733; the period commencing with the first publication of the essay on vision and concluding with the publication of *Alciphron* and the *Theory of Vision Vindicated*. I will seek to establish that Berkeley never abandons the core claims of his essay on vision and that this work has a central role in enabling him to achieve his larger philosophical ambitions. My overall aim is twofold: to offer a reinterpretation of the *New Theory of Vision* and to demonstrate that once its central doctrines are correctly understood, this work forms an integral part of Berkeley's overall philosophical system.

One of my central interpretative claims is that Berkeley devotes the *New Theory* to offering a positive account of spatial perception. I will seek to show that this account of spatial perception offers a significant insight into the role of finite volition in Berkeley's system and commits him to the constitutive volition thesis. I will seek to establish that his account of spatial perception forms an integral part of his larger metaphysical ambit, and that he seeks to offer a positive account of spatial perception with a view to countermanding the Newtonian account of absolute space. I will also examine the relationship between Divine and finite spirits in Berkeley's system. I will conclude by suggesting that the account of agent causation which we attribute to Berkeley is one that he would have assented to on theological grounds, as it enables him to establish the providence of an immanent Deity and thereby enshrine the unity of God and Man.

Acknowledgements

I would like to thank both of my supervisors, Dr. Timothy Mooney and Dr. Niall Keane for all of their help throughout this project. Their comments and suggestions have been a great source of guidance and I am very grateful for their generosity and direction.

I would also like to offer a special word of thanks to Dr. Stephen Thornton whose undergraduate lectures on Berkeley brought the modern period to life in a unique and insightful way. I am very grateful for his mentorship and guidance throughout the early stages of this project and for his friendship and encouragement ever since.

I am extremely fortunate in having had the opportunity to present my work to scholarly audiences over the past number of years. I am particularly indebted to the International Berkeley Society, many of whose members have been kind enough to offer critical feedback on my work. In particular, I would like to thank Dr. Marc Hight, Professor Tom Stoneham, Dr. Bertil Belfrage and Dr. William Eaton for all of their support and encouragement.

I would also like to thank my colleagues in MIC, especially Anne O'Byrne for all of her advice and support. I am also extremely fortunate in having a large number of friends to thank; in particular I would like to offer my thanks to Dr. Treasa Campbell, Dr. Steven Bond and Dr. Ian Dillon, for all of the conversations over the years which have helped me so much and for all of their friendship and kindness.

Most of all, I would like to thank my parents, Jackie and Valerie Slattery, who have helped me in so many ways and whose support made it possible for me to complete this project. I would also like to thank my family, particular my aunts Pauleen, Betty and Monica and my uncle Anthony.

I would like to dedicate this dissertation to my son Senan, whose curious mind and joyful spirit are an endless source of inspiration.

“I am young, I am an upstart, I am a pretender, I am vain, very well. I shall Endeavour patiently to bear up under the most lessening, vilifying appellations the pride & rage of man can devise. But one thing, I know, I am not guilty of. I do not pin my faith on the sleeve of any great man. I act not out of prejudice & prepossession. I do not adhere to any opinion because it is an old one, a receiv’d one, a fashionable one, or one that I have spent much time in the study and cultivation of.”

[Berkeley, *Notebook A*, 465, Vol. I, p. 58]

Preface

Since its publication in 1709, the *New Theory of Vision* has attracted the interest of psychologists, visual theorists and philosophers alike. Historically it has been regarded as a highly successful work of visual psychology, achieving widespread acclaim and becoming the received account of visual perception during the late eighteenth and early nineteenth centuries.[1] It is alleged that Berkeley is responsible for originating a form of classical two-dimensionalism which has since fallen into disrepute.[2] While it is generally acknowledged that Berkeley's essay on vision contributes a significant chapter to the development of visual theory, it is generally regarded today as a work of historic value whose central claims have been obviated by the emergence of ecological optics and embodiment theory during the last century.[3]

For students of Berkeley's thought it is widely held that the main substance of his philosophical system is found in the works published after 1709, during the so-called heroic period.[4] While commentators differ with regard to the success of this philosophical project and debate the validity of key aspects of his system, there is general agreement regarding the aim and scope of the major works.[5] The *Principles of Human Knowledge*, first published in

[1] Julian Hochberg writes on the widespread acceptance and dominance of the Berkeleian model stating that '[t]he most influential theory of space perception in Western thought has been that distance is not a direct visual sensation at all.' Instead 'memories of the grasping or walking motions that have been made in the past ... provide the idea of distance.' Hochberg, J., 1964. *Perception*. (New Jersey: Prentice Hall, Incorporated) For a comprehensive account of the early reception of Berkeley's *New Theory*, see Schwartz, R., 1994. *Vision: Variations on Some Berkeleian Themes.* (Cambridge, Massachusetts: Blackwell Publishers), chapter 1.

[2] A.D. Smith Claims that Berkeley is the progenitor of classical two-dimensionalism, which was dominant during the late 18th and early 19th centuries. See Smith, A.D., 2000 'Space and Sight' in: *Mind*, 109, July p.481.

[3] J.J. Gibson sets out to distinguish his ecological theory from the received 'Berkeleian' view. Gibson, is best known for his theory of Ecological Optics presented in his 1979 *The Ecological Approach to Visual Perception* (Houghton Mifflin: Boston). Gibson proposes an alternate approach to the Berkeleian model of distance perception. He rejects the one-point argument which is premise of the Berkeleian model. For his specific criticisms of Berkeley see Gibson, J.J. 'Three Kinds of Distance that can be seen, or How Bishop Berkeley Went Wrong in the first place,' in Flores D'Arcais, *G.B., (ed.)* 1976. *Studies in Perception*: *Festschrift for Fabio Metelli* (Milan and Florence: Aldo Martello-Guinti).

[4] While Berkeley's heroic period typically refers to the period from 1709 to 1713, which includes the publication of the *New Theory* as well as the *Principles* and the *Dialogues*, the point I should like to make is that the latter two works are generally regarded as offering the main substance of his philosophical system.

[5] Tom Stoneham argues that rather than regarding the *Three Dialogues* as a simple reworking of claims made in the *Principles*, the *Dialogues* is more mature and provides a different route to immaterialism. To the degree to

1710, is dedicated to expounding the doctrines of idealism and immaterialism, as well as Berkeley's controversial brand of common sense realism. The *Three Dialogues*, published in 1713, is a continuation of the same project and an attempt to popularise the doctrines presented in the *Principles* following their controversial reception. Berkeley states that he thought it 'requisite to treat more clearly and fully of certain principles laid down' in the *Principles* and 'to place them in a new light.'[6]

The relationship between the major works and the *New Theory* has given rise to what Thomas Lennon describes as the 'old chestnut question' of Berkeleian scholarship.[7] This debate focuses on the overall unity of Berkeley's philosophical system and has led many commentators to disregard the *New Theory* as an important philosophical work and as a largely unsuccessful contribution to Berkeley's immaterialist metaphysics. In conjunction with the debate which focuses on the unity question, two prominent schools have emerged, divided over the nature of the problem which the *New Theory* seeks to address. One prominent view is that Berkeley seeks to establish the mind-dependence of visual ideas in the *New Theory* with a view to paving the way for the immaterialism of the mature works.[8] A more recent view is that the primary aim of the *New Theory* is to solve a prominent problem in the visual sciences during the eighteenth century concerning the nature of distance perception.[9] With respect to the latter view, commentators argue that the *New Theory* constitutes a seminal contribution to visual psychology. Since however it is held that Berkeley is dealing with a particular problem in the visual sciences, the *New Theory* is studied for its own sake; as an

which both works are centrally concerned with Immaterialism and Idealism, my point is not controversial. Stoneham, T. 2002. *Berkeley's World: An Examination of the Three Dialogues* (Oxford: Oxford University Press).
[6] Berkeley, *Dialogues*, Vol. II, p.167
[7] Lennon, T. M., 2008, 'The Historical consistency of Berkeley's Idealism,' in: *British Journal for the History of Philosophy*, vol. 16, issue 1, p.101
[8] Luce, A.A, (1945), Armstrong , D. (1960), Berman, D., (2005).
[9] Atherton, M., (1990), Schwartz, R., (1994), Braund, M., (2007).

interesting albeit outdated chapter in the history of visual theory which has little to do with his mature system or overall philosophical objectives.

While it could be claimed that the *New Theory* and its relation to Berkeley's major works has received an adequate degree of attention, the primary aim of this dissertation is to reopen this debate. We will seek to show that in spite of many rich treatments which deal with the question of the unity of Berkeley's thought that more needs to be said. While many critical examinations of the *New Theory* have been offered we will seek to show that a number of exegetical difficulties remain. The primarily aim of this study is to establish that the attempt to arrive at a true appreciation of Berkeley's philosophical system requires not only that we engage with the *New Theory*, but that we realise its centrality within his system as a whole. We will seek to show that commentaries which view the *New Theory* as a partial iteration of his metaphysical position do not succeed in identifying its central aim. We will also claim that commentators, who have acknowledged that the *New Theory* is offered as a contribution to perceptual theory, fail to capture the full complexity of the perceptual model which is presented. We will seek to undermine the view that his first essay on vision is either a youthful prelude to his mature works or that its core claims are irrelevant to the central components of his later system. We will offer a critical examination of the core claims of the *New Theory* and seek to establish their role within his system as a whole.

While much of our exegesis will focus in the relationship between the *New Theory* and the *Principles* and the *Dialogues*, my aim is to establish that Berkeley never wavered in his commitment to the core claims of his 1709 treatise. Our analysis will therefore extend the all the works published between 1709 and 1733; the period which commences with the publication of the first edition of the *New Theory* and concludes with the publication of the *Alciphron* and the *Theory of Vision Vindicated*. One of the challenges associated with the attempt to offer an interpretation of the core claims of the *New Theory*, is that many of Berkeley's central claims

are rendered equivocal by a paucity of explicit argumentation. Much of our interpretative task will be to free these aspects of Berkeley's discussion from obscurity and reconstruct the arguments which emerge from central aspects of his discussion. We will also seek to challenge some of the prominent misconceptions which continue to abound in relation to the core claims of the *New Theory*. It has been widely held that Berkeley promotes a form of classical two-dimensionalism which entails that two-dimensional visual ideas represent three-dimensional objects in the visual field.[10] We will seek to show that Berkeley rejects the two-dimensional hypothesis and that he is astute in pointing to the types of conceptual errors which had given rise to this hypothesis in first instance.

While we hope to present an account of Berkeley as an astute critic of early eighteenth century optical theory, we will also claim that he is motivated to solve the same problem as his predecessors by proposing an account of visual spatial perception. The manner in which he proceeds to do this however, signals his departure from the geometric paradigm to a degree which is far greater than has hitherto been acknowledged. It is my intention to show that Berkeley's theory of vision constitutes a radically departure from all preceding accounts and that full extent of the 'revolution' which Berkeley's brought to bear has yet to be fully acknowledged.[11]

One of our more general interpretative goals is to undermine the view that he fails to offer a positive conception of space as commentators such as George Stack and Gary Thrane have claimed.[12] We will argue that Berkeley presents an account of visual spatial perception in the *New Theory* and that he does so with a view to demonstrating how relative space and

[10] A.D. Smith Claims that Berkeley is the progenitor of classical two-dimensionalism, which was dominant during the late 18th and early 19th centuries. See Smith, A.D. (2000). See also Armstrong, D., (1960).

[11] In her 1991 *Berkeley's Revolution in Vision*, Margaret Atherton claims that Berkeley's departure from the Descartes and the tradition of Geometrical Optics occurs in terms of what visual ideas represent. One of my main aims is to demonstrate that Berkeley's departure from the prevailing tradition is more radical than this and that the theory which he proposes has significant implications for our conception of the Berkeleian subject as well as Berkeley's theory of mental operations.

[12] George Stack (1970) and Gary Thrane (1982)

extension are perceived. We will seek to show that in so doing, he is aiming to replace the predominant eighteenth century account of absolute space which we find in Newton and Descartes.

Our exegesis will proceed by examining the core claims of Berkeley's philosophy in the context of the debates which were central to the canon of natural philosophy during the eighteenth century. I will seek to show that such a strategy is imperative in approaching the *New Theory*, as its core claims can only be truly appreciated when analysed in the context of early modern optical theory. We will also seek to demonstrate that the core claims of Berkeley's theory of vision have an integral role within his overall philosophical scheme and work to establish the following interpretive claims: (1) in the *New Theory* Berkeley presents an account of the process by which spatial qualities are perceived (2) he subscribes to the constitutive volition thesis which entails that there is a constitutive relation between human action and perception, such that the former affects the production of the ideas of sense and (3) he is committed to the collaborative volition thesis whereby finite agents are impelled by the Divine mind with whom they work in concert to co-create the ideas which constitute the natural world.

It should be noted that Berkeley's account of agent causation has received a large degree of scholarly attention in recent years, most notably by Nancy Kendrick and Jeffrey McDonough.[13] While Kendrick works to highlight Berkeley's divergence from Malebranche on the issue of agent causation, McDonough is primarily interested in the relationship between God and man, as well as the respective contributions of Divine and finite agents in Berkeley's system. While McDonough proposes the concurrentist thesis to account for the relationship between the Divine and finite agents in Berkeley's system, I will seek to show that this account underestimates the contribution of finite agents in the production of natural effects.

[13] Nancy Kendrick (2014) and Jeffrey McDonough (2009)

In Chapter One, we will offer a critical examination of the literature which deals with the question of the unity of Berkeley's philosophy. We will examine three prominent views which purport to account for the relationship between the *New Theory* and the later works. I will argue that commentators, who claim that the principal aim of the *New Theory* is to establish the immaterialism of visual ideas, fail to recognise Berkeley's central goal. We will seek to show that he is addressing the problem of distance perception and that as such, the *New Theory* must be read in the context of the scientific debates which were ongoing at the time of its publication. As our interpretative strategy involves unearthing aspects of Berkeley's account which are not explicitly presented, we will aim to examine the core claims the *New Theory* in the context of early eighteenth century optical theory. One of my main aims in this chapter is to undermine the view that the *New Theory* is not a reliable source of Berkeley's 'true' philosophy

In Chapter Two, we will offer a critical account of geometrical optics with a view to identifying the defining features of the model which Berkeley sets out to oppose. Our principal focus will be the model which is proposed by René Descartes, who Berkeley identifies as his chief interlocutor in the optical tradition. Our central aim will be to provide an historical account of the emergence of the geometrical model while highlighting its core methodology and defining principles. We will also consider Berkeley's treatment of microscopy which offers an important insight into the nature of his opposition to the early eighteenth century scientific worldview. We will seek to show that his critique of scientific instrumentation, like his critique of visual theory, forms part of his attempt to expose and eradicate the force of prejudice from the canon of natural philosophy.

In Chapter Three, we will address many of the exegetical errors associated with the *New Theory*. One of our primary aims is to demonstrate that many of the difficulties associated with Berkeley's account can be overcome once its core claims are analysed in the correct context.

We will seek to undermine the view that Berkeley employs his distance thesis with a view to denying that visual experience is inherently three- dimensional. In spite of the fact that Berkeley is widely regarded as the progenitor of classical two-dimensionalism, I will seek to show that he rejects the two-dimensional hypothesis. We will examine Berkeley's critique of the geometrical model and argue that he succeeds in identifying a significant difficulty which is inherent in Descartes' computational model of visual spatial perception. In light of which, we will claim that Berkeley's critique of the geometrical model is far more sophisticated than has generally been acknowledged. We will also seek to show that existing associationist accounts are incomplete as they fail to resolve a prominent tension in Berkeley's account of the proper objects of vision. We will argue that such a tension can be overcome, once we recognise a distinction between *perpetual immediacy* and *process immediacy* in his account.

In Chapter Four, we will present our main case for Berkeley's account of visual spatial perception and agent causation. We will focus principally on Berkeley's discussion of the case of the Molyneux man, which many commentators have regarded as being either ineffective or essentially misguided.[14] We will seek to show that this discussion is of central importance in terms of forming a clear understanding of Berkeley's theory and that he employs the pathological case to reveal the hidden complexities of spatial perception. We will seek to show furthermore that the model of spatial perception which he presents provides a significant insight into his account of agent causation. We will outline and defend the embodied volition thesis and claim that Berkeley upholds the following commitments: (1) the ability to perceive spatially is intimately linked to bodily action and movement (2) there is a constitutive relation between bodily action and the content of experiential states.

The principal aim of our fifth chapter is to respond to the question of the unity of Berkeley's philosophy. The account of spatial perception which we will attribute to Berkeley

[14] Van Cleve, J. (2007) & Hight, M. (2008)

occurs in radical opposition to traditional interpretations of his thought. Not only will we claim that his theory of spatial perception involves embodied action on behalf of perceivers, but we will also seek to establish that he subscribes to the view that there is a constitutive relation between embodied action and perception, such that the former *affects* the content of what is perceived. We will also consider the implications of our reading and propose a means of accommodating them within Berkeley's philosophical framework. To this end, we will examine a number of aspects of his system, including his account of the human subject, his theory of action and his account of mind. We will also examine Berkeley's doctrine of notions which he introduces to account for our knowledge of minds and mental operations. We will seek to show that this doctrine provides a significant insight into his theory of mental operations and allows us to establish that he allows for a form of non-ideational knowing. Since it can be claimed that Berkeley allows for a form of non-ideational knowing, we will claim that it provides an operative principle which enables us to accommodate the constitutive volition thesis within Berkeley's overall system; the latter also being contingent on the existence of unperceived transactions in the mind.

We will also consider the central doctrines of Berkeley's mature system. We will seek to undermine two central misconceptions: the first is that immaterialism entails a denial of the corporeal natural of the physical world. The second is that Berkeleian idealism is a form of subjective or empirical idealism. We will seek to show that Berkeley's mature philosophical system is best understood as converging towards a central goal, which is to reform the substance tradition of the early eighteenth century. Here we will argue that Berkeley's task is constructive as well as critical. While he presents the main substance of his positive ontology in the *Principles* and *Three Dialogues*, this account is preceded by a significant ground clearing exercise in which he offers a refutation of material causation. While the critique of matter is one of the hallmarks of his system, I will seek to show that that the concept of absolute space

poses an equal threat to his immaterialist metaphysics and that it was accordingly the object of Berkeley's attack. We will claim that Berkeley's strategy in dealing with the concept of space has both a critical as well as a constructive component; the former consists in his critique of the Newtonian concept of absolute space; the latter, in the account of spatial perception which he presents in the *New Theory*. As Berkeley devotes the *New Theory* to presenting a positive account of how relative space and extension are known, we will claim that this work forms an integral part of Berkeley's larger philosophical ambit.

We will also claim that establishing the unity of Berkeley's philosophy requires that we understand the fundamental link between God and man which lies at the heart of Berkeley's enterprise. I will argue that Berkeley upholds the Collaborative Volition thesis which entails that Divine Volition impels human action. This account enables him to provide an account of man's direct union with God and to show 'the immediate Presence and Providence of a Deity,' in the natural world.[15]

[15] The subtitle of the *Theory of Vision Vindicated*. Berkeley, *TVV*, Vol. I, p.251.

CHAPTER ONE

The *New Theory of Vision* and the Question of Unity

1.1 Introduction

While there is general agreement among Berkeley scholars that the *Principles* and *Three Dialogues* uphold the same doctrines and share a commonality of purpose, the question of how the core claims of the *New Theory of Vision* relate to the major works is a matter of controversy and debate. Highlighting the centrality of this issue Bertil Belfrage remarks that it has long been held that the *New Theory of Vision* is an unreliable source of Berkeley's 'true' philosophy.[16] Such a contention follows principally from the view that the core claims of the *New Theory* are at odds with those of the *Principles* and the *Dialogues*. The question of the unity of Berkeley's philosophy derives from two central interpretative claims. The first is that while Berkeley affords an immaterial or mind dependent status to all sensory ideas in the *Principles* and *Dialogues*, in the *New Theory* he restricts immaterialism to visual ideas only. In addition to this restriction, it is held that in the *New Theory* he offers a concession to materialism by allowing for the mind-independent status of tangible ideas, which contradicts the immaterialism expressed in the *Principles* and *Three Dialogues* and causes obvious difficulties for the overall consistency of his position. Since the central claims of the work on vision are seen to contradict the main tenets of Berkeley's mature system, it is held that Berkeley does not have an integrated philosophical system, which has led to the denial of philosophical unity between his works and the counter-attempt to reconcile the claims of the work on vision with those of the *Principles* and *Three Dialogues.*[17]

[16] Belfrage, B. 2010. 'A Paradigm Shift in George Berkeley's Philosophy 1707-1709,' in: *Revue Philosophique de la France Et de l'Etranger*, Vol. 200, Issue 1, p.71

[17] Proponents of this view are David Armstrong (1960), Geoffrey Warnock (1962) & George Pitcher (1977).

In this chapter we will examine the literature which deals with the question of the unity of Berkeley's philosophy. We will seek to overturn the prominently held view that the *New Theory* is not a reliable source of Berkeley's 'true' philosophy. We will examine three prominent views; the prelude view, the irrelevance view and the continuity view. We will seek to show that understanding the relationship between the *New Theory* and the major works requires that we are attentive to both the context in which Berkeley's theory is proposed and the type the problem which he sets out to address. The prelude and irrelevance views share the central interpretative conviction that Berkeley is working to establish the mind-dependence of visual ideas in the *New Theory*. While proponents of the prelude view purport to account for the relationship between the *New Theory* and later works on the basis that former is but a youthful prelude to the immaterialist metaphysics of the latter, proponents of the irrelevance view hold that the core claims of the *New Theory* are completely at odds with the later works and thereby irrelevant to Berkeley's mature system. We will argue that both of these views are mistaken as they fail to recognise that the problem which Berkeley sets out to address is a scientific one and that he is aiming to offer an account of the process by which spatial qualities in the visual field are apprehended rather than to establish the immaterial status of visual ideas.

We will also examine the continuity view which departs significantly from the prelude and irrelevance views and offers a radically different account of the *New Theory*. We will seek to show that it is only when the core claims of Berkeley's work on vision are examined in the context of early eighteenth century optical theory that we can arrive at a true appreciation of their significance. We will examine internal and external evidence sources which demonstrate that Berkeley remained committed to the core claims of his 1709 essay throughout his entire publishing career. Before we can begin to fully appreciate the core claims of the *New Theory*

and their intended place within his overall system, we must first establish that Berkeley neither abandoned nor was disingenuous in his devotion to the child of his youth.[18]

1.2 The Prelude View

The view that the *New Theory* forms a prelude to Berkeley's mature metaphysical system is the standard interpretation which has been in place since the offset of modern Berkeley scholarship.[19] Proponents of the prelude view maintain that while he presents his main case for immaterialism in the *Principles* and *Three Dialogues*, that he devotes the *New Theory* to establishing the mind-dependence of visual ideas, thereby preparing his readership for the immaterialism of the later works. One prominent point offered in support of this view is Berkeley's apparent concession to materialism in section 44 of *Principles.* Berkeley refers to the 'vulgar error' which he says was beside his 'purpose to examine and refute' in 'a discourse concerning vision.'[20] He states that the view that 'the proper objects of sight neither exist without the mind, nor are the images of external things was shewn in that treatise,' that the contrary 'be supposed true of tangible objects.'[21] Berkeley's apparent concession to materialism in the *New Theory* has strengthened many commentators in their conviction that this work is not representative of his mature position and serves merely as a prelude to the major works.[22] The prelude view is the prominent view throughout the late nineteenth and early

[18] Turbayne rejects the prelude view and argues that Berkeley remains committed to the doctrines of the *New Theory* throughout his entire publishing career. He refers to the *New Theory*, as 'the child of his [Berkeley's] youth', for whom he never lost his love. Turbayne, C (ed.) 1963 *Works on Vision: George Berkeley* (Bobbs-Merril. Company Inc.), Editor's Commentary, p.vii

[19] Lennon, T. M., 2008, 'The Historical consistency of Berkeley's Idealism,' in: *British Journal for the History of Philosophy,* Vol. 16, Issue 1, p.104.

[20] Berkeley, *Principles*, section 44, Vol. II, p.59

[21] Berkeley, *Principles*, section 44, Vol. II, p.59.

[22] While the 'vulgar error' passage is often interpreted as a straightforward concession to materialism, whereby it is held that Berkeley is prepared to allow for the mind-independence of tangible objects in the *New Theory*, I think that such a view is mistaken. There is no evidence to suggest that Berkeley supports the so-called vulgar error; rather he says that its refutation is beside his purpose 'in a discourse concerning vision.' [PHK, 44]. Berkeley's explicit intention in the *New Theory* is to explain how spatial ideas are perceived and his goal therein

twentieth century and is it held that a significant shift occurs in Berkeley's metaphysical position between the partial immaterialism of the *New Theory* and the full blown immaterialism of the *Principles*. Writing in 1901, A.C. Fraser refers to the apparent metaphysical disparity between the *New Theory* and the later works, stating that:

> In the Essay of 1709, the Berkeleian Principle [it is impossible that anything exist that is independent of perception and volition] is applied to sight but not to touch. Tangible phenomena are left in undisturbed possession of a kind of reality that is inconsistent with it, while visible phenomena are subjected to its sway.[23]

Fraser sought to account for the apparent metaphysical disparity by claiming that the *New Theory* is a composite work and one which is not representative of his mature philosophical position. Fraser suggests that the reason for the partial application of the doctrine of immaterialism in the *New Theory* 'lay probably in Berkeley's unwillingness to shock the world with a conception of its own existence against which he anticipated a storm of opposition.'[24] In a similar vein, George Stack argues that Berkeley is prepared to allow his readership to assume that he supports the view that tangible objects are material in the *New Theory*, on the basis that he did not wish to attack 'too many commonsense notions at once.'[25] Fraser, like Stack, argues that Berkeley deliberately withholds the full extent of his metaphysical position until the *Principles*, with a view to gradually introducing his audience to immaterialism. The upshot of Berkeley's strategy is as Fraser sees it to:

> [E]xpose the *New Theory of Vision* to criticisms not in all cases undeserved. This reserve of a foregone conclusion makes Berkeley's first essay on philosophy his least artistic. Its main conclusion cannot be fully comprehended without the *New Principle*, and yet the *New Principle* is held in reserve [26]

---

is to offer an account of how this process occurs; his account of the metaphysical status of ideas is reserved for the *Principles* and the *Dialogues.* I will seek to vindicate this claim in Chapter 4 by presenting my main case for Berkeley's account of spatial perception as presented in the *New Theory*.

[23] Fraser, A. C., (ed.) 1901. *The works of George Berkeley*, Vol. I, (Oxford), p.7

[24] *Ibid*.

[25] Stack, George J. 1970 *Berkeley's New Theory if Vision* In: *The Personalist*, Vol. 51, Issue 1, p.131: 'It would seem that Berkeley treated tangible "objects" as independent of the perceiver in his *Essay towards a New Theory of Vision* because he did not want to explicate his doctrine of immaterialism as yet and because he did not want to attack too many commonsense notions at once.'

[26] Fraser, A.C, 1901, *Op., Cit.*, p.7.

While Fraser is one of the earliest proponents of the view that the central aim of the *New Theory* is to pave the way for the metaphysics of the *Principles*, A.A. Luce is also a strong supporter of the prelude view.[27] Luce argues that the *New Theory* bears witness to an initial stage in the development of Berkeley's metaphysical position and that the *New Theory* is but 'a youthful prelude' to the *Principles* and not representative of Berkeley's mature view.[28] Luce argues that by the time he comes to write the *Principles*, Berkeley has abandoned the view that tangible ideas are material, and that there is no longer any metaphysical distinction between visible and tangible ideas, which according to the ontology of the *Principles* now 'belong to the same genus.'[29] Luce claims that while the *New Theory* 'is a great book in any company and generation, that 'philosophers are bound to find it unsatisfactory' that 'its contribution to purely scientific theory is not outstanding.'[30] He claims furthermore that '[t]o-day immaterialism seems to us the greater theme, and the *Principles* the greater book, and the *Essay on Vision* and its theory have retired into the background.'[31]

While Luce maintains that the work on vision is not representative of Berkeley's mature metaphysical position, he does not deduce that the doctrines of the *New Theory* are inconsistent with the major works. Rather he categorises the relationship between as one of progression, maintaining that the doctrines of the *New Theory* are not at odds with those of the *Principles* since they can be seen to support immaterialism, albeit in nascent form.

[27] The prelude view has also been described and the 'integral part interpretation'. See Hight (2006)
[28] Luce, A.A., 1967. *Berkeley and Malebranche.* (New York: Oxford University Press), p.30.
[29] *Ibid*.
[30] *Ibid.*
[31] *Ibid.*

1.3 The Irrelevance View

Another school of interpretation has emerged which claims that such a degree of divergence exists between the *New Theory* and the metaphysics of the later works, that the former is essentially irrelevant to the main substance of Berkeley's mature philosophical system. As a work which purports to pave the way for his larger metaphysical project, David Armstrong claims that Berkeley's undertaking in the *New Theory* is largely unsuccessful. He rejects the view that the apparent disparity between the *New Theory* and the later works can be adequately accounted for in terms of the prelude view proposed by Luce. Armstrong claims that 'the *Essay* really does nothing to support Berkeleyan Immaterialism' and that the metaphysical doctrines of the *New Theory* are fundamentally inconsistent with those of the *Principles*.[32] He argues that in the *New Theory* Berkeley 'speaks of the objects of touch in a quite realistic fashion; they are real things in circumambient space, and he gives the impression that he thinks they exist independently of their being perceived.'[33]

Armstrong argues that if we accept the immaterialism of the *Principles*, then 'it is clear that we must now deny that tangible objects exist independently of their being perceived.'[34] Armstrong's point is that Berkeley cannot be an immaterialist, while permitting the material existence of tangible ideas in the *New Theory*.[35] Armstrong maintains that if we accept that Berkeley is a partial immaterialist in the *New Theory*, then we must consistently reject the view that the *New Theory* can to be regarded as 'a half-way house' to the full blown immaterialism of the *Principles*, claiming that the *Principles* diverges from the *New Theory* to such a degree that the prelude reading which had been promoted by Luce must be abandoned.[36] Armstrong is one of the most strenuous proponents of the irrelevance view and maintains that the doctrines

[32]Armstrong, D., 1960. *Berkeley's Theory of Vision: A Critical Examination of Bishop Berkeley's Essay Towards a New Theory of Vision*. (Victoria: Melbourne, University Press), p.30.
[33] *Ibid*.
[34] Armstrong, D., 1960, *Op., Cit*., p.31
[35] Armstrong, D., 1960, *Op., Cit*., p.32
[36] Armstrong, D. 1960, *Op., Cit*., p.26

of the *New Theory* are fundamentally inconsistent with those of the later works. He argues that 'whatever Berkeley's confusions on the matter, we ought to abandon the tradition of interpretation that sees the *Essay* as a half-way house to the *Principles of Human Knowledge*'.[37]

Geoffrey Warnock argues that the *Principles* departs from the *New Theory* to such a degree that the doctrines of the later cannot be consistently reconciled with the former. Warnock agrees that Berkeley allows for the material status of tangible ideas in the *New Theory* and argues that his mature metaphysics suffers a tremendous setback once the central claims of the *New Theory* are abandoned. Warnock maintains that Berkeley is in a better position to preserve the integrity of the empirical world while he had allowed for the material existence of tangible bodies.[38] By the time he comes to write the *Principles* however, Warnock maintains that Berkeley effectively 'sets his metaphysics adrift,' for he has surrendered the claim that tangible bodies are material.[39] For Warnock, the relationship between the *New Theory* and the *Principles* is one of negative progression from a position of partial immaterialism, which enables Berkeley to preserve the separate empirical existence of the natural world, to a position of full blown immaterialism which serves to undermine such a commitment.

While Armstrong, as we have seen, claims that 'the *Essay* really does nothing to support Berkeleyan Immaterialism,' other commentators have highlighted additional reasons why the core claims of the *New Theory* are inconsistent with the *Principles* and the *Dialogues.* [40] Richard Brook maintains that 'the legitimate claims of the Berkeley's work on vision are not only compatible with a realist metaphysics, but offer no evidence at all for an idealist

[37] *Ibid.*
[38] A.A Luce and T.E. Jessop are staunch advocates of the view that the doctrine of immaterialism is consistent with common sense realism. A version of this view is also supported by George Pappas (2000)
[39] Warnock, G.J., 1982. *Berkeley* (Oxford: Basil Blackwell), p.57.
[40] Armstrong, D., 1960. *Berkeley's Theory of Vision: A Critical Examination of Bishop Berkeley's Essay Towards a New Theory of Vision*. (Victoria: Melbourne, University Press). p.xi.

one.'[41] He argues that Berkeley demonstrates a strong commitment to corpuscularianism in the *New Theory* and thereby assumes a materialist framework which renders this work inconsistent with the *Principles*.[42] Since Berkeley goes on to determine that the *esse* of all things is *percipi*, Brook claims that he cannot consistently allow for the existence of particles too small to be observed. Brook proposes to account for Berkeley's espousal of corpuscularianism by suggesting that he is unwittingly influenced the materialist imagery of the period. He argues that Berkeley makes use of a description of the physical properties of light in order to support his account of visual perception.[43] Brook claims that Berkeley's willingness to assume the existence of unperceived entities is clearly at variance with the immaterialism of the *Principles*, in which he launches 'a broadside against materialism writ large.'[44]

Another view which serves to set the doctrines of the *New Theory* in opposition to those of the later works is George Pitcher's contention that Berkeley's central aim in the *New Theory* is to correct our thinking about distance perception and to introduce what he describes as 'the distance illusion' thesis.[45] In section two of the *New Theory*, Berkeley states that 'distance, of itself and immediately, cannot be seen', which according to Pitcher, culminates in the denial that tri-dimensionality is a feature of visual experience:

> To say that we do not literally see the distance of objects is to say that the visual manifold of which we are aware when we see them does not contain distance- that is, does not contain a third dimension running between us (i.e. the perceivers) and the things perceived. To put it another way; the 'visual appearances' of things are two, not three, dimensional [46]

[41] Brook, R., 1973. *Berkeley's Philosophy of Science*. (The Hague: Martinus Nijhoff), p.37
[42] Brook, R., 1973, *Op., Cit.*, p.43
[43] Brook, R., 1973, *Op., Cit.*, p.43. Brook cites *NTV* sections 35 and 68 in support of his claim that Berkeley is a committed corpuscularianist.
[44] Brook, R., 1973. *Op., Cit.*, p.43
[45] Pitcher, G., 1977. *Op., Cit.*, p.20
[46] Pitcher, G., 1977, *Op., Cit.*, p.8

Pitcher interprets Berkeley's commitment to the non-immediacy of distance perception as a phenomenal claim about the nature of perceptual experience. He claims that such a view entails that we are 'the victims of an illusion when we think that the things we see are located at various distances away from us.'[47] If Pitcher is correct, then Berkeley's central aim in the *New Theory* is to advance a negative thesis concerning the tri-dimensionality of visual experience with the ultimate aim of refuting the notion that sensible objects exist in space external to the mind.

David Armstrong and A.D. Smith have also argued that Berkeley tries to disprove the notion that visual is inherently tri-dimensional and that he is consequently committed to promoting the view that visual experience is two-dimensional. Smith claims that Berkeley is the progenitor of classical two-dimensionalism, a movement which was 'dominant throughout the eighteenth and nineteenth centuries,' which held that visual ideas are 'properly two-dimensional.'[48] Armstrong maintains that the critical error which leads Berkeley to his theory of two-dimensional vision is his uncritical acceptance of the premise that distance is not immediately seen. Armstrong outlines the spurious chain of reasoning which follows from Berkeley's acceptance of this premise. He states:

> If distance out from the eye is never immediately seen, what is it that we do immediately see, on Berkeley's view? The obvious answer is that what is immediately seen forms a two-dimensional spatial field, 'light and colours' arranged in a two-dimensional way, what is sometimes referred to as a 'flat-image'.[49]

Armstrong claims that Berkeley is 'deceived by the two-dimensional nature of the simulacrum' and is lead to conclude that visual experience is two-dimensional because of the fact that a two-dimensional image is projected onto the retina.[50] Berkeley's central point, which is in keeping with Pitcher's distance illusion hypothesis is, that the eye is simply 'blind to distance' having

[47] Pitcher, G., 1977. *Op., Cit.*, p.20
[48] Smith, A.D., 2000. *Op., Cit.*, p.481
[49] Armstrong, D. 1960, *Op., Cit.*, p.5
[50] Armstrong, D., 1960, *Op., Cit.*, p.10

only the capacity to immediately see a two-dimensional spatial arrangement of 'light and colours.'[51] He goes on to say that 'what Berkeley wants to assert when he says that distance is not immediately seen is that our visual sense-impressions or ideas have a merely two-dimensional order, and not, as common sense might think, a three-dimensional order.'[52]

If Berkeley is committed to two-dimensionalism, actively denying the three-dimensional character of visual experience in the *New Theory,* then he is committed to a negative thesis which serves to contradict a significant aspect of his overall philosophical position. Berkeley repeatedly claims that his philosophical system is dedicated to upholding 'the dictates of nature' and common sense. [53] In the *Notebooks*, Berkeley states that [w]e must with the Mob place certainty in the senses.'[54] Again in the *Principles*, Berkeley distances his approach from that of '[t]he *Schoolmen*, those great masters of abstraction' who have been lead into 'inextricable labyrinths of error and dispute' by abandoning faith in their senses and relying instead on 'their doctrine of abstract natures and notions.'[55] Now if Berkeley is denying the three-dimensional character of visual experience, then he is actively undermining one of our most foundational common sense beliefs; that we can perceive a three-dimensional world. If Berkeley is making a claim about the character of visual experience when he claims that distance is not immediately seen, then this poses a significant problem for Berkeley's overall system, for as Braund points out 'while "commonsense" is by no means the measure of a philosophical theory, it certainly holds weight when that theory purports to talk about everyday experiences, like seeing things "in the distance"'.[56]

Marc Hight's analysis supports certain aspects of Armstrong's reading, in particular the

[51] Armstrong, D., 1960. *Op., Cit.,* P.5 & p.7
[52] Armstrong, D., 1960. *Op., Cit.,* p.7
[53] Berkeley, *Principles*, Introduction, section 1, Vol. II, p.25
[54] Berkeley , *Notebook A*, entry 740, Vol. I, p.90.
[55] Berkeley, *Principles*, Introduction, section 17, Vol. II , p.36
[56] Braund, M., 2007. 'The Indirect Perception of Distance: Interpretive Complexities in Berkeley's Theory of Vision' in: *Kritike*, Vol. 1, No. 2, Dec., p.52

view that Berkeley is making a phenomenal claim about the nature of visual experience when he denies that distance perception is immediate. He does not however accept that the doctrine of partial immaterialism is inconsistent with the metaphysics of the later works. Hight argues that charges of inconsistency between the *New Theory* and the *Principles* and *Three Dialogues* depend largely on uncharitable readings of the work on vision and he claims that 'there are no compelling reasons to deny that the core claims of the *New Theory* are consistent with those of immaterialism.'[57] Hight denies that Berkeley supports the thesis that tangible bodies have an independent material existence in the *New Theory*. He argues that while Berkeley allows for the fact that the tactile world appears, as it were, more 'real' and immediate than the visual world in the *New Theory*, this does not entail that the tactile world be mind-independent, but 'only requires that the represented content of tactile ideas be correspondingly richer than those of sight.'[58]

Hight argues that the traditional view of the relation between the work on vision and the later works is correct and that Berkeley can be seen to have succeeded in achieving his aim of preparing the way for his mature metaphysical system. Supporting Luce and the prelude view Hight claims that 'an excellent case can be made for thinking that the *New Theory* is a half-way house to immaterialism after all.'[59] Hight also offer a significant exegetical insight when he claims that we must work to ascertain the motivation underlying the *New Theory*. He acknowledges that 'all of the key interpretative disputes' associated with the doctrines of the *New Theory* and the associated problem of the unity of Berkeley philosophy, in fact 'stem from this very question'.[60] We find Hight's point is particularly well made when we consider both Robert Muehlmann and David Berman's treatments of the unity question.

Robert Muehlmann claims that Berkeley's aim in the *New Theory* is one of deliberate

[57] Hight, M., 2006. 'Berkeley's Half-way House,' in: *Philosophy Compass*, Vol. 1, Issue 1, p.35.
[58] Hight, M., 2006, *Op., Cit.*, p.34
[59] Hight, M., 2006, *Op., Cit.*, p.28
[60] *Ibid.*

subterfuge, and that he intentionally presents claims which he does not support, for dialectical reasons. He maintains that while Berkeley promotes the view that tangible ideas have a material status in the *New Theory*, that this is not his authentic position. He claims that Berkeley intentionally subverts his true position with a view to launching immaterialism onto the world stage, one act at a time:

> The task Berkeley must tackle is that of overcoming his readership's resistance to idealism. He knows he will have to proceed with great caution if he is to have any chance of success; he knows he cannot spring idealism into the literature of the world without first carefully paving the way.. Berkeley deliberately subverts his vision theory in order to provide a platform on which his readership can stand before they are then confronted by the idealism of the *Principles*.[61]

The notion that Berkeley adopts an antithetical argumentative strategy in the *New Theory* is supported by David Berman, who argues that Berkeley presents claims which he does not in fact support with a view to exploiting what he regarded as 'vulgar errors.'[62] Berman does not accept however that Berkeley is guilty of inconsistency and regards him as 'a deep and subtle strategist,' who engages in the 'strategic humouring of his readers.'[63] He argues that his strategy was 'to teach or convince his readers by stages' of the truth of his immaterialist hypothesis.[64] He claims that 'Berkeley's main aim in the *Essay* was to establish one part of his immaterialism, namely that everything we see is mind-dependent' and that he is prepared to assume therein what he would later be at pains to deny, namely 'that there are tangible things independent of the mind.'[65]

---

[61] Muehlmann, Unpublished Manuscript, in: Hight, M., 2006, *Op., Cit.*, p.29.

[62] David Berman claims that in the *New Theory* Berkeley is determined to exploit two vulgar errors; one is the supposition that the ideas of touch have their objects outside the mind, and the second is the one-point argument, which he presents in the opening sections of the *New Theory* and which he regards as a prejudice of the optic writers which he proceeds to overthrow. Berman, D., 1994.*George Berkeley: Idealism and the Man.* (Oxford: Clarendon Press) p.25

[63] Berman, D, 2005. *Berkeley and Irish Philosophy.* (Oxford: Clarendon Press), p.43.

[64] Berman, D. 2005. *Op., Cit.*, p.24.

[65] While Berman states the main of the *New Theory* is directly connected with Berkeley's metaphysics, he does not maintain that this is Berkeley's sole aim. Berman recognises that Berkeley had other objectives, namely to 'explain how the mind judges visual distance, magnitude and situation , and while doing this to solve three notable problems , associated with these topics , problems which seemed intractable the (then) accepted theory of vision.' Berman, D. 2005. *Op., Cit.*, p.24.

While Berman maintains that the main aim of the *New Theory* is directly connected with his mature metaphysics, he denies however that this is Berkeley's sole aim. He claims that Berkeley's has other objectives such as to 'explain how the mind judges visual distance, magnitude and situation, and while doing this to solve a number of notable associated problem which seemed 'intractable on the (then) accepted theory of vision.'[66] Berman maintains that while there is a strong metaphysical impetus underlying the *New Theory*, that Berkeley is also responding to the science of his day and that he is motivated to resolve a number of key problems in the optical sciences. While then Berman supports the prelude view, placing a strong emphasis on the context of Berkeley's discussion and analysing the core claims of the *New Theory* in the context of eighteenth century optical theory, he maintains that Berkeley is working to solve a problem within the visual sciences.[67] Such an exegetical approach, as we will see, forms the basis of a radically new account of the *New Theory* and its relationship to the major works.

Before we proceed to consider the continuity view, we must examine the evidence which demonstrates that the prelude view must be rejected. As one of our central aims is to show that the model of perception which Berkeley presents in the *New Theory* is the key to understanding the unity of his system, we must firstly show that the notion that the *New Theory* is but a youthful prelude to Berkeley's major works, is entirely unfounded. We will ultimately seek to show that understanding the scope and aims of the *New Theory* requires that we examine this work not only in the context of eighteenth century optical theory but also in the framework of Berkeley's wider philosophical ambit

[66] Berman claims that some of the notable problems which were associated with the geometric account of distance, size and magnitude perception and which Berkeley is interested in solving, are the problem of the horizontal moon and the Molyneux problem. Berman, D. 2005. *Op., Cit.*, p.24.

[67] It can be claimed that Berman is committed to a variation of the continuity view because while he accepts that one of Berkeley's objectives in the *New Theory* is to solve a series of problems in the visual sciences, he does not claim, with other proponents of the continuity view such as Atherton, that this is Berkeley's main objective.

1.4 The Child of Berkeley's Youth[68]

Commentators who maintain that Berkeley's strategy in the *New Theory* is one of deliberate subterfuge are certainly in the minority.[69] Such a claim however provides a useful starting point for our discussion and our attempt to refute the claim that Berkeley abandons to the core claims of the *New Theory* by the time he comes to write the *Principles* in 1710. One of the principal reasons to reject the suggestion that Berkeley engages in deliberate subterfuge or knowingly misleads his audience is that he was first and foremost a thinker who was devoted to making his system transparent and accessible to his audience. Throughout his publishing career Berkeley goes to great pains to ensure that his doctrines would not be misinterpreted and devoted his critical efforts to ensuring that the central claims which he advanced would be correctly understood. In the Preface to the *Dialogues*, Berkeley writes that his intention was 'to treat more clearly and fully of certain principles laid down' in the *Principles* of 1710 and 'to place them in a new light. Which is the business of the following Dialogues.'[70]

Berkeley had good reason to be so motivated for the threat of misrepresentation was ever present. Not only did many of his contemporaries regard his doctrines as problematic and highly objectionable, but it was held that the doctrine of immaterialism threatened to reduce the physical world to a series of ideas in the mind. It was such a purported threat which lead an impassioned Johnson to infamously kick a stone, in order to refute what he described as 'Bishop Berkeley's ingenious sophistry.'[71] Berkeley realised that his doctrines

[68] Turbayne rejects the prelude view and claims that Berkeley remains committed to the doctrines of the *New Theory* throughout his entire publishing career. He refers to the *New Theory*, as ' the child of his [Berkeley's] youth', for whom he never lost his love, from: Turbayne, C (ed.) 1963 *Works on Vision: George Berkeley* (Bobbs-Merril Company Inc.), Editor's Commentary, p.vii

[69] Robert Muehlmann is the only proponent of this view in its strictest form.

[70] Berkeley, Preface *DHP*, Vol. II., p.168

[71] To quote from Boswell's the Life of Samuel Johnson (1791) and the section entitled the 'Refutation of Bishop Berkeley ' The quote in full reads as follows: 'After we came out of the church, we stood talking for some time together of Bishop Berkeley's ingenious sophistry to prove the nonexistence of matter, and that everything in the universe is merely ideal. .I shall never forget the alacrity with which Johnson answered, striking his foot with mighty force against a large stone, till he rebounded from it, stating-"I refute it thus." As Luce comments in

were subject to misinterpretation but was convinced that once they were correctly understood, they were ultimately far more defensible that the realist metaphysics which he was opposing. It is difficult then to concede that Berkeley employs a strategy of deliberate subterfuge, primarily because his central goal was to lead his readership to the truth of what he was claiming. While this contention could be challenged on the basis that Berkeley sometimes withheld certain aspects of his position, in order not to prejudice his audience, we should like to claim that there is a fundamental difference between omission and deliberate misrepresentation. While Berkeley states in a letter to Percival, that he 'omitted all mention of the non-existence of matter in the title-page, dedication, preface and introduction [of the *Principles*], so that the notion might steal unawares on the reader' this does not prove that he is engaging in subterfuge. [72] We would like to claim furthermore that Berkeley has far too much argumentative integrity to present his claims in antithetical guise, even for strategic reasons. We know too that Berkeley was a committed immaterialist before he wrote the *New Theory*, writing in his Notebooks that 'In ye immaterial hypothesis the wall is white, fire hot etc.' and it is therefore difficult to accept that he would have chosen to deliberately suppress his metaphysical position in 1709, only to unleash it on the world a year later when he publishes the *Principles* in 1710.

Berkeley was well aware of the objections that had been brought against his system as well as the potential grounds which existed for misinterpretation, and throughout his publishing career he devoted his critical efforts to defending his system and clarifying his intentions for his readership. In response to one objection which had been brought against his philosophical

relation to Professor Jessop's observation; 'Johnson kicked the stone, but missed the point.' Luce, A.A, 1945. *Berkeley's Immaterialism*. (London: Thomas Nelson & Sons)

[72] Berkeley, *Letter to Percival*, September 1710: 'whatever doctrine contradicts vulgar and settled opinion had need been introduced with great caution into the world. For this reason it was I omitted all mention of the non-existence of matter in the title-page, dedication, preface, and introduction, that so the notion might steal unawares on the reader.' Vol. VIII, p.37.

system, that '*all that is real and substantial in nature is banished out of the world'*.[73] Berkeley responds to this charge, stating that:

> [B]y the principles premised we are not deprived of any one thing in nature. Whatever we see, feel, hear, or any wise conceive or understand, remains as secure as ever, and is as real as ever. There is a *rerum natura*, and the distinction between realities and chimeras retains its full force.[74]

Berkeley was intent to prove that his idealist metaphysics, far from undermining our knowledge of natural world, actually worked to preserve it, while the materialism which had been a feature of the systems of Locke and Descartes led invariably to scepticism. In the *Dialogues*, Berkeley comments that '[u]pon the common principles of philosophers, we are not assured of the existence of things.. And we are taught to distinguish their real nature from that which falls under our senses.'[75] Unearthing the 'grounds of scepticism' with which the *Principles* and the *Three Dialogues* are centrally concerned is one of Berkeley's chief ambitions, against which the doctrine of immaterialism was proposed as a viable alternative.[76]

Berkeley's determination to ensure that his philosophical commitments were correctly understood is also a feature of his correspondence. In a letter to Johnson, dated March 24th 1730, Berkeley discusses several aspects of his system and endeavours to provide clarification regarding many of his doctrines. In this letter, Berkeley offers an insight into how his readership should approach the corpus of his work, in order that his philosophical system should be correctly understood. He states that 'I could wish that all the things I have published on these philosophical subjects were read in the order wherein I published them … to take in the design and connection of them.'[77] Here we gain an important insight into the unity question and connection between the *New Theory* and the later works, as Berkeley indicates that he

[73] Berkeley, *Principles*, section 34, Vol. II, p.55.
[74] *Ibid.*
[75] Berkeley, *Dialogues*, Vol. II. p.167.
[76]The subtitle of the *Principles* reads 'Wherein the chief causes of error and difficulty in the Sciences, with the grounds of Scepticism, Atheism, and Irreligion are inquired into.' Vol. II, p.21.
[77] Berkeley, *Letter to S. Johnson*, March 24th 1730, Volume II, P.294

intended the *New Theory* to be read in conjunction with the *Principles* and the *Three Dialogues*. It is clear from this direction that each of these works form a fundamental part of his system that he envisaged a direct line of doctrinal continuity between the works published between 1709 and 1713. While this point could be invoked in support of the prelude view, we will seek to show that once the doctrines of the work on vision are correctly understood that they form a central part of Berkeley's mature philosophical system as presented in the *Principles* and the *Dialogues*.

We submit that there is a more compelling way of presenting the relationship between the *New Theory* and the major works which allows us to take Berkeley at his word. Getting clear about the nature of this connection furthermore is extremely significant, for it is quite clear that Berkeley never abandons the core claims of the *New Theory.* When we consult the *Principles* and *Three Dialogues*, we find that Berkeley periodically links aspects of his discussion to key section of the *New Theory*. In sections 42 to 44 of the *Principles* for example, Berkeley refers the reader to section 41 of the *New Theory*, for a comprehensive account of the problem of 'how it is that we perceive distance and things placed at a distance.'[78] In the introduction to the *Dialogues*, he urges his reader to consult both the *Principles* and the *New Theory*, wherein we are told 'divers notions advanced in these *Dialogues*, are further pursued, or placed in different lights.. which naturally tend to *confirm and illustrate* them.'[79] The evidence suggests that Berkeley's intention was to present a unified philosophical system, in terms of which the *New Theory*, the *Principles* and the *Three Dialogues* each form a significant part. .

Another unassailable fact which is sometimes overlooked is that he publishes a second essay on vision in 1733 In the *Theory of Vision Vindicated*, Berkeley states that his intention

[78] Berkeley, *Principles*, Section 43, Vol. II, p.58.
[79] Berkeley, *Dialogues*, Vol. II, p.170. [emphasis my own]

is to undertake a review of his original theory, 'in order to render it more easy and clear.'[80] The second essay on vision is presented as a commentary which seeks to reiterate and clarify the doctrines of the original 1709 work. The publication of the second essay on vision serves to challenge any suggestion that he abandons the doctrines of the *New Theory*. Rather he reaffirms his conviction stating that '[w]hat I have here written may serve as a commentary on my *Essay towards a New Theory of Vision*: and, I believe, will make it plain to thinking men.'[81]

Not only does the publication of the second work on vision confirm that Berkeley remained committed to the core claims of his original work on vision, but he finds external empirical vindication through the pioneering work performed by William Cheselden in 1728.[82] Cheselden conducted experiments with a Molyneux subject; a young boy who had been born blind but who had had his sight granted following surgery to remove his cataracts.[83] The question which Molyneux had posed, and which Locke had published in his *Essay*, was whether a man born blind would have the ability to make a *visual* discrimination between a cube and a sphere, upon the restoration of his sight.[84] It is clear furthermore that Berkeley believed that Cheselden's work had confirmed the central thesis of his 1709 essay on vision, he states that 'thus, by fact and experiment those points of the theory which seem the most

[80] Berkeley, *TVV*, Section 34, Vol., p.263.
[81] Berkeley, *TVV*, Section 70: 'What I have here written may serve as a commentary on my Essay towards a New Theory of Vision: and, I believe, will make it plain to thinking men.' Vol. I, p.275.
[82] Cheselden, William (1928), "Philosophical Transactions", London: The Royal Society, Vol. 35, No. 402, pp.447-50
[83] Cheselden conducted observations of a 'Molyneux subject', or young boy who had been born blind but had retrieved his sight following surgery which removed his cataracts. The question which Molyneux had posed and which Locke in the *Essay* had published, was whether a man born blind and made to see could make a *visual* discrimination between a cube and a sphere. Cheselden found that the young subject was initially incapable of performing any visual discriminations and that it was only after he had made physical contact with the objects in his environment, i.e., learned to correlate his visual sensations with his tangible sensations, as Berkeley's proposes, that he could 'comprehend' his newly acquired visual experience.
[84] Locke, *Essay*, II. ix, viii.

remote from common apprehension were not a little confirmed, many years after I had been led into the discovery of them by reasoning.'[85]

While the publication of the *Theory of Vision Vindicated* demonstrates Berkeley's unwavering commitment to the doctrines of the *New Theory,* we find that in *Alciphron* Berkeley works to further develop many of the original arguments of his original 1709 essay. In the Fourth Dialogue of the *Alciphron,* Berkeley revisits the problem of distance perception and the nature of the proper object of vision and offers a representation of the same issues, advanced in a dialogical style. Turbayne argues that the *Alciphron* bears witness to the fact that Berkeley remained committed to the doctrines of the *New Theory* throughout his entire publishing career, which he presented 'to the public in three different styles and on ten different occasions during his lifetime.'[86] We contend with Turbayne, that all of the evidence points firmly to the fact that the prelude view must be abandoned for indeed, 'Berkeley never lost his love for the child of his youth, his *New Theory of Vision.*'[87]

1.5 The Continuity View

While many commentators have judged the relationship between the *New Theory* and the *Principles* and *Three Dialogues* in terms of Berkeley's attempt to establish the immaterialism of ideas, another school of interpretation has emerged, which proposes a radically different starting point. In her 1990 *Berkeley's Revolution in Vision,* Margaret Atherton calls for 'a reorientation of the way in which Berkeley's project in the *New Theory* is frequently

[85] Berkeley, *TVV*, section 70, Vol. I, p.275.
[86] Turbayne, C 1963, *Op., Cit.*, p.vii. Turbayne points to the fact that Berkeley, 'published the Essay five times, twice by itself, in 1709 and 1710, and three times in 1732 as an appendix to *Alciphron*'. Turbayne claims that Berkeley presents his visual theory in three distinct styles, employing an analytical method in the *New Theory*, an inductive or synthetic method in the *Theory of Vision Vindicated* and the dialogical method in the *Alciphron.*
[87] Turbayne, C 1963, *Op., Cit.*, p.vii.

approached.' [88] She proposes a re-examination of the doctrines of the work on vision and their connection to the later works claiming that it is a mistake to read the *New Theory* 'as a preliminary version of his later metaphysics' or to regard it purely in terms of 'a kind of half-way house or trial run at the full-blown idealism of the *Principles of Human Knowledge*.'[89] Atherton advocates an inversion of the traditional approach whereby the '*Principles* and *Three Dialogues* be read in light of the doctrines found in the *New Theory'* rather than 'trying to understand the *New Theory* through the lens of *Principles* and *Three Dialogues.'* [90] She claims that 'when the *New Theory* is regarded as an example of a successful theory of vision, a somewhat different picture of its basic motivation and argumentation emerges than when it is read as a half-way house to Berkeley's metaphysics.'[91]

Atherton's interpretative approach is closely aligned to Colin Turbayne who argues that the central claims of the *New Theory* can only be fully appreciated, when 'viewed against the prevailing state of science' and the debates which were ongoing at the time of its publication.[92] Turbayne claims that '[t]he *Essay*, like Newton's *Opticks*, is offered as a work in scientific discovery.'[93] In a similar vein Atherton argues that commentators who have assumed that the central aim of Berkeley's *New Theory* is to establish the immaterialism of visuals and thereby pave the way for the metaphysics of the later works, had fundamentally misconstrued the nature of Berkeley's project.

Atherton is particularly critical of the views of Armstrong and Pitcher and the claim that Berkeley upholds the view that distance or 'tri-dimensionality' is not 'a feature of visual experience.'[94] As we have seen, Armstrong and Pitcher argue that Berkeley endeavours to show

[88] Atherton, M., 1990. *Op., Cit.,* , p.5
[89] Atherton, M., 1990. *Op., Cit.,* p.10
[90] Atherton, M., 1990. *Op., Cit.,*p.5
[91] *Ibid.*
[92] Turbayne, C., 1956, *Op., Cit.,* p.483
[93] Turbayne, C., (ed.) , 1963. *Works on Vision: George Berkeley*, Editor's Commentary, p.viii
[94] Atherton, M., 1990. *Op., Cit.,* p.10

that the common-sense view whereby we think that we see three dimensional objects is fundamentally mistaken, and it is part of his undertaking in the *New Theory* was to undermine this 'erroneously held assumption.'[95] Atherton denies that such a view can be attributed to Berkeley and argues that the type of problems which commentators such as Armstrong and Pitcher attribute to Berkeley 'stem from trying to read the *New Theory* as if it were about our common-sense beliefs about sense perception' when in fact, 'the *New Theory* is not about common-sense beliefs at all'.[96] She claims that:

> Berkeley is concerned to advance, as he says a new *theory* to account for space perception, and his targets, the holders of the views he wishes to attack, are other theoreticians.. It is this group of theoreticians, and not ordinary perceivers, Berkeley has principally in mind when he says it is "agreed by all" that distance is not immediately perceived.[97]

One of the most significant ways in which Atherton diverges from preceding accounts is the attention she pays to the context of early eighteenth century optical theory. One of the chief merits of this approach is that it demonstrates that there is nothing controversial about Berkeley's supposition that distance is not immediately perceived, for this was a widely accepted fact within the optical sciences of the time. What is evident furthermore is that this claim is not a phenomenal claim about the nature of visual experience, but rather a scientific claim about the types of processes which underlie distance perception. As Atherton points out, when Berkeley states that 'it is agreed by all, that distance, of itself and immediately, cannot be perceived by sight,' he is laying down 'the terms a problem which 'he regards as widely recognised.'[98] She claims that the standard view which was widely accepted during the late seventeenth and early eighteenth centuries was that distance perception is a form of mediate rather than immediate perception and that Berkeley's claim that 'distance of itself and immediately cannot be seen' is remarkably uncontroversial and in keeping with the then

[95] Pitcher, G., 1977. *Op., Cit.*, p.20
[96] Atherton, M., 1990, *Op., Cit.*, pp.12-13
[97] Atherton, M., 1990. *Op., Cit.*, p.13
[98] Atherton, M., 1990. *Op., Cit.*, p.63

accepted view. She maintains furthermore that the main goal of the *New Theory* is to provide an account of how the spatial qualities of objects distance perception occurs. Atherton maintains that Berkeley's project in the *New Theory* 'has an essentially positive thrust' and should be understood as 'being principally addressed to a positive programme for solving some problems in the theory of vision.'[99]

Atherton's analysis provides a radical alternative to the prelude view by setting the core claims of the *New Theory* in the context of early eighteenth century optical theory. While it had been held that the main aim of the *New Theory* was to establish a partial case for immaterialism, Atherton claims that if 'the *New Theory* is regarded as an example of a successful theory of vision, a somewhat different picture of its basic motivation and argumentation emerges than when it is read as a half-way house to Berkeley's metaphysics.'[100] Atherton maintains that we should understand the *New Theory* as being 'principally addressed to a positive program for solving some problems in the theory of vision.'[101] Furthermore, she claims that there is no disparity between the work on vision and the later works and that the *Principles* and *Three Dialogues* should in fact be read in the light of the doctrines found in the *New Theory*, for 'the *New Theory* can be read as a case history, illustrating, in a specific example, the more general claims that are made in *Principles* and *Three Dialogues*.'[102]

Many other commentators have followed Atherton in this revised approach to reading the *New Theory*. In his 1994 *Vision: Variations on Some Berkeleian Themes*, Robert Schwartz maintains that in attempting to solve the problem of distance perception, that Berkeley is

[99] Atherton, M., 1990. *Op., Cit*., p.5. Atherton argues that Berkeley is addressing a prominent problem in the visual sciences and points to the fact that Berkeley's original statement of purpose in the *New Theory* testifies to such an aim. She draws attention to the fact that Berkeley is motivated 'to shew the manner wherein we perceive by sight the distance, magnitude and situation of objects.' [NTV 1].
[100] Atherton, M., 1990. *Op., Cit.,* p.5
[101] Atherton, M., 1990. *Op., Cit.,* p.5
[102] Atherton, M., 1990. *Op., Cit.,* p.5 Atherton also claims that in the *New Theory*, Berkeley is putting forward his theory of visual representation, which she claims he 'later develops into an attack on materialism,' p.15

centrally concerned to provide an account of how spatial properties in the visual field are perceived. He claims that:

> Berkeley's constructive task in the *New Theory* was to devise an alternative theory of vision that would be compatible with his epistemological and metaphysical convictions, a theory that would be empirically adequate... while not presupposing an abstract notion of space.[103]

Bertil Belfrage also maintains that Berkeley's *New Theory* is not intended to serve as a preliminary version of his later metaphysics, claiming that 'the issues of Berkeley's metaphysics are irrelevant to his theory of vision.'[104] He contends that 'Berkeley's account of vision is an empirical study–neutral to ontological and metaphysical issues–with a universe of discourse strictly confined to sensations or raw data, and to 'combinations', 'collections' or interpretations of raw data.'[105] Belfrage maintains that the heterogeneity thesis, which lies at the heart of the *New Theory*, should be understood as a *constructivist thesis*, whereby the tangible and visual aspects of Berkeley's theory are to be understood as 'epistemic atoms', which are subsequently correlated together into a perception of a complex unit, resulting in our knowledge of a physical object. [106]

Belfrage contends furthermore that the main problem which Berkeley sets out to address is to provide an account of how the raw data of sensations or 'epistemic atoms' come to be interpreted as a unified object.[107] Belfrage argues that Berkeley is committed to the view that that 'without any background knowledge, a perceiver is aware of a chaotic, unintelligible mixture of disconnected raw data'[108] which the perceiver learns to construct into complex

[103] Schwartz, R., 1994. *Op., Cit.,* p.51
[104] Belfrage, B., 'The Constructivism of Berkeley's New Theory of Vision,' in: Cummins, P.D., & Zoeller, G. (eds.) 1992. *Minds, Ideas, and Objects: Essays on the Theory of Representation in Modern Philosophy.* North American Kant Society Studies in Philosophy, vol. 2. (Atascadero, CA: Ridgewell Publishing), p.169.
[105] Belfrage, B., 1992. *Op., Cit.,* p.172
[106] Belfrage, B., 1992. *Op., Cit.,* p.171
[107] Belfrage, B., 1992. *Op., Cit.,* p.169
[108] *Ibid*.

unitary objects. This process of sensory correlation is central to the *New Theory* as Belfrage sees it, and he argues that:

> According to Berkeley's theory of vision, a raw datum provides us with useful knowledge only in connection with other raw data. That is to say, mere awareness of a raw datum (a sound, a taste, a smell, etc.) remains unintelligible until understood as a coherent part of a broader context or more complex unit (as when smell is understood as the smell of an apple).[109]

Belfrage sets himself in opposition to the tradition of interpretation which denies that the *New Theory* is representative of Berkeley's 'true' philosophical position. He claims that this tradition overlooks a significant methodological turn which takes place in Berkeley's early development and that accordingly the doctrines of the *New Theory* and their connection to the later works have been misunderstood. He argues that, 'there is a dramatic change in Berkeley's early development worth the name of a paradigm shift' and that the connection between the works is that Berkeley 'uses the analytic method in the theory of vision (as he actually says he does) and that he presents the synthesis in the other books.'[110] He argues that the conclusions of the 'analysis' which are presented in the *New Theory* are assumed as the principles of the 'synthesis' in the *Principles* and *Three Dialogues* and his contention is that 'the "Survey of the Objects of Human Knowledge", presented in the opening sentence of the *Principl*es, is such a conclusion based on the analysis of the *Theory is Vision*.'[111] The quote in question appears in Berkeley's second essay on vision, where the following account of the relation between the *New Theory* and the later works is proposed. Berkeley states that:

> It is to be noted that, in considering the theory of vision, I observed a certain known method, wherein, from false and popular suppositions, men do often arrive at truth. Whereas in the synthetical method of delivering science or truth already found, we proceed in an inverted order, the conclusions in the analysis being assumed as principles in the synthesis. [112]

---

[109] Belfrage, B., 1992. *Op., Cit.*, p.172

[110] Belfrage, B., 2010. 'A Paradigm Shift in George Berkeley's Philosophy 1707-1709,' in: *Revue Philosophique de la France Et de l'Etranger*, Vol. 200, pp.71-72.

[111] *Ibid.*

[112] Berkeley, *TVV* 38, Vol. I, p.264. The synthetical conclusion with which Berkeley begins the *Theory of Vision Vindicated*, is 'that *Vision is the Language of the Author of Nature*.

As we will see, understanding the nature of the transition from analysis to synthesis is of central importance in terms of understanding how the *New Theory* forms part of Berkeley's philosophical system. We will be chiefly concerned to examine the core claims of the *New Theory* with a view to understanding the method of analysis that is employed therein, before moving on to consider how these doctrines form part of Berkeley's overall philosophical system.[113]

In terms of Belfrage's reading, Berkeley's *New Theory* forms an important part of his overall system and the doctrines of the *New Theory* are accordingly consistent with those of the later works. The view that Berkeley is aiming to offer a response to a prominent problem within the visual sciences is also supported by Michael Braund. Following Belfrage and Atherton, he maintains that the central objective of Berkeley's *New Theory* is to provide an account of the process by which the spatial properties of objects in the visual field are apprehended, which is presented in opposition to the predominant seventeenth century geometrical paradigm.[114] He claims that 'Berkeley's position is that spatial perception in general and distance perception in particular, are intimately related to movement.'[115] Like Atherton, he argues that Berkeley's account of spatial perception involves learning by association, claiming that 'Berkeley argues that visual experience, in and of itself, has no spatial content. Whatever spatiality or spatial significance vision has is derivative, the result of learning to correlate visual experience with tangible ideas'.[116]

While Atherton outlines the similarities between Berkeley's project in the *New Theory* and that of his early modern counterparts, Schwartz highlights the more contemporary thrust

[113] We will revisit this claim at the end of our study and propose a means of understanding the method of analysis which Berkeley employs in the *New Theory* and seek to clarify the transition from analysis to synthesis which occurs in his work.
[114] Braund argues that 'the main thrust of the NTV is to explain how objects in the visual field acquire distance qualities' p.52 and that 'Berkeley thinks that Descartes and Malebranche wrongly integrate mathematical processes into their account of the visual estimation of distance.' Braund, M., 2007. *Op., Cit.*, p.58.
[115] Schwartz, R., 1994. *Op., Cit.*, p.9
[116] Schwartz, R., 1994, *Op., Cit.*, p.9

of Berkeley's theory of visual perception, arguing that many of Berkeley's central claims provided the foundation for developments in the visual sciences that were to dominate the study of perception well into the twentieth century.[117] He argues that it is Berkeley's emphasis on the 'pragmatic significance of vision' as an essential 'guide to movement and touch that leads to his being cited as a precursor of behaviourist analyses of perception.'[118] Schwartz maintains furthermore that 'Berkeley's claims that visual experience lacked inherent spatiality' and that 'vision and touch did not share any common spatial qualities,' became the basis of 'anti-nativist, motor theories of perception.'[119]

In terms of the relationship between the work on vision and the later works, Schwartz claims that Berkeley actively devotes his critical efforts to overturning theories which were an affront to key aspects of his mature philosophical system. Schwartz maintains that there were two popular claims promoted by the optic writers which Berkeley is determined to attack and overthrow. The first is that 'we could derive distance ideas via reason' which he claims is an affront to Berkeley's empiricism.[120] The second is that 'we could have some sort of abstract idea of space' which he claims was the outcome of the geometrical paradigm to which Berkeley's was opposed for precisely this reason.[121] Schwartz's argues that the project of the *New Theory* was directly related to his overall philosophical system, stating that:

> Berkeley's constructive task in the *New Theory* was to devise an alternative theory of vision that would be compatible with his epistemological and metaphysical convictions, a theory that would be empirically adequate... while not presupposing an abstract notion of space.[122]

Atherton makes a similar claim regarding Berkeley's intentions claiming that he is motivated to replace the geometrical model of spatial perception as such an account was 'committed to a

[117] Schwartz, R., 1994. *Op., Cit*., p.9
[118] *Ibid.*
[119] *Ibid.*
[120] Schwartz, R., 1994. *Op., Cit*., p.51
[121] *Ibid.*
[122] *Ibid.*

distinction between a visual world that is the result of the operations of our sense organs and an external corporeal world.'[123] She claims that Berkeley's opposition to the geometric theory was also owing to the fact that this account 'encourages a belief in mind-independent objects' and thereby became the necessary focus of Berkeley's attack.[124]

Proponents of the continuity present a compelling case which calls the traditional reading of the *New Theory* into question. By contextualising the core claims of the *New Theory* within the canon of early eighteenth optical theory we can achieve a more coherent understanding of the nature of Berkeley's project in the *New Theory* and thereby begin to understand the nature of its connection between the major works. We have also seen considered internal and external evidence sources which demonstrate quiet conclusively that Berkeley upholds the core claims of the *New Theory* throughout his entire publishing career.

While our primary focus is the philosophical significance of the *New Theory* and its role within his system, we should note that Berkeley's work on vision has enjoyed a huge degree of acceptance by visual psychologists. Berkeley is identified as being one of the first theorists to recognise of the importance of movement and kinesthesis during spatial perception. Schwartz points to the fact that Berkeley plays a pivotal role in the history of visual theory and that the Berkeleian paradigm of visual perception became widely accepted by visual psychologists throughout the 18th and 19th centuries. Speaking to the widespread acceptance and dominance of the alleged Berkeleian model, Julian Hochberg writes that:

> The most influential theory of space perception in Western thought has been that distance is not a direct visual sensation at all. Instead.. memories of the grasping or walking motions that have been made in the past...provide the idea of distance.[125]

[123] Atherton, M., 1990. *Op., Cit.*, p.55
[124] *Ibid.*
[125] Hochberg, J., 1964. *Perception*. (New Jersey: Prentice Hall, Inc.), p.43

The fact that renowned visual psychologist J.J. Gibson, sets out to present an alternative to dominant approach, with he attributes to Berkeley, demonstrates the widespread acceptance of the model which psychologists commonly attribute to Berkeley.[126] While then the claims of the *New Theory* have achieved a wide degree of acceptance, a question remains as to whether the model, while frequently attributed, offers an accurate representation of Berkeley's views. While a large body of literature has produced in response to question of the unity of Berkeley's philosophy as well as the significance of the core claims of the *New Theory*, more nonetheless remains to be said. We will seek to show that a crucial misreading still persists with regard to the nature of the model of visual spatial perception that Berkeley is presenting in the *New Theory* as well as the role which this model serves within his overall system. We will now turn to an examination of the prevailing tradition of seventeenth century optical theory with a view to contextualising the core claims of his work on and to demonstrating his complete divergence from the prevailing optical tradition.

[126] Gibson is best known for his theory of Ecological Optics presented in his 1979 *The Ecological Approach to Visual Perception* (Houghton Mifflin: Boston). Gibson proposes an alternate approach to distance perception, based on the rejection of the one-point argument which he claims is the premise of the Berkeleian model. For his specific criticisms of Berkeley, see: Gibson, J.J., 'Three Kinds of Distance that can be seen, or How Bishop Berkeley Went Wrong in the first place,' in Flores D'Arcais, G.B. (ed.) 1976. *Studies in Perception*: *Festschrift for Fabio Metelli* (Milan and Florence: Aldo Martello-Guinti),

CHAPTER TWO

The Development of Geometrical Optics and Early Modern Visual Theory

2.1 Introduction

The central aim of this chapter is to provide an account of the context in which Berkeley developed his account of visual spatial perception. We will be centrally concerned with the emergence of geometrical optics and the developments in natural philosophy during the late seventeenth and early eighteenth century, which is of particular relevance to our study as much of Berkeley's philosophy occurs as a reaction to the newly emerging world view of this time. While John Locke is one of his central philosophical influences, our principal focus in this chapter will be the optical model which was proposed by René Descartes and which is of major importance to our study for two main reasons: Descartes provides the first theory of vision based on the optical principles which had been established by Kepler and this account becomes paradigmatic account which Berkeley has in mind when he declares his opposition to geometrical optics in the *New Theory*, identifying Descartes as the principle interlocutor.[127]

When we consider Descartes contribution to the development of visual theory, we find that like Berkeley he too is reacting against an earlier tradition which he deems to be untenable. His contribution to visual theory is immense and he formulates his account of visual perception as a reaction to the scholastic account of 'intentional species' which has its origins in Aristotle. Descartes account of visual perception forms part of his attempt to provide a mechanistic account of the natural world. He employs geometrical principles in the service of offering a

[127] In a footnote to the *New Theory*, Berkeley states: 'See what Descartes and others have written on this Subject.' *NTV*, Vol. I, p.185. In his critique of geometrical optics which focuses on the Barrow problem, he states 'I have delivered what my thoughts have suggested to me, concerning that part of optics which is more properly mathematical' and 'in them scarce anything occur'd to my observation different from what has already been said by *Kepler, Scheinerus, Descartes*, and others.' Berkeley, *NTV*, section, 29, Vol. I, p.180.

scientific account of the workings of the visual system. As we will see, he offers one of the first accounts of post-retinal transmission and the earliest account of the psychology of visual judgements. While this account is remarkably complex for its time and offers one of the earliest computational models of spatial visual perception, Berkeley will devote a significant portion of his *New Theory* to critiquing Descartes' enterprise. In order to understand the precise nature of this disagreement, we must first have a clear picture of the model which Berkeley is reacting against and why. We will be eager to show that Berkeley's critique of geometrical optics, like his critique of natural philosophy, is rigorous, philosophically well motivated and ultimately defensible.

In addition to rejecting the geometrical model of visual perception, Berkeley is critical to many of the central tenets of eighteenth century natural philosophy. He is opposed to microscopy, the Newtonian account of absolute space and he offers an extensive critique of material substance. Any attempt to suggest however that Berkeley's opposition can be construed as a naive reaction to scientific progress must be immediately quashed. We will seek to show that Berkeley's is a discerning critique of early eighteenth century science and nowhere more so than in his critique of the prevalent geometrical mode of visual perception.

In order to fully appreciate the nature of Berkeley's divergence from the prevailing geometrical model, we must first undertake an examination of this model and consider its philosophical implications. We will seek to show that Berkeley sets his account in opposition to a prevailing geometrical model on the basis that is offers a misrepresentation of human visual experience. Lastly, we will consider Berkeley's critique of microscopy and seek to show that his critique of scientific instrumentation, like his critique of visual theory, forms part of his overall critique of the newly emerging scientific world view of the early eighteenth century. Like the critique of Newtonian mechanics, which he presents in *De Motu*, his theory of vision is centrally dedicated to scientific reform, and exposing the conceptual errors which he

discerned in the work of his predecessors . Far from being at odds with the later works, on our reading it can be shown that the *New Theory* constitutes a strategic first step in a holistically unified philosophical campaign.

We will see that geometrical optics was the central paradigm of visual perception during the modern period and the culmination of centuries of learning which formed part of a long tradition with significant contributors from both ancient Greece and the Islamic world. While this discipline came to fruition on the continent during the late seventeenth and early eighteenth century, in the hands of expert practitioners such as Kepler and Descartes, it is possible to trace its origins to classical antiquity when ray geometry was first employed in the study of optics. While we might discern little value in casting a net so wide as to include ancient theories in a discussion which is primarily devoted to identifying the defining characteristics of early modern optical theory, when we consider Descartes' remarks in the *Dioptrics*, where he sets his own account in opposition to the Aristotelian theory of intentional species, we have cause to reconsider our starting point. It can be argued that an inquiry whose aim is to understand the theoretical landscape of modern visual theory, needs to be conversant about its origins as well as the developments which would shape its course.

2.2 Antiquity and the Emergence of Geometrical Optics

The earliest writings on visual perception can be traced to classical antiquity and occur as fragments in works dedicated primarily to psychology and metaphysics. During this period there were two prominent views on how vision was thought to occur, and the debate centred on the origin and source of radiation. One of the earliest accounts is offered by Plato who proposes a theory of extramission in which light is said to issue from the eye to illuminate objects in the visual field. In the *Timaeus* he hypothesises that vision occurs by means of a

'pure fire' which emanates from the eyes and subsequently intermingles with the surrounding daylight.[128] Plato depicts the process as follows, stating that whenever 'there is daylight round about, the visual current issues forth, like to like, and coalesces with it [i.e., daylight] and is formed into a single homogenous body in a direct line with the eyes.'[129] Plato maintained that the visual fire which merged with the sounding daylight produced a material intermediary which he conceives as an homogenous body which subsequently transmits motions to the eye, which in turn produce sensations in the soul. Plato holds that vision occurs by means of 'qualitative changes produced by the object in the medium' rather than by means of any direct exchange between the object and the eye.[130] The view that vision occurred by means of an intermediary rather than by a direct exchange between the object and the eye became widely accepted. David Lindberg claims that this view formed the central point of commonality between the theories of Plato, Aristotle and the Stoics.[131]

We find the first systematic account of visual perception in Aristotle. He rejects the Platonic view that light is a corpuscular emanation, denying that light is either 'fire, nor in general any body, nor an emanation from any body.'[132] Aristotle's most significant departure from Plato occurs with his rejection of the view that the eye is the originating source of radiant light. He argues that this position is false as it is, 'unreasonable to suppose that seeing occurs by something issuing from the eye,' for then the ray of vision 'would have to reach 'as far as the stars.'[133] Like Plato however, Aristotle proposes that there is a continuous medium extending from the visible object to the interior of the eye, which acts as a conduit for the

[128] Plato, *Timaeus*, section 45 b-d in: Cooper, J.M, & Hutchinson, D.S (eds.) 1997. *Plato: The Complete Works*. (Indianapolis & Cambridge: Hackett Publishing Company) p.1248
[129] David Lindberg describes Plato's account of vision as 'a theory of intraocular fire.' Lindberg, D., 1976. *Theories of Vision from Al-Kindi to Kepler*. (Chicago, US: The University of Chicago Press)., p.6
[130] Lindberg, D., 1976. *Op., Cit*., p.10
[131] Ibid.
[132] Aristotle, *De Anima* Bk. II, Section 418b in: Barnes, J. (ed.), 1984. *The Complete Works of Aristotle*, vol. 1, (Princeton: Princeton University Press), p.666.
[133] Aristotle, *De Sensu* Bk II, section 439a, in: Barnes, J. (ed.), 1984. *The Complete Works of Aristotle*, vol. 1, (Princeton: Princeton University Press), p.693.

visual qualities of the object and thus facilitated the migration of forms across the aether. Aristotle claims that visual perception occurs when the colour of the visible object moves 'the transparent medium, e.g., the air' which 'extending continuously from the object of the organ, sets the latter in movement.'[134]

It is evident that Aristotle's theory of visual perception is directly influenced by his metaphysical system, specifically by the distinction which he employs between matter and form. In *De Anima*, he states that 'about all perception, we can say that a sense is what has the power of receiving into itself the sensible forms of things without the matter, in the way in which a piece of wax takes on the impress of a signet-ring without the iron or gold.'[135] Aristotle conceived of the process of visual perception as the reception of forms which travelled through the intervening medium to the transparent substance of the eye which then assumed the qualities of the visible object.

Aristotle's theory of vision exerted considerable influence, and became the accepted view during the scholastic era.[136] Lindberg maintains that while the revival of Aristotelianism transformed many disciplines, contributing positively to both developments in the field of education and 'the literary output of the medieval master,' his theory of vision had a predominantly negative impact on the development of visual theory.[137] He claims that while 'there were more scholars taking a serious interest in vision,' that 'they confined themselves to 'problems of an Aristotelian variety.'[138] Their form of inquiry was predominantly metaphysical and displayed a central concern with the ontological status of radiation. Such a singular focus inhibited progress in the key areas which would later facilitate significant developments in visual theory, such as ray geometry and visual physiology.[139]

---

[134] Aristotle, *De Anima*, Bk. II, section 419c in: Barnes, J. (ed.), 1984, *Op., Cit.*, p.667.
[135] Aristotle, *De Anima*, Bk. II, section 424a, in: Barnes, J. (ed.), 1984, *Op., Cit.*, p.674.
[136] Lindberg, D., 1976. *Op., Cit*., p.144
[137] *Ibid.*
[138] *Ibid.*
[139] *Ibid.*

While the legacy of Aristotle's theory of vision is still evident during the seventeenth century, the methodology which would ultimately set visual theory on a scientific footing can in fact be traced to Aristotle's immediate predecessors. In the *Optica*, Euclid provides the 'first full-fledged exposition of a mathematical theory,' which as Lindberg asserts, allowed for 'the development of a theory of vision along geometrical lines.'[140] It was the theorems and postulates enshrined by Euclid which constitute his lasting contribution to the development of visual theory. One of the most prominent features of modern geometrical optics can be traced directly to Euclid, who is the first to propose the principle of the rectilinear propagation of light. This principle made it possible to 'employ the straight lines of a geometrical diagram to represent visual rays,' which subsequently transformed visual theory by providing a framework which made it possible to transform 'optical problems into geometrical problems.'[141]

One of the many advantages of this innovative approach was that it became possible to offer an account of how the eye interacted directly with its environment without the supposition of a material intermediary. Euclid was the first to claim that light interacts directly with the eye mechanism. Another significant aspect of his contribution to the development of geometrical optics was the visual pyramid, which provided a means of determining the location of objects in space through a process of triangulation. Euclid had conceived of the visual pyramid in terms of a series of visual rays which emanated from the eye to the object and which formed a cone whose vertex was on the eye and whose base was on the surface of the visible object. While Euclid had succeeded in introducing the methodology which would guide all subsequent developments in visual theory and optics, he remained, nonetheless, as Lindberg points out, 'a member of the Platonic tradition.'[142] Euclid was a firm proponent of

[140] Lindberg, D., 1976. Op., Cit., p.12
[141] Lindberg, D., 1976, *Op., Cit.*, p.12
[142] Lindberg, D., 1976, *Op., Cit*., p.13

extramission theory, contending that light emanating from the eye reached out to apprehend its object.

In the second century A.D., Ptolemy extends Euclid's mathematical analysis to include the physical, physiological and psychological elements of the visual process. While he succeeded in making a number of additional contributions to the development of geometrical optics, he too remained a follower of Plato.[143] Like Euclid before him, Ptolemy supported extramission and the view that visual perception occurs by means of emanating radiation. It is not until the tenth century in the Islamic world that we witness a firm departure from this tradition and here too we encounter the true founder of modern geometrical optics. Alhazen is the first theorist to propose an account of intromission based on geometrical principles which would come to have a lasting impact in the development of visual theory in the Latin West.

2.3 The Foundations of Modern Geometrical Optics

When we consider the history of visual theory, we find that geometrical optics is a discipline which evolved over centuries and in concert with new developments in scientific instrumentation and the physical sciences. While it must be acknowledged that the canon of modern geometrical optics, owes a debt to a number of different theorists, two can be singled out as making the most significant contribution.[144] The sixteenth century German astronomer and mathematician Johannes Kepler is undoubtedly the single greatest influence on the development of modern optical theory. The foundations upon which Kepler developed his account however, can be traced to the Islamic natural philosopher Alhazen, who is rightly

[143] Lindberg, D., 1976, *Op., Cit.,* p.15.
[144] See David Lindberg, 1976, *Op., Cit.,* Chapter 6 and 7.

regarded as being 'the most significant figure in the history of optics between antiquity and the 17th century.'[145]

Alhazen begins his highly influential optical treatise, *De Aspectibus*, with a refutation of extramission theory based largely on observations concerning radiant light and its reception by the eye mechanism. He considers the case of an individual who experiences the effect of bright light impacting the retinal and remarks that 'we find that when the eye looks into exceedingly bright lights, it suffers greatly because of them and is injured; for when an observer looks at the body of the sun, he cannot behold it well, since his eye experiences pain because of its light.'[146] In opposition to preceding accounts which had endeavoured to account for intromission by means of qualitative changes to the medium between the eye and the visual field, Alhazen focuses on the direct exchange which takes place. He rejects extramission and the view that the eye emanates radiation. He claims that 'the eye does not perceive the light and color in the visible object unless something comes to the eye'.[147] Alhazen's claim that 'it is a property of light to act on the eye and that it is the nature of the eye to be affected by light,' became the basis of his new intromissionist scheme in terms of which the eye was regarded as the recipient rather than the source of external radiation.[148]

Alhazen's theory of vision constitutes a radical departure from all preceding accounts.[149] While the dominant intromissionist paradigm prior to Alhazen had been based on the Aristotelian model, he rejected the view that vision occurres by means of the reception of

[145] Lindberg, D., 1976. Op., Cit., p.58. Hatfield and Epstein also point to the significance and influence of Alhazen's achievement, stating that, 'Alhazen's major work was available in translation to the Latin West by the early 13th century; his theory and its derivatives dominated optical science until the time of Kepler.' Hatfield, G & W. Epstein, 1979. 'The Sensory Core and the Medieval Foundations of Early Modern Perceptual Theory.' In: *Isis: A Journal of the History of Science*. (70), p.371.

[146] Alhazen, *De Aspectibus*, Bk 1, chapter. 1, section 1, in: Risner, F. (trans.), 1972, *Opticae thesaurus Alhazeni Arabis libri septem, nuncprimun editi. Eiusdem liber De Crepusculis et nubiem ascensionibus. Item Vitellonis Thuringopoloni.* (New York : Johnson Reprint Corporation), p.1.

[147] Alhazen, *De Aspectibus*, Bk 1, chapter. 5, section 23, in: Risner, F. (trans.), 1972, *Op., Cit.,* p.14.

[148] Alhazen, *De Aspectibus*, Bk. 1, chapter. 5, section 14, in: Risner, F. (trans.), 1972, *Op., Cit.* p.7.

[149] Lindberg comments that Alhazen, 'drew together the mathematical, medical, and physical tradition and created a single comprehensive theory. Although containing ancient materials at every point, the resulting edifice was a fresh Islamic creation.' Lindberg, D., 1976, *Op., Cit*., p.85.

forms or images. He claims instead that light and colour issue in all directions from every point of a self-luminous or illuminated body, stating that, 'from each part of the object issue light and color along straight lines extending through the continuous air'.[150] He rejected the notion that a single image was transmitted to the eye, proposing instead that the image itself was created by means of a point-to point correspondence between the object and the eye mechanism This punctiform analysis of the visible body became the basis of Alhazen's intromissionist scheme and following in the tradition of Euclid and Ptolemy he utilized ray geometry in his analysis of incoming radiation. Commenting on the significance of this innovative approach Hatfield and Epstein note that Alhazen inverted 'the visual pyramid of Euclid and Ptolemy' to the intromissionist position and in so doing provided the first scientific account of intromission.[151]

The punctiform analysis of the visible body had however given rise to a significant challenge. Alhazen was confronted with the task of having to explain how a coherent visual image resulted from a superfluity of visual rays emanating from every point in the visual field; a problem which David Lindberg outlines as follows: 'If luminous rays issue in all directions from every point in the visual field , then is necessary to trace these rays to and through the eye and to establish an orderly one-to-one correspondence between the point sources of radiation and points stimulated within the eye'.[152] Alhazen however proposes an ingenious solution to the problem of the superfluity of rays based on an understanding of the propagation of light and its refraction in transparent substances. He claims that while 'all points in the visual field reach the surface of the eye, only 'the form of only one point passes directly [i.e., without refraction] through the transparency of the tunics of the eye.'[153] The rays which pass directly into the eye are those which are perpendicular to it and that the 'remaining points [in

[150] Alhazen, *De Aspectibus*, Bk. 1, chapter 5, section 14, in : Risner, F. (trans.), 1972, *Op., Cit* , pp.7-8.
[151] Hatfield and Epstein, 1979, *Op., Cit*., p.367.
[152] Lindberg, D., 1976. *Op., Cit*., p.193.
[153] Alhazen, *De Aspectibus*, Bk 1, Chapter. 5, section. 18, in: Risner, F. (trans.), 1972, *Op., Cit.* p.9.

the visual field] are refracted at that point on the surface of the eye and pass through the transparency of the tunics of the eye along oblique lines.'[154] Since oblique rays are refracted while perpendicular rays enter the eye, Alhazen had established a means of accounting for the required point-to-point correspondence between points emanating from the visual field and those being registered on the retinal surface. In so doing, he provides the first viable account of intromission, based on the punctiform analysis of the visible body.

Such is Alhazen'ss contribution to the development of visual theory that Hatfield and Epstein claim that he provides the conceptual materials from which Kepler would go on to formulate his theory of the retinal image. They argue that Alhazen's theory which 'depended upon his argument that the arrangement of points in the field of vision is reproduced in the physiological process generated at the crystalline humour by incoming radiation,' established the one-to one correspondence required in order to explain how a coherent visual image was formed.[155] They also assert that 'there was nearly complete agreement on the principles underlying Alhazen's theory of vision among post-Keplerian visual theorists, including Kepler himself.'[156] The central principles which Alhazen established were the punctiform analysis of the visible object; an understanding of the propagation of light and its refraction in transparent substances; a stress on mathematical analysis and the application of ray geometry in the analysis of visual radiation and the requirement of a one-to-one correspondence between points in the visual field and points in the eye.[157]

One of the next canonical discoveries in the study of visual is the theory of the retinal image which is best understood as a theory of image formation based on geometrical principles. Kepler lays down the principle of punctiform analysis as the second proposition of

[154]Alhazen, *De Aspectibus*, Bk 1. Chapter. 5, section. 18, in: Risner, F. (trans.), 1972, *Op. Cit,*, p.9 [addition my own]
[155] Hatfield and Epstein, 1979. *Op., Cit.,* p.367.
[156] Hatfield and Epstein, 1979, *Op., Cit.,* p.372.
[157] Hatfield and Epstein, 1979, *Op., Cit.,*, p.372.

his *Ad Vitellionem Paralipomena*, stating that 'lines infinite in number issue from every point' in the visual field.[158] Like Alhazen before him, he accepted that a viable theory of vision is based on a one-to-one correspondence between points in the visual field and points in the eye, but his solution constitutes a radical reconceptualisation of the visual process.

The theory of the retinal image was the single greatest development in visual theory during the seventeenth century. Kepler was primarily motivated to provide a solid foundation for his theory of astronomical optics which required a comprehensive understanding of the nature of light and the physical process of projection. Employing a *camera obscura*, Kepler was able to demonstrate how an image was produced on a screen when light was projected through a small aperture.[159]

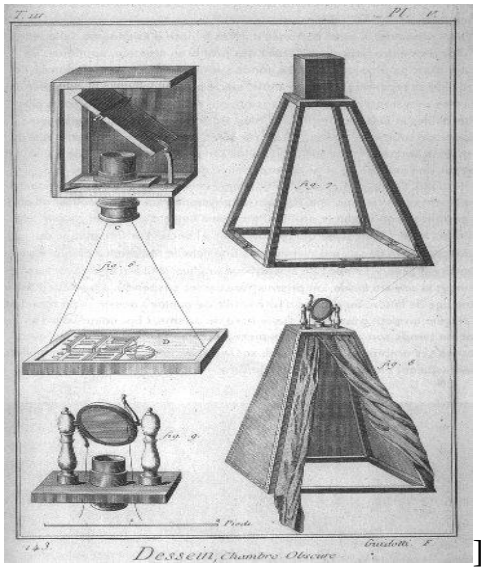

Fig.1 **18th Century Depiction of a Camera Obscura[160]**

[158] Kepler, J., 1604. *Ad Vitellionem Paralipomena, quibus astronomiae pars optica traditvr*. in: Von Dyck, W. & M. Casper (eds), 1937. *Gesammelte Werke (GW) 1571-1630*. (Munich: C.H. Beck), p.20.
[159] A *camera obscura* is an optical device which projects an image onto an opaque screen. Early models of the device normally consisted in a small wooden box with a small pin hole and a screen. The device functioned by means of an external light source being passed through the pin hole and projected and an image on a screen.
[160] Figure of the camera obscura, taken from Diderot, D. & Jean le Rond d'Alembert (eds.) 1751-66. *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*. (Paris: André le Breton).

He found that light travelled until it fell on 'an opaque medium,' whereupon images were produced which replicated 'their source.'[161] Based on his knowledge of ocular anatomy and the physiology of the eye mechanism, Kepler determined that his projection theory was applicable to the dioptrical mechanism of the eye which he proposed functioned much like a *camera obscura*. He contended that vision was 'produced when the opaque screen of the eye is painted this way' when light illuminates and alters 'the screens [of the eye] through which colors, that is to say light, are not only poured upon but are also imprinted.' [162] Outlining his theory of the retinal image Kepler states that:

> Vision occurs through a picture of the visible thing on the white, concave surface of the retina. And that which is on the right on the outside is portrayed on the left side of the retina; that which is to the left is portrayed on the right. Therefore, if it were possible for that picture on the retina to remain after being taken outside into the light, by removing the anterior portions [of the eye] ..and if a man whose vision was sufficiently sharp , he would perceive the very shape of the hemisphere [i.e. the visual field] on the extremely narrow surface of the retina.[163]

Commenting on the significance of Kepler's achievement, Lindberg states that the theory of the retinal image provided 'the first genuine instance in the history of visual theory of a real optical image within the eye' which had 'an existence independent of the observer formed by the focusing of available rays on a surface.'[164] Kepler had succeeded in providing an account for how independent point sources of radiation produced a single coherent image which was structural isomorphic with the object in the visual field.

Kepler employed geometrical principles in order to explain how the location of objects in the visual field was determined on the basis of incoming radiation. He states that, '[i]n vision with two eyes, in order to judge visible distance, we make use of the interval between the two eyes provided that the distance bears some sensible proportion to it'.[165] Furthermore '[i]n vision

[161] Kepler, J., 1604. *Op., Cit.*, pp.41-42.
[162] *Ibid.*
[163] Kepler, J., 1604. *Op., Cit*., p.153.
[164] Lindberg, D. 1976. *Op., Cit*., p.202.
[165] Kepler, J., *Supplement to Witelo*, III, 8, in: Turbayne, C.M., 1962. *The Myth of Metaphor.* (Columbia, South Carolina: University of South Carolina Press), p.145.

with one eye we are able to use the distance-measuring triangle which has its vertex in the point of the object and its base in the width of the pupil.'[166] In the case of both binocular and monocular vision, Kepler's theory is based on the notion that the location of objects in the visual field is determined by innate geometrical calculations; a view which would become widely accepted during the seventeenth century. Kepler's contribution is summed up by Colin Turbayne who claims that he had established that 'we have a built in geometry which we use, more or less without taking notice of it, to see objects in space , just as a surveyor locates an objects by triangulation if we suppose him unheedful of the process'.[167]

While the discovery of the retinal image and his geometric account of vision had enabled Kepler to establish the two central principles upon which modern geometrical optics would be based, he was quite explicit about the limits and scope of optical theory. For Kepler optics is strictly limited to the study of light and as such his theory of optics is best understood, as Gal and Chen-Morris have pointed out, as 'a mathematical -physical theory of the formation of images by light.'[168] For Kepler questions pertaining to the non-optical elements of the visual process, such as the process of post-retinal transmission and the psychology of visual judgements, fell outside of the province of optics. While then he provides a geometric account of spatial perception, he maintained that the additional cognitive processes which bring this about were largely occult and that the role of the optician was restricted to outlining the inherent geometry of vision. He states that:

> How the image or picture is composed by the visual spirits that reside in the retina and the nerve, and whether it is made to appear before the soul or the tribunal of the visual faculty by a spirit within the hollows of the brain, or whether the visive faculty, like a magistrate sent by the soul , goes forth from the administrative chamber of the brain into the optic nerve and the retina to meet this image .. this I leave to be disputed by the physicists. The

[166] Kepler, *Supplement to Witelo*, III, 9 in: Turbayne, C.M., 1962. *The Myth of Metaphor*. (Columbia, South Carolina: University of South Carolina Press)., p.146
[167] Turbayne, 1962. *Op., Cit.*, p.148
[168] Gal, O. & Chen-Morris, R. 2010 'Baroque Optics and the Disappearance of the Observer: From Kepler's Optics to Descartes' Doubt' In: *Journal of the History of Ideas*, Vol.71 , No. 2, April 2010, p.198

> armament of opticians does not take them beyond this first opaque wall encountered within the eye.[169]

While Kepler revolutionised visual theory by providing an account of how an image of the visual field is reproduced in the eye, the theory of the retinal image introduced new difficulties which subsequent theorists would have to address. The central challenge was to explain how an inverted two dimensional image of the visual field became an upright three-dimensional visual impression. The theory of the retinal image called for a new theory of visual perception; a challenge which would be accepted by the optical theorists of the modern period.

2.4 Descartes and Modern Geometrical Optics

The transition from the scholastic to the modern period was most effectively achieved by René Descartes who is rightly regarded as the father of modern philosophy. Commenting on the nature of this transition Thomas Duddy claims that a radically new approach to knowledge emerges during the early modern period which is based on a rejection of the 'speculative, fanciful researches of both the humanist scholars and the hermeneutical occultists,' and the instigation of 'a systemic, fact-gathering, cooperative approach to the study of the natural world.'[170] While the Cartesian distinction between mind and matter provides the metaphysical foundation for all of the key philosophical debates of the age, Descartes is first and foremost a mathematician who succeeds in making seminal contributions in the areas of optics, epistemology, and metaphysics. Commenting on his radical departure from the preceding tradition, Marc Hight writes that 'Descartes broke free of the fetters of Scholasticism by simultaneously advancing a new mechanistic theory of the physical world and a new concept

[169] Kepler, J. 1604. *Op., Cit.,* p.151-52.
[170] Duddy, T., 2002. *A History of Irish Thought*. (London: Routledge), p.50.

of the mental that regulated many of the features of ordinary experience to the mind.'[171] He goes on to state furthermore that while 'ideas had been understood as purely divine entities' during the scholastic period, Descartes effectively 'reached up and brought ideas down from the heavens' and thereby 'applied them to finite creatures in the mundane world.'[172]

The spirit of this new scientific approach is evident in Descartes optical works and his seminal contribution to the development of visual theory occurs predominantly as a reaction to the preceding scholastic account. Throughout the *Dioptrics*, Descartes is reacting to the doctrine of intentional species, the original Aristotelian theory which had experienced a significant revival during the Middle Ages.[173] Celia Wolf-Devine comments that Descartes is primarily motivated to replace 'theories of a broadly Aristotelian sort with his own mechanistic natural philosophy;' a point which is explicitly evident in *Dioptrics.*[174] Here Descartes warns that '[w]e must take care not to assume – as our philosophers commonly do – that in order to have sensory perceptions the soul must contemplate certain images transmitted by objects to the brain.'[175] The theory in question he identifies as 'the scholastic doctrine that material objects transmit to the soul the 'forms' or images resembling them.'[176] While Kepler had provided the optical principles which would form the basis of visual theory in the seventeenth century, Descartes would go farther in offering an account of the psychology of visual judgements which would in turn form the basis of his theory of visual spatial perception.

The *Dioptrics* begins with a discussion of the physical properties of light and Descartes'

---

[171] Hight, M., 2008 *Idea and Ontology: An Essay in Early Modern Metaphysics of Ideas* (Pennsylvania: Pennsylvania University Press)., p.2.
[172] Hight, M., 2008 *Op., Cit*., p.2.
[173] For an account of visual theory during the scholastic era see Robert Pasnau 1997. *Theories of Cognition in the later Middle Ages* (Cambridge, UK: Cambridge University Press).
[174] Devine-Wolf, C. 'Descartes' Theory of Visual Spatial Perception' in: Gaukroger, S., J. Schuster & J. Sutton, (eds.) 2000. *Descartes' Natural Philosophy.* (London: Routledge), p.506.
[175] Descartes, *Optics*, in: Cottingham, J., R. Stoothoff, & D. Murdoch (trans.), 1985. *The Philosophical Writings of Descartes*. (Cambridge, UK: Cambridge University Press)., Vol. I, p.165.
[176] In discourse one of the *Optic*s, Descartes writes about a view prevalent at the time which held that perception occurred by means of 'images flitting through the air, called "intentional forms" which so exercise the imagination of the philosophers.' Vol. I., p.154.

theory of refraction.[177] Descartes' account incorporates both the geometrical principles which had been enshrined by Kepler, as well as the latter's theory of the retinal image. In the fifth discourse of the *Dioptrics*, Descartes provides empirical confirmation of Kepler's original theory, based on observations concerning an anatomical experiment with the eye of an ox. Descartes' experiment provides empirical confirmation of Kepler's hypothesis, revealing that when the outer membranes at the back of the eye were removed and a white thin body substituted in place of the retina, that 'a picture representing in natural perspective all the objects outside,' was projected onto the white body when light was passed through the front of the eye.[178] While he allows that the formation of the retinal image was the first stage in the process of visual perception, he states that '[t]he images of objects are not only formed in this way at the back of the eye but also pass beyond into the brain,' and it is Descartes' account of post-retinal transmission that signals his departure from Kepler.[179] Here too we witness the first attempt to map the psychology of visual perception.

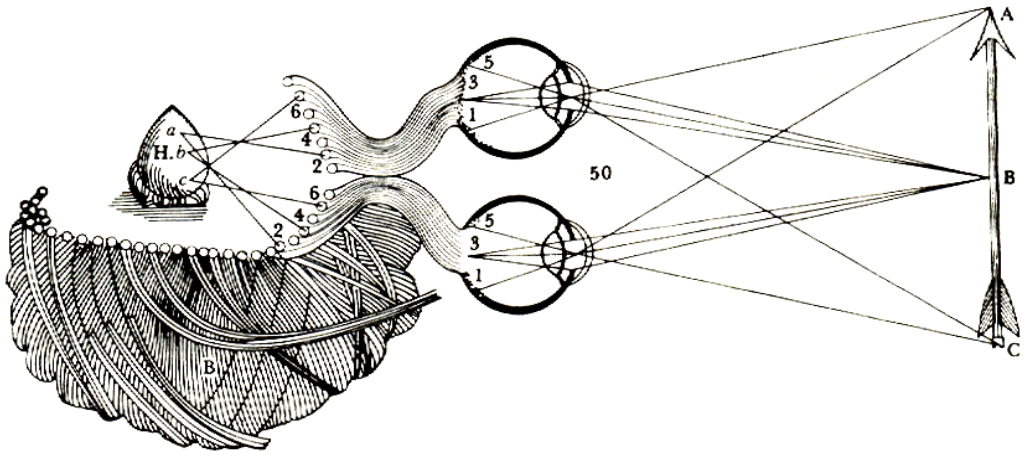

Fig. 2

***Fig 2*. Image of the visual system from Descartes' *Treatise on Man*[180]**

[177] Descartes devotes discourse 1 of the Optics to his theory of light and discourse 2 to outlining his theory of refraction
[178] Descartes, *Optics*, 1985. *Op., Cit.,* Vol. 1, p.166
[179] Descartes, *Treatise on Man*, 1985. *Op., Cit.,* Vol. I, p.167
[180] *Ibid.*

In the *Treatise on Man*, Descartes outlines his account of post-retinal transmission. His account is largely physiological and details the processes which occur within the internal structures of the eye and surrounding neural networks. He claims that optic fibres which extend from the back of the eye to the internal surface of the brain facilitate the process of transmission which occurs after the formation of the retinal image. Descartes states that, in order for visual perception to occur, a figure which corresponds to the retinal image 'must also be traced on the internal surface of the brain.'[181] He claims that a 'figure,' which corresponds to the retinal image 'is traced on the surface of the [pineal] gland' in the brain.[182]

In the *Dioptrics*, Descartes continues his discussion of post-retinal transmission. Here we witness his departure from the Aristotelian-scholastic view that vision occurs by means of a form which is received from the external object and passed through the eye to the brain. Descartes claims that it is not 'by means of resemblance that the picture causes our sensory perception of these objects,' a notion which would require that 'there were yet other eyes within the brain with which we could perceive it.'[183] Descartes claims that the formation of visual ideas is the result of an initial mechanistic process in which 'the movements composing this picture which, acting directly upon the soul in so far as it is united to our body, are ordained by nature to make it have such sensations.'[184] Commenting on the merits of Descartes' account of post-retinal transmission, Devine Wolf suggests that he is 'in a better position to explain what happens beyond the retina than his predecessors were because his mechanisation of light and colour enables him to treat the retinal image as a pattern of motions which can be transmitted mechanistically along the nerves.'[185] While the received Aristotelian view depended upon the notion that the structural isomorphism of the image was maintained during the transmission

[181] Descartes, *Treatise on Man*, 1985. *Op., Cit.*, Vol. I, p.105.
[182] Descartes, *Treatise on Man*, 1985. *Op., Cit.*, Vol. I, p.106 [addition my own].
[183] Descartes, *Dioptrics*, 1985. *Op., Cit.*, Vol. I, p.167.
[184] *Ibid.*
[185] Devine-Wolf, C., 2000. *Op., Cit.*, p.509.

process from the eye to the brain, such a view was based on metaphysical speculation rather than scientific fact. Descartes' mechanistic theory of light and colour enabled him to reconceptualise the process of post retinal transmission and to overcome the most significant limitations of the scholastic theory of vision.

Descartes continues his discussion of visual perception in the *Dioptrics*, outlining the different sensations which occur during the visual process. While he states that '[a]ll the qualities which we perceive in the objects of sight can be reduced to six principle ones', which he identifies as, 'light, colour, position, distance, size and shape,' he goes on to state that light and colour are 'the only qualities belonging properly to the visual sense'.[186] While colour perception is accounted for mechanistically as a physiological response to stimuli, as a result of the 'force of the movements taking place in the regions of the brain where the optic fibres originate,' the perception of spatial qualities such as position and distance has a physiological as well as an intellectual component.[187] Descartes states that distance perception 'depends in the first place on the shape of the body of the eye' but that the means of determining distance is to be understood as a form of innate or 'natural geometry.'[188] He describes natural geometry as 'a mental act' or 'simple act of the imagination' which 'involves a kind of reasoning quite similar to that used by surveyors when they measure inaccessible places by means of two different vantage points.'[189] Descartes compares the process of calculation involved in distance perception to a blind man holding cross sticks , who 'knowing only the distance between his two hands' is able to calculate the location of the object through a process of triangulation, as depicted in the following image:

[186] Descartes, *Dioptrics*, 1985. *Op., Cit.*, Vol. I, p.167.
[187] *Ibid.*
[188] Descartes, *Dioptrics*, 1985. *Op., Cit*, Vol. I, p.170.
[189] *Ibid.*

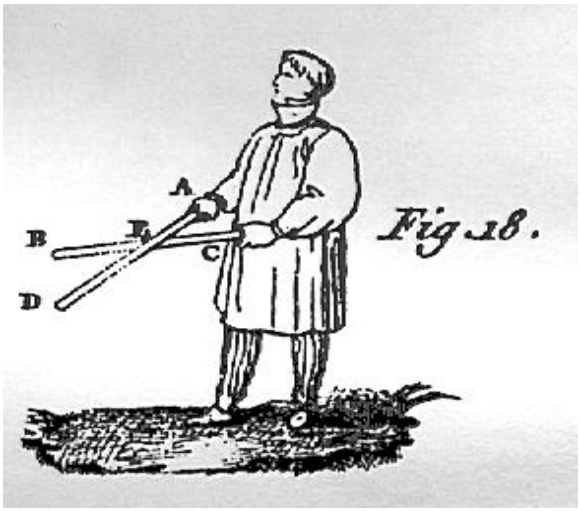

Fig 3. **Depiction of the blind man with crossed sticks, which appears in Descartes' *Dioptrics***

Descartes' account of distance perception in the *Dioptrics* is similar to Kepler's, for he too contends that distance perception is the result of geometrical calculations which are unconsciously performed by the percipient. It can be argued that Descartes' most significant departure from Kepler occurs in terms of his psychology of vision and the role which he affords to the imagination in the overall process. While Kepler restricted his optical investigations to determining the physics of light and the geometrical arrangement of the visual field, Descartes went further in providing a mechanistic account of post-retinal transmission in order to explain 'how ideas are formed of the objects which strike the senses.'[190]

Descartes' psychology of visual judgements is outlined in the discussion of the *Sixth Replies,* where the distinction that is introduced in the *Dioptrics* between sensation and intellection is further developed and refined. In the *Sixth Replies,* Descartes is eager to distinguish between the role of the senses and that of the intellect in perception, stating that '[i]f we are to get a clear view of what sort of certainty attaches to the senses, we must distinguish three grades of sensory response', which we must do as 'we are apt to make a mistake in this regard when we mistakenly assign to the senses, that which properly belongs to

[190] Descartes, *Treatise on Man,* 1985. *Op., Cit.,* Vol. 1, p.105.

the intellect.'[191] The first grade of sensory response is described as a 'movement in the brain' which is common to us and brutes' and refers to a level of physiological response within the organ to stimuli, such as the initial reception of light by the eye mechanism. [192] The second grade entails a level of sensory awareness which involves 'the mere perception of light and colour,' and 'arises from the fact that the mind is so intimately conjoined with the body that it is affected by the movements which occur in it.'[193] The third grade however is an act of judgement which involves the intellect and results in the apprehension of spatial qualities. Descartes states that:

> I make a rational calculation about the size, shape and distance of the stick: although such reasoning is commonly assigned to the senses, it is clear that it depends solely on the intellect. I have demonstrated in the Optics how size, distance and shape, can be perceived by reasoning alone, which works out any one feature from the other features. [194]

We can conclude that Descartes most significant departure from Kepler is the role which he attributes to the imagination and higher cognitive faculties during visual perception. Descartes' account of visual spatial perception requires an act of intellection and is distinguished from colour perception on the basis that the latter is merely a mechanistic response to basic stimuli. While Descartes was not the first optical theorist to claim that the intellect had a significant formative role in spatial perception, we find however that he is responsible for proposing this view during the seventeenth century, which was subsequently accepted by all prominent theorists of the period.

The reason why spatial vision is deemed to require an act of intellection is that in attempting to account for the apprehension of spatial qualities, the geometrical model suffered from two significant defects. Firstly, as Hatfield and Epstein have noted '[o]f the luminous rays received at the surface of the crystalline, only the luminosity and colour of each ray and

[191] Descartes, *Sixth Set of Replies*, 1985, *Op., Cit*., Vol. II, p.295.
[192] Descartes, *Sixth Set of Replies*, 1985. *Op., Cit*., Vol. II, p.295.
[193] Descartes, *Sixth Set of Replies*, 1985. *Op., Cit*., Vol. II, p.295.
[194] Descartes, *Sixth Set of Replies*, 1985. *Op., Cit*., Vol. II, p.295.

not the arrangement of the rays or the spatial information conveyed by that arrangement , is sensed by the eye.'[195] Secondly, while 'the arrangement of points within the cross section provides direct information about only two dimensions,' while the third dimension of depth or distance is not represented.[196] Descartes and his followers had posited the addition of supplementary processes to account for the apprehension of spatial qualities within the visual field, precisely because the arrangement of luminous points which was received by the eye could not account for the third dimension of space. As Braund comments the '[r]etinal information, which is to say the global pattern of light stimuli incident on the retinal plane, does not specify the tridimensionality of the perceptible world.'[197] Descartes therefore invokes the role of the imagination in order to account for apprehension of spatial qualities and in so doing, establishes what becomes the standard seventeenth century view.

2.5 Microscopy and the New Science

Descartes devotes a significant portion of his discussion in the *Dioptrics* to outlining the benefits of instrumentally enhanced vision. Among the inventions of the age, he regards the microscope as being superior to the telescope, as it alone facilitates the study of 'the arrangement of the tiny parts of which animals and plants' and 'the other bodies that surround us, are composed, thereby gaining a great advantage towards a knowledge of their nature.'[198] The seventeenth century bears witness to a new era of technical innovation, during which microscopy becomes one of the central fields of scientific endeavour. The practice of microscopy develops most notably in the hands of master practitioners such as Robert Hooke

[195] Hatfield and Epstein, 1979. *Op., Cit*., p.367.
[196] Hatfield and Epstein, 1979. *Op., Cit*., p.367.
[197] Braund, M., 2007. *Op., Cit*., p.51.
[198] Descartes, *Optics*, in: Olscamp, P.J. (trans. & intro), 2001. *Discourse on Method, Optics, Geometry, and Meterology* (Indianapolis, Cambridge: Hackett Publishing Company), p.172.

who publishes the seminal *Micrographia* in 1665. Hooke shares Descartes conviction that instrumentally enhanced vision enables a greater understanding of the fundamental constituents of the natural world. One of the primary benefits of 'artificial instruments and methods' which Hooke identifies is a 'watchfulness over the failings *and an* inlargement of the dominion of the senses.'[199] While we might be inclined to interpret Hooke's comment as a salute to new avenues of research which the microscope facilitated, Catherine Wilson suggests that there is something quite literal about Hooke's intent. She claims that for him the illustrations of the *Micrographia* 'were not meant to be direct reproductions of a momentary optical experience, but rather an improvement on momentary witnessing that would give the general form stripped of the idiosyncrasies of the individual specimen or observation.'[200] When we engage with the *Micrographia* there is a sense in which instrumentally enhanced vision is proposed not only as a means to viewing the microscopic properties which are invisible to the naked eye, but that it possessed the power to transform men's understanding by revealing the true essence of the macroscopic world itself.

In a similar vein, Nicholas Ribe suggests that the microscope is the most Cartesian of optical instruments, for it alone could 'validate the fundamental assumption of Descartes physics,' namely that the 'entire nature and essence' of bodies is due to the properties of their minute parts.'[201] Ribe goes on to state that:

> Descartes sees that the visual apparatus provided by nature falls short of the rational perfection to which it nevertheless dumbly points.. In short, nature is for Descartes no longer a 'master artisan', but rather, a sort of 'apprentice', one whose talent is considerable, to be sure, but whose work needs careful oversight and correction.[202]

[199] Hooke, R., 2014. *Micrographia: The Complete Facsimile of the First printing of 1665*. (Netherlands: Leopold Publishing), p.19.
[200] Wilson, C., 1995. *Early Modern Philosophy and the Invention of the Microscope*. (Princeton, New Jersey: Princeton University Press), p. 87.
[201] Ribe, N. M. 1997. 'Cartesian Optics and the Mastery of Nature' In: *Isis*, Vol. 88, Issue 1, p.60.
[202] Ribe, N. M. 1997. Op., Cit., p.53. In her study of the role that the microscope played in early modern science, Catherine Wilson claims that during the seventeenth century the microscope became an 'instrument of conceptual salvation.' Wilson, C., 1988 'Visual Surface and Visual Symbol: The Microscope and the Occult in Early Modern Science,' In: *Journal of the History of Ideas*, Vol. 49, Issue. 1 (Jan - Mar), p.97.

Berkeley is one of the few thinkers of this period who is critical of microscopy, introducing a significant caveat which needs to be observed. In the *New Theory,* he queries the proposed benefits of instrumentally enhanced vision and the alleged limitations of the visual sense. He outlines a central misconception to which the study of microscopy has contributed, namely the view that 'the visive faculty' is found 'to labour of two defects.'[203] The first alleged defect is 'the number of visible points which are at once perceivable.'[204] The second that unaided vision is regarded as being inherently defective 'in that its view is not only narrow, but for the most part confused.'[205] Berkeley responds by claiming that 'in neither of these two ways do microscopes contribute to the improvement of sight, for when we look through a microscope, we neither see more visible points, nor are the collateral points more distinct than when we look with the naked eye, at objects placed in a due distance.'[206]

It can be claimed that the practice of microscopy had contributed to two views which Berkeley deemed not only objectionable but ultimately untenable. The first was the view that the unaided senses were essentially ill-suited to uncovering the true nature of reality. The second is the view that microscopic investigation reveals the true nature of the macroscopic realm by enabling men to uncover the true nature of the world which was otherwise hidden from view. Berkeley is opposed to all forms of scepticism and is accordingly critical of how the findings of instrumentally enhanced investigations were being interpreted.

It can be argued that the world view which emerges as a direct consequence of the new mechanistic science serves to reinforce the appearance-reality distinction. While the properties of matter caused sensations to arise in the mind, matter itself was something insensible and ultimately unknowable. The science of microscopy served to strengthen a pernicious prejudice; that the unaided senses are ill-suited to the task of analysing reality at

[203] Berkeley, *NTV,* Section 83, Vol. I, p.205.
[204] Berkeley, *NTV,* Section 83, Vol. I, p.205.
[205] Berkeley, *NTV,* Section 83, Vol. I, p.205.
[206] Berkeley, *NTV,* Section 84, Vol. I, p.205.

its most fundamental level. Commenting somewhat prophetically in the late seventeenth century, Bernard de Fontenelle points to the epistemological paradox to which the developments of the new science would invariable give rise: 'all philosophy is based on two things only: curiosity and poor eyesight.' The trouble is that 'we want to know more than we see' and the paradox that 'true philosophers spend a lifetime not believing what they do see, and theorizing on what they don't see.'[207]

It should be noted that Berkeley's critique of microscopy is not an attack on scientific discovery or the value of newly emerging empirical data. His concern is to demonstrate that such findings were frequently the subject of misinterpretation. His critique of scientific instrumentation forms an important aspect of his overall critique of the eighteenth century scientific worldview, wherein he is concerned to eradicate interpretative misgivings and false metaphysical speculations from the canon of natural philosophy. The scientific theoreticians of the age had employed their discoveries to support the mechanistic hypothesis and the view that the true nature of the natural world consisted in an unknowable material substratum. One of Berkeley's central directives to the natural philosopher is to abandon material causality and to 'let the occult quality go.'[208] I wish to claim that Berkeley's works on vision form a significant aspect of his programme of scientific reform; the latter finding clear expression in the *Theory of Vision Vindicated*:

> The work of science and speculation is to unravel our prejudices and mistakes, untwisting the closest connexions, distinguishing things that are different, instead of confused and perplexed, giving us distinct views, gradually correcting our judgment, and reducing it to a philosophical exactness.[209]

[207] Fontenelle, Bernard de, 1990. *Conversation on the Plurality of Worlds*. , Trans. H.A. Hargreaves. (Berkeley and LA: University of California Press), p. 12.
[208] Berkeley, *De Motu*, Section 4, Vol. IV, p.32.
[209] Berkeley, *TVV*, Section 35, Vol. I, p.263.

While Berkeley's opposition to the prevailing account of visual perception is undoubted connected with his larger philosophical aims, he also seeks to highlight the difficulties which he believed to be endemic to the then prevailing geometric account. It is Berkeley's contention that this model is intrinsically incapable of providing a satisfactory explanation of visual spatial perception. We will now move on to consider the full extent of Berkeley's critique of geometrical optics and consider the degree to which he can be seen to introduce a radically new account of visual spatial perception. We will see that just as Descartes' geometrical model constitutes a radical move away from the scholastic account of visual perception, so too Berkeley's model constitutes a radically departure from Cartesian rationalistic computational account.

CHAPTER THREE

Berkeley's New Theory of Vision

3.1 Introduction

Berkeley goes to great lengths to distinguish his account of visual perception from the then prevailing geometric account. It is widely held that the nature of this departure consists in a methodological paradigm shift whereby he moves away from the rationalistic computationalism of Descartes' geometrical model, towards an empiricist associationist based approach.[210] A.D Smith is highly critical of this methodological turn as well as its implications for visual theory. He claims that the model of visual perception which rose to prominence during the eighteenth and nineteenth centuries, can be traced to Berkeley and the publication of the *New Theory* of *Vision* in 1709. He claims that Berkeley is responsible for introducing a theory of visual perception which seeks to deny 'that we are immediately aware through sight of objects arrayed in three-dimensional space.' [211] It is alleged furthermore that Berkeley seeks to affirm the view that 'the sense of sight is, originally, not phenomenally three-dimensional in character and that we must come to interpret its properly two-dimensional data by reference to the sense of touch.' [212] The upshot of such a model is outlined by Smith as follows:

> According to Berkeley, sight or itself, gives us no idea of what he terms "outness": that is, there is no truly visual distance perception at all…Moreover, Berkeley claims that ideas of distance and of three-dimensional form are originally found in "touch", under which he includes, as indeed of primary importance, kinaesthesis. As a result of "experience" (i.e., associative learning), visual sensations come to "suggest" kinaesthetically grounded ideas or three-dimensional space and its occupants. [213]

[210] This categorisation is proposed by Francis Egan, who also claims that 'Berkeley's explanation appeals to the associationist model of psychological processing.' Egan, F., 1998. 'The Moon Illusion' in: *Philosophy of Science*, Vol. 65, No. 4, Dec, p. 605-6.
[211] Smith, A.D., 2000. 'Space and Sight' in Mind, Vol. 109, 435, July, p. 481.
[212] Smith, A.D., 2000. 'Space and Sight' in Mind, Vol. 109, 435, July, p. 481.
[213] Smith, A.D., 2000. *Op., Cit.*, pp. 487-8.

The view encapsulated here by Smith, entails that Berkeley is working to establish the following claims: (1) visual experience is not inherently three-dimensional in character (2) what is immediately perceived by sight is a two-dimensional visual idea or array (3) visual ideas which are immediately perceived signify tangible ideas or objects.

We will seek to show that the first and second of these claims misrepresent Berkeley's position and argue that he does not employ his distance thesis to deny that visual experience is inherently three-dimensional. We will demonstrate that once his distance thesis is analysed in the correct context, a very different picture of Berkeley's general motivation begins to emerge. We will also examine his critique of the geometrical model and seek to show that he succeeds in identifying a significant difficulty which is inherent in Descartes' computational model of visual spatial perception. We will seek to show furthermore that Berkeley's critique of the geometrical model is far more sophisticated than has generally been acknowledged, and work to clarify the nature of his opposition to the then prevailing optical tradition.

We will be also examine Berkeley's discussion of the proper objects of vision and seek to show that existing associationist readings fail to capture the full complexity of his position. We will seek to show that the third claim which is frequently attributed to Berkeley overlooks a significant tension in his account of the proper objects of vision. While commentators such as Ralph Schumacher have concluded that such a tension cannot be resolved as Berkeley fails to provide a coherent account of the proper objects of vision, I will argue that this problem can be resolved once we recognise a central distinction which is implicit in Berkeley's account.[214] We will seek to offer an extended version of the associationist thesis by distinguishing the role which visual ideas serve and the process which leads to their formation.

[214] Schumacher, R. 'Berkeley on Visible Figure and Extension,' in: Daniel, S., (ed.) 2007, *Re-examining Berkeley's Philosophy*. (Toronto: University of Toronto Press).

One of our guiding exegetical principles is that the core claims of the *New Theory* must be analysed in the context of early eighteenth century optical theory and the debates which were ongoing at the time of its publication. In order to provide a clear and accurate account of Berkeley's model of visual spatial perception, we must therefore begin by examining his critique of geometrical optics and work to identify the precise nature of his disagreement with this tradition. We will begin by offering a critical examination of Berkeley's distance thesis, which as Braund asserts is the central contention upon which 'the whole argument of *New Theory* depends.'[215]

3.2 Berkeley's Distance Thesis

One of the most controversial aspects of the *New Theory* is the distance thesis, which has been identified as the central source of Berkeley's most prominent errors. [216] Highlighting the nature of this controversy, Robert Schwartz comments that 'there has been much speculation in the literature about what Berkeley means here and why he would deny the obvious- that we see distance and see it immediately when we open our eyes.'[217] Berkeley presents his distance thesis in the second entry of the *New Theory*, stating that:

> It is, I think, agreed by all, that *distance* of itself and immediately, cannot be seen. For *distance* being a line directed end-wise to the eye, it projects only one point in the fund of the eye. Which point remains invariably the same, whether the distance be longer or shorter.[218]

[215] Braund, M., 2007, *Op., Cit*., p.51
[216] David Armstrong (1960) and George Pitcher (1977) argue that all of Berkeley's difficulties emerge as a result of his espousal of the premise that distance cannot immediately be seen. They allege that Berkeley employs this premise in order to undermine the intuitive belief that we perceive spatially located objects.
[217] Schwartz, R., 1994, *Op., Cit.*, p.8
[218] Berkeley, *NTV*, Section 2, Vol. I, p.171.

Michael Braund observes that 'for a shrewd theoretician, it is strange that Berkeley begins as uncritically as he does,' commenting that the 'fact that Berkeley did not see the need to explain this phrase, or to provide arguments in support of it, might in all propriety be used as a criticism against him.'[219] Pitcher contends that we should refuse to grant either Berkeley's 'bold deliverance' or 'its meagre defence until one knows precisely what they mean' and this, he claims, is 'far from clear.'[220] The meagre defence to which Pitcher here refers is the claim that distance is 'a line directed end wise to the eye' projecting 'only point in the fund of the eye.'[221]

While Berkeley's argumentative brevity in the opening sections of the *New Theory*, has made his distance thesis the focus of attack and misinterpretation, when we consider this claim in the content of early eighteenth century optical theory, we find that this view was widely accepted and is in fact a line of argument which Berkeley adopts directly from Molyneux's *Dioptrica Nova*:

> In Plain vision the Estimate we make of the distance of Objects (especially when so far removed, that the Interval between our two Eyes, bears no sensible Proportion thereto: or when look'd upon with one Eye only) is rather an Act of Judgement, than of Sense; and acquired by Exercise and a Faculty of comparing, rather than Natural. For Distance of it self , is not to be perceived; for 'tis a Line (of a Length) presented to our Eye with its End towards us, which must therefore be only a Point, and that is Invisible.[222]

It is clear that the problem which Berkeley sets out to address is derived directly from the one-point argument or so-called 'Molyneux premise.'[223] By presenting his distance thesis in this way, Berkeley is stating the terms of a problem which was widely recognised and which

---

[219] Braund, M, 2007, *Op., Cit.*, p.50.

[220] Pitcher is highly critical of Berkeley's distance thesis stating that 'we should refuse to grant either Berkeley's 'bold deliverance' [distance is not immediately seen], or 'its meagre defence'[for tis a line directed endwise to the eye], 'until one knows precisely what they mean' and this , he claims , is ' far from clear.' Pitcher, G., 1977. *Op., Cit.,* p.5. For a fuller treatment of the misconceptions which have been associated with Berkeley's distance thesis in the literature, see Braund , M., 2007, *Op., Cit.*, pp.51-54.

[221] Berkeley, NTV, Section 2, Vol. I, p.171.

[222] Molyneux, W., 1692. *Dioptrica Nova: A Treatise of Dioptrics in two parts wherein the Various Effects and Appearances of Spherick Glasses, both Convex and Concave, Single and Combined, in Telescopes and Microscopes, together with Their Usefulness in many Concerns of Human Life, are explained. (London: Benj. Tooke),* p.113

[223] This appellation is ascribed by Nicholas Pastore because of its original formulation in Molyneux's *Dioptrica Nova* . See: Pastore 1971. *Selective History of Theories of Visual Perception 1650- 1950* (New York: Oxford), pp.68-70. This term also used by Brook , p.8.

accordingly required little by way of justification or defence. As this thesis is central to the *New Theory*, we must endeavour to discern not only its significance but its overall implications for Berkeley's model of visual perception.

One of the central challenges facing optical theorists during the early eighteenth century as we have seen, was to provide an account of distance perception and explain how spatial properties were perceived. Distance perception posed a particular problem which colour perception did not. While the latter could be accounted for as a physiological response to stimulus, distance perception was thought to involve an act of intellection, or some form of additional processing beyond the information which was received by the retina during the visual process.[224] The one-point argument which Berkeley invokes as the first principle of his account is one of the foundational premise of geometrical optics and refers to the impact of light rays converging on the retinal surface. While Kepler had discovered that the length of the light ray co-varies with the distance of the object from the perceiver, the information which arrives on the retina does not co-vary accordingly, projecting only a single point in the fund of the eye.[225] The one-point argument is tantamount to the view that the light travelling from an object along any point on given line of sight will have precisely the same physical effect on the retina. As the information which is given to the retina does not co-vary with distance, some form of additional processing is required in order to account for the manner in which spatial properties and the distance of objects in the visual field are perceived. Since this arrangement of luminous points is incapable of providing information pertaining to the spatial location of objects, theorists began to realise that visual perception was a multistage process. Commenting on one of the central implications of the one-point argument Schwartz states that 'the spatial extent between the object and the eye is not displayed anywhere in the retinal image. When the

[224] Wolf-Devine, C., 2000. *Op., Cit.*, p.511.
[225] Schwartz points out that Kepler had discovered that a point at any distance along a line of sight projected the same single point on the retina. Schwartz, R., 1994. *Op., Cit.*, p.12.

three-dimensional world is mapped onto out two-dimensional retina, nothing in the retinal image "directly" presents or represents this distance itself.'[226] The fact that distance perception was thought to entail a form of supplementation, equated to the claim that distance perception was regarded as a form of non-immediate perception, which was typically expressed as the view that 'distance of itself and immediate cannot be seen.'[227]

We will recall that Descartes had endeavoured to account for distance perception by highlighting the role of the imagination, which he claimed facilitated a process of 'natural geometry', which accordingly enabled the subject to determine the location of objects in the visual field.[228] Hatfield and Epstein suggest that the reason which prompted Descartes to consider the involvement of the intellect and the higher cognitive faculties is that a mere understanding of 'the geometry of visual stimulation is insufficient to explain the perceptual achievements of the human percipient, such that 'psychological processes must also be invoked.'[229]

By accepting the one-point argument as the first principle of his account Berkeley is basing his theory on the same foundational premise as his predecessors in the optical tradition, and thereby accepting that distance perception is a multistage process. The fact that Berkeley is committed to the one-point argument is also evident when we consult the *Alciphron*, where he presents a fuller version of the one-point argument in dialogical form:

> Euphranor: Tell me, Alciphron, is not distance a line turned endwise to the eye?
>
> Alciphron: Doubtless.
>
> Euphranor: And can a line, in that situation, project more than a single point on the bottom of the eye?

[226] Schwartz, R., 1994. *Op., Cit*., p.22
[227] Berkeley, *NTV* Section 2, Vol. I, p.171.
[228] For a fuller treatment of Descartes account of distance perception and his theory of natural geometry, see section 2.4 of this dissertation.
[229] Hatfield & Epstein, 1979. *Op., Cit*., pp.368-369. Atherton makes a similar point, stating that the 'discrepancies that exist between what we see and what appear on the retina require we take vision to be a multistage process. What we can see with respect to distance is not the same as what we can sense and so requires additional processing.' Atherton, M., 1990. *Op., Cit*., p.68.

> Alciphron: It cannot.
>
> Euphranor: Therefore the appearance of a long and of a short distance is of the same magnitude, or rather or no magnitude at all- being in all cases one single point.
>
> Alciphron: It seems so.
>
> Euphranor: Should it not follow from hence that distance is not immediately perceived by the eye?
>
> Alciphron: It should.[230]

The claim that Berkeley proposes his distance thesis with a view to denying that visual experience is inherently three-dimensional is clearly mistaken when we consider the significance of this claim in the context of early eighteenth century optical theory.[231] The thesis is derived from the acceptance of a scientific premise which entails that distance perception is a multistage process. By claiming that distance is not immediately seen, Berkeley is thereby assenting to the standard view and recognising the need to offer an account of this multistage process. Given the nature of Berkeley's goal, we find that his undertaking in the *New Theory* has an essentially positive thrust which is, as Atherton asserts 'to explain *how* objects appear in visual space.'[232] When we analyse Berkeley's distance thesis in the context of early modern optical theory, we find that the controversy associated with it is overcome and that he is stating the terms of a problem which was widely accepted and thereby responding to a prominent scientific debate within the visual sciences.[233]

---

[230] Berkeley, *Alciphron*, Vol. III, p.15

[231] Braund, M. 2007. *Op., Cit.,* p.52. Braund outlines three popular misconceptions associated with Berkeley's distance thesis (1) Berkeley is arguing that we are ill-equipped to make estimates of distance (2) Immediately refers to temporal immediacy (3) Berkeley is denying that tri-dimensionality is a feature of visual experience, in favour of the view that what is perceived visually, is a two dimensional manifold or array. Braund, M., 2007. *Op., Cit.,* p.51.

[232] Atherton points to the fact that Berkeley's original statement of purpose in the *New Theory* testifies to a positive aim and that in the first entry of the *New Theory*, Berkeley states that his intention is 'to shew the manner wherein we perceive by sight the distance, magnitude and situation of objects.' Atherton, M., 1991. *Op., Cit.,* p.8.

[233] Atherton, M., 1991, *Op., Cit.,* pp.62-3: Berkeley she says, 'lays down the terms of a problem about distance perception, a problem he regards as widely recognised'. Braund, 2007, p.55: 'Berkeley is doing nothing more than pointing to a problem he takes to be well understood. He did not think that this point was original or controversial'. Both Colin Turbayne (1965) and Margaret Atherton (1990) point to the fact that Berkeley was well versed in early eighteenth century optical theory. He was abundantly familiar with the optical treatises of the period, including Barrow's *Lectiones Opticae et Geometrica* (1669),Molyneux's *Dioptrica Nova* (1692), Newton's *Opticks* (1704), Malebrache's *Recherché de la Verite* (1678), and Descartes' *La Dioptric* (1637).

Other aspects of Berkeley's account have been highlighted as problematic, due primarily to an inconsistency which it is alleged is evident in his methodological approach. Alan Donaghan claims that Berkeley's acceptance of the one-point argument causes a significant difficulty for the overall consistency of his approach, for according to his own revised principles, he should not have accepted it. [234] Donaghan argues that the basis of his opposition to geometrical optics is methodological, and that he rejects the scientific or 'information-theoretic' approach in favour of an associationist methodology which prioritises an analysis of visual ideas and the relationship with their tangible counterparts. [235]

Donaghan's rendering of Berkeley methodological approach seems initially well founded for we find that Berkeley is critical of the methodology which had been employed by his predecessors in the optical tradition, claiming that they had 'proceeded on wrong principles.'[236] Such is Berkeley's dissatisfaction with the principles of geometrical optics furthermore, that he devotes the first 51 entries of the *New Theory* to a critique of the prevailing account of distance perception, outlining his opposition as follows:

> [T]hose *lines* and *angles*, by means whereof *mathematicians* pretend to explain the perception of distance, are themselves not at all perceived, nor are they, in truth, ever thought of by those unskilful in optics. I appeal to anyone's experience, whether, upon sight of an *object*, he compute its distance by the bigness of the *angle* made by the meeting of the two *optic axes*? .. In vain shall all the *mathematicians* in the world tell me, that I perceive certain *lines* and *angles* which introduce into my mind the various *ideas* of *distance*; so long as I myself am conscious of no such thing.[237]

This passage would seem in keeping with Berkeley's idealism and his insistence that perception involves an idea being brought before the mind. It would suggest furthermore that Berkeley rejects geometrical optics on the basis that it trades on the existence of mental operations which

[234] Donaghan, A., 1978. 'Berkeley's Theory of the Immediate Objects of Vision,' in: Machamer, P.K. & R.C. Turnball (eds.) *Studies in Perception: Interrelations in the History of Science and Philosophy.* (Columbus: Ohio State University Press)., p.323.
[235] Donaghan, A., 1978. 'Berkeley's Theory of the Immediate Objects of Vision,' in: Machamer, P.K. & R.C. Turnball (eds.) *Studies in Perception: Interrelations in the History of Science and Philosophy.* (Columbus: Ohio State University Press), p.323.
[236] Berkeley, *NTV*, Section 1, Vol. I, p.171.
[237] Berkeley, *NTV*, Section 12, Vol. I, p.173.

cannot be brought before the mind and of which the subject cannot be conscious.[238] Alan Donaghan claims that Berkeley is opposed to geometrical optics on the basis that it trades on unconscious mental events of this kind and that he cannot consistently accept the one-point argument as the central premise of his own account. It is my contention however that such a contention is unfounded. We will now proceed to examine Berkeley's critique of geometrical optics with a view to uncovering the precise nature of his disagreement with the prevailing tradition.

3.3 Berkeley's Departure from Geometrical Optics

When we examine Descartes' account of distance perception, we find that Berkeley has good grounds to be dissatisfied with the central postulates of the geometrical model of distance perception. We will recall that Descartes' model of distance perception entails that distance judgements are formed through a process of innate or 'natural geometry' which is outlined in the *Dioptrics* as follows:

> [T]his is done by a mental act which, though only a very simple act of the imagination, involves a kind of reasoning quite similar to that used by surveyors when they measure inaccessible places by means of two different vantage points.[239]

Descartes' account of natural geometry presupposes that the imagination calculates distance using certain key geometric variables.[240] His analysis of the process by which the spatial location of objects is determined entails furthermore that the imagination employs a process of triangulation. This process is envisaged as being identical to the manner in which a

[238] We will offer an account of how the doctrines of the *New Theory* form part of Berkeley's overall philosophical system in chapter 5. We will seek to show that Berkeleian idealism can allow for the occurrence of unconscious mental operations and that we must distinguish between ideas or the objects of perception on the one hand, and Berkeley's theory of mental operations on the other.
[239] Descartes, 1985, *The Dioptrics*, in: *The Philosophical Writings of Descartes*, vols. 1, (trans.) Cottingham, J., R. Stoothoff & Dugald Murdoch. (Cambridge: Cambridge University Press)., p.170.
[240] Descartes, *Dioptrics*, 1985. *Op., Cit*., Vol I, p.170. See section 2.4 of this dissertation.

mathematician might calculate the hypotenuse of a triangle, based on the knowledge she had of the other key variables involved. Descartes' commitment to the view that the mind employs geometrical principles to compute the spatial properties of objects in the visual field is also evident in his account of size. He states that 'we judge their size by the knowledge or opinion that we have of their distance, compared with the size of the images they imprint on the back of the eye.'[241]

It can be claimed that Descartes' account of natural geometry is based on the presupposition that the cognitive architecture of the imagination functions according to the laws of geometry. It is evident that Berkeley is aware of this difficulty, as he objects to the geometrical model on precisely this basis. In outlining the rationale which had led the optics writers to formulate their account of distance perception, and the theory of natural geometry upon which it depends, Berkeley can be seen to frame precisely such an objection. He states:

> What seems to have misled the writers of optics in this matter is, that they imagine men judge of distance, as they do of a conclusion in mathematics; betwixt which and the premises it is indeed absolutely requisite there be an apparent, necessary connexion: But it is far otherwise, in the sudden judgments men make of distance. We are not to think, that brutes and children, or even grown reasonable men, whenever they perceive an object to approach, or depart from them, do it by virtue of geometry and demonstration.[242]

It has been argued that Berkeley's opposition to geometrical optics is methodological, on the basis this model invokes unconscious or hidden mental processes which bring about our perception of distance and spatial qualities. It is my contention however that such a claim misrepresents Berkeley's position and that as his critique unfolds, we find that his principal objection is not methodological, but rather conceptual. Berkeley's central criticism is that the

[241] Descartes, 1985, *The Dioptrics, Op., Cit.,* p.172. This model of size perception is called the TAD or taking account of distance model. This model entails that that the visual system computes an estimation of object size from a prior determination of distance. Kaufmann and Rock (1962) offer a defence of this model and claim to have refuted Berkeley's position. Francis Egan (1998) defends Berkeley against the charges outlined by Kaufmann and Rock and claims that Berkeley's objections are well founded. Egan also highlights the difficulties associated with the TAD model of size perception. See also Schwartz (1994), chapter 2.
[242] Berkeley, *NTV*, Section 24, Vol. I, p.176.

geometrical model involves the unwarranted application of the principles of geometry to the cognitive operations of the human mind. In so doing, we find that Berkeley is asking a question which is extremely pertinent to the viability and general success of the geometrical model. He points out that '*lines* and *angles* have no real existence in nature, being only an *hypothesis* framed by mathematicians, and by them introduced into *optics*, that they might treat of that science in a *geometrical* way.[243]

Commentators such as Richard Brook have defended Berkeley's criticism of natural geometry, arguing that his position is justified and his rationale sound. He claims that 'Berkeley correctly points out that we are not conscious of such "lines and angles" (or one might add "light rays"), and therefore cannot be said to be making such inferences concerning the distance (and magnitude) of objects' on the basis thereof. [244] Brook claims that Descartes, like Kepler before him, had held that the process of natural geometry was based on the notion that the mind possessed what are described as built-in 'Euclidean axioms that together with certain data about the distance between the eyes allow us to compute our distance from the object.' [245] The upshot of such an account is that 'we make implicit use of the "distance measuring triangle" during the process of distance perception.' [246]

It should be noted however that Kepler's account is markedly different than Descartes' in one significant respect. Brook proposes that Kepler adopts the same position as Descartes with respect to the geometric principles which enable the computation of distance and size qualities. We find however that Kepler stops short of making any such pronouncements about human cognition. It is for this reason that Kepler's account is more readily compared to Newton than to Descartes, for he too limits the applicability of geometrical principles to the study and

[243] Berkeley, *NTV*, Section 14, Vol. I., p.174.
[244] Brook, R., 1973. *Op., Cit.*, p.38.
[245] *Ibid.*
[246] *Ibid.*

movement of light and colour radiation.[247] We can speculate that it is perhaps for this reason that Berkeley identifies Descartes as his chief interlocutor, in spite of the fact that Newton's *Opticks* was published in 1704, immediately prior to the publication of the *New Theory*. [248]

It can be argued that Berkeley's chief point of disagreement with Descartes is that geometrical principles had been illegitimately imposed on the cognitive operations of the human mind. While Turbayne does not attribute such an insight to Berkeley, he nonetheless identifies this as one of the central difficulties associated with the computational model. In reference to Descartes' account, Turbayne states that '[n]ot only was geometry used as a model for explanation in general in optics, not only were the symbols used interpreted geometrically, but geometry was imposed on the actual manner in which we see.'[249] Turbayne also claims that the geometrical model conceives of 'the eye is an optical system with a converging lens and screen then, given the distance and size of the object and the focal length of the lens, we are able to construct the exact size of the retinal image and, conversely, the distance and size of the object.'[250] The central difficulty, which Turbayne highlights, is that the geometrical opticians had made the 'amazing leap to the conclusion that the eye or, rather, the sensus visus could solve the converse problem. Given the size of the retinal image, we are able to reason backwards to the distance and size of the object by using the triangle with its base in the pupil and apex in the object.'[251]

---

[247] For a fuller account of Kepler's position, see section 2.3 of this dissertation.

[248] In the fourth section of the *New Theory*, Berkeley discusses the geometric account of distance perception. He states that it is 'the opinion of speculative men is, that the two optic axes (the fancy that we see only with one eye at once being exploded) concurring at the object do there make an angle, by means of which, according as it is greater or lesser, the object is perceived to be nearer or farther off.' The footnote to this section reads: 'See what Descartes and others have written on this Subject.' Berkeley, *NTV*, section 4, Vol. I, p. 172.

[249] Turbayne, 1962 *The Myth of Metaphor* (Columbia: University of South Carolina Press)., p.160, Turbayne goes on to offer the following rationale as to how this came about: 'Since the eye is an optical system with a converging lens and screen then, given the distance and size of the object and the focal length of the lens, we are able to construct the exact size of the retinal image and, conversely, the distance and size of the object'. However, from this Kepler made the 'amazing leap to the conclusion that the eye or, rather, the *sensus visus*, could solve the converse problem. Given the size of the retinal image, we are able to reason backwards to the distance and size of the object by using the triangle with its base in the pupil and apex in the object'. pp.160-161.

[250] Turbayne, 1962, *Op., Cit*., pp.160-161.

[251] *Ibid.*

The central presupposition upon which the geometrical model is based is the notion the mind actually functions according to the laws of geometry. It is my contention that Berkeley is keenly aware of this difficulty and becomes the first visual theorist to recognise that computational models of visual perception often involve the illegitimate application of geometrical principles to the cognitive operations of the human mind.[252] If we recall Descartes' description of the process, as outlined in the *Dioptrics*, we find that the analogy of the surveyor measuring distance by means of two different vantage points is not merely figurative, for the theory requires that the mind calculates distance through a process of triangulation. Berkeley's critique points to the fact that Descartes had falsely employed geometrical principles in his endeavour to explain the functioning of the cognitive systems involved in distance perception. He had in effect committed a category mistake, for while the principles of geometrical optics are legitimately employed in optics, they had been imposed on the cognitive architecture of the human mind. [253]

3.4 Immediate Perception and the Proper Objects of Vision.

One of the central concepts of the *New Theory* is immediate perception, which features prominently throughout Berkeley's discussion of distance, size and magnitude perception. One of the challenges associated with this aspect of Berkeley's discussion is highlighted by Phillip Cummins, who points to the fact that Berkeley fails to provide a clear and unequivocal

[252] Robert Schwartz comments that one of the major contributions that Berkeley makes to the development of visual theory is the recognition that there is an important distinction between optical theory and psychological explanation. Schwartz, R., 1994. *Op., Cit.,* p.21.

[253] It should be noted that Berkeley does not take issue with the utilization of geometry in the optical sciences, merely their unwarranted application to mental processes. In the *Theory of Vision Vindicated* he is careful to point out that geometry is well employed in the service of optics, where optics is restricted to the studying the behaviour and movement of light. He states that the principles of geometry can be applied with great success in order to 'consider particles as moving in certain lines, rays of light refracted or reflected.' Berkeley, *TVV*, Section 43, Vol. I, p.266.

explanation of this concept. [254] The many references we encounter to what are described as the 'proper' or 'immediate' objects of vision are however instructive with regard to the type of concept which Berkeley is invoking. Pointing to the significance of the immediate objects of vision, he states that:

> In order to therefore to treat accurately and unconfusedly of vision, we must bear in mind that there are two sorts of objects apprehended by the eye, the one primarily and immediately, the other secondarily and by intervention of the former..Whenever we say that an object is at a distance, whenever we say it draws near , or goes further off, we must always mean it of the latter sort, which properly belong to the touch, and are not so truly perceived, as suggested by the eye in like manner as thoughts by the ear.[255]

Regarding the secondary or mediate objects of sight, he states that they 'do often more strongly affect us, and are more regarded than the proper objects of that sense, along with which they enter into the mind.' [256] He states furthermore that the mediate objects of vision 'have a far more strict connexion, than ideas have with words' and that '[h]ence it is, we find it so difficult to discriminate between the immediate and mediate objects of sight, and are so prone to attribute to the former, what properly belongs to the latter. [257]

Cummins suggests that the concept of immediate perception which emerges from Berkeley's discussion 'is an operation in which a perceiver becomes aware of an existing object.'[258] Mediate perception, on the other hand he claims, is said to involve judgment and belief formation based on what is immediately perceived. [259] Having denied that distance is immediately seen, Cummins claims that Berkeley's central undertaking in the *New Theory* is to offer a mediate account of distance perception. He offers the following summary of how Berkeley proceeds to do this:

---

[254] Cummins claims that Berkeley's failure to provide a clear and unequivocal explanation of this concept, leads to a difficulty determining the status of visual in the *New Theory*. Cummins, P.D. 1987. 'On the Status of Visuals in Berkeley's New Theory of Vision,' in: Sosa, E (ed.) 1987. *Essays on the Philosophy of George Berkeley*, (Dordrecht: Reidel Publishing Co.).
[255] Berkeley, *NTV*, Section 50, Vol. I, p.190.
[256] Berkeley, *NTV*, Section 51, Vol. I, p.269.
[257] Berkeley, *NTV*, Section 51, Vol. I, p.269.
[258] Cummins, P.D., 1987, *Op., Cit*., p.166.
[259] Cummins, P.D., 1987, *Op., Cit*., p.166.

> [W]hat occurs whenever one mediately sees how far something is from oneself is an inference which results entirely from experience and which is in no way founded upon a necessary connection. It is a conditioned suggestion or learned judgement founded upon one's experience of contingent factual correlations among visuals, tactile objects, and what might be called kinesthetic sensations. [260]

The most significant role which the immediate objects of vision fulfil in Berkeley's account is to represent or signify tangible ideas in the visual field; a view which has furthermore achieved wide consensus in the literature. Highlighting the significatory role of the immediate objects of vision, Margaret Atherton claims that Berkeley's theory is best understood as 'a theory of visual representation' whereby visual signs 'suggest to us tangible ideas that are habitually associated with them.'[261] Schwartz claims that visual ideas serve as 'a guide to movement and touch,' which enable the subject to manoeuvre their way through their environment on the basis of what they see. [262] Braund upholds a similar view, claiming that the 'presence of visual sensations allows perceivers to anticipate a second ordering of ideas,' a view which he states is 'typically expressed as the *heterogeneity of the ideas of sight and touch*'.[263]

Presenting one of the most comprehensive interpretations of the *New Theory,* Atherton claims that 'visual signs take on a spatial meaning when they are found to co-exist with different ideas we acquire tangibly,' and that 'what makes Berkeley's theory possible is his realisation that the tactile system and the visual system constitute two different sources of information.'[264] According to Atherton's reading of Berkeley's position, while our visual system is capable of light and colour recognition, it is our tangible system that recognises spatial properties, such that our ability to apprehend objects in space is the result of learning to correlate these visual and tangible ideas. She summarizes Berkeley's position as follows:

[260] Cummins, P.D. 1987, Op. Cit., p. 166.
[261] Atherton, M., 1991. *Op., Cit.*, p.14 & p.176.
[262] Schwartz, R., 1994. *Op., Cit*., p.9.
[263] Braund, M., 2007, *Op., Cit*., p.60.
[264] Atherton, M., 1990. *Op., Cit.*, p.12 & p.106.

> We perceive distance, size, and situation by sight because visual signs, which are not in and of themselves ideas of distance, size or situation, suggest to us tangible ideas that are habitually associated with them.[265]

According to Atherton, Berkeley's departure from the preceding tradition is most evident in terms of the 'learning paradigm' of visual spatial perception, which he introduces in order to replace the geometric account. She claims that in so doing, he is reacting to the inherent scepticism of the geometric model and that his strategy to this end is to replace a model in which 'visual ideas represent mind-independent external objects,' with one in which visual ideas successfully represent other mind-dependent tangible ideas. [266] She argues that he is motivated to provide such an account because of 'the problems he took to exist in what he set up as a rival account, the geometric theory.'[267] She states that:

> Berkeley proposed a particular approach to the question of how perceivers see. According to him, perception requires learning; the way we perceive the visual world is not a matter of direct sensory stimulation but reflects what in our experience has been associated with visual cues or stimuli. [268]

The claim that Berkeley is committed to the kind of learning paradigm which Atherton describes is undoubtedly well grounded in the texts, particularly where he compares visual perception to the process involved in learning a language. In the *New Theory*, we find ample evidence to indicate that visual ideas operate as a system of signs which must be learned through experience. He states that:

> [V]isible figures represent tangible figures, much after the manner that written words do sounds. Now, in this respect, words are not arbitrary, it not being indifferent which written words stands for any sound… It is indeed arbitrary that, in general, letters of any language represent sounds at all; but when that is once agreed, it is not arbitrary what combination of letters shall represent this or that particular sound. [269]

[265] Atherton, M., 1990. *Op., Cit.*, p.176.
[266] Atherton, M., 1990. *Op., Cit.*, p. 14.
[267] Atherton, M., 1990, *Op., Cit.*, p. 15.
[268] Atherton, M., 1990. *Op., Cit.*, p. 3.
[269] Berkeley, *NTV*, Section 143. Vol. I, p. 229.

In the *New Theory*, Berkeley also introduces a notion which he develops more fully in *Alciphron*; that visual signs form a divine language which constitutes the 'universal language of the Author of nature.'[270] In the *New Theory*, Berkeley employs the visual language analogy to highlight the pragmatic aspect of his theory of vision, stating that the role of visual ideas is to enable us 'to regulate our actions, in order to attain those things that are necessary to the preservation and well-being of our bodies.'[271] In the *Alciphron* he highlights the theological import of the visual language analogy, explaining that 'the great Mover and Author of Nature constantly explaineth himself to the eyes of men by the sensible intervention of arbitrary signs.'[272]

The claim then that the proper objects of vision constitute a universal language depends centrally upon the sign-signification relation between visual ideas and the tangible ideas which they represent. [273] In relation to which Berkeley states that:

> Having of a long time experienced certain ideas, perceivable by touch, as distance, tangible figure, and solidity, to have been connected with certain ideas of sight, I do upon perceiving these ideas of sight forthwith conclude what tangible ideas are, by the wonted ordinary course of nature like to follow.[274]

Here Berkeley indicates that visual ideas represent tangible ideas, and that the former serve to enable predictions about the types of objects which we will encounter in the perceptual field. These remarks would seem to provide clear evidence for the view that Berkeley upholds a representational model of perception, whereby visible ideas act as marks or signs for tangible shapes. As Ralph Schumacher notes '[t]hese marks are supposed to direct our visual awareness

[270] Berkeley, *NTV*, Section 147. Vol. I, p. 231.
[271] Berkeley, *NTV*, Section 147. Vol. I, p. 231.
[272] Berkeley, *Alciphron*, IV, Vol. III, p. 157.
[273] There are numerous passages where Berkeley discusses the proper objects of vision in terms of visual extension and figure: *NTV* 43-5, 49, 130,133,137,140,151-9.
[274] Berkeley, *NTV*, Section 45, Vol. I, p.188. Other references to visible figure occur in entries *NTV* 43-5; 49; 130; 133; 137; 140; 151-159.

to tangible shapes' and that accordingly, 'we indirectly see tangible shapes by directly seeing the visible marks that stand for them.'[275]

According to Atherton's analysis, visual ideas function as 'non-resembling signs' for tangible ideas. She claims that by espousing this thesis Berkeley is able to show that 'what we see is the non-resembling sign for what is at a distance' and 'not a false representation of what is at a distance.'[276] One difficulty associated with Atherton's account relates to the internal consistency of the non-resembling sign thesis, which relies on two distinct claims which are extremely difficult to reconcile. While she holds that visual ideas serve as non-resembling signs for tangible ideas, she also claims that 'Berkeley's theory makes use of tangible ideas in order to *supplement* visual ideas in explaining how we see distance.'[277] It is unclear as to how visual ideas can serve to *represent* and simultaneously *supplement* tangible ideas in the manner in which Atherton suggests.

It should be noted however that the internal inconsistency which we have noted in relation to this aspect of Atherton's discussion, is perhaps due to the equivocation which is a feature of Berkeley's discussion of the immediate objects of vision. There is a significant tension in Berkeley's account, between passages where these are characterised as visual extension and figure, and others where they are described in terms of light and colour. The following passages serve to exemplify the latter:

> For a further clearing up of this point, it is to be observed that what we immediately and properly see are only light and colours in sundry situations and shades, and degrees of faintness and clearness, confusion and distinctness.[278]

[275] Schumacher, R., 2007. *Op. Cit.,* p.109. Richard Brook proposes a similar view claiming that Berkeley's theory works by means of a process of transparency, whereby 'we pay little attention to the phenomenal or sensory character of the sign, and 'read through' it as it were, to what it signifies.' Brook, R., 2003. 'Berkeley's Theory of Vision: Transparency and Signification' in: *The British Journal for the History of Philosophy*, Vol. 11, Issue 4, p.691.
[276] Atherton, M., 1990. *Op., Cit.,* p.91
[277] Atherton, M., 1990. *Op., Cit.,* p.174 [emphasis my own] The claim that tangible ideas supplement visual ideas, is presented again on page 91 and 228.
[278] Berkeley, *NTV,* Section 77, Vol. I, p.202.

> The proper, immediate object of vision is light, in all its modes and variations, various colours in kind, in degree, in quantity; some lively, others faint; more of some and less of others; various in their bounds or limits; various in their order and situation.[279]

Passages such as these cause difficulties for the coherence of Berkeley's account of the immediate objects of vision. While it is clear how visual extension and figure might serve as visual signs within the schema of Berkeley's theory, the less determinate categorisation which we encounter in the above passages, makes it difficult to determine how light and colour alone can fulfil the requisite significatory function upon which his visual language analogy depends. Such a difficulty leads Ralph Schumacher to question whether it is possible to reconcile Berkeley's claim 'that only light and colours are immediate objects of sight with his remarks about visible figure and extension?'[280]

Tom Stoneham offers one avenue out of this potential dilemma. He claims that it is possible to distinguish three 'layers of representational content or signification possessed by the objects of vision.'[281] The first layer is representative of a world of coloured surfaces, the second represents those surfaces as having solidity, texture and temperature, and the third is said to represent a world of persistent public objects.[282] Stoneham's proposed tripartite ordering of visual experience offers a compelling solution to the tension in Berkeley's account of the proper objects of vision. If we can say that the proper objects of vision considered as light and colour form the first layer of coloured surfaces, and claim furthermore that the second layer is composed of visual extended figures, then we can accommodate both characterisations within a single theoretical framework. The first problem which arises however is that the entire basis of Berkeley's visual language analogy involves a two-term relation; between visual ideas and the tangible ideas which they signify which makes it is difficult to reconcile the claim that there

[279] Berkeley, *NTV*, Section 44, Vol. I, p. 187.
[280] Schumacher, R. 'Berkeley on Visible Figure and Extension,' in: Daniel, S., (ed.) 2007, *Re-examining Berkeley's Philosophy*. (Toronto: University of Toronto Press), p.109.
[281] Stoneham, T., 2011. *Op., Cit.*, p.122.
[282] Stoneham, T., 2011. *Op., Cit.*, p.122.

are three distinct layers of representational content available to Berkeleian observer. The second problem is that while Berkeley offers two distinct categorisations of the proper objects of vision, he nonetheless claims that *both* are immediately perceived in the act of vision. It seems therefore that we must either conclude that Berkeley is unable to present a coherent account of the proper objects of vision, or we must seek an alternative means of reconciling this tension.

While Schumacher contends that Berkeley is unable to provide a coherent account of the proper objects of vision, it is my contention that this tension can be resolved if we allow that Berkeley operates with two distinct conceptions of immediate perception in the *New Theory*. These may be distinguished as *perceptual immediacy* and *process immediacy* respectively. In the case of the former, Berkeley is operating with the standard categorisation of the proper objects of vision, which serve as visual ideas signifying tangible ideas. When he talks about visual extension and figure, he is operating with the concept of perceptual immediacy which refers to an initial state of awareness in which we become aware of visual ideas.

In the case of *process immediacy*, Berkeley is invoking a radically different conception. Here he is referring to the initial stage in the process underpinning visual perception, wherein light impacts the retinal surface. Writing in the wake of Keplerian optics, Berkeley is acutely aware that the retina is limited to light and colour recognition, which may account for the passages in which he describes the proper objects of vision as light, colour, and their variations. While Berkeley does not use the term process immediacy, he nonetheless refers to 'proper perception,' which he invokes in the following section where he also chooses to categorise the proper objects as light and colour, stating that 'all that is properly perceived by the visive faculty amounts to no more than colours with their variations.' [283] If we allow that Berkeley

[283] Berkeley, *NTV*, Section 156, Vol. I, p. 234.

operates with the concept of process immediacy, then we can say that the latter characterisation of the proper objects of vision can be consistently accommodated and that here he is referring to an initial physiological response to stimuli. [284]

The distinction between these concepts of immediacy, which is implicit in Berkeley's discussion of the proper objects of vision, can also be understood as a distinction between the informational and representative content of visual perception. [285] Elaborating on this type of distinction Christopher Peacocke claims that 'the informational content of a visual experience will include the proposition that a bundle of light rays with such-and-such physical properties struck the retina.'[286] He states that the representative content refers to the manner in which 'objects are presented under perceptual modes of presentation,' which in terms of Berkeley's account refers to visual ideas which serve as signs. [287] The informational content by contrast, refers to an initial stage in the process of visual perception; that which we have described as process immediacy in Berkeley's account.

While it could be objected that ascribing such a position to Berkeley is speculative and ungrounded in the texts, we should note that we find an historical precedent for such a distinction in Descartes. [288] We will recall that in the *Sixth Replies*, Descartes distinguishes between the role of the senses and the intellect in visual perception, and introduces three distinct grades of sensory response. [289] What is particularly noteworthy here is that the first grade of sensory response which Descartes describes does not refer to a state of awareness, but rather to an initial stage in the process which underlies visual perception. The first stage is described

[284] Berkeley, *NTV,* Section 156, Vol. I, p. 234.
[285] Peacocke, C., 2002. 'Sensation and the Content of Experience: A Distinction,' in: Noë, A. & E. Thompson (eds.) *Vision and Mind: Selected Readings in the Philosophy of Perception*. (Cambridge, Massachusetts: MIT Press). Peacocke contends that 'concepts of sensation are indispensable to the description of the nature of any experience,'p.267. He points to Reid as one of the first theorists to highlight the distinction between sensation and perception. He claims however that we need to go further and distinguish between sensation, perception and judgment, p.268.
[286] Peacocke, C., 2002. *Op., Cit.*, p.269.
[287] *Ibid.*
[288] See section 2.4 of this dissertation.
[289] Descartes, *Sixth Set of Replies*, 1985, *Op., Cit*., Vol. II. p. 295.

as ‘a movement in the brain’ which is ‘common to us and brutes’ and as a physiological response to stimuli within the sense organs. [290] It is not difficult to imagine that Berkeley might have followed Descartes in this, especially when we remember that he accepts the one-point argument, which also forms the basis of Descartes’ account of visual spatial perception.

One of the advantages of the ascribing the process immediacy hypothesis to Berkeley is that it provides a means of reconciling the tension in his account of the immediate objects of vision. I do not wish to claim that the associationist reading is incorrect, as it is certainly the case that Berkeley held that visual ideas act as signs for tangible ideas. [291] I should like to claim however that in its current formulation the associationist reading is incomplete, as it restricts Berkeley’s approach to an analysis of visual ideas and their significatory role in his account. I have sought to show that Berkeley is also interested in the underlying mechanisms of visual perception and the process involved in bringing about our visual ideas in the first instance. Our reading enables us to expose and resolve the tension in Berkeley’s discussion of the immediate objects of vision, while preserving the doctrine of visual signs which forms the basis of Berkeley’s divine language analogy in the *New Theory* and the *Alciphron*.

3.5 The Problem of the Inverted Retinal Image

One prominently held view is that Berkeley promotes a form of two-dimensionalism in the *New Theory*, whereby he subscribes to the view that what is immediately perceived during visual perception is a two-dimensional coloured array. It is held that Berkeley, like many other early modern visual theorists, is unwittingly ‘deceived by the two-dimensional nature of the simulacrum,’ and held captive by a particular picture of how the visual system operates.[292]

[290] Descartes, *Sixth Set of Replies*, 1985, *Op., Cit.,* Vol. II, p. 295.
[291] Such a claim furthermore forms of the basis of the visual language argument in *Alciphron*.
[292] Armstrong, D., 1960, Op., Cit., p.10.

A.D. Smith, as we have noted, holds that Berkeley is the progenitor of classical two-dimensionalism. [293] Hatfield and Epstein also trace the origins of classical two-dimensionalism to the same source.[294] They claim that Berkeley's account of visual perception is based on the supposition that what is immediately perceived is a sensory core which functions as the mental correlate of the retinal image. They offer the following account of the sensory core hypothesis and its impact on visual theory:

> In the eighteenth and nineteenth centuries the majority of theories of visual perception were built upon the view that during the process of vision there occur two conscious states with quite different phenomenal properties. The first state is a mental representation of the two-dimensional retinal image. The second is our experience of the "visual world" of objects distributed in depth.[295]

The model of classical two-dimensionalism, which rose to prominence during the eighteenth and nineteenth centuries, has many prominent adherents. Smith highlights the fact that this model was widely accepted until the nineteenth century, and cites a reference from Hume's *Treatise* which attests to its prevalence and almost universal acceptance during the intervening period. Hume states that it is 'commonly allowed by philosophers that all bodies which discover themselves to the eye, appear as if painted on a plain surface, and that their different degrees of remoteness from ourselves are discover'd more by reason than the senses.' [296] It is clear that Locke too supports the view that what is immediately seen is a two-dimensional array. In the second book of the *Essay*, as a prelude to his introduction of the Molyneux problem, he offers the following account of how a spherical object is perceived:

> When we set before our eyes a round globe, of any uniform colour, v.g. gold, alabaster, or jet; it is certain that the idea thereby imprinted in our mind, is of a flat circle variously shadowed, with several degrees of light and brightness coming to our eyes. But we having by use been accustomed to perceive what kind of appearance convex bodies are wont to make in us, what alterations are made in the reflections of light by the difference of the

[293] Smith, A.D., 2000. 'Space and Sight' in Mind, Vol. 109, 435, July, p. 481.
[294]Hatfield, G & W. Epstein, 1979. 'The Sensory Core and the Medieval Foundations of Early Modern Perceptual Theory.' In: *Isis: A Journal of the History of Science*. (70), p.363.
[295], *Ibid.*
[296] Hume, D. 1978 [1739/40]. *A Treatise of Human Nature*. (eds) Selby-Bigge, L.A. & P.H. Nidditch. (Oxford: Clarendon Press), p. 56.

> sensible figures of bodies; the judgement presently, by an habitual custom, alters the appearances into their causes; so that from that which is truly variety of shadow or colour, collecting the figure, it makes it pass for a mark of figure, and frames to itself the perception of a convex figure and an uniform colour, when the idea we receive from thence is only a plane variously coloured, as is evident in painting. [297]

While it is widely held that Berkeley is the progenitor of classical two-dimensionalism, we find that such a claim misrepresents his position as it is a view which explicitly rejects. In the *New Theory* he denies that what is immediately seen is a two-dimensional image stating that:

> I must confess, it seems to be the opinion of some ingenious men, that flat or plain figures are immediate objects of sight, though the acknowledge solids are not. And this opinion of theirs is grounded on what is observed in painting, wherein (say they) the ideas imprinted on the mind are only of plains variously coloured, which by a sudden act of the judgement are changed into solids. But, with a little attention we shall find the plains here mentioned, as the immediate objects of sight, are not visible, but tangible plains. For when we say that pictures are plains: we mean thereby, that they appear to the touch smooth and uniform. But then this smoothness and uniformity, or, in other words, this plainness of the picture, is not perceived immediately by vision: For it appeareth to the eye various and multiform.[298]

While this particular passage would seem to be aimed directly at Locke, as the painting metaphor suggests, Berkeley also rejects the view elsewhere, stating that 'that plains are no more the immediate object of sight than solids. What we strictly see are not solids, nor yet plains variously coloured, they are only diversity of colours.' [299]

When we consider Berkeley's discussion of some of the central optical problems of the age, we find that he is acutely aware of the types of difficulties his predecessors had been led into; problems which he is keen to avoid. His discussion of the problem of the inverted retinal image reveals furthermore that he is aware of the origin of the two-dimensional hypothesis and the conceptual difficulties underpinning its formulation. While Kepler's discovery of the retinal image had revolutionised visual theory, it left a number of questions

[297] Locke, *Essay*, II, ix. viii.
[298] Berkeley, *NTV* Section 157, Vol. I. p.235.
[299] Berkeley, *NTV* Section 158, Vol. I. p.235.

unanswered.[300] One of the problems to which the discovery of the retinal image had given rise, was the problem of erect appearances.[301] As the image which is projected on the retina is an inverted two-dimensional array, the question of how we perceive an erect three-dimensional object was central to the discussions of the age. It is clear that Berkeley recognises the centrality of this problem for he states that '[t]he solution of this knot about inverted images seems the principle point in the whole optic theory' and the 'surest way to lead the mind into a thorough knowledge of the true nature of vision.'[302]

Berkeley is not only aware of this problem but he is highly critical of the standard response which had been proposed. He claims that while the prevailing account had been 'allowed by all men as satisfactory' that it 'does not seem in any degree true.'[303] It can be contended that the problem of the inverted retinal image provides a key insight into the types of conceptual errors which Berkeley believes are endemic to the geometric account of vision. In the *New Theory*, he provides the following outline of the problem, stating that:

> There is, at this day, no one ignorant, that the pictures of external objects are painted on the *retina*, or fund of the eye. That we can see nothing which is not so painted.. but then in this explication of vision, there occurs one mighty difficulty. The objects are painted in an inverted order on the bottom of the eye: The upper part of any object being painted on the lower part of the eye, and the lower part of the object on the upper part of the eye: and so also as to right and left. Since therefore the pictures are thus inverted, it is demanded how it comes to pass that we see the objects erect and in their natural posture? [304]

Here Berkeley does not take issue with the empirical claim that images are projected onto the retina, nor with the fact that the image which is projected there is inverted. His objection is

[300] One of the central problems to which the discovery of the retinal image gave rise, is highlighted by Howard and Rogers who comment that 'the realisation after Kepler that the retinal image is two-dimensional and inverted caused people to wonder how we perceive an erect three-dimensional world.' Howard, I.P. & B.J. Rogers, 1985. *Binocular Vision and Stereopsis*. (New York: Oxford University Press), p.13.

[301] It should be noted that the central problem to which the discovery of the retinal image gave rise was the problem of size perception. I focus here on the problem of erect appearances, as I wish to highlight Berkeley's general disagreement with the unfounded assumptions upon which the geometrical model had been based.

[302] Berkeley, *TVV*, Section 52, Vol., 1, p.269.

[303] Berkeley, *NTV*, Sections 89 & 90, Vol. I, p.208.

[304] Berkeley, *NTV*, Section 88, Vol. I, p.207.

based on the manner in which this empirical fact has been interpreted and subsequently problematised. In the *Theory of Vision Vindicated*, he states that the central mistake, which has been 'vulgarly supposed by the writers of optics' is that they 'suppose them [the retinal image] taken in by the eye' when they are in fact 'apprehended by the imagination alone.' [305] As Berkeley claims that the retinal image is an object of imagination rather than sensation, the position to which he subscribes is that retinal images are the products of a process which involve judgement. Here he is highlighting a predominant pseudo problem associated with the discovery of the retinal image, which is the view that what is immediately perceived is a two-dimensional inverted image. Not only do we find Berkeley astute in pointing to the fact that this is in fact a pseudo-problem which admitted of 'a just and full solution, being shewn to arise from a mistake,' but he also highlights the origin of the error involved, stating that: [306]

> [W]hat greatly contributes to make us mistake in this matter is, that when we think of the pictures in the fund of the eye, we imagine our selves looking on the fund of another's eye, or another looking on the fund of our own eye, and beholding the pictures painted thereon.[307]

What Berkeley succeeds in identifying is a significant fallacy to which the discovery of the retinal image had contributed. The homunculus fallacy supposes the notion of an internal viewer gazing on the retinal image.[308] Berkeley's point is that while we can imagine ourselves gazing on the retina of another's eye, or indeed on the retina of an ox, as Descartes had done during his vivisection experiments to prove Kepler's original retinal image thesis, such a conceptualisation of the problem had led to a significant error and caused unwarranted difficulties to emerge. I wish to claim that Berkeley's position is that his predecessors had

[305] Berkeley, *TVV*, Section 50, Vol. I, p.268.
[306] *Ibid.*
[307] Berkeley, *NTV*, Section 116, Vol. I, p.218.
[308] This fallacy, which leads to the problem of infinite regress, is also called the mereological fallacy. For a recent discussion see: Bennett, M.R., & P.M.S Hacker, 2003. *Philosophical Foundations of Neuroscience*. (Oxford: Blackwell Publishing Ltd.), chapter 3.

inadvertently succumbed to the notion of an inner homunculus gazing at the retinal image. The following image provides a clear portrayal of the type of problem that Berkeley warns against:

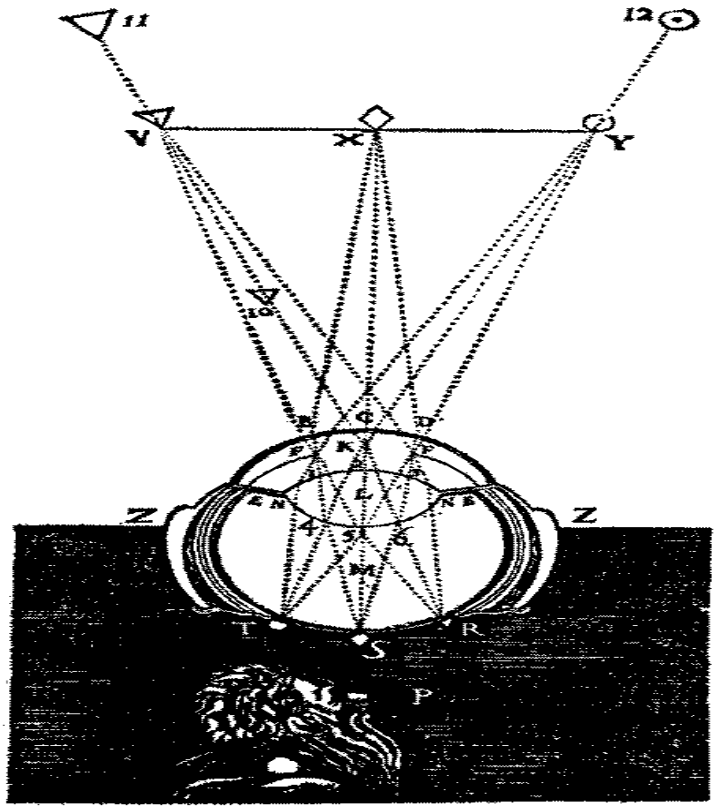

Fig. 3.1 A depiction of the formation of the retinal image taken from Descartes' *Dioptrics* [309]

While Descartes is clearly aware of the dangers of the inner homunculus gazing at the retinal image, it can be argued that he inadvertently succumbs to such a fallacy.[310] Commenting on Descartes' response to the problem of the inverted retinal image, Wolf-Devine suggest that in the *Dioptrics* he develops 'an analogy between a blind man with crossed sticks who is able to feel an object to the right with his left hand and one to his left with his right hand' and the

[309] Descartes, R., 1984-85. The Philosophical Writings of Descartes, vols. 1-3, (trans.) Cottingham, J., R. Stoothoff & Dugald Murdoch. (Cambridge: Cambridge University Press), p.171. In spite of the depiction which appears in the *Dioptrics*, it should be noted that Descartes is well aware of the homunculus fallacy, warning explicitly against it in the *Dioptrics*, as we have seen.

[310] Descartes, *Dioptrics*, 1985. *Op., Cit.*, Vol. I., p.167. As we have seen in chapter two, Descartes is aware of the dangers of the inner homunculus gazing at the retinal image. While he denies that we can perceive the retinal image, stating that this would require that 'there were yet other eyes within the brain with which we could perceive it,' it can be claimed that his theory entails that we have access to the retinal image, as Wolf-Devine's analysis suggests.

process by which we come to see objects in their erect position.[311] Wolf-Devine claims that when we consider the role that Descartes assigns to the retinal image, his theory necessarily entails that the percipient utilizes the retinal image during the process of formulating visual judgements. She claims furthermore that the analogy of the blind man with crossed sticks suggests that we can literally direct our attention, as he does, from various retinal points to corresponding points on the object in the visual field.[312]

It is precisely because the geometrical opticians had utilized the principles of geometry to account for the cognitive operations of the human mind that Berkeley objects to this model. He states that 'the crossing and tracing of the rays, is never thought on by children, idiots, or in truth by any other, save those who have applied themselves to the study of optics.'[313] While Berkeley acknowledges that geometry provides a useful model of explanation and prediction, the limitations of such explanatory models is something of which the skilled theoretician must be mindful. One of the most significant outcomes of Berkeley's critique of the preceding optical tradition is his contention that explanatory models should not be interpreted in a literal sense. In the case of the geometrical model, the principles of geometry had been imposed on the cognitive operations of the human mind. Berkeley's attempt to expose these types of conceptual errors is one of his lasting contributions to the development of visual theory.

While Berkeley's *New Theory* is the primary source of his critique of geometrical optics, the *Theory of Vision Vindicated* offers a valuable insight into the nature of the methodology which he employs, and further enables us to free him from the charge of inconsistency which has been proposed by commentators such as Donaghan. In his second work on vision, Berkeley refers to his original 1709 essay, stating that:

---

[311] Wolf-Devine, C., 2000. *Op., Cit.*, p.511.

[312] Wolf-Devine claims that Descartes commits the homunculus fallacy because of the role that he assigns to the retinal image. She claims that Descartes was, 'as Wittgenstein might say, held captive by a picture.' Wolf-Devine, 2000. *Op., Cit*., p.157.

[313] Berkeley, *NTV*, Section 90, Vol., I, p.208.

> A treatise, therefore, of this philosophical kind, for the understanding of vision, is at least as necessary as the physical consideration of the eye.. or the geometrical application of lines and angles.. In these three lights vision should be considered, in order to a complete theory of optics.[314]

Berkeley's insistence that there are 'three lights' in which vision should be considered demonstrates that he is aware of the distinct approaches which may be taken in the endeavour to understand human visual experience. He states that:

> To explain how the mind or soul of man sees is one thing and belongs to philosophy. To consider particles as moving in certain lines, rays of light refracted or reflected, or crossing, or including angles, is quite another thing, and appertaineth to geometry. To account for the sense of vision by the mechanism of the eye is a third thing, which appertaineth to anatomy and experiments. These two latter speculations are of use in practice, to assist the defects and remedy the distempers of sight, agreeable to the natural laws of this mundane system. But the former theory is that which makes us understand the true nature of vision, considered as a faculty of the soul.[315]

It can be claimed that Berkeley makes another significant contribution to the development of visual theory, by drawing a clear distinction between the disparate fields of inquiry which collectively constitute the visual sciences. The distinction which he presents indicates that he is committed to the view that there are different domains within the visual sciences, which are to be delineated in terms of the type of problem that one is endeavouring to solve. If one is, for example, trying to understand how radiant light impacts the retina, such an inquiry falls within the domain of geometry and physics. If however one is trying to 'remedy the distempers of sight,' such an inquiry necessitates a physiological investigation of the eye mechanism and falls within the domain of ocular anatomy. While Berkeley provides a clear outline of the domains of geometrical optics and the mechanical model of the physiology of the eye mechanism, he also introduces an additional category which he describes as 'philosophical,' and which he claims need to be incorporated in order to offer a complete theory of optics.

[314] Berkeley, *TVV*, Section 37, Vol. I, p.264.
[315] Berkeley, *TVV*, Section 43, Vol. I, p.266.

The distinction which Berkeley introduces in the *Theory of Vision Vindicated* has significant implications for his model of spatial perception. I wish to argue that Berkeley is pointing to the fact that there are different levels of description available to the visual theorist, and that he is endeavouring to highlight the importance of recognising the difference between personal and sub-personal levels of description. While his predecessors had focused exclusively on providing an account of vision in terms of an explanatory model, construed exclusively in mechanical and geometrical terms, he is suggesting that there is another level of investigation which needs to be considered. Here Berkeley is not advocating the rejection of one field of inquiry in favour of another, but rather calling for the need to recognise a distinction between disparate levels of inquiry, which had not formerly been recognised.

It is my contention that the charge of inconsistency, outlined by Donaghan, is based on a prominent claim which Berkeley does not in fact hold; namely that he rejects the geometrical model on the basis that it operates at an 'information theoretic' level. As we have seen, Berkeley's central disagreement with the geometrical theorists is that their model trades on a number of false assumptions about how the mind works, and how it formulates size and distance judgements. We have also claimed that Berkeley subscribes to a form of process immediacy and this, together with the fact that he accepts the one-point argument as the first principle of his own account, demonstrates that he does not reject sub-personal forms of explanation, and suggests that Berkeley adopts an approach which incorporates elements of both the personal and sub-personal in order to arrive at a full and comprehensive account of

visual spatial perception.[316] It is my contention that works to integrate different levels of explanation in order to offer what he describes as 'a compleat theory of optics.'[317]

While it has been alleged that Berkeley is inconsistent in his treatment of the geometrical model, we have shown that such a view is unfounded and misrepresents his position. It can be argued furthermore that it is precisely because Berkeley adheres to the distinction between different levels of explanation within the visual sciences that he manages to overcome many of the difficulties associated with the early computational Cartesian account. We must take care however to ensure that in our attempt to vindicate Berkeley's theory we do not become guilty of anachronism. We must recognise that there are always difficulties associated with the attempt to frame modern debates in the context of more contemporary discussions. As Tom Stoneham points out, 'using contemporary categories to interpret historical philosophers is inevitably an inexact science.'[318] While then we do not claim that Berkeley's position on the distinction between different approaches to vision can be fitted neatly onto the contemporary debate on personal and sub-personal levels of explanation, we should however like to claim that Berkeley is aware of the distinction between personal and sub-personal level explanations, and that he seeks to frame a new account of visual theory which incorporated elements of both. Berkeley's interpretation of geometrical optics does not entail a rejection of the scientific paradigm, but

[316] Dennett, D, 1969. *Content and Consciousness*. (London: Routledge & Kegan Paul). The distinction between personal and sub-personal levels of explanation has obvious applications within the philosophy of mind, as it can be employed to capture a broad range of conscious activity: personal level statements offer a descriptive analysis of the conscious experience of an individual subject, while sub-personal statements outline the cognitive operations and physiological processes which underlie conscious experience. If we apply such a distinction to the field of perceptual theory, it could be argued that the psychologist operates at the personal level, providing descriptive accounts of the subject's perceptual states. The cognitive scientist by contrast operates at the sub-personal level and works to map the processes which underlie human cognition. Dennett claims that the distinction between personal and sub-personal levels of explanation gives 'birth to the burden of relating them' which is strictly a philosophical burden (p.95).

[317] Berkeley, *TVV*, Section 37, Vol. I, p.264. As we have claimed in the preceding section, while Berkeley is interested in providing a thesis which demonstrates how visual ideas serve as signs for tangible ideas, he is also interested in the process by which these visual ideas or signs are produced in the first instance.

[318] Stoneham, T., & A. Cei, 2009. 'Let the Occult Quality Go: Interpreting Berkeley's Metaphysics of Science,' in: *European Journal of Analytic Philosophy*, Vol. 5, Issue 1, p, 74.

rather bears witness to a bold re-conceptualisation of visual theory, based on a new model which includes different levels of explanation.

While we should not like to engage in the hasty assimilation of a modern thinker to a contemporary one, I wish to claim that this is precisely the type of distinction which Berkeley has in mind. In order to defend this claim, we need to examine another central aspect of the *New Theory* and the account of the Molyneux Man. While proponents of the continuity view are correct in claiming that Berkeley is motivated to provide a revised account of distance and spatial perception, I will seek to show that existing treatments fail to capture the full extent of Berkeley's position on agent causation. We will seek to show that this discussion becomes the key to understanding the model of spatial perception which he presents in the *New Theory*.

CHAPTER FOUR

The Case of the Molyneux Man and Berkeley's Theory of Spatial Perception

4.1 Introduction

Throughout the course of the *New Theory*, Berkeley makes frequent appeals to the case of a newly sighted blind subject or Molyneux man, which he employs to support many of the arguments he is advancing.[319] While he invokes the case of the Molyneux man primarily with a view to vindicating his heterogeneity thesis, he also relies on the case to demonstrate the inefficacy of the prevailing geometrical model and to support his account of the perception of distance, size and magnitude.[320] Such is Berkeley's confidence in the Molyneux case to substantiate his position, he claims that an empirical study conducted with an actual Molyneux subject in 1728 confirms the central argument of his original 1709 thesis. In his second essay on vision published in 1733, he writes that '[t]hus, by fact and experiment, those points of the theory which seem most remote from common apprehension were not a little confirmed, many years after I had been lead into the discovery of them by reasoning.'[321]

While appeals to the case of the Molyneux man form a prominent strategy throughout the *New Theory*, Berkeley's reliance on this case has been the target of ongoing criticism. James Van Cleve claims that the rationale underpinning Berkeley's employment of this case is problematic, primarily because the theoretical position which it purports to substantiate is

[319] References to the Molyneux subject occur in entries *NTV* 41; 79; 92; 93; 95; 96; 97; 99; 100; 106; 128. Berkeley's discussion of the Molyneux problem, as outlined in Locke's *Essay* occurs in NTV 132; 133; 135; 136.
[320] In the *New Theory* Berkeley deals with the manner in which three distinct types of spatial qualities are perceived. Entries 1-52 deal with distance perception; entries 53-87 deals with the perception of magnitude and entries 88 - 105.
[321] Berkeley, *TVV*, Section 71, Vol. 1, p.276.

difficult to discern. Van Cleve claims that it is decidedly unclear as to what exact 'reasoning' he is referring when he states that the Cheselden case provides empirical confirmation of his theoretical position. Van Cleve highlights a prominent difficulty associated with Berkeley's discussion of the Molyneux man, namely that he fails to offer an explicit account of the theoretical position which the case study is invoked to support.[322] In a similar vein, Marc Hight claims that Berkeley's appeal to the case of the Molyneux man consists in a poor argumentative strategy. He states that while the case has 'an undeniable intuitive appeal' that 'as an argument it falls short.'[323] Hight concludes that Berkeley's appeal to the Molyneux case is essentially misguided, and that 'it is hard to see how Berkeley's original thought experiment [the case of the Molyneux subject] accomplishes much.'[324]

These points of criticism are well founded. One of the central difficulties associated with Berkeley's employment of the Molyneux case is that many of the explicit arguments which he invokes are truncated and often equivocal. A case in point is Berkeley's heterogeneity thesis, which he outlines in the *New Theory* stating that: '[t]he extensions, figures, and motions perceived by sight are specifically distinct from the ideas of touch called by the same names, nor is there any such thing as one idea or kind of idea common to both senses.' [325] Having outlined the thesis, Berkeley then proceeds to invoke the case of the Molyneux man, in support thereof, stating that:

> But it has been, if I mistake not, clearly made out that a man born blind would not at first reception of his sight think the things he saw were of the same nature with the objects of touch, or had anything in common with them; but that they were a new set of ideas, perceived in a new manner, and entirely different from all he had ever perceived before.[326]

[322] Van Cleve, 2007, 'Reid's Answer to Molyneux's Question': In: *The Monist*. Vol. 90, Issue 2, pp.251-270
[323] Hight, 2008, *Op, Cit*., p.240. Hight also comments that 'Berkeley cannot expect his readers to be convinced of a conceptual truth on the basis of an empirical result.' p.24.
[324] Hight, 2008, *Op., Cit*., p.237 [emphasis my own].
[325] Berkeley, *NTV*, Section 127, Vol. I, p.223.
[326] Berkeley, *NTV*, Section 128, Vol. I, p.223.

In spite of Berkeley's constant reiteration that the case of the Molyneux man serves to vindicate his theoretical position, based on his explicit arguments it is not all clear how the case of the Molyneux subject supports the position which he is advancing.

In this chapter, we will examine Berkeley's discussion of the case of the Molyneux man with a view to clarifying his theoretical commitments. As the rationale underpinning Berkeley's reliance on this case study is unclear, we will work to construct a theoretical position based on his discussion of the Molyneux subject. We will work to unearth those aspects of Berkeley's account which reveal the rationale underpinning his conviction that 'confirmation of our tenet [heterogeneity] may be drawn from the solution of Mr. Molyneux's problem.'[327] While there has been a tendency to disregard this aspect of Berkeley's discussion, on the basis that it is ineffective or essentially misguided, we will seek to show that this discussion provides a valuable insight into the theory of spatial perception which he is advancing. We will seek to show that Berkeley employs the pathological case of the Molyneux man to reveal the hidden complexities of spatial perception and to gain an insight into the process which results in our awareness of spatial qualities.

We will also consider the degree to which Berkeley's discussion of the Molyneux man signals his divergence from Locke. We will present our main case for Berkeley's account of agent causation and seek to show that he subscribes to the constitutive volition thesis, which entails that human action informs perception and has an intrinsic role in the production of natural effects.

[327] Berkeley, *NTV*, Section 132, Vol. I, p.225 [addition my own].

4.2 The Case of the Molyneux Man

Berkeley's treatment of the case of the Molyneux man forms part of his critique of geometrical optics. He invokes the case with a view to demonstrating the inadequacy of the prevailing account of distance perception, stating that, 'a man born blind, being made to see, wou'd, at first, have no idea of distance by sight' and the 'objects intromitted by sight, would seem to him (as in truth they are) no other than a new set of thoughts or sensations.'[328] He states that the newly sighted blind man would be incapable of forming distance judgements following the immediate restoration of his visual sense, on the basis that 'judging objects perceived by sight to be at any distance, or without the mind, is intirely the effect of experience, which one in those circumstances could not yet have attained.'[329]

Berkeley is expressly opposed to what he describes as 'common supposition' of geometrical optics, whereby it is held 'that men judge of distance by the angle of the optic axes, just as one in the dark, or a blind-man by the angle comprehended by two sticks, one whereof he held in each hand.'[330] With this ostensive reference to Descartes' blind man brandishing crossed sticks, Berkeley signals his divergence from the prevailing geometrical model and the 'common supposition' that distance perception is computational and the result of a process called 'natural geometry.'[331] Berkeley contends that if such a model accurately represented the process by which spatial qualities are perceived then 'it would follow that one blind from his birth being made to see, shou'd stand in need of no new experience, in order to perceive distance by sight.'[332] Berkeley's point is that if the capacity to perceive distance is, as Descartes had maintained, an innate rationale ability then the Molyneux man should be able to formulate

[328] Berkeley, *NTV*, Section 41, Vol. I, p.186.
[329] *Ibid.*
[330] Berkeley, NTV, Section 42, Vol. I, p.186.
[331] A full account of Descartes' theory of spatial perception is given in Chapter two. We will recall that Descartes' account of spatial perception is based on the presence of three distinct factors: an external light source, an operational visual system, and an innate capacity to perform calculations through a process which he describes as 'natural geometry.'
[332] Berkeley, *NTV*, Section, 42, Vol. I, p.186.

spatial judgements without the benefit of additional experience once his visual sense is granted. Berkeley's denies that such an outcome is possible however and claims that the 'man born blind wou'd not at first reception of his sight, think the things he saw were of the same nature with the objects of touch, or had any thing in common with them; but that there were a new set of ideas, perceived in a new manner, and intirely different from all he had ever perceived before.'[333]

We are told furthermore, that the Molyneux man is unable to employ his visual sense to discriminate between a cube and the sphere until 'he had by experience learned the connexion there is between the several ideas or sight and touch' whereby 'he shall perceive by sight the situation of external objects, which do not properly fall under that sense.'[334] In relation to the Molyneux man's capacity to perceive the magnitude of spatially located objects Berkeley states that:

> From what has been said, we may safely deduce this consequence, to wit, that a man born blind, and made to see, wou'd, at first opening of his eyes, make a very different judgment of the magnitude of objects intromitted by them, from what others do. He would not consider the ideas of sight, with reference to, or as having any connexion with the ideas of touch: His view of them being entirely terminated within themselves, he can no otherwise judge them great or small.[335]

One of the most striking outcomes of Berkeley's discussion is the difference between the post-operative and post-adaptive experiences of the Molyneux subject. Berkeley proposes that during the initial post-operative period, this subject is unable to make visual discriminations between different spatial qualities and is also unable to form a visual idea of distance, size or magnitude. Following a period of adaptation however, we learn that this subject can employ his visual sense to discriminate between the objects that he sees and perceive spatial qualities on par with a typically sighted subject. We learn furthermore that the transition from the post-

[333] Berkeley, *NTV,* Section, 128, Vol. 1, p.223.
[334] Berkeley, *NTV,* Section, 99, Vol. I, p.212.
[335] Berkeley, *NTV*, 79, Vol. 1, p.204.

operative to the post-adaptive stage involves the subject's capacity to actively engage with objects in their environment, whereby they learn to correlate their newly acquired visual sensations with the objects which would formerly have been known to them by touch alone. One of the first points to emerge from Berkeley's discussion of the Molyneux subject is that a functioning visual system and cognitive function are not the only systems involved in spatial perception. While Berkeley accepts that retinal stimulation is a necessary condition for spatial perception, it is significant that he points to the role of human action and the capacity for engagement with objects in the environment.

One of the many misconceptions associated with Berkeley's discussion of the Molyneux man is that he is committed to the view that blind individuals are incapable of forming spatial concepts.[336] He clearly rejects such a view and is keen to point out that blind individuals have the capacity to understanding spatial concepts, albeit of a particular kind, which 'are made up only of ideas perceivable by touch.'[337] I wish to claim that the position which Berkeley seeks to advance is that spatial ideas are formed through the subject's engagement with objects in the surrounding environment. He highlights the role of bodily action with respect to determining spatial orientation, stating that the blind individual obtains 'an idea of earth or ground, towards which he perceives the parts of his body to have a natural tendency.'[338] Berkeley proceeds to state that the blind man would also 'by the sense of feeling attain to have ideas of upper and lower. By the motion of his hand he might discern the situation of any tangible object placed within his reach.'[339] While Berkeley holds that a blind individual is capable of navigation and orientation with respect to their environment, the Molyneux subject is said to experience a significant difficulty in this regard during initial the post-operative stage. Following the granting of his vision, the Molyneux man is said to experience

[336] This view of promoted by Von Senden (1960) and Gareth Evans (2002).
[337] Berkeley, *TVV,* Section 96, Vol. I, p.211.
[338] Berkeley, *NTV* Section 96, Vol. I, p.211.
[339] Berkeley, *NTV,* Section 93, Vol. I, p.209.

a state of confusion whereby he is unable to relate his newly acquired visual sensations with the tangible sensations which had previously formed the basis of his understanding of the spatial environment. Commenting on the initial post-operative experience of the Molyneux Subject, Berkeley states that:

> A blind man, when first made to see, might perceive these objects, in which there is an endless variety; but he would neither perceive nor imagine any resemblance or connexion between these visible objects and those perceived by feeling. Lights, shades, and colours would suggest nothing to him about bodies, hard or soft, rough or smooth: nor would their quantities, limits or order suggest to him geometrical figures, or extension, or situation, which they must do upon the received supposition, that these objects are common to sight and touch.[340]

While the granting of sight to the Molyneux man occurs as something of an initial hindrance, the state of confusion which is experienced is not permanent, and is replaced by a new found understanding of spatial qualities once the subject has been given the opportunity to actively engage with the objects in their environment.[341] Berkeley states that while he 'would not at first reception of his sight think the things he saw were of the same nature with the objects of touch,' he can nonetheless overcome these limitations once he learns 'the connexion there is between the several ideas of sight and touch.'[342] Once the Molyneux Man 'has experienced their coexistence,' through a process of active engagement, Berkeley states that 'he shall perceive by sight the situation of external objects, which do not properly fall under that sense.'[343]

On the basis of the foregoing analysis it is possible to discern three principal stages in Berkeley's account by which formerly blind subject learns to perceive spatially: (1) the immediate post-operative stage, during which the subject is unable to make spatial

[340] Berkeley, *TVV,* Section 44, Vol. I, p.266.
[341] George Stratton's inversion experiment monitors the behavioural effects of adaptation to retinal inversion, and his findings suggests that determining the upright spatial position of objects in the visual field is linked to the subject's capacity to correlate their tactual and visual sensations. The experiment sets out to challenge the assumption underlying what Stratton describes as the 'projection theory' which holds that that an inverted retinal image is the necessary condition of upright spatial perception.
[342] Berkeley, *NTV,* Sections 128 & 99, Vol. I, pp.223 & 212.
[343] Berkeley, *NTV,* sections 99 & 103, Vol. I, pp.212 & 213.

determinations or form an understanding of the distance, magnitude or situation of objects (2) the adaptive stage, during which the subject learns to correlate their visual and tangible ideas through a process of active engagement with their environment (3) the post-adaptive stage, whereby the subject can perceive spatial qualities and can make reliable judgements in relation to the distance, size and magnitude of objects in the visual field.

Our analysis hitherto indicates that Berkeley's discussion of the Molyneux case provides a significant insight into his theoretical commitments. In order to understand the theory of spatial perception which he is proposing, we must endeavour to understand why cases such as these held such fascination for Berkeley. We should recall that while his discussion of the Molyneux case in 1709 is proposed as a thought experiment, by the time he comes to publish his second essay on vision in 1733, Berkeley is convinced that his position has been empirically vindicated. In the final entry of the *Theory of Vision Vindicated*, Berkeley cites the eminent Cheselden case, which was published in 1728.[344] Cheselden's documents the case of an actual Molyneux subject; a congenitally blind patient whose vision had been granted following the removal of cataracts. The report grabbed the attention of the Western world following its publication in the transactions of the prestigious Royal Society of London.[345] While Cheselden had not set out to address the Molyneux problem, unsurprisingly the case

[344] In the final entry of the *Theory of Vision Vindicated*, Berkeley quotes at length from Cheselden's report: 'When he first saw, he was so far from making any judgement about distances that he thought all objects whatever touched his eyes (as he expressed it) as what he felt did his skin, and thought no objects so agreeable as those which were smooth and regular, though he could form no judgement of their shape, or guess what it was in any object that was pleasing to him. He know not the shape of any thing, nor any one thing from another, however different in shape or magnitude: but upon being told what things were, whose form he before knew from feeling, he would carefully observe that he might know them again: but having too many objects to learn at once, he forgot many of them: And (as he said) at first he learned to know, and again forgot, a thousand things in a day. Several weeks after he was couched, being deceived by pictures, he asked which was the lying sense, feeling or seeing? He was never able to imagine any lines beyond the bounds he saw. The room he was in, he said he knew to be but part of the house, yet he could not conceive that the whole house could look bigger. He said every new object was a new delight, and the pleasure was so great that he wanted to express it.' Cheselden in: Berkeley, *TVV*, Section 71, Vol. I, p.276.

[345] Cheselden, William. 'An Account of some Observations Made by a Young Gentleman, who was Born Blind, or Lost his Sight so Early , that he had No Remembrance of Ever Having Seen, and was Couch'd between 13 and 14 Years of Age.' In: *Philosophical Transactions* , London: The Royal Society, (1928) Vol. 35, No. 402, pp.447-50.

study had a profound effect upon the debate.[346] Commenting on the impact of Cheselden's report, Von Senden points out that it 'exercised very great influence' and 'became a truly classic case,' for two reasons:

> [F]irstly because his findings appeared to provide a more sufficient confirmation of the predictions published by Locke and Berkeley a few years before (1709), and secondly because, for many decades, this case remained the only one to have been investigated in detail , and so far for the time being appeared irrefutable.[347]

The case study was profoundly influential as it was one of the first empirical investigations which tested Molyneux's hypothesis. According to Von Senden, it was of particular interest to both Locke and Berkeley, as it corroborated their shared negative response to Molyneux's question.[348] While Berkeley hypothesised that 'a man born blind and made to see, would at first opening of his eyes make a far different judgment of the magnitude of objects intromitted by them, from what others do,' Cheselden's report could be called upon to substantiate this position.[349] As Marjolein Degenaar points out, his findings were taken to have established that an individual cured of congenital blindness would 'at first be unable to distinguish objects one from the other, would be unable to determine shape, size or distance, and would have to *learn* to see.'[350] Cheselden's findings were also thought to establish 'that the man born blind in Molyneux's question would be unable to distinguish a sphere from a cube and would be

---

[346] Von Senden suggests that the Cheselden was primarily motivated to solve a 'surgical problem' and that he was interested in the case 'for its own sake.' Von Senden, 1960. *Space and Sight*, p.220. Marjolein Degenaar agrees that there is little evidence to suggest that Cheselden had set out to specifically address the Molyneux problem, pointing to the fact that he referred neither to Molyneux or Locke in his report and that did not show his patient a globe or a cube. She points to the fact that the report nonetheless had direct and significant implications for thinkers interested in the Molyneux question and that the case became so synonymous with discussions of the problem that from 1728 onwards, Molyneux's problem was typically appended to Cheselden's report. Deganaar, M., 1996. *Molyneux's Problem: Three Centuries of Discussion on the Perception of Forms.* (Dordrecht, NL: Kluwer Academic Publishers) p.53-56.

[347] Van Senden, M., 1960, *Space and Sight: The Perception of Space and Sight in the Congenitally Blind Before and After Operation.* (London: Methuen & Co. Ltd), p.220.

[348] Pastore commented that it was 'the most celebrated case study in the history of science until the early case studies of Freud came along at the beginning of the twentieth century' [Pastore, 1971: 99]. Degenaar points out that 'Cheselden's report can be regarded as one of the first and most important of a series of similar reports' [Degenaar, 1996: 56].

[349] Berkeley, *NTV*, Section 79, Vol. I, p.204.

[350] Degenaar, M., 1996 *Op., Cit.*, p.83.

incapable of naming them.'[351]

I would like to tentatively propose that the reason why case studies featuring Molyneux subjects are so central to Berkeley's concerns, is because they offered a means of analysing processes which are not available through empirical investigation or introspection.[352] I submit furthermore that Berkeley employs a method of analysis which is based on inference, whereby he extrapolates from the pathological case to achieve an insight into the process which subtends spatial perception in the case of the typical sighted perceiver.[353] While the nature of the process involved in spatial perception is not evident in typical case, the pathological case offers an insight into the stages involved in learning to perceive spatially. The Molyneux man demonstrates that perceiving spatially involves a period of learning and adaptation, for he 'would not think the things he perceived by sight to be at any distance from him, or without his mind' until 'such time as he had observed their connexion with tangible objects, and the same prejudice began to insinuate itself into his understanding, which from their infancy had grown up in the understandings of other men.'[354] Berkeley states that '[i]n order to disentangle in our minds from whatever prejudices we may entertain with relation to the subject in hand, nothing

[351] *Ibid.*

[352] We will offer our main justification for this claim in Chapter 5. We will defend this claim through an examining of Berkeley's theory of mind and the doctrine of notions and by offering an account of his theory of mental operations.

[353] The practice of extrapolating from the pathological to the standard case is a well-established technique in the field of experimental psychology. One prominent example is George Stratton's famous inversion experiment conducted in 1896. Stratton introduces conditions which enable the behavioural effects of adaptation to retinal inversion to be examined. It is interesting to note that Stratton's findings corroborate Berkeley's thesis in the *New Theory*, for they suggest that determining the upright spatial position of objects in the visual field is linked directly to the subject's capacity to correlate their tactual and visual sensations, rather than the position of the image which is projected on the back of the retina. See Stratton, G 'The Spatial Harmony of Sight and Touch' In *Mind* (1988), 8:492-505. In his 1945 *Phenomenology of Perception,* Maurice Merleau Ponty draws on the experimental work of Gelb and Goldstein and employs the Schneider case to substantiate his 'motor intentionality' thesis. See: Merleau-Ponty, M 1962 (1945) *The Phenomenology of Perception* (London: Routledge & Kegan Paul), p.110 and pp.98-147. Commenting on the role of the pathological in Merleau-Ponty, Moran and Mooney comment that this technique 'involves an adaptation of the phenomenological reduction' in an analogous fashion to Husserl who '"bracketed" the natural world of naive realism' in order 'to throw into relief the cognitional structures which the subject brings to bear on it. ' Merleau-Ponty examines cases 'where the perceiving subject and acting body has broken down to illuminate the taken-for-granted corporeal performances of an ordinary body-subject.' Moran, D & Mooney, T (Eds.) (2002) *The Phenomenology Reader*, p.424 For some of the difficulties associated with Merleau-Ponty's employment of pathological case studies see: Jensen, Rasmus Thybo 'Motor Intentionality and the case of Schneider' In *Phenomenology and Cognitive Science* (2009) 8; 371-388.

[354] Berkeley, *NTV*, Section 95, Vol, I, p.210.

seems more apposite, than the taking into our thoughts the case of one born blind, and afterwards, when grown up, made to see.'[355] While intuitively we are inclined to believe that perception is exclusive an achievement of the visual system, this is precisely the view which Berkeley's theory seeks to undermine.

In terms of forming a clear understanding of the theory of spatial perception which is presented in the *New Theory*, I propos that Berkeley is committed to the following claims: (1) spatial perception is not a matter of geometrical construction nor is it an exclusive achievement of the visual system (2) it is a process which involves visual acuity and cognitive function in combination with active engagement with the world. Berkeley's discussion of the Molyneux man also suggests that there is a period in early infancy during which we learn to perceive spatially through a process of active engagement with our environment.[356] One of the key outcomes of Berkeley's discussion is a radically new model of spatial perception. On his account, perceiving objects in the distance is not a matter of rationalistic computation as it has been for Descartes. Rather spatial perception is a process which relies on the subject's capacity to actively engage with objects located in the environment. In framing these objections, Berkeley presents a significant challenge to the predominant geometrical paradigm of spatial perception during the early eighteenth century.

We can submit that an additional reason why Berkeley relied on the Molyneux case to such an extent is because the model of spatial perception which he is proposing is highly counter-intuitive. He states that:

> [W]e are very prone to think, that if just made to see, we should judge of visible things as we do now. But, we are also prone to think, that at first sight, we should in the same way apprehend the distance and magnitude of objects, as we do now: Which hath been shewn to be a false and groundless persuasion.[357]

[355] Berkeley, *NTV*, Section 92, Vol. I, p.209.
[356] Berkeley, *NTV*, Section 95, Vol. I, p.210.
[357] Berkeley, *NTV*, Section 100, Vo. I, p.212.

The Molyneux man is free from the central prejudice which affects the rest of mankind and accordingly becomes the paradigmatic case to which Berkeley refers in order to vindicate his theoretical position. In relation to which he states that 'it seems so remote from, and contrary to, the received notions and settled opinions of mankind,' that the optical theorist and the vulgar man both share a common misconception that we perceive the ideas of distance, magnitude, extension and situation *by sight*, without any recourse to bodily engagement.[358]

Berkeley claims that it is 'because of the customary and close connexion that has grown up in our minds between the objects of sight and touch, whereby the very different and distinct ideas of those two senses are so blended and confounded together, as to be mistaken for one and the same thing' that we become victims of a central prejudice, from which 'we cannot easily extricate our selves.'[359] The prejudice which from 'infancy had grown up in the understandings of other men' is, that the ideas of sight and touch are common sensibles.[360] When he claims that visual and tangible ideas are heterogeneous, he is claiming that visual and tactile systems contribute differently to spatial perception and that we cannot afford to overlook the distinctive contribution of the latter, which he claims is intrinsic to the process. The view that perception is predominantly occularcentric is shown to be false precisely because the Molyneux man demonstrates that spatial perception involves bringing visual and tactile systems into alignment.

A thought experiment which Berkeley presents in the *Alciphron* also serves to highlight the nature of the prejudice which affects the sighted population. Euphranor invites Alciphron to consider 'a nation of men blind from their infancy' and to imagine the arrival of a sighted stranger. [361] Having outlined the many respects in which the sighted stranger might enable the natives to achieve a better understanding of their surrounding environment, Euphranor remarks

[358] Berkeley, *NTV,* Section 127, Vol. I, p.223.
[359] Berkeley, *NTV,* Section 79, Vol. I, p.204.
[360] Berkeley, *NTV,* Section 95, Vol. I, p.210.
[361] Berkeley, *Alciphron* IV, Vol. III, p. 162.

that they must be 'infinitely surprised that one who had never been in their country before should know it so much better than themselves?' [362] Euphranor's next comment highlights the difficulty which sighted perceivers have in accessing the nature of the process which results in their awareness of spatial qualities. He states that ' it seems to require intense thought to be able to unravel a prejudice that has been so long forming, to get over the vulgar error of ideas common to both senses, and so to distinguish between the objects of sight and touch.' [363] We will now consider another thought experiment and its role in enabling us to better understand the nature of Berkeley's theoretical commitments in the *New Theory*.

4.3 The Unbodied Intelligence and Berkeley's Account of Agent Causation

Berkeley's discussion of the 'unbodied spirit' offers an additional insight into his account of spatial perception.[364] Berkeley states that the unbodied spirit can 'see perfectly well,' but he claims that such a spirit is unable to form any 'idea of solid, or quantity of three dimensions.'[365] He goes on to state that this hypothetical subject cannot 'judge as we do, nor have any idea of distance, outness, or profundity, nor consequently of space or body, either immediately or by suggestion.'[366] While the unbodied spirit is said to possess a sufficient degree of visual acuity, it is nonetheless claimed that he is incapable of formulating judgements pertaining to size, distance and magnitude, because of his unbodied state. We can say then that Berkeley endorses the view that the human body has a fundamental role in spatial perception and that the capacity for bodily action is a key criterion in the successful perception of spatial properties.

[362] Berkeley, *Alciphron* IV, Vol. III, p. 162.
[363] Berkeley, *Alciphron* IV, Vol. III, p. 162.
[364] Berkeley, *NTV,* Section 153, Vol. I, p.233.
[365]Berkeley, *NTV,* Sections 153 & 154, Vol. I, pp.233 & 234.
[366] Berkeley, *NTV,* Section 154, Vol. I, p.234.

Like Berkeley's discussion of the Molyneux man, the scenario of the unbodied spirit provides an insight into the process underpinning spatial perception. According to the latter thought experiment, the subject depicted is 'supposed to see perfectly well' and 'to have a clear perception of the proper and immediate objects of sight', but to have no 'sense of touch'.[367] While the Molyneux man can learn to perceive spatial qualities following a period of adaptation, which involves active bodily engagement with the environment, the case of the unbodied spirit is far more precarious since he lacks a body, he also lacks the fundamental capacity to act and thereby to perceive spatial qualities.

While Berkeley employs the case of the unbodied intelligence as a thought experiment to further elaborate the main points of his theory, there is a problem associated with this aspect of his discussion. The problem lies chiefly with Berkeley's claim that the unbodied intelligence is is 'supposed to see perfectly well, i.e. to have a clear perception of the proper and immediate objects of sight.'[368] There is an obvious problem here which Berkeley does not seen to be aware of and which occurs in opposition to one of his central principles; namely his acceptance of the one-point argument which entails that vision involves the reception of light rays by the retina, which in turn entails the presence of a physical visual system. Berkeley's acceptance of the one-point argument as the foundational premise of his account would seem to preclude him from claiming that an unbodied intelligence is capable of 'seeing perfectly well' since he lacks an eye and therefore the capacity to see. Rather than restricting the limitations of the unbodied intelligence to the perception of spatial qualities, Berkeley should consistently have held that an unbodied intelligence is intrinsically incapable of any form of visual perception. Berkeley does not seem to be aware of this difficulty however, and it can be argued that this oversight does not detract from his main point which is to highlight the role of human action during

[367] Berkeley, *NTV*, Section 153, Vol. I., p.233.
[368] Berkeley, *NTV*, Section 153, Vol 1, p.233.

perception. While his claim that the unbodied intelligence can see perfectly well is not consistent with his commitment to the one-point argument, the central claim which he employs this hypothetical case to support remains unaffected, namely that spatial perception involves human action.[369]

It can be argued furthermore that the Molyneux man exhibits all of the characteristics associated with 'experiential blindness,' a phenomenon which Alva Noë describes as a form of blindness which occurs 'despite the presence of something like normal visual sensation'.[370] Noë outlines a number of studies which document the experience of post-operative cataract patients, and claims that these studies reveal that, while surgery restores visual sensation, 'it does not restore sight' and 'in the period immediately after the operation, patients suffer blindness despite rich visual sensations.'[371] While the patients experience a rich array of visual impressions 'none of them in having these sensations has acquired the ability to see, at least not in anything like the normal sense.'[372]

Noë's central thesis is that perception involves action and that while we tend to regard perceptual experience as an achievement of the visual system, it is in fact an achievement on behalf of the entire animal, whereby perceptual capacities are bound up with bodily skill and action. As Noë contends, 'to perceive you must be in possession of *sensorimotor bodily skill*'.[373] One of Noë's central claims is that visual perception does not result from retinal stimulation alone. He claims that 'merely to be given visual impressions is not to be made to see. To see one must have visual impressions that one *understands.*'[374] He claims furthermore that during the initial post-operative stage, cataract patients are unable to utilize their visual

[369] We will discuss the nature of Berkeleian embodiment in chapter five. We will consider the nature of the Berkeleian subject and highlight the ways in which Berkeley's constitutive volition thesis is to be distinguished from embodied cognition.
[370] Noë, A., 2004, *Action in Perception* (Cambridge Massachusetts: MIT Press), p.4.
[371] Noë, A., 2004, *Op., Cit.*, pp.4-5.
[372] Noë, A., 2004, *Op., Cit.*, p.5.
[373] Noë, A., 2004, *Op., Cit.*, p.11
[374] Noë, A., 2004, *Op., Cit.*, pp.5-6

data in any sort of a productive way. He maintains that '[t]he visual impressions they now receive remain confusing and uninformative to them, like utterances in a foreign language.'[375] Outlining his theory of spatial perception in the *New Theory*, we find that Berkeley proposes a similar analogy between language learning and perceptual mastery. He claims that:

> No sooner do we hear the words of a familiar language pronounced in our ears, but the ideas corresponding thereto present themselves to our minds; in the very same instant the sound and the meaning enter the understanding: So closely are they united, that it is not in our power to keep out the one, except we exclude the other also. We even act in all respects as if we heard the very thoughts themselves. So likewise the secondary objects, or those which are only suggested by sight, do often more strongly affect us, and are more regarded than the proper objects of that sense; along with which they enter into the mind, and with which they have a far more strict connexion, than ideas have with words. Hence it is, we find it so difficult to discriminate between the immediate and mediate objects of sight, and are so prone to attribute to the former, what belongs only to the latter.[376]

Here Berkeley compares the process involved in spatial perception to language acquisition; while the accomplished language user will have no difficulty in understanding the meaning of a term as soon as they hear it, the individual who is unfamiliar with the language will have to learn how the terms correspond to the meaning in each case. In the same way, the standard perceiver has no difficulty understanding that the objects which they perceive possess spatial qualities, for their understanding is effectively instantaneous each time they look at objects in the visual field. Berkeley's point however is that we fail to recognize that our capacity to perceive spatially involves a period of learning during which we must actively engage with our environment. The Molyneux man becomes an heuristic placeholder for perceptual development in the typical adult; like the unaccomplished language user, the Molyneux man must learn how his newly acquired visual ideas acquire meaning, which in the case of spatial perception involves a period of active engagement with the objects in their environment.[377]

[375] Noë, A., 2004, *Op., Cit*., p.5
[376] Berkeley, *NTV,* Section 51, Vol. I, p.190.
[377] It should be noted that Berkeley's theory does not entail that we must actively engage with every object we perceive in order to perceive spatially, rather that there is a period in early infancy during which we develop this capacity. This process occurs so organically and without us taking any cognisance thereof that we tend to overlook our physical engagement with the world and assume that perceiving the world is essentially a matter of seeing the world. Itis precisely such a view that Berkeley seeks to challenges.

Berkeley's thought experiments serve to demonstrate that no matter how great the degree of visual acuity, the perception of spatial qualities cannot be achieved in the absence of embodied activity by perceivers. It can be argued that Berkeley employs the case of Molyneux subject in precisely the same way as the case of the unbodied intelligence; as the pathological case which becomes instructive of the case of the typical perceiver. While the typical subject is unaware that her understanding of space is fundamentally conditioned by her embodied active encounter with the world, the pathological case reveals the nature of perception in the case of the typical subject, by demonstrating that perception is something which involves embodied action.

On the basis of the foregoing analysis, it can be claimed that Berkeley endorses the constitutive volition thesis. This thesis entails that the subject's body is an instrument of volition which is active during the process of spatial perception and afforded an intrinsic role with respect to the perception of the spatial qualities of objects. The constitutive volition thesis commits him to the view that the finite volition has a formative role during perception and that bodily activity is the condition by which the spatial qualities of objects are perceived.

Such a thesis is to be contrasted with other forms of human action in Berkeley. Non-constitutive volition refers to activities which occur in addition to perception; as an additional accomplishment which has does not have an impact upon the ideational content of perceptual states. This form of volition occurs in radical contrast to the type of volition invoked in Berkeley's account of spatial perception. The difference is quite significant, for while I can consciously reach out and grasp an object in the environment, my perception of the object which I direct my activity towards is already fundamentally conditioned by my capacity to act as an embodied agent. While I can employ my volition to move my hand to reach out and pluck a flower for example, my perception of the flower as an object which is extended, coloured,

and located in space, is always the result of human volition in conjunction with visual stimulation.[378]

In summation, we can say that the model of spatial perception to which Berkeley is committed is as follows: in accepting the one-point argument, Berkeley accepts that retinal stimulation has a role in spatial perception, and in this he can be seen to agree with Descartes and his predecessors in the optical tradition. However Berkeley's point of divergence from the prevailing tradition occurs in terms of the next stage of the process underlying spatial perception: he rejects the claim that the imagination facilitates the perception of spatial qualities through a process of natural geometry and instead subscribes to the view that it is the subject's volitional engagement that determines their ability to perceive spatially. Berkeley's model of spatial perception is best understood as a stimulation plus action model; the latter as we have seen is accounted for in virtue of his acceptance of the embodied volition thesis, and the former in virtue of his acceptance of the one-point argument as the first principle of his account.

4.4 Berkeley's Divergence from Locke

While the Molyneux problem features prominently throughout the *New Theory*, Berkeley was among a host of early modern thinkers for whom this problem was one of the central problems of the period.[379] One of the key debates associated with the Molyneux problem relates to the rationale which informed responses to the problem. Marjolein Degenaar suggests that the key reason why this problem engendered such a degree of interest was because it related directly

[378] We will offer a more comprehensive account of Berkeley's theory of human action in chapter five.
[379] E. Cassirer claims that the Molyneux question formed the central question of eighteenth-century epistemology and psychology. Cassirer, E. 1951 *The Philosophy of the Enlightenment* (Boston, Mass: Beacon Press), p.108.

to the debate regarding the origin and foundation of knowledge.[380] She claims that it played a fundamental role in the development and justification of theories of perception and knowledge during the eighteenth century and that it 'constituted a central controversial question for eighteenth century empiricists and rationalists.'[381] Degenaar claims that a trend is discernible among theorists whereby 'thinkers who were inclined towards rationalism tended to give a positive answer while the empiricists usually answered Molyneux's question in the negative.'[382]

The claim that a clear line of demarcation exists between rationalists, who proposed positive answers on the one hand, and empiricists who responded negatively, fails to recognise the full complexity of the issue. A closer inspection reveals that responses to the Molyneux problem were not framed in terms of debate between the two schools of the enlightenment and that it was not one of epistemological import as is sometimes claimed. [383] When we consider Locke and Berkeley's treatment of the Molyneux problem, we find that their respective responses were shaped primarily by divergent perceptual commitments rather than epistemological standpoints. While Berkeley and Locke are both empiricists, we find that

[380] While Kantian epistemology effectively obviates and subsumes the opposing traditions of the enlightenment, prior to the transcendental turn, epistemological systems were erected on either rationalist or empiricist foundations. During the modern period there was a central debate regarding the origin and foundation of knowledge, which lead to the formation of two distinct schools. Rationalists, such as Descartes, Leibniz and Spinoza held that knowledge had an *a priori* origin and that perception was the result of the subject's innate capacities. Conversely, empiricists such as Locke, Berkeley and Hume held that knowledge had an *a posteriori* origin and that perception was the result of sensation. While we should not like to engage in the hasty over simplification of the epistemology of the modern period or fail to acknowledge the complexities and subtleties of each thinker's system, the point we should like to make is that it is, broadly speaking, possible to categorise thinkers of the modern period as rationalists or empiricists in terms of the view with regard to the origin of perceptual judgements.

[381] Degenaar, M. 1996 *Molyneux's Problem,* (Dordrecht, NL: Kluwer Academic Publishers), p.13.

[382] Degenaar, M. *Op.,Cit*., p.51.

[383] Gary Hatfield suggests that we should recognise an important distinction between rationalism and empiricism on the one hand, and between 'nativism' and 'empirism' on the other. He maintains that the latter distinction characterises two distinction ideological approaches to spatial perception which date to the seventeenth century. While nativists claimed that the capacity to perceive spatially was innate, proponents of empirism maintained that it was acquired through experience. I think that it is this distinction which informed responses to the Molyneux question during the eighteenth century, rather than the epistemological distinction between rationalism and empiricism, as suggested by Degenaar. Hatfield, G., 1990. *The Natural and the Normative: Theories of Spatial Perception from Kant to Helmholtz.* (Cambridge, Massachusetts: MIT Press), pp.271-280.

Berkeley diverges significantly from Locke in the terms of the rationale which forms the basis of his response to the Molyneux problem.

In the second book of the *Essay*, Locke endorses a negative response to Molyneux's question stating that, 'I agree with this thinking gentlemen [Molyneux] in his answer to this problem; and am of opinion, that the blind man at first sight, would not be able with certainty to say which was the globe, which the cube, whilst he only saw them: Though he could unerringly name them by his touch, and certainly distinguish them by the difference of their figures felt.'[384] The rationale which Locke offers in support of his position is as follows: '[f]or though he has obtained the experience of how a globe, how a cube affects his touch; yet he has not yet obtained the experience, that what affects his touch so or so, must affect his sight so or so.'[385] When we consider Berkeley's treatment of the Molyneux problem, we find that while he also endorses a negative response, in keeping with Locke and Molyneux, he takes issue with the justification upon which their negative responses are based. In order to understand Berkeley's divergence from Locke, we must first consider Locke's treatment of the problem as it appears in his *Essay*.[386]

The Molyneux problem appears in the second book of Locke's *Essay*, which deals with his account of perception and the manner in which the mind comes to be furnished with impressions and ideas of sensation.[387] Locke's theory of perception begins with an exposition of how sensory data enters the understanding, becoming ideas through the avenue of the senses.[388] Locke is committed to a form of atomism, whereby the simple ideas which enter the

[384] Locke, *Essay,* II, ix, section vii. [Parenthesis my addition]. It should be noted that Locke not only endorses Molyneux's negative response but quotes Molyneux's response directly in this section of the *Essay*.
[385] Locke, *Essay*, II, ix, xiii.
[386] Berkeley reproduces the section from the *Essay* in which Locke presents the Molyneux problem in section 132 of the *New Theory*, which he prefaces by claiming, that 'further confirmation of our tenet may be drawn from the solution of Mr. Molyneux's problem, published by Mr. Locke in his Essay.' Berkeley, *New Theory*, Section 132 from Locke's *Essay* II, ix, viii.
[387] Locke, *Essay*, Book II. i. i.
[388] Locke claims that while 'all of the materials of knowledge and reason' derive from a single source, which is 'experience', that ' simple ideas' are suggested to the mind in one of two ways, either through sensation or reflection. Locke, *Essay*, Book II. i. ii.

understanding become the building blocks of perceptual experience. While simple ideas are typically sourced from a particular sensory modality, as in the case of 'the idea of solidity' which 'we receive by our touch,'[389] there are also simple impressions which enter the understanding through different sensory modalities, becoming ideas of 'space, or extension, figure, rest and motion', which we are told, 'make perceivable impressions, both on the eyes and touch' and are received and conveyed to our minds 'both by seeing and feeling.'[390]

With regard to the cause of our ideas, Locke contends that we must distinguish between ideas which are 'but a privation of the subject,'[391] and ideas which are 'modifications of matter in the bodies that cause such perceptions in us.'[392] Locke distinguishes between subjective and objective ideas and the corresponding qualities which cause them. He claims that secondary qualities give rise to colours, sounds and tastes, which are 'in truth are nothing in the objects themselves, but powers to produce various sensations in us.'[393] Primary qualities on the other hand are deemed to be 'original qualities' which inhere in matter and which are 'utterly inseparable from the body.'[394] While the primary qualities of Locke's system are thought to resemble the objective properties of matter, secondary qualities are held to be but the subjective responses of the perceiver, which do not resemble the properties which cause them.

There is a significant difficulty associated with Locke's treatment of the Molyneux problem, which Berkeley is keen to address. Locke's response contradicts two key aspects of his theory of perception. Firstly, Locke's negative response is incompatible with his clear commitment to the doctrine of common sensibles, which commits him to the view that ideas

[389] Locke, *Essay*, Book 2. iv. 1: 'The idea of solidity we receive by our touch: And it arises from the resistance which we find in body.'
[390] Locke, *Essay*, II, v.
[391] Locke, *Essay*, II, viii, i.
[392] Locke, *Essay*, II, viii, vii.
[393]The full quote reads: 'such qualities in truth which are nothing in the objects themselves , but powers to produce various sensations in us by their primary qualities, i.e., by the bulk, figure, texture , and motion of their insensible parts, as colours, sounds , tastes, &c. These I call secondary qualities.' Locke, *Essay*, II. Viii. x.
[394] Locke, *Essay*, II. Viii. ix.

pertaining to the three-dimensional properties of objects such of extension and figure are common sensibles which are known indifferently either though sight or touch. He states that:

> The ideas we get by more than one sense are of space, or extension, figure, rest and motion; for these make perceivable impressions, both on the eyes and touch. And we can receive and convey to our minds the ideas of the extension, figure, motion and rest of bodies, both by seeing and feeling.[395]

Locke's commitment to the doctrine of common sensibles should entail a positive rather than a negative response to the Molyneux problem. Since he claims that the ideas of space, extension and figure are perceived indifferently through either sight or touch, it follows then that the Molyneux subject should be able to distinguish between a cube and a sphere following the proposed granting of their vision without the benefit of any additional experience. It is precisely such an inconsistency to which Berkeley points stating that:

> Now, if a square surface perceived by touch be of the same sort with a square surface perceived by sight, it is certain the blind man here mentioned might know a square surface, as soon as he saw it.. We must therefore allow, either that visible extension and figures are specifically distinct from tangible extension and figures, or else, that the solution of this problem given by these two ingenious men, is wrong.[396]

Bruno and Mandlebaum have also highlighted this difficulty stating that since 'ideas of figure are directly perceived through both sight and touch, it is not clear what would stand in the way of a newly cured blind person being able to recognise the figure s/he had previously felt.'[397] They claim furthermore that the difficulty in understanding why Locke embraced a negative answer is compounded by the fact that he thought that properties such as figure and extension were primary qualities which are said to inhere in and resemble the properties of matter. Since these properties are known indifferently through sight or touch, it follows then that a person's tactile and visual ideas of figure will represent the same content and enable the re-sighted

[395] Locke, *Essay*, II, v.
[396] Berkeley, *NTV*, section 133, Vol. I, p.226.
[397] Bruno , M & E. Mandlebaum, 2010. 'Locke's answer to Molyneux's Question' In: *History of Philosophy Quarterly* , Vol 27, no. 2, p.166.

individual to distinguish between the cube and the sphere immediately following the restoration of their visual sense.

Bruno and Mandlebaum suggest that had Locke consistently adhered to the principles which he had set forth in the *Essay*, then he should have answered Molyneux's question positively, on the basis that the re-sighted individual should have been 'able to call up and deploy the tactually acquired idea when first visually presented with the sphere and the cube and thereby be able to tell which was which.'[398] They claim that Berkeley's opposition to Locke's treatment of Molyneux's problem is based the latter's commitment to the doctrine of common sensibles[399] We find that Berkeley is expressly opposed to the doctrine of common sensibles and the notion that the ideas of space and distance were given indifferently to either sight or touch. In the *New Theory* he reminds the reader of the view which Locke had advanced on the perceptual origins of our ideas:

> It is a prevailing opinion, even amongst those who have thought and writ most accurately concerning our ideas, and the ways wherein they enter into the understanding, that something more is perceived by sight, than barely light and colours and their variations. Mr. Locke termeth sight, "The most comprehensive of all our senses, conveying to our minds the ideas of light and colours, which are peculiar only to that sense; and also the far different ideas of space, figure and motion."[400]

While we agree that Berkeley takes issue with Locke's response to Molyneux's problem on the basis that he is opposed to the doctrine of common sensibles, a question stills remains regarding the rationale underpinning Berkeley's opposition to the doctrine of common sensibles itself. When we consult the *Theory of Vision Vindicated*, we find that Berkeley's opposition to the doctrine of common sensibles is based on yet another aspect of Locke's system which Berkeley finds objectionable; namely the primary-secondary quality distinction:

[398] Bruno , M & E. Mandlebaum, 2010. *Op. Cit.,* p.167.
[399] *Ibid*.
[400] Berkeley, *NTV*, Section 130, Vol. I, p.224.

> It hath been a prevailing opinion and undoubted principle among mathematicians and philosophers that there were certain ideas common to both senses; whence arose the distinction of primary and secondary qualities. But I think it hath been demonstrated that there is no such thing as a common object, as an idea, or kind of idea perceived both by sight and touch.[401]

While Berkeley's reasoning in this section is truncated, we can reasonably deduce that what he is claiming that the doctrine of common sensibles was one of the factors which had given rise to the primary-secondary quality distinction. Furthermore, he alludes to the fact that the heterogeneity thesis serves to undermine the doctrine of common sensibles, and thereby serves to undermine the basis for the primary-secondary quality distinction.

On the basis of the forgoing analysis we find that the Berkeley's interest in the Molyneux problem had little to do with whether knowledge had an *a priori* or an *a posteriori* foundation. Berkeley's primary interest in the Molyneux problem relates to the manner in which the spatial qualities of objects are perceived. While Berkeley succeeds in highlighting a central inconsistency inherent in Locke's response to the Molyneux problem, we can also say that he offers a radically different account of spatial perception than any of his predecessors.

4.5 Berkeley on Relative Space and Extension

We have attributed the constitutive volition thesis to Berkeley in virtue of the role which he attributes to the human body in the *New Theory of Vision*. We find however that additional aspects of Berkeley's discussion which deal with the process of spatial perception also emphasise the role of bodily action. In the *Principles,* Berkeley indicates that the human body is central to the process involved in distinguishing between relative space and extension. Opposing the Newtonian account of absolute space, Berkeley proposes that our concept of

[401] Berkeley, *TVV*, Section 15, Vol. I, p.257.

space is relative and that its relativity furthermore is determined by its relation to a perceiving subject. Highlighting the role of bodily action during spatial perception Berkeley states that:

> When I excite a motion in some part of my body, if it be free or without resistance, I say there is *Space* , but if I find a resistance, then I say there is *Body* : an in proportion as the resistance to motion is lesser or greater , I say space is more of less *pure* .. When, therefore, supposing all the world to be annihilated besides my own body , I say there still remains pure Space, thereby nothing else is meant but only I conceive it possible for the limbs of my body to be moved on all sides without the least resistance ; but if that too were annihilated then there could be no motion , and consequently no space.[402]

His commitment to the notion that bodily action is intrinsic to spatial perception is again evident in *De Motu*. Here bodily action becomes the key to exposing what Berkeley regards as the putative and ultimately false distinction between absolute and relative space. He wants to show that we have no grounds for positing the existence of the former and that the concept of space itself is intrinsically relative. Berkeley's argument to this effect relies on highlighting the centrality of bodily action during the perception of spatial qualities. He claims that our formation of the concept of space is in the first instance conditioned by our capacity for bodily action. He identifies the human body as the fundamental locus for the apprehension of spatial qualities, stating that:

> We are sometimes deceived by the fact that when we imagine the removal of all other bodies, yet we suppose our own body to remain. On this supposition we imagine the movement of our limbs fully free on every side.. None the less if we consider the matter again we shall find, 1st relative space conceived defined by the parts of our body; 2nd, a fully free power of moving our limbs obstructed by no obstacle, and besides these two things nothing.[403]

Passages such as these suggest that Berkeley upholds the view bodily action has a formative role with regard to determining the content of what we perceive spatially. Establishing that Berkeley subscribes to such a position is significant, as it enables us to challenge one prominent misrepresentation associated with his mature system and his account of space. While

[402] Berkeley, *Principles*, Section, 116, Vol. II, p.93.
[403] Berkeley, *De Motu*, Section 55, Vol. IV, p.46.

commentators such as George Stack and Gary Thrane have claimed that Berkeley's treatment of the concept of space consists in his critique of absolute space, and that he ultimately fails to present a positive account of relative space, our analysis reveals that he subscribes to an account of spatial perception which promotes a the view that space is relative and conditioned by the subject.[404]

Getting clear about the model of spatial perception which Berkeley upholds enables us to clarify the central aim of the *New Theory* and to also undercut one of the prominent misconceptions associated with Berkeley's philosophical system. One of the chief interpretative misconceptions which is frequently attributed can be traced to Kant, who claims that Berkeley's system cannot accommodate the empirically reality of spatio-temporal objects. Kant seeks to distinguish his enterprise from that of 'the good Berkeley,' who he claims degrades 'bodies to mere illusion.'[405] Kant makes substantial emendations to the second edition of the *First Critique*, including the 'Refutation of Idealism' with the express intention of distancing himself from both Descartes and Berkeley. [406] While Kant is critical of the 'problematic idealism of Descartes' which is said to entail that 'the existence of objects in space outside us to be either merely doubtful and indemonstrable, or else false and impossible,' he claims that Berkeley promotes a form of dogmatic idealism which declares that space 'together with all the things to which it is attached as an inseparable condition' is 'impossible in itself,' and which entails that things in space are 'merely imaginary.' [407]

Kant proposes that the origin of Berkeley's error stems from his dogmatic idealist stance, which he claims is unavoidable once 'one regards space as a property that is to pertain

[404] See George Stack (1970) and Gary Thrane (1982).
[405] Kant, *Critique of Pure Reason* [B275], p.326.
[406]Kant, *Critique of Pure Reason*, [B 275], p. 326. Kant made substantial emendations to the first *Critique* following the Gottingen Review of 1782. While Kant maintained that the association between transcendental idealism and Berkeleian immaterialism effectively undermined his claim to empirical realism, we will seek to show that Berkeley's system preserves the empirical reality of the natural world in Chapter 5.
[407] Kant, *Critique of Pure Reason*, [B 275], p. 326.

to the things-in-themselves; for then it, along with everything for which it serves as a condition, is a non-entity.' [408] Kant's account of space proceeds from the rejection of the Newtonian view that space is a quality of things-in-themselves. As Hatfield comments, '[a]ccording to Kant, the Newtonian theory of space implied the 'real existence' of space and time as independent substantial beings that are themselves neither substances nor properties of substances'. [409] Kant adopts a radically different approach and claims that space is 'the subjective condition of sensibility under which alone outer intuition is possible for us.'[410] He claims furthermore that space and time are both 'encountered only in us' as subjective determinations of human sensible intuition . [411] He states that:

> We can according speak of space, extended things, and so on, only from the human standpoint. If we depart from the subjective conditions under which alone we can acquire outer intuition, namely that through which we may be affected by objects, than the representation of space signifies nothing at all. [412]

Kant's discussion of space highlights one of the defining features of his transcendental idealism which, as Henry Alison asserts, involves an epistemological claim about the dependence of human knowledge on certain *a priori* conditions which reflect the structure of the human cognitive apparatus. [413] The notion that the cognitive structure of the mind provides the formal structure for the objective world is central to Kant's transcendental philosophy. Such a commitment constitutes his radical departure from the project of classical empiricism, which focuses on the manner in which ideas are imprinted on the mind through the senses. Kant points to the fundamental centrality of the subject in shaping human perceptual experience claiming that 'if we remove our own subject or even only the subjective constitution of the senses in general, then all constitution, all relations of objects in space and time, indeed space and time

[408] Kant, *Critique of Pure Reason*, [B 275], p. 326.
[409] Hatfield, G., 1991, *Op., Cit*., p. 89.
[410] Kant, *Critique of Pure Reason*, [A26/ B42], p. 159.
[411] Kant, *Critique of Pure Reason*, [A 373], p. 428.
[412] Kant, *Critique of Pure Reason*,[A 26/ B 42], p. 159.
[413] Alison, H.E. 1983, *Op., Cit.*, p. 9.

themselves would disappear, and as appearances they cannot exist in themselves, only in us.' [414]

While Kant sets out to distance himself from Berkeley, the degree to which he succeeds in this endeavour has been challenged by Peter Strawson, who claims that 'Kant is closer to Berkeley than he acknowledges.'[415] The comparison which is drawn is based on Kant's alleged failure to transcend the limitations of a version of idealism which, according to Strawson, restricts knowledge to appearance, thereby undermining the possibility of any genuine knowledge at all.[416] While I think that there are grounds for claiming that Kant is closer to Berkeley than is generally acknowledged, I wish to claim that this proximity should be viewed in a different light; in terms of the positive aspects of Kant's project which Berkeley succeeds in anticipating. We have claimed that Berkeley subscribes to the constitutive volition thesis. As such we can say that he shares one of the central postulates of Kant's transcendental project, namely, the insight that the objective world is conditioned by subjective capacities of the human subject.

Berkeley's critique of the Newtonian account of absolute space also demonstrates that Kant was mistaken with regard to the positive claims of Berkeley's idealism. While Kant contends that that Berkeley is a dogmatic idealist who regards space as a property of things-in-themselves, such a claim is clearly at odds with the latter's rejection of the concept of absolute space which he derides as a 'phantom of the mechanic and geometric philosophers.'[417] In the *Principles*, Berkeley attacks the concept of absolute space, claiming that there are no grounds for supposing 'the being of an absolute space, distinct from that which is perceived by sense and related to bodies.'[418] It is clear that Berkeley does not regard space as a property of things

[414] Kant, *Critique of Pure Reason*, [A 42/ B 59], p. 168
[415] Strawson, P.F. 1966. *The Bounds of Sense*. (London: Meuthen & Co. Ltd.), p.22.
[416] Ibid
[417] Berkeley, *Siris*, Section, 271, Vol. V, p.128.
[418] Berkeley, *Principles*, Section, 116, Vol. II, p.93.

in themselves, as he is firmly opposed to the Newtonian account on the basis that it is absolute and distinct from sensible experience. His rejection of the concept of absolute space furthermore, rests on the contention that the very basis for the distinction, between absolute and relative space, is unfounded.[419]

We should note that Berkeley's rejection of the concept of absolute space accords well with his immaterial metaphysics. The concept of absolute space consists in precisely the same set of negative attributes which Berkeley finds objectionable in the account of material substance; it is mind-independent, imperceptible and occult, thereby making it vulnerable to precisely the same set of criticisms. This is evident in one of the objections outlined in the *Principles,* where he states that 'the being of absolute space, distinct from that which is perceived by sense' must be rejected, for 'that it cannot exist without the mind is clear upon the same principles that demonstrate the like of all other objects of sense.'[420]

Kant's critique of Berkeley's is relevant to our study as it enables us to highlight many of the misgivings which abound in relation to Berkeley's theory of spatial perception. Berkeley, like Kant, is very much opposed to the Newtonian conception of absolute space and far from denying the existence of spatio-temporary objects, Berkeley works to offer an account of how objects, as ideas, are known. We should also like to claim that Berkeley is committed to a view which is expressed by Kant that 'we can never go beyond the boundaries of possible experience.'[421] Berkeley's account is based on the central contention that the subject has a formal role in determining perceptual content and in missing this; Kant becomes one of the most influential thinkers to misrepresent Berkeley's account of spatial perception.

As a prominent member of the German Idealist tradition and one of Kant's most influential successors, Arthur Schopenhauer is also of interest, because of his unwitting

[419] I*bid.*
[420] *Ibid.*
[421] Kant, *Critique of Pure Reason*, [B xix], p. 111-112.

proximity to Berkeley's project. While Schopenhauer accredits Berkeley with the fundamental insight that 'everything that exists for knowledge, and hence the whole of this world, is only object in relation to the subject,' he quickly signals his departure from what he claims are the inherent limitations of Berkeley's position. Schopenhauer claims that Berkeleian idealism is a continuation of the project of Cartesianism. He claims that while Descartes is truly the father of modern philosophy, that:

> Berkeley went farther along this path, and arrived at *idealism* proper; in other words, at the knowledge that what is extended in space, and hence the objective, material world in general, exists as such simply and solely in our *representation*, and that it is false and indeed absurd to attribute to it, *as such*, an existence outside all representation and independent of the knowing subject..But this very correct and deep insight really constitutes the whole of Berkeley's philosophy; in it he had exhausted himself.[422]

Schopenhauer's criticism reinforces the objections of Kant's first *Critique*. He claims that Berkeleian idealism is fundamentally incompatibility with empirical realism, stating that '[t]rue idealism, on the other hand, is not the empirical, but the transcendental. It leaves the *empirical* reality of world untouched, but adheres to the fact that all *object*, and hence the empirically real in general, is conditioned by the *subject*.'[423] Drawing largely on the Indian philosophical tradition, Schopenhauer proposes a means of reconciling idealism, properly conceived, with empirical realism. Quoting from the *Philosophy of the Asiatics* he states that,

> The fundamental tenet of the Vedânta school consisted not in denying the existence of matter, that is, of solidity, impenetrability, and extended figure, but in correcting the popular notion of it, and in contending that it has no essence independent of mental perception; that existence and perceptibility are convertible terms.[424]

[422] Schopenhauer, A., 1966. *The World as Will and Representation,* Vol. I, (New York: Dover Publications), p.3. Schopenhauer elaborates that 'Everything that in any way belongs and can belong to the world is inevitably associated with this being-conditioned by the subject, and it exists only for the subject. The world is representation.' While Schopenhauer is prepared to acknowledge that Berkeley has 'rendered an immortal service to philosophy,' he points to the limitations of his idealism stating that 'his doctrines cannot ensure.' p.4.
[423] Schopenhauer, A., 1966. *The World as Will and Representation,* Vol. II, (New York: Dover Publications), p.8.
[424] Jones, W 'On the Philosophy of the Asiatics', In Schopenhauer, 1966 *Op., Cit, Vol .I,*, p.4. In relation to this quotation Schopenhauer states that '[t]hese words adequately express the compatibility of empirical realism with transcendental ideality.'

The tenet which Schopenhauer proposes is based on the need to reconcile the mind-dependence of sensible objects with the claim that they have an empirically real ontological status. He also aims to redefine the concept of substance as a collection of sensible qualities; as items which can in principle be known. In opposition to the view that substance is fundamentally occult, consisting in a collection of negative attributes, Schopenhauer maintains that we must frame our understanding of solidity, impenetrability and extended figure in sensible terms. He points to the fundamental interconnection between subject and object and the inescapable insight that the objective world is always conditioned by a conscious subject. Far from rendering Berkeley's enterprise obscure, the tenet which Schopenhauer presents above serves to demonstrate his proximity to Berkeley who is also intent on demonstrating that existence and perceptibility are convertible terms. One of the key undertakings of the *Principles* is to get us to think about 'what is meant by the term exist when applied to sensible things.'[425] His commitment to the fundamental interconnection of existence and perception furthermore, is evident in his description of what it means to say that an object exists:

> The table I write on, I say, exists, that is, I see and feel it..There was an odour, that is, it was smelled; there was a sound, that is to say, it was heard; a colour or figure, and it was perceived by sight or touch. This is all that I can understand by these and the like expressions. For as to what is said of the absolute existence of unthinking things without any relation to their being perceived, that seems perfectly unintelligible. Their *esse* is *percipi*, nor is it possible they should have any existence, out of the minds or thinking things which perceive them.[426]

Understanding the interconnection between ontology and perception not only enables us to show that the components of Berkeley's mature system converge towards a central goal but this insight enables us to respond to the question of how the doctrines of *New Theory* relate to the later works. We have already worked to overturn the view that Berkeley fails to present a positive account of space, and shown that he offers an account of relative space and extension

[425] Berkeley, *Principles*, Section 3. Vol. II, p.42.
[426] Berkeley, *Principles*, Section 3. Vol. II, p.42.

which is defined in terms of perceiver dependence and constitutive volition.[427] We can now address a question which is of central importance to our study, namely, the reasons which induced Berkeley to provide an account of how relative space and extension are perceived.

The first point we may note is that while Berkeley's critique of the matter forms a significant part of his attempt to reform the substance tradition, his rejection of absolute space is also of central importance in terms of understanding his revised ontological framework. Berkeley begins his critique of absolute space by rejecting a distinction which is central to Newtonian mechanics, namely, the distinction between '*absolute* and *relative, true* and *apparent, mathematical* and *vulgar.*'[428] Berkeley's argument against absolute space rests on the contention that such a distinction is unfounded. He argues that 'the being of an *absolute space*, distinct from that which is perceived by sense, and related to bodies: which that it cannot exist without the mind, is clear upon the same principles, that demonstrate the like of all other objects of sense.'[429]

Berkeley's rejection of the Newtonian account of absolute space fits well with his rejection of matter, for the former possesses all of the features which Berkeley deems objectionable in Locke's description of matter. As Gary Thrane notes, the 'attack on matter was only half the battle; absolute and imperceptible space, too, had to be banished.'[430] Accordingly, Berkeley states that absolute space is 'phantom of the mechanic and geometrical philosophers' which is 'neither perceived by any sense, nor proved by any reason, and was accordingly treated by the greatest of the ancients as a thing merely visionary.'[431] Newton's account of absolute space reveals that it is imperceptible and that its existence furthermore can

[427] Berkeley, *Siris*, Section 270. Vol. V, p.127.
[428] Berkeley, *Principles*, Section 116, Vol. II, p.93. Berkeley refers to directly to Newton as the author of a much 'celebrated treatise of Mechanics,' whose account of time, space and motion are subject to the distinction here outlined.
[429] Berkeley, *Principles*, Section 116. Vol. II, p.293.
[430] Thrane, G. 'The Spaces of Berkeley's World', In Turbayne, C (Ed.) 1982 *Berkeley :Critical and Interpretive Essays* (Oxford: Manchester University Press)., p.128.
[431] Berkeley, *Siris*, Section 271, Vol. V, p.128.

be detected only by observing its effects. For Berkeley, this counts as a criticism against the existence of absolute space and motion and he states that:

> No motion can be recognised or measured, unless through sensible things. Since then absolute space in no way affects the senses, it must necessarily be quiet useless for the distinguishing of motions.[432]

The strategy which is evident in Berkeley's critique of matter is also evident in his treatment of the concept of space. He sets out to demonstrate that the prevailing conception is philosophically untenable and seeks to replace an abstract and absolute definition with a sensible and positive alternative:

> [M]otion and rest marked out by such relative space can conveniently be substituted in place of the absolutes, which cannot be distinguished from them by any mark. For however forces may be impressed, whatever conations there are, let us grant that motion is distinguished by actions exerted on bodies; never, however, will it follow that that space, absolute place, exists, and that change in it is true place.[433]

We will see too that one of the most significant factors in terms of understanding Berkeley's mature system is the recognition that his system is dedicated to upholding a fundamental connection between ontology and perception; between the manner in which things are perceived and the ontological status with which they are subsequently conferred.[434] As an epistemic ontologist, Berkeley is not content merely to offer an analytic argument for the relativity of spatial qualities but aims to provide an account of the process by which such qualities are perceived. Providing such an account is important for Berkeley because he maintains that the concepts which we form in the imagination are derived directly from sensory experience. It is because of the transition from perception to concept formation that he sets out to provide an account of the manner in which relative space and extension are perceived:

[432] Berkeley, *De Motu*, Section 63, Vol. IV, p.49.
[433] Berkeley, *De Motu*, Section 64, Vol. IV., p.50.
[434] This claim will be discussed more fully in section 5.5 of this dissertation.

> But what sort of extension, I ask, is that which cannot be divided nor measured, no part of which can be perceived by sense or pictured by the imagination? For nothing enters the imagination which from the nature of the thing cannot be perceived by sense, since indeed the imagination is nothing else than the faculty which represents sensible things either actually existing or at least possible.[435]

A passage from the *Principles* indicates that part of Berkeley's task in the *New Theory* is to address a fundamental objection to his idealism, namely, how to reconcile the fact that things are perceived to exist in space, with the claim that they have a mind-dependent status. He states that:

> [I]t will be objected that we see things actually existing without or at a distance from us, and which consequently do not exist in the mind, it being absurd that those things which are seen at the distance of several miles, should be as near to us as our own thoughts.[436]

Reflecting on the problems which induced him to produce the *New Theory of Vision,* Berkeley states that 'some perhaps think the sense of seeing does furnish them with the idea of pure space; but it is plain from what we have elsewhere shewn, that the ideas of space and distance are not obtained by that sense.'[437]When Berkeley sets out to 'shew the manner wherein we perceive by sight the distance, magnitude, and situation of objects,' he is aiming to provide an account which will show how these qualities are perceived, while upholding the ontological claim that they have a status relative to the perceiver.[438] As we have seen Berkeley presents the constitutive volition thesis to account for the manner in which spatial qualities are perceived. This thesis entails that subjective action has a constitutive role in the formation of spatial qualities and enables Berkeley to replace the Lockean account, in which the subject is the passive recipient of sensory ideas, with an account of spatial perception in which the subjective

---

[435] Berkeley, *De Motu,* Section 53, Vol. IV, p.45.
[436] Berkeley, *Principles*, Section 42, Vol. II, p.58. In the next section Berkeley writes 'for the fuller clearing of this point, it may be worthwhile to consider, how it is that we perceive distance and things placed at a distance by sight. For that we should in truth see external space, and bodies actually existing in it, some nearer, others farther off, seems to carry with it some opposition to what hath been said, of their existing no where without the mind. The consideration of this difficulty it was, that have birth to my *Essay towards a new Theory of Vision.'* Berkeley, *Principles*, Section 43, Vol. II, p.58.
[437] Berkeley concludes this section by referring the reader to his '*Essay concerning Vision*.' Berkeley, *Principles*, section 116, Vol. II, p.93.
[438] Berkeley, *NTV*, Section 1, Vol. I, p.171.

action constitutes the qualities of sensible things.

One of the additional merits of Berkeley's account of spatial perception is that it also provides a means of undercutting the primary-secondary quality distinction, by showing that primary qualities, no less than secondary qualities, are subjectively constituted. The constitutive volition thesis entails that there is a constitutive relation between action and perception, such that subjective action constitutes the content of perceptual states, which in turn yields knowledge of the spatially extended properties of bodies. While it should be acknowledged that Berkeley does not make an explicit case in this regard, we can say that such an account emerges from the *New Theory*. Berkeley's account of spatial perception entails that primary qualities can be explained in terms of constitutive volition and subjective action, which have a formative role in determining the very qualities which were ontologically independent in Locke's system. An interesting insight into Berkeley's understanding of relative extension is provided by his discussion of the proper objects of geometry in the *New Theory*, where he argues that abstract extension is not the proper object of geometry:

> It is commonly said, that the object of geometry is abstract extension; but geometry contemplates figures: Now, figure is the termination of magnitude, but we have shewn that extension in abstract hath no finite determinate magnitude, whence it clearly follows that it can have no figure, and consequently is not the object of geometry. It is indeed a tenet as well of the modern as of the ancient philosophers, that all general truths are concerning universal abstract ideas; without which, we are told, there could no science, no demonstration of any general proposition in geometry..though they who make them never think of abstract general ideas of triangle or circles.[439]

Having rejected the view that abstract extension is the proper object of geometry, Berkeley proposes an alternate account of what the proper object of geometry actually is. He states that while '[s]ome things there are, which at first sight incline one to think geometry conversant about visible extension,' that such a view is incorrect and accords with the view that abstract ideas are 'the object of geometrical demonstration.'[440] According to Berkeley, geometry is

[439] Berkeley, *NTV*, Section 124, Vol. I, p.221.
[440] Berkeley, *NTV*, Section 150. Vol. 1, p.232.

concerned with sensible extension, which is known through embodied action and physical engagement. This is precisely why he proposes that the unbodied intelligence would be unable to produce spatial judgements. He states that such an intelligence would not 'have any idea of distance, outness, or profundity, nor consequently of space or body, either immediately or by suggestion, nor that he 'can have no notion of those parts of geometry which relate to the mensuration of solids, and their convex or concave surfaces, and contemplate the properties of lines generated by the section of a solid.'[441]

Berkeley's discussion of geometry also demonstrates his divergence from the Cartesian tradition and the then universal acceptance of the view that plane geometry could be utilized to explain the manner in which objects are perceived in three-dimensional space. Berkeley denies that geometry is the science of visual extension and plane figures, and claims instead that the proper object of geometry is tangible extension and three-dimensional figure.[442] Berkeley rejects the central premise of Cartesian geometrical optics, which was that the abstract points of the Cartesian co-ordinate system can be employed to facilitate an understanding of space and extension. What Berkeley seeks to show is that a true understanding of sensible space and extension can only be facilitated by recognising the centrality of human action, which serves to constitute the real qualities of the known world in a manner which vindicates the ontological claim that they have a relative status.

Berkeley's attempt to reform the substance tradition shows him to be an important critic of natural philosophy in the early eighteenth century. While Locke is frequently identified as Berkeley's principal opponent in the substance tradition, we must also acknowledge the role of Newton in shaping Berkeley's revised ontological framework. We have shown that his critique of absolute space is just as central to his endeavour to reform the substance tradition, as his

[441] Berkeley, *NTV*, Section 155. Vol. 1, p.234
[442] Berkeley, *NTV*, Sections 150-153. Vol. I, p.233.

critique of Locke's ontology.[443] Commenting on the originality of Berkeley's vision, T.E. Jessop claims that Berkeley was 'the only outstanding *modernist* thinker of his period in the British Isles who remained free from the powerful spell of Newton'.[444] Furthermore Berkeley's critique of the Newtonian mechanics, has earned him the accolade of being a significant precursor of both Mach and Einstein.[445] Highlighting one of Berkeley's most positive contributions to the philosophy of science, Karl Popper identifies what he describes as 'Berkeley's Razor.'[446] He claims that Berkeley rendered a great service to natural philosophy and was able to 'allow us *a priori* to eliminate from physical science all essentialist explanations. If they have a mathematical and predictive content they may be admitted qua mathematical hypotheses .. if not, they may be ruled out altogether.'[447] While the respective analyses of both Popper and Jessop support the view that Berkeley is to be regarded as a prominent scientific thinker who casts a discerning eye over the landscape of natural philosophy, there is one central aspect of his system which locates him firmly and somewhat uncritically in the scholastic period. In chapter five we will examine some of the difficulties associated with Berkeley's metaphysical system. In particular, we will focus on the role of the Divine mind and access the degree to which we accommodate his theocentricism with the view that Berkeley is a rigorous and critical philosophical thinker.

[443] In this we follow T.E. Jessop, who argues that 'without Newton there would have been no Berkeleianism in the form in which we know it. On Berkeley's own horizon the Newtonians clearly loomed at least as large as the Lockeans, so that, in order to see him in due proportion, we have to watch him arguing with the physicists as well as with the philosophers.' Jessop, T.E. 1953. 'Berkeley and the Contemporary Physics', In: *Revue Internationale de Philosophie* , Vol. 7. p.88.
[444] Jessop, T. E., 1953. *Op., Cit.,* p.89. Jessop, T. E., 1953 , 'Berkeley and the Contemporary Physics,' in : *Revue Internationale de Philosophie* , Vol.7, p.89.
[445] Popper, K. 1963. *Conjectures and Refutations: Growth of Scientific Knowledge.* (London: Routledge and Kegan Paul), pp.224-236. Section entitled 'A Note on Berkeley as Precursor of Mach and Einstein.' Popper claims that 'The great historical importance of Berkeley lies, I believe, in his protest against essentialist explanations in science.. In our own day essentialism has been dethroned; a Berkeleian or Machian positivism or instrumentalism has, after all these years, become fashionable.' p.234.
[446] Popper, K., 1963. *Op., Cit.,* p.231
[447] *Ibid.*

CHAPTER FIVE

Berkeleian Unification

5.1 Introduction

We have proposed an account of spatial perception which occurs in radical opposition to traditional interpretations of Berkeley's thought. We have claimed that his theory of spatial perception involves embodied action on behalf of perceivers.[448] While this initial claim is relatively uncontroversial as we will see, our departure occurs with our second claim which entails that Berkeley subscribes to the view that there is a constitutive relation between embodied action and perception, such that the former *affects* the content of what is perceived. While we have acknowledged that this claim is not explicitly presented, we have sought to show that such a commitment nonetheless emerges from the account of spatial perception which is presented in the *New Theory*. Our thesis is not easy to prove and we must now consider whether our reading can be accommodated within his system as a whole. To this end, we will examine Berkeley's account of the human subject, his theory of action and his account of mind.[449]

We will also examine the role of the Divine mind and consider the relationship between God and man in Berkeley's system. We will propose the collaborative volition thesis to account for this relation and suggest that there are good grounds to suppose why such a thesis may have been attractive to Berkeley. We will seek to show that the collaborative volition thesis provides

[448] To say that the Berkeleian subject is embodied is to say that Berkeley upholds the view that there is a fundamental union between body and mind.

[449] While Berkeley does not present a systematic account of mind or human cognition, one of our aims in this chapter is to establish that we can begin to formulate such an account based on his fragmentary treatment of the topic in the *Principles* and *Dialogues* and by considering other aspects of his discussion, in particular the doctrine of notions which we will argue provides an operative principle in Berkeley's system which enables us to show that he subscribes to the existence of unperceived mental transactions.

Berkeley with a means of establishing the existence of an immanent deity, who is intimately involved in the lives of his creatures.

In this chapter we will also respond to the question of the unity of Berkeley's philosophy and offer a critical examination of the central doctrines of his mature system. In order to show that the claims we have attributed can be accommodated within his system as a whole, we must also endeavour to approach this system with a critical eye. As such, we will offer an examination of Berkeley's metaphysical system and his account of spiritual causation. While there is general agreement regarding the main aims of Berkeley's mature system, a question remains about success of this system and the degree to which he manages to achieve his philosophical objectives. There are two prominent misconceptions which continue to abound and which we will seek to undermine: the first is that immaterialism entails a denial of the corporeal natural of the physical world, the second, that Berkeleian idealism is a form of subjective or empirical idealism.

We will seek to show that when the positive claims of Berkeley's mature system are properly understood, that Berkeleian idealism and immaterialism are philosophically defensible. We will seek to show that his mature philosophical system is best understood as converging towards a central goal, which is to reform the substance tradition of the early eighteenth century. While the doctrine of material substance is one of the chief causes of scepticism against which Berkeley presents his immaterialist metaphysics, we will claim that his rejection of absolute space also forms an important part to his attempt to reform the substance tradition. While we have offered an interpretation of the account of spatial perception to which Berkeley subscribes, in this chapter we will seek to show how this can be accommodated within his ontology. We will claim that the principal aim of the *New Theory* is to provide a positive account of how relative space and extension are perceived and thereby demonstrate that his work on vision forms an integral part of his wider philosophical ambit.

5.2 Action and the Berkeleian Subject

Berkeley's account of the human subject is fundamentally intertwined with a key distinction which lies at the heart of his ontology. While Berkeley is not a substance dualist, he is committed to a form of dualism which imposes a radical distinction between spirits and ideas.[450] This distinction is further compounded by the fact that while spirits are active, ideas are passive and inert.[451] In the *Principles* he states that:

> [B]esides all that endless variety of ideas or objects of knowledge, there is likewise something which knows or perceives them, and exercises divers operations, as willing, imagining, remembering about them. This perceiving, active being is what I call mind, spirit, soul or myself. By which words I do not denote any one of my ideas, but a thing entirely distinct from them.[452]

Berkeley's commitment to the duality of spirits and ideas has direct implications for how the subject of perception is envisaged. Tom Stoneham asserts that such a commitment has the direct consequence 'that the subject is distinct from her body, for the latter is an object of perception.'[453] We find direct confirmation of this view in the *Third Dialogue*, where Philonous states that 'the sensible body, rightly considered, is nothing but a complexion of such qualities or ideas as have no existence distinct from being perceived by a mind.' [454] This passage reinforces the distinction between spirits and ideas and indicates that for Berkeley, the human body is a collection of ideas which is distinct from the Spirit or Mind which perceives.[455]

Berkeley's discussion of the immortality of the soul also indicates that the body is

[450] McDonough claims that the 'divide between active spirits and passive ideas' forms 'a fundamental plank in Berkeley's ground-floor metaphysics.' He states that it is 'a dualistic divide that is every bit as deep in his system as the distinction between mind and body is in Descartes.' McDonough, J., 2008. *Op., Cit.*, p.577.
[451] Berkeley, *Principles* Section 27, Vol. II, p.53.
[452] Berkeley, *Principles* Section 2, Vol. II, p.42.
[453] Stoneham, T. 2010. 'Berkeley,' in : *A Companion to the Philosophy of Action* (Eds) O'Connor, T. & Sandis, C. (United Kingdom: Blackwell Publishing Ltd.), pp.496- 504.
[454] Berkeley, *Dialogues*, Vol. II, p.241.
[455] In *Principles*, section 2, Berkeley states that 'besides all that endless variety of ideas or objects of knowledge, there is likewise something which knows or perceives them, and exercises divers operations, as willing, imagining, remembering about them. This perceiving, active being is what I call mind, spirit, soul or myself. By which words I do not denote any one of my ideas, but a thing entirely distinct from them.' Also in *Principles* 86, Berkeley states that human knowledge 'may be reduced to two heads, that of ideas and that of spirits'.

distinct from the true self. While the body is subject to decay the 'soul is indivisible, incorporeal, unextended, and it is consequently incorruptible.' [456] He states that '[n]othing can be plainer, than that the motions, changes, decays, and dissolutions which we hourly see befall natural bodies (and which is what we mean by the course of Nature) cannot possibly affect an active, simple, uncompounded substance: such a being therefore is indissoluble by the force of Nature, that is to say, the soul of man is naturally immortal.'[457]

While in death we are freed from the 'tabernacle' of the body, we should note that the living Berkeleian subject is an embodied perceiver.[458] Berkeley is committed to the view that there is a fundamental union between body and mind, the nature of which he outlines in the *Dialogues* stating that*:*

> We are chained to a body, that is to say our perceptions are connected with corporeal motions. By the law of our nature we are affected upon every alteration in the nervous parts of our sensible body: which sensible body rightly considered, is nothing more than a complexion of such qualities or ideas, as have no existence distinct from being perceived by a mind; so that this connexion of sensations with corporeal motions, means no more than a correspondence in the order of nature between two sets of ideas, or things immediately perceivable. [459]

As embodied perceivers Berkeleian subjects are capable of a wide variety of actions, ranging from the pragmatic to the exploratory. Aided by our perceptual faculties and guided by 'the universal language of the Author of Nature' we are 'instructed how to regulate our actions, in

[456] Berkeley, *Principles*, Section 141. Vol. II, p. 106.
[457] Berkeley, *Principles*, Section 141. Vol. II, p. 106. It is interesting to note that Berkeley left very unusual instructions for his remains. In his *Will* he directs that 'my Body, before it is buried, be kept five days above ground, or longer, even till it grow offensive by the cadaverous smell, and that during the said time it lye unwashed, undisturbed, and covered by the same bed clothes, in the same bed, the head being raised upon pillows.' Berkeley, *Last Will and Testament*, Vol. VII, p. 382. While we cannot say what induced Berkeley to leave such instructions, we can say that it begs an interesting question about how he envisaged the relationship between the body and the soul.
[458] When we say that that the Berkeleian subject is an embodied perceiver, we must take care to distinguish Berkeley's position from contemporary accounts of embodied cognition. While proponents of the latter view claim that beings that are embodied different, perceive differently, Berkeley does not. He holds that brutes are capable of perceiving (while denying that they are capable of abstraction) See *Principles, Introduction*, 11. Vol. II, p.31 Berkeley dualism of spirits and ideas also imposes a radical distinction between the subject's mind and body; it is the rejection of such a distinction which forms the basis of the contemporary embodied movement. For an account of the central tenets of this movement see: Gallagher, S. 2008 & Noë, A., 2004.
[459] Berkeley, *Dialogue III*, Vol. II, p. 278.

order to attain those things which are necessary to the preservation and well-being of our bodies.' [460] The body also serves as a tool of empirical investigation which enables perceivers to explore the natural world. In the *New Theory,* Berkeley claims that bodily movement allows perceivers to measure the distances they have travelled, which further enables the formation of predictions about the tangible ideas or objects which are likely to encounter.[461]

One objection which might be raised in relation to Berkeley's account of human action is that he cannot consistently allow for bodily action given his clear commitment to the view that the body is a collection of ideas. In order to realise that such an objection does not pose a problem for Berkeley, it is important to recognise that there is a distinction between the ontological status of the human body, on one hand, and its capacity for action on the other. Tipton's analysis of the Berkeleian subject offers an insight into the kind of distinction which is at issue:

> It is true that when we read NTV in particular we are encouraged to think of persons as embodied agents who can reach out and touch things, and walk to and feel things, but ultimately Berkeley is going to hold, as he tells us in *Pr.* 44, that this picture distorts the real truth. ..In the last analysis I cannot learn about things by bumping into them, lifting them, or trying to push them around, and this is not just because a bodiless cyclops cannot manipulate objects, but because there are no manipulable objects. [462]

Tipton highlights an important point about the ontological status of the human body as well as the objects of perception in Berkeley's ontology. While Berkeley does not deny that there are

[460] Berkeley, *NTV* Section 147, Vol. I, p. 231.
[461] Berkeley states that 'Having of a long time experienced certain ideas, perceivable by touch, as distance, tangible figure, and solidity, to have been connected with certain ideas of sight, I do upon perceiving these ideas of sight, forthwith conclude what tangible ideas are, by the wonted ordinary course of Nature like to follow. Looking at an object I perceive a certain visible figure and colour, with some degree of faintness and other circumstances, which from what I have formerly observed, determine me to think, that if I advance forward so many paces or miles, I shall be affected with such and such ideas of touch: So that in truth and strictness of speech, I neither see distance it self, nor any thing that I take to be at a distance. I say, neither distance, nor things placed at a distance are themselves, or their ideas, truly perceived by sight. This I am persuaded of, as to what concerns my self; and I believe whoever will look narrowly into his own thoughts, and examine what he means by saying, he sees this or that thing at a distance, will agree with me, that what he sees only suggests to his understanding, that after having passed a certain distance, to be measured by the motion of his body, which is perceivable by touch, he shall come to perceive such and such tangible ideas which have been usually connected with such and such visible ideas.' Berkeley, *NTV* 45, Vol. I, p.188.
[462] Tipton, I., 1974. *Berkeley: The Philosophy of Immaterialism,* p.314.

everyday objects in the world, he claims that such objects have a particular status; they are ideas in the mind of a perceiver. Such a claim does not entail that the world is thereby reduced to a series of mental entities, for as he is careful to point out; he is not 'for changing things into ideas, but rather ideas into things.' [463] Tipton's criticism highlights the fact that human bodies belong to the same category as other objects of perception; they are collections of ideas in the mind which exist in virtue of being perceived. While the human body is a collection of ideas, its union with the soul facilitates movement and bodily action. The spirit is the source of action and the seat of volition in Berkeley's account. As such, human bodily actions are impelled by spirit which is the efficient cause of all forms of motion in Berkeley's universe. As such, Spiritual volition enables the subject to move and perform a wide range of functions suited to the practical purposes of life.

The orthodox account of Berkeley's theory of human action suggests that he is committed to an account of human action which entails a non-constitutive relation between bodily action and perceptual states. The constitutive volition thesis which we have attributed proposes a radically different account of human action. We are proposing that he also subscribes to an account of human action whereby there is a constitutive relation between human volition and the objects of perception, such that bodily action affects the content of perceptual states. While we have already claimed that such a commitment emerges from his account of spatial perception in the *New Theory*, we must now determine if this claim can be accommodated within his system as a whole. We will begin by examining his account of bodily action and consider how this operates within the context of his idealism.

In the *First Dialogue,* we gain an important insight into Berkeley's views on human action. Philonous states that '[i]n plucking this flower, I am active, because I do it by the

[463] Berkeley, *Dialogue III*, Vol. II, p. 244.

motion of hand, which was consequent upon my volition.'[464] Entries such as this suggest that Berkeley is operating with a volitional theory of action, which as Stoneham points out imposes a bipartite structure on human actions.[465] He states that if 'the Berkeleian Idealist is to allow that we can act upon the physical world, then she will have to see those actions as composed of two distinction elements: a mental and a physical one.' [466] In the case of the flower plucking example, two distinct events must occur: firstly, there is an idea in the mind of the flower being plucked and secondly, there is the physical act of plucking the flower itself. If Berkeley is operating with a volitional theory of action then he must accept that there a causal relation between these mental and physical elements, which entails that bodily action is always preceded by a mental event or an idea before the mind.

Pointing to one of the difficulties associated with the volitional theory of action, Stoneham asserts that it is simply false to claim that each action is preceded by a mental event. He suggests that while such a difficulty may be overcome by claiming that certain types of volitions are unconscious, such a response is not available to the Berkeleian 'who takes introspection to reveal decisively whether certain events, such as perceiving, are voluntary imaginings, or involuntary perceptions.' [467] He explains why the case of introspection is so decisive within the context of Berkeley's idealism:

> [T]o have a perceptual experience is to have an object – he calls it an idea – before the mind. These ideas are the elements of the real physical world: tables, trees, and bodies with limbs are just collections of them. So, if another person perceives my limbs moving, they have some ideas, and these ideas are part of the collection which is my limb. Thus, while the materialist thinks of the perceptual experience as an effect of the limb moving, the idealist thinks of it as someone standing in a relation to that very limb which is moving. [468]

[464] Berkeley, *Dialogue I*, Vol. II, p.196
[465] In addition to the bipartite structure, the volitional theory of action entails that the mental component causes the physical action to occur.
[466] Stoneham, T. 2010. *Op., Cit*., p. 497.
[467] *Ibid*
[468] Stoneham, T., 2010. *Op., Cit*., p.501.

Berkeley's idealism entails that every perceptual experience involves an idea standing in a particular relation to a mind, as we have seen. Since ideas are the objects of perception which cannot exist unperceived, it follows that ideas are available to the subject through introspection. While introspection enables the subject to survey the objects of human knowledge which are brought before the mind, we will seek to show that Berkeley's account of mind entails that we cannot introspect with regard to the mind itself or perceive its operations. While Berkeley cannot allow for unconscious volitions, where volitions are understood as ideas before the mind, a question remains as to whether he can allow for volitions as unconscious mental operations or acts of mind. If we can say that Berkeley subscribes to a form of volition which is an act of mind rather than an idea before the mind, then we have grounds for claiming that unconscious volitions may be available to the Berkeleian after all. If we can establish that Berkeley allows for unconscious mental transactions, then we will have gone a long way towards vindicating one of the central claims of the constitutive volition thesis, i.e., that there is a form of activity of which we are not aware that affects the production of the ideas of sense. In order to determine if this can be achieved, we will need to examine Berkeley's theory of mind and his account of mental operations.

5.3 Berkeley's Account of Mind and the Doctrine of Notions

We should note that the endeavour to formulate a clear conception of Berkeley's theory of mind is no easy task for we are hindered from the offset by the fact that we are operating with an incomplete account. We know that he had intended to offer a comprehensive account of mind in part two of the *Principles*, but claims to have lost the manuscript while travelling in Italy. In 1729 he laments to Johnson that he 'never had leisure since to do so disagreeable a

thing as writing twice on the same subject.'[469] Berkeley's somewhat fragmentary treatment of the topic in his published works has been deemed perplexing and often inconsistent. [470] Many commentators have sought to overcome such limitations by attempting a reconstruction of Berkeley's account of mind, which align his views with other prominent thinkers of the period. A plethora of different interpretations have emerged, ranging from treatments which seek to locate Berkeley's account in the Cartesian-Lockean tradition, to those which situate his theory of mind within the Stoic tradition. [471]

George Pitcher offers an approach based on an examination of the relationship between minds and ideas in Berkeley's system. He proposes that the Berkeleian mind is a 'transparent medium' which 'has no dark or hidden regions.' [472] He claims accordingly that 'everything that goes on in it is fully and clearly known to the person whose mind it is' and that there 'is no such thing as an unconscious mental act, state, event, process' for 'everything that exists, or takes place, in the mind is completely conscious.' [473] When we consider Berkeley's categorisation of the objects of human knowledge in the *Principles*, we find that this analysis seems initially well founded. In the original 1710 edition of the *Principles*, Berkeley proposes the following account of the objects of human knowledge:

> It is evident to any one who takes a survey of the objects of human knowledge, that they are either ideas actually imprinted on the senses, or else such as are perceived by attending to the passions and operations of the mind, or lastly ideas formed by help of memory and imagination, either compounding, dividing, or barely representing those originally perceived in the aforesaid ways.[474]

---

[469] Berkeley, Philosophical *Correspondence: II Berkeley to Johnson*, Vol. II, p.282.
[470] Bettcher, T.M. 2011, *Op., Cit*., p. 689
[471] Stephen H. Daniel is the chief proponent of the view that Berkeley operates with a Stoic conception of mind. See: Daniel, S.H. 2007. 'Berkeley's Stoic Notion of Spiritual Substance.' In: Daniel, S.H. (Ed.), 2007. *New Interpretations of Berkeley's Thought*. (Amherst, New York: Humanity Books), pp. 203-30. For an overview of different views in the literature see: Bettcher, T.M. 2011. 'Berkeley's Theory of Mind: Some New Models,' in: *Philosophy Compass*, Vol. 6, issue 10, pp. 689-698.
[472] Pitcher, G. 1977, *Op., Cit*., p. 21.
[473] Pitcher, G. 1977, *Op., Cit*., pp. 21-22.
[474] Berkeley, *Principles* Section 1, Vol. II, p.41.

While Berkeley identifies three different types of ideas, this initial categorisation indicates that in order for something to qualify as an object of knowledge within his system, it must be an idea which stands in a particular relation to a mind.[475] He states that 'neither our thoughts or passions, nor ideas formed by imagination, exist without the mind.'[476] As ideas before the mind, the objects of human knowledge are sensible particulars which are directly available to the subject through introspection. Berkeley states that 'ideas are visibly inactive' and cannot therefore be agents, and 'since every part of them exists only in a mind, it follows that there is nothing in them but what is perceived.' [477]

While it would seem that Pitcher's categorisation of the Berkeleian mind as a transparent medium accords well with Berkeley's classification of the objects of human knowledge as ideas, the matter is decidedly more complex. One significant challenge associated with Pitcher's account, is Berkeley's firm denial that we can have ideas of the mind, which would suggest that minds cannot be known which further precludes us from claiming that the mind is transparent in the manner in which he suggests. The rationale underpinning Berkeley's view that we cannot have ideas of the mind, is presented in the *Principles* and is linked directly to the active-passive distinction which forms the basis of his ontology of spirits and ideas. He states that:

> A spirit is one simple, undivided, active being: as it perceives ideas, it is called the *understanding*, and as it produces or otherwise operates about them, it is called the *will*. Hence there can be no idea formed of a soul or spirit for all ideas whatever, being passive and inert, *vide Sect*. 25, they cannot represent unto us, by way of image of likeness, that which acts. [478]

[475] In *Principles* 29, Berkeley distinguishes between the ideas of sense and imagination, stating that while the latter are the products of finite minds, the 'ideas perceived by sense have not a like dependence on my will.' Vol.II, p.53. In *Principles* 1, Berkeley makes reference to an additional category of ideas, which he says are 'perceived by attending to the passions and operations of the mind.' Vol. II, p.41. Many commentators have struggled to understand how this additional category of ideas fits within Berkeley's ontology. Luce claims that 'ideas perceived by attending to the operations of the mind do not exist for Berkeley.' See Luce, A.A. 1975, *Op., Cit*., p.39.
[476] Berkeley, *Principles* Section 3, Vol. II, p.42.
[477] Berkeley, *Principles* Section 25, Vol. II, p.52.
[478] Berkeley, *Principles* Section 27, Vol. II, p.53.

In relation to ideas, Berkeley claims that 'there is nothing of power or agency included in them.'[479] Since however we 'perceive a continual succession of ideas' he reasons that there is 'therefore some cause of these ideas whereon they depend.'[480] Since he also rejects material causation, Berkeley proposes that our ideas have an immaterial cause which he defines as 'an incorporeal active substance or spirit.' [481] He states that:

> [B]esides all that endless variety of ideas or objects of knowledge, there is likewise something which knows or perceives them, and exercises divers operations, as willing, imagining, remembering about them. This perceiving, active being is what I call mind, *spirit, soul* or *myself*. By which words I do not denote any one of my ideas, but a thing entirely distinct from them. [482]

While spirits give rise to ideas, Berkeley claims that we cannot have ideas of spirits or minds, precisely because these are active. He states that '[a] little attention will make it plain to any one, that to have an idea which shall be like that active principle of motion and change of ideas, is absolutely impossible. Such is the nature of *spirit* or that which acts, that it cannot be of it self perceived, but only by the effects which it produceth.' [483]

While Berkeley claims that we cannot have ideas of the mind, he does not conclude that we can have no knowledge of the mind and proposes a number of different ways in which minds can be known.[484] In the case of other minds, he claims that we may infer their existence from the ideas which they excite in our minds, stating that:

> A humane spirit or person is not perceived by sense, as not being an idea, when therefore we see the colour, size, figure, and motions of a man, we perceive only certain sensations or ideas excited in our own minds: and these being exhibited to our view in sundry distinct collections, serve to mark out unto us the existence of finite and created spirits like ourselves.[485]

[479] Berkeley, *Principles* Section 25, Vol. II, p. 52.
[480] Berkeley, *Principles* Section 26, Vol. II, p. 52.
[481] Berkeley, *Principles* 2 Section 6, Vol. II, p. 52.
[482] Berkeley, *Principles* Section 2, Vol. II, p.42
[483] Berkeley, *Principles* Section 27, Vol. II, p.53.
[484] Berkeley, *Principles* Section *89*, Vol. I, p. 80.
[485] Berkeley, *Principles* Section *148*, Vol. II, p.109.

With regard to our capacity to know our own minds, Berkeley proposes a form of intuitive self-knowledge, stating in the *Dialogues* that 'I know what I mean by the terms *I* and *myself*; and I know this immediately, or intuitively, though I do not perceive it as I perceive a triangle, a colour, or a sound.'[486] He claims furthermore that we 'comprehend our own existence by inward feeling or reflexion, and that of other spirits by reason. We may be said to have some knowledge or notion of our own minds, of spirits and active beings, whereof in a strict sense we have not ideas.'[487]

In the *Notebooks*, Berkeley highlights a prominent error associated with attempts to conceptualise the mind. The error in question relates to the tendency to conceive of the mind as an object of perception which can be investigated through introspection, as though it were an idea of sense or imagination. He states that:

> The grand Cause of perplexity & darkness in treating of the Will, is that we Imagine it to be an object of thought (to speak with the vulgar), we think we may perceive, contemplate & view it like any of our ideas whereas in truth 'tis no idea. Nor is there any idea of it. tis toto coelo different from the Understanding i.e. from all our ideas. [488]

In an entry which refers specifically to the operations of the mind, Berkeley states that the 'grand Mistake is that we think we have Ideas of the Operations of our Minds,' concluding that 'this Metaphorical dress is an argument we have not.'[489] One of the interesting implications of these entries is that he does not deny that mental operations occur, or that minds can be known, rather he is making a more restricted claim to the effect that we cannot have ideas of minds or their operations.[490]

In the 1734 edition of the *Principles*, Berkeley makes a significant addition, including minds and mental operations among the objects of human knowledge. He states that '[t]o me

[486] Berkeley, *Dialogue 3*, Vol. II, p. 232.
[487] Berkeley, *Principles* Section 89, Vol. II, p.80
[488] Berkeley, *Notebook A*, entry 643, Vol. I, p.79
[489] Berkeley, *Notebook B*, entry 176a. Vol. I, p. 24.
[490] Berkeley, *Principles*, Sections 27, 89, 140, 142.

it seems that ideas, spirits and relations are all in their respective kinds, the objects of human knowledge and subject of discourse: and that the term *idea* would be improperly extended to signify every thing we know or have any notion of.'[491] This addition confirms that Berkeley is prepared to include minds within the category of things which can be known and, when compared to the original 1710 entry, suggests a distinction between the objects of human knowledge and the objects of perception. While the latter are always ideas before the mind, the former grouping extends to include minds which are not ideational in nature. Since it is allowed that minds feature among the objects of human knowledge, and since we cannot have ideas of them or their operations, Berkeley must provide an account of how minds as non-ideational items can be known.

Responding to this challenge, Berkeley introduces the doctrine of notions to account for the manner in which minds and mental operations are known. [492] He claims that 'we have some notion of soul, spirit, and the operations of the mind, such as willing, loving, hating, in as much as we know or understand the meaning of those words.' [493] He claims furthermore that we must have 'notion of spirit' for 'otherwise we could not affirm or deny anything of it.' [494] Elaborating on the manner in which notions serve to acquaint us with the mind and its operations Berkeley writes that:

> After what hath been said, it is I suppose plain, t hat our souls are not to be known in the same manner as senseless inactive objects, or by way of idea. *Spirits* and *ideas* are things so wholly different, that when we say, *they exist*, *they are known*, or the like, these words must not be thought to signify any thing common to both natures. There is nothing alike or common in them: and to expect that by any multiplication or enlargement of our faculties, we may be enabled to know a spirit as we do a triangle, seems as absurd as if we should hope to *see a sound*. This is inculcated because I imagine it may be of moment towards clearing several important questions, and preventing some very dangerous errors concerning the nature of the soul. We may not I think strictly be said to have an idea of

[491] Berkeley, *Principles* Section 89, Vol. II, p.80.
[492] Berkeley makes a number of additions concerning the doctrine of notions in the 1734 editions of the *Principles* 27, 89, 140 & 142 and the *Dialogues* . One of the arguments which Philonous offers by way of response to the parity objection, refers to the doctrine of notions: 'I say in the first place, that I do not deny the existence of material substance, merely because I have not notion of it, but because the notion of it is inconsistent.' *Dialogue* III, Vol. II, p.233.
[493] Berkeley, *Principles* Section 27, Vol. II, p.53.
[494] Berkeley, *Principles* Section 140, Vol. II, p.105.

> an active being, or of an action, although we may be said to have a notion of them. I have some knowledge or notion of my mind, and its acts about ideas, inasmuch as I know or understand what is meant by those words.[495]

The first thing we may note in relation to notions is that they are radically different than ideas. He states that 'the terms idea and notion may not be used convertibly' and that must 'distinguish very different things by different names.' [496] While they are radically different than ideas, they are nonetheless immediately known which raises a question regarding the status of notions within Berkeley's system. Based on the foregoing analysis, we propose that notions are mental events of a very particular kind; since they are not ideas, they refer to mental events which are non-ideational in character. As non-ideational mental events furthermore, notions are not brought before the mind in the same way as the ideas of sense or imagination but they nonetheless acquaint us with minds and their operations.

The doctrine of notions provides a valuable insight into Berkeley's theory of mental operations. As mental operations are known by way of notion rather than by way of idea, we can say that Berkeley allows for a form of knowing whose object does not involve an idea being brought before the mind. In response the question of the status of notions within Berkeley's system, I submit that these describe mental operations or cognitive activities of the human mind which are not available through introspection.

One of the implications of our analysis of the doctrine of notions is that Berkeley includes non-ideas among the objects of human knowledge. Such a claim would seem to rally against the orthodox view that his idealism cannot countenance the existence of unperceived entities or mental events of any kind. Our reading does not contravene any aspect of Berkeley's idealism however, since it is being claimed is that he allows for the existence of

[495] Berkeley, *Principles* Section 142, Vol. II, p.106.
[496] Berkeley, *Principles* Section 142, Vol. II, p.106.

unperceived mental transactions, rather than unperceived ideas.[497] It is my contention that the doctrine of notions allows Berkeley to countenance the existence of unperceived mental transactions which cannot be known by way of idea. It can be claimed that in addition to the distinction which he imposes between minds and ideas, that he introduces a corresponding distinction between the manner in which each of these is known; while ideas are objects before the mind, the mind and its operations are known notionally. If we can say that Berkeley subscribes to a non-ideational theory of mental operations, then we have found a means of accommodating the constitutive volition thesis within his system which is also contingent upon the existence of unperceived transactions in the mind.

There is an additional challenge which our reading must address. The thesis which we have attributed to Berkeley entails that finite beings have a constitutive role in the production of the ideas of sense, and consequently natural effects. One of the main objections which could be brought against our reading is the passivity argument, which indicates that the activity of finite spirits has no bearing on the ideas which come before their minds, which are the products of Divine volition:

> But though there be some things which convince us, humane agents are concerned in producing them; yet it is evident to every one, that those things which are called the works of Nature, that is, the far greater part of the ideas or sensations perceived by us, are not produced by, or dependent on the wills of men. There is therefore some other spirit that causes them, since it is repugnant that they should subsist by themselves. See Sect. 29. But if we attentively consider the constant regularity, order, and concatenation of natural things, the surprising magnificence, beauty, and perfection of the larger, and the exquisite contrivance of the smaller parts of the creation, together with the exact harmony and correspondence of the whole, but above all, the never enough admired laws of pain and pleasure, and the instincts or natural inclinations, appetites, and passions of animals; I say if we consider all these things, and at the same time attend to the meaning and import of the attributes, one, eternal, infinitely wise, good, and perfect, we shall clearly perceive that they belong to the aforesaid spirit, who works all in all, and by whom all things consist.[498]

[497] We must also observe the caveat that the Divine mind is the efficient cause of ideas and notions in Berkeley's system. We will consider the relationship between Divine and finite minds in section 5.4.
[498] Berkeley, *Principles* Section 146, Vol. II, p.108.

We will now move on to examine the role of the Divine mind in Berkeley's system. We will consider the relationship between Divine and finite spirits and propose the collaborative volition thesis and consider the degree to which this thesis can be accommodated within his system. We will also consider the theological dimension of his system and suggest that there are good reasons to suppose why this thesis might have been attractive to Berkeley. We will claim that it enables Berkeley to establish the providence of an immanent deity and to demonstrate the intimate union between God and man. We will begin by examining the role of the Divine mind within Berkeley's metaphysical system and his account of spiritual causation.

5.4 Divine and Finite Volition in Berkeley

While we have been keen to emphasise the manner in which Berkeley succeeds in overcoming many of the limitations of his predecessors, his system is not without its difficulties. One of the key problems associated with Berkeley's metaphysics is the charge of inconsistency associated with his account of spiritual causation. While Berkeley rejects material causation he nonetheless upholds the principle of causality which becomes central to his theory of ideas. He states that:

> We perceive a continual succession of ideas, some are a new excited, others are changed or totally disappear. There is therefore some cause of these ideas whereon they depend, and which produces changes in them.[499]

Not only does Berkeley reject material causation, but his commitment to the active-passive distinction entails that only spirits can possess genuine causal efficacy. In so doing, Berkeley restricts causation to spiritual agency alone, arguing that 'the cause of ideas is an incorporeal active substance or spirit.'[500] It is clear furthermore that Berkeley's conception of human spirit

[499] Berkeley, *Principles,* Section 26. Vol. II., p.52.
[500] *Ibid.*

is defined in terms of agency, for as he states in *The Notebooks* the 'Substance of a Spirit is that it acts, causes, wills, operates.'[501]

The argument supporting Berkeley's account of causation is problematic. The question arises as to how he can consistently reject material causation while promoting spiritual agency. The objection is that Berkeley cannot consistently reject material causation while supporting spiritual causation, when parity of reasoning dictates that the objections which he brings against the existence of matter are equally applicable to immaterial substance. Berkeley responds to the parity objection in the *Dialogues*, employing a strategy which aims to demonstrate that the conceptual problems posed by the doctrine of material substance, do not apply in the case of spiritual substance.[502]

Berkeley's account of spiritual causation faces an additional difficulty. The transition from claiming that ideas have a spiritual cause, to the determination that such a cause is a Divine spirit would seem to trade on a series of dubious assumptions. Highlighting these difficulties Thompson argues that Berkeley's application of the causal principle is formally fallacious on the following grounds:

> Given that every one of my ideas of sense that is not caused by me is caused by some powerful spirit, it does not follow, as Berkeley wished to say, that some one powerful spirit causes all those ideas of sense.[503]

One of the central problems confronting Berkeley's metaphysics is that the coherence of his entire system depends upon the supposition of a benevolent Deity as the sustainer of the natural world. For his part J.D. Mabbott asserts that 'Berkeley is commonly regarded as an idealist whose system is saved from subjectivism only by the advent of a God more violently *ex*

[501] Berkeley, *Note Book A*, Section 829. Vol. I., p.99.
[502] Berkeley's response to the parity objection is presented in *Dialogue 3*, Vol. II, pp. 232- 233. I am not intent on evaluating the success of Berkeley's response to the parity objection or in offering a defence of the theological dimension of his though. My goal is to examine the role of the divine mind and to determine the nature of the relationship between Divine and finite spirits in Berkeley's system.
[503] Thompson, J.F. 1968. '*G. J. Warnock's Berkeley*.' in: Martin, C.B & D. Armstrong (eds.) *Locke and Berkeley*. (London: McMillian), p.429.

machina than the God of any other philosopher.'[504] Mabbott points to the fact that the supposition of the Divine mind is central not only to Berkeley's metaphysics but also to his ontology, forming the basis of his response to the problem of object permanency. Berkeley's response to the latter problem, proceeds from the *esse* is *percipi* maxim and the claim that the *esse* of the ideas of sense is *percipi*. By invoking the eternal omnipresence of a Divine perceiver Mabbott contends that he is thereby 'able to ensure that the *esse* of physical objects' consists in 'being perceived by God.'[505] Not only does Berkeley rely on the the existence of a Divine mind to safeguard against the threat of subjectivism, but in claiming that God is the ultimate cause of our ideas and consequently the natural world, his attempt to reform the substance tradition depends centrally upon the existence of a benevolent Deity. While we have been keen to highlight the rigor with which Berkeley takes his contemporaries to task, such non-secular underpinnings may incline us to conclude that his philosophy is best understood as well intentioned theological speculation. Such judgements must be reserved however, for we must be attentive to the intellectual coin of the time and the context in which Berkeley develops his system.[506]

One of the most notable features of the early modern period is the indelible legacy of scholasticism and its associated theocentric metaphysical foundations. Flage notes that during the early modern period 'the existence of God as the cause of the natural world was generally taken as a piece of philosophical common sense.'[507] Berkeley's theocentricism places him firmly within the tradition of Descartes, Newton, and Locke, each of whom sought to account for the link between the Divine and the natural world. As Costica Bradatan notes, Berkeley

[504] Mabbott, J.D, 1968. 'The Place of God in Berkeley's Philosophy.' In: Martin, C.B & D. Armstrong (eds.) *Locke and Berkeley*. (London: McMillian) p.364.
[505] Mabbott, J.D., 1968. *Op. Cit.,* p.366.
[506] It should be noted that in placing God at the centre of his system, Berkeley is very much a thinker of the early modern period. While his contemporaries differed with regard to nature of Divine attributes and the relationship between God and his creation, we find precisely the same committment to the existence of a benevolent deity at the heart of the systems of Descartes, Newton and Malebranche.
[507] Flage, D., 2014. *Op., Cit.,* p.100.

regarded philosophy as a practice whose aim was to disseminate the Christian doctrine and to point towards 'paths of salvation.'[508] It is the soteriological import of philosophical inquiry furthermore, to which Berkeley points in the *Dialogues*, stating that philosophy consists in revealing 'the sublime notion of God, and the comfortable expectation of his morality.[509] Bradatan claims that the 'central position that God occupies in Berkeley's thought determines the way he sees the mission of philosophy itself as a discipline in charge of making sense of the world we live in.'[510] Berkeley's deep seated commitment to the notion that philosophy should be chiefly dedicated to demonstrating the providence of the deity in the natural world, is evident throughout his entire corpus as the concluding entry of the *Principles* demonstrates:

> [W]hat deserves the first place in our studies is the consideration of GOD and our DUTY; which to promote, as it was the main drift and design of my labours, so shall I esteem them altogether useless and ineffective if, by what I have said, I cannot inspire my readers with a pious sense of the Presence of God.[511]

Before we consider the practical and the philosophical reasons which induced Berkeley to uphold a theocentric metaphysics, there is a fundamental question which we must address. One of the main implications of the constitutive volition thesis is that finite agents have a constitutive role in the production of the ideas of sense. We must now examine whether this thesis and the implications for finite agency which it entails, can be maintained in light of the role of the Divine mind in Berkeley's system.

One of the central concerns for early modern thinkers was the nature of Divine agency and the degree to which God influenced human action. Jeffrey McDonough points out that discussion of human agency during the period tended to focus on the relationship between

[508] Bradatan, C. 2006. *The Other Bishop Berkeley: An Exercise in Reenchantment.* (New York: Fordham University Press)., pp.76-77.
[509] Berkeley, Preface to the *Three Dialogue.* Vol. II, p.168.
[510] Bradatan, C., 2006. *Op., Cit.*, p.76
[511] Berkeley, *Principles*, Section 156. Vol. II., p.113.

God's ongoing activity and that of his creatures.[512] He states that a 'fundamental tension bedevilled attempts to find a suitable balance between divine and creaturely contributions' and that in general 'piety pulled the faithful in the direction of maximising God's activity even at the cost of construing the contributions of finite creatures in ever more passive terms.'[513]

Occasionalism is one prominent position which seeks to maximise God's activity by proposing that God is the efficient cause of each and every effect in the natural world. As a prominent advocate of this doctrine, Malebranche held that divine causation was the only genuine source of activity in the natural world, stating that 'there is only one true cause because there is only one true God.'[514] He goes on to state that 'all natural causes are not *true* causes but only *occasional* causes.'[515] With respect to human action Malebranche holds that finite beings do not possess genuine causal powers, claiming that finite agency is limited to secondary causation or occasional forms of God's activity.[516]

It is frequently held that Berkeley's account of causation precludes him from claiming that finite beings possess genuine causal efficacy[517] His commitment to the apparent limitations of finite agency, together with his repeated insistence that finite wills are subordinate to the supreme will of God, would indeed seem to support such a view. Berkeley states that:

---

[512] Nancy Maull provides an account of how for Descartes and Newton, the quality of motion in the world, together with the conservation and creation of individual bodies, were considered explainable only by reference to Divine Agency. Maull, N. 'Berkeley on the limits of Mechanistic Explanation.' In Turbayne, C. (ed.) 1982 *Op., Cit.,* p.99.

[513] McDonough, J., 2008. 'Berkeley, Human Agency and Divine Concurrentism.' in: *Journal of the History of Philosophy*, Vol. 46, Number 4, October, p.568.

[514] Malebranche, N. 1997. *The Search After Truth.* (eds) Lennon. T.M & P.J, Olscamp (Cambridge, UK: University Press, Cambridge),p.448.

[515] Malebranche, N. 1997. *The Search After Truth.* (eds) Lennon. T.M & P.J, Olscamp (Cambridge, UK: University Press, Cambridge), p.448.

[516] Secondary causation refers to the action of finite spirits which is occasioned by Divine Volition. Malebranche is quite clear that finite spirits are incapable of acting in the absence of divine intervention and that while they can for instance move their limbs, this movement is the result of the divine will: 'not only are men not the true causes of the movements they produce in their bodies, there even seems to be some contradiction (in saying) that they could be.' Malebranche, N., 1997. *Op., Cit.,* p.450.

[517] Kenneth Winkler (1989), Nicholas Jolley (1990), Jonathan Bennett (2001) and C.C.W. Taylor (1985) support an occasionalist reading of Berkeley. They claim that his position on human agency aligns him directly with Malebranche. Taylor goes so far as to claim that Berkeley's system 'allows no role whatsoever for human agency.' p.211.

> [W]hatever power I may have in my own thoughts, I find the ideas actually perceived by Sense have not a like dependence on my will. When in broad daylight I open my eyes, it is not in my power to choose whether I shall see or no, or to determine what particular objects shall present themselves to my view; and so likewise as to the hearing and other senses, the ideas imprinted on them are not the creatures of my will. There is therefore some *other* Will or Spirit that produces them.[518]

The distinction between the ideas of sense and those of imagination, also has significant implications for the role of finite agents in Berkeley's system. While he allows that finite spirits can excite certain types of ideas in the mind, he claims that 'whatever power I may have in my own thoughts, I find the ideas actually perceived by sense have not a like dependence on my will.'[519] Such a distinction would seem to entail that divine volition is the only true source of causation, for Berkeley also suggests that the limitations of finite agency is one of the factors which indicate that ideas of sense are not the products of human wills but of a supreme spirit who ordains the production of natural effects. Accordingly he states that:

> [T]hough there be some things which convince us human agents are concerned in producing them, yet it is evident to every one that those things which are called the Works of Nature, that is, the far greater part of the ideas or sensations perceived by us, are not produced by, or dependent on, the wills of men. There is therefore some other Spirit that causes them.[520]

While an initial reading suggests that Berkeley shares Malebranche's conviction that divine volition is the only true source of causation in the natural world, the matter is decidedly more complex. The difficulty in ascribing such a position to Berkeley stems from his seemingly contradictory pronouncements on the nature of finite volition as well as his explicit attempts to distance himself from Malebranche. With respect to the latter, an entry from the *Notebooks* confirms that he seeks to reject the negative thesis which limits human agency to occasional forms of God's volition. Berkeley states that '[w]e move our legs ourselves. 'tis we that will

[518] Berkeley, *Principles*, Section 29. Vol. II, p.53.
[519] In *Principles* 28-30 Berkeley explains that while the ideas of imagination are the products of finite minds that the ideas of sense are the not determined by finite wills but by the supreme mind of God. Vol. II, p.53
[520] Berkeley, *Principles*, Section 146.Vol, II, p.108.

their movement. Herein I differ from Malebranch.'[521]

McDonough contends that Berkeley's apparent equivocation on finite volition has contributed to the view that he is either grossly inconsistent on the issue of human agency, or that he is in effect 'a closet Malebranchian.'[522] McDonough's analysis purports to provide a coherent way of understanding Berkeley's position on finite agency and the link between human and Divine volition.[523] McDonough's position is that Berkeley subscribes to Divine concurrentism, which is described as a form of 'cooperative action produced by God working in concert with finite spirits.'[524] Such a view entails that God's activity is required not only to create the world but also to sustain it and that no creaturely casual power could be efficacious without God's general assistance or concurrence. An entry from the *Principles* would seem to support the view that Berkeley is a concurrentist with respect to creaturely causation. Describing the manner in which we know other spirits, he states that 'I perceive several motions, changes, and combinations of ideas, that inform me that there are certain particular agents, like myself, which accompany them and concur in their production.'[525]

Not only does Divine concurrentism provide a coherent way of reconciling the seemingly disparate claims that Berkeley makes about finite agency, but this thesis also supports the view that finite beings are endowed with genuine active and causal powers, which are exercised in the production of ideas. While McDonough is astute in identifying this, I think that his account of finite volition does not extend far enough. Referring to the distinction between the ideas of sense and those of imagination, McDonough states that Berkeley contrasts 'the activity of the human will in conjuring up its own thoughts with the mind's passive

[521] Berkeley, *Note Book A,* section 548.Vol. I, p.69.
[522] McDonough, J, 2009. *Op., Cit*., p.567.
[523] Reacting against the tendency to read Berkeley as an occasionalist, McDonough claims that reading Berkeley 'as a concurrentist provides the most coherent understanding of the various things he says about human agency.' He states furthermore that such an account is 'historically sensitive, fits squarely with the texts, and is philosophically well motivated. McDonough, J, 2009. *Op., Cit*., p.572.
[524] McDonough, J., 2009. *Op., Cit.,* p.572.
[525] Berkeley, *Principles*, Section 145. Vol. II., p.107.

reception of sensory ideas.'[526] He states furthermore that Berkeley 'subtly distinguishes between our activity with respect to the movements of our bodies and our passivity with respect to the sensory perceptions which we experience.'[527] According to McDonough's analysis, the activity of finite agents is confined to mental activity, which results in the production of ideas of imagination and bodily activity, in the form of physical motion and goal directed action in the world. While he allows that finite beings are active in certain respects, he concludes that 'human wills are genuinely active secondary causes' and that their agency does not extend to the production of sensory ideas.[528] While I agree that Berkeley's account of finite agency entails that subjects are endowed with genuine active and causal powers, I disagree that finite agency is restricted to forms of non-constitutive volition as McDonough's analysis suggests.

The view that Berkeley restricts finite agency to mental activity or forms of non-constitutive volition follows in the main from the distinction between the ideas of sense and imagination which is outlined in the *Principles*. While Berkeley states that '[t]he ideas of Sense are more strong, lively, and distinct than those of imagination,' and that they possess 'a steadiness, order, and coherence' unlike those which 'are the effects of human wills,' it can be argued that this passage makes a limited claim about the ideas of the imagination and the type of volition which is involved in their production.[529] It should be noted however that Berkeley is not claiming that finite agents do not have a constitutive role in the production of the ideas of sense; rather he is claiming that the ideas of imagination are exclusively the product of finite volition. The notion that the ideas of imagination are the exclusive product of finite agency, is again evident in the *Dialogues*, where Philonous proposes that '[t]he ideas formed by the imagination are faint and indistinct; they have besides an entire dependence on the will.'[530]

[526] McDonough, 2009, *Op., Cit*., p.574.
[527] McDonough, 2009, *Op., Cit*., p.575.
[528] *Ibid.*
[529] Berkeley, *Principles*, Section 30. Vol. II, p.54.
[530] Berkeley, *Dialogue III*. Vol. II, p.271.

While Berkeley maintains that the ideas of sense 'are excited by the will of another and more powerful spirit,' he does not preclude the possibility that finite agents have a constitutive role in their production.[531]

In order for the plausibility of the constitutive volition thesis to be established, it is not requisite that we establish that finite volition is the sole cause of sensory ideas, but rather that this form of volitional activity contributes to the production of natural effects. We do not wish to claim that finite spirits are capable of acting independently of God's general assistance, but rather that finite volition is the instrument of Divine will. While finite volition is impelled by the divine mind of God, it is the action of finite spirits which brings about the production of sensory ideas and which thereby result in the apprehension of spatial and other sensible qualities.

We have identified two distinct forms of agent causation in Berkeley, non-constitutive and constitutive volition and have considered the degree to which the latter forms the basis of his account of spatial perception. The upshot of this account as we have seen is that there is a constitutive relation between action and perception that is central to our ability to formulate ideas of distance, size and magnitude. Based on this analysis, we submit that Berkeley holds that there is a certain primary form of human action which facilitates the production of the ideas of sense.[532] But we must exercise caution however in advancing the view that finite agents have a constitutive role in the production of natural effects. We must take care not to tilt the balance in favour of created agents and ascribe to Berkeley a position which he does not in fact hold. It is clear, for example, that he does not support conservatism which is the view that

[531] Berkeley, *Principles*, Section 33. Vol. II, p.55.

[532] Genevieve Migely makes the interesting observation that it is far more likely that Berkeley's views on causation were influenced by Descartes rather than Malebranche. She points to the fact that in the *Passions*, Descartes outlines two forms of human volition: (1) actions that produce ideas in the mind and (2) actions that produce motions in the body. While our reading entails that a corresponding distinction is to be found in Berkeley, where his account differs is that actions in the body are required to bring about the ideas of sense. See Migely, G., 2009 'Berkeley's Cartesian Account of Volitional Causation.' in: *MANUSYA: Journal of Humanities Regular* 12 (1), p.16.

natural effects are exclusively the products of creaturely causation.[533] It must be acknowledged furthermore that Berkeley does not envisage the relationship between God and his creatures as one of equal power, as he is very clear that the Divine mind is the supreme principle of volition in the universe. The following entry from *De Motu* serves to illuminate the nature of the connection between the Divine mind and finite agents. He states that:

> Besides corporeal things there us the other class, *viz.* thinking things, and that there is in them the power of moving bodies we have learned by personal experience; since our mind at will can stir and stay the movement of our limbs, whatever be the ultimate explanation of the fact. This is certain that bodies are moved by the will of the mind, and accordingly the mind can be called, correctly enough, a principle of motion, a particular and subordinate principle indeed, and one which itself depends on the first and universal principle.[534]

Here Berkeley indicates that there is a direct and intimate connection between Divine volition and finite agency. While it is clear that Divine volition is the supreme principle of volition, by impelling human action, the Divine mind enables man to act and form beliefs and ideas about the natural world. In order then to fully appreciate the capacity of finite agents in Berkeley system, we must consider the respective contributions of Divine and finite agents in the production of natural effects.

A prominent metaphor which Berkeley employs throughout his works provides an interesting insight into how such an account can be framed. Berkeley's invokes the 'Author of Nature' metaphor to account for Divine presence in the natural world. The prominence of this metaphor leads Costica Bradatan to locate Berkeley within the *liber mundi* tradition of the medieval period, which entails that nature is a system of signs which displays a divine language to our minds.[535] Bradatan claims that while Berkeley appropriates the insight of the world as a

[533] According to McDonough, conservationism upholds the following commitments: (1) God's activity is necessary for the creation and conservation of finite beings (2) God creates and conserves creatures complete with their own active powers (3) Once created, finite beings can exercise their powers independently of Divine Volition. McDonough, J., 2009. *Op., Cit.*, p.570

[534] Berkeley, *De Motu*, Section 25. Vol. IV, p.37.

[535] Bradatan explains that the *Liber Mundi* tradition refers to the prominent employment of a Platonic-Christian metaphor throughout the medieval era, which considered 'the whole visible world in symbolic terms: namely, as a coherent system of signs, as a sophisticatedly encrypted message that God is continuously sending to his

divine text with God as supreme author, he states that 'there is a certain sense in which Berkeley's God is even more actively and immediately present than was the medieval God who 'wrote' the *liber mundi*.' [536] Bradatan's point is well made, for Berkeley firmly rejects the notion of a distant and impersonal God and invokes a conception of divinity which is immanent in the natural world. Berkeley also rejects the view that Divine intercession concludes with the act of creation. He states that:

> Some philosophers, being convinced of the wisdom and power of the Creator, from the make and contrivance of organized bodies and orderly system of the world, did nevertheless imagine that he left this system with all its parts and contents well-adjusted and put in motion, as an artist leaves a clock, to go thenceforth of itself for a certain period.[537]

Berkeley's most comprehensive treatment of the Divine mind is presented in *Alciphron*. Here he states that God is 'not a Creator merely, but a provident Governor, actually and intimately present, and attentive to all our interests and motions, who watches over our conduct, and takes care of our minutest actions and designs throughout the whole course of our lives, informing, admonishing, and directing incessantly, in a more evident and sensible manner.'[538] While Bradatan's analysis provides a compelling insight to the role of God within Berkeley's system, we find however that the author-reader relationship which he proposes to account for the relationship between Divine and finite agents is problematic and encounters the same restriction as we have noted in McDonough's Divine concurrentist thesis; namely, the failure to recognize the contribution of finite agents in the production of natural effects. [539]

It is my contention that Berkeley does not merely want to demonstrate the presence of

creatures.' Bradatan, C. 2006. *The Other Bishop Berkeley: An Exercise in Reenchantment* (New York: Fordham University Press)., p.57.

[536] Bradatan, C. 2006, *Op., Cit.*, p.75.

[537] Berkeley, *Alciphron*, Dialogue VI. Vol. III, p.160.

[538] Berkeley, *Alciphron*, Dialogue VI. Vol. III, p.160

[539] According to Bradatan, Berkeley's manner of postulating the *liber mundi* metaphor implies the following (a) the perception of God as divine author, (b) the perception of this world as a Divine discourse, text or language, (c) the existence of an author/subject relationship between God and the world and (d) the existence of a reader who consciously endeavours to read the divine text. Bradatan, C., 2006. *Op., Cit.*, p.84.

the Divine in the natural world, but also to provide a means of demonstrating the inherent unity of God and man. The nature of this union is emphasised in a Scripture passage which appears more than other in Berkeley's writings. He states that:

> It is therefore plain that nothing can be more evident to any one that is capable of the least reflection than the existence of God, or a Spirit who is intimately present to our minds, producing in them all that variety of ideas or sensations which continually affect us, on whom we have an absolute and entire dependence, in short 'in whom we live, and move, and have our being.'[540]

In pointing to the fundamental union between God and Man, Berkeley is aiming to provide a philosophical basis for a canonical theological premise. He wants to demonstrate the manner in which 'we live, and move and have our being' in direct communion with the Divine mind of God, while allowing that finite agents have a formative role in the production of ideas of sense.

The thesis which we propose to account for the relationship between Divine and finite agents in Berkeley's system is the collaborative volition thesis, which consists of the following commitments: (1) God's activity is required to create the world and also to keep it in existence. (2) Finite agents are endowed with genuine active and causal powers, which extend to include constitutive volition as a form of embodied action which determines the content of experiential states.[541] (3) God's general assistance is required to impel finite volition, since finite beings cannot operate independently of God's ongoing activity. Establishing the union of God and man enables Berkeley to present a concept of an immanent Deity that is intimately involved in the lives of his creatures, which is one of Berkeley's central aims. He states that:

---

[540] Berkeley, *Principles*, Section 149. Vol. II, p.109. The quotation from Scripture which points to the intimacy of God and Man and which reads, 'in whom we live and move and have our being,' also appears in *TVV*, section 2. Vol.1, p.252; *Principles*, section 66. Vol. ,II, p.70; *Dialogue II*, Vol. 2, p.215; *Dialogue III*, Vol. II, p.236.

[541] The collaborative volition thesis which we propose ascribes the following active powers to finite agents: (1) mental activity which results in the of production of ideas of imagination, (2) physical activity which is a form of auxiliary volition and which may be understood as intentional goal directed action including bodily movement, and (3) constitutive volition which entails that there is a formative or constitutive relation between human action and perception.

> [N]otwithstanding that this is the constant language or Scripture, yet we have I know not what aversion from believing that God concerns Himself so nearly in our affairs. Fain would we suppose Him at a great distance off, and substitute some blind unthinking deputy in His stead, though (if we may believe Saint Paul) 'He be not far from every one of us.'[542]

In opposition to an author-reader relationship proposed by Bradatan, it is my contention that the relationship which emerges is one of collaborative co-authorship. While God impels human action, the activity of finite agents is nonetheless required to bring about the system of signs which are instituted by the author of nature working in concert with finite beings. It is the system of signs which constitute the natural world that determines the true province of philosophical investigation. Berkeley states that,

> [I]t is the searching after, and endeavouring to understand those signs instituted by the Author of Nature, that ought to be the employment of the natural philosopher, and not the pretending to explain things by corporeal causes; which doctrine seems to have too much estranged the minds of men from that active principle, the supreme and wise spirit, *in whom we live, move and have our being.*[543]

As opposed to a natural world whose construction is the result of divine ordination, we have a natural world whose text emerges in a process of co-creation, which is the result of divine volition impelling the action of finite agents.[544] Finite volition co-creates a system of signs which demonstrate the immediate presence of the Deity and Berkeley's account of how this system comes into being, establishes the presence of a God that is immanent in man, as active impetus, enabling and impelling human action. The collaborative volition thesis furthermore

[542] Berkeley, *Principles*, Section 150. Vol. II, p.110.
[543] Berkeley, *Principles*, Section 66. Vol. II, p.70.
[544] An additional problem which follows from Bradatan's analysis is that natural world is encrypted and accessible only to the esoteric reader. He claims that the *Liber Mundi* metaphor as it is appropriated by Berkeley, presents the visible world in symbolic terms 'as a sophisticated encrypted message that God is continuously sending to his creatures.' p.57. He states furthermore that Berkeley invokes the role of the philosopher as a 'professional reader' of this cosmic text, as one 'who has the superior ability and competence' to interpret the *liber mundi* for others. p.77. Bradatan's analysis here would seem directly at odds with Berkeley's commitment to the concept of a God who has created a divine text which is accessible to all, as is clearly indicated in the following passage: 'the characters of the divinity are large and legible throughout the whole creation to men of plain sense and common understanding.' Berkeley, *TVV*, Section 7.Vol I, p.255. Berkeley's conception of Divine benevolence would seem to preclude the possibility that God's message is encrypted as Bradatan suggests. As Berkeley states in to the Introduction to the *Principles*: 'We should believe that God has dealt more bountifully with the sons of men, than to give them a strong desire for that knowledge, which he had placed quite out of their reach.' Berkeley, *Principles*, Introduction, Section 3. Vol. II, p.26.

entails that man is not merely the reader of the Divine text, but imbued by divine volition he effectively co-authors the grand narrative which speaks to the providence of the Deity and his immanence within the world and the lives of his creatures. The author of nature ensures furthermore that 'the characters of the divinity are large and legible throughout the whole creation to men of plain sense and common understanding.'[545] This capacity to learn this system of signs begins from our first entrance in to the world, where man learns to actively participate in the co-creation of a shared world of signs of which God is the primary author.

The collaborative volition thesis provides a means of accounting for the intimate relationship between God and man and further enables us to propose that Berkeley's supports the view that human agents are endowed with genuine active powers which are constitutive in the production of natural effects. The notion that Berkeley attributes genuine active causal powers to finite agents is further supported when we consider his account of moral responsibility. Berkeley claims that moral action and divine immanence are fundamentally interconnected:

> Since it is downright impossible that a soul pierced and enlightened with a thorough sense of the omnipresence, holiness, and justice of that Almighty Spirit should persist in a remorseless violation of His laws. We ought, therefore, earnestly to meditate and dwell on those important points; that so we may attain conviction without all scruple 'that the eyes of the Lord are in every place beholding the evil and the good; that He is with us and keepeth us in all places whither we go, and giveth us bread to eat and raiment to out on;' that He is present and conscious to our innermost thoughts; in fine, that we have a most absolute and immediate dependence on Him.[546]

As McDonough points out, the attribution of genuine agency to finite beings allows Berkeley to hold that 'some of the imperfections we experience in the flow of ideas cannot be morally attributed to God.'[547] Berkeley's account of moral responsibility requires that human beings are capable of genuine causal agency to account for the presence of evil and wrongful actions.

[545] Berkeley, *Theory of Vision Vindicated,* Section 7, Vol., 1, p.255.
[546] Berkeley, *Principles,* Section 155. Vol. II, p.113.
[547] McDonough, J., 2009. *Op., Cit*., p.580.

As he states in the *Dialogues*, finite agents enjoy 'the use of limited powers...immediate under the direction of their own wills, which is sufficient to entitle them to all the guilt of their actions.'[548]

It is important therefore that we also address Berkeley's account of moral agency which forms a significant part of his freewill theodicy. Here a significant question arises, namely, in what sense is man free and can this freedom be maintained in light of the collaborative volition thesis? The importance of freewill in relation to moral action is highlighted in *Alciphron.* In *Dialogue VII*, Euphranor provides an insight into the nature of human freedom and man's capacity for free action:

> Euphranor: In my opinion, a man is said to be free so far forth as he can do what he will. Is this so, or is it not?
>
> Alciphron: It seems so.
>
> Euphranor: Man, therefore, acting according to his will, is to be accounted free. [549]

Berkeley's account of human freedom is imbued by the need to establish that God is not the author of man's sinful actions which is precisely why he claims that man is free to choose how he will act in a given situation. One of the commitments which we have claimed follows from the collaborative volition thesis, is that God's general assistance is required to impel finite volition, since finite beings cannot operate independently of God's ongoing activity. If we are claiming that God is the efficient cause of man's activity, then how do we account for human freedom which is central to Berkeley's account of moral responsibility?

The distinction which we have already drawn, between constitutive and forms of non-constitutive volition, enables us to demonstrate that our reading does not cause a problem for Berkeley's account of human freedom. The constitutive volition thesis pertains to the manner

[548] Berkeley, *Dialogue III*, Vol. II, p.237.
[549] Berkeley, *Alciphron VII*, 19, Vol. III, p.316.

in which Berkeleian subjects perceive the world; in this sense the subject is not free, because in order to perceive the world they must act, and in order to act, they must be impelled by the Divine mind. Moral action however is a different matter. This type of action is a form of non-constitutive volition, which accordingly has nothing to do with the production of ideas of sense; rather it is a form of goal directed activity whereby the Berkeleian subject must choose how they will act in a given situation and has no bearing the content of what they perceive.

While finite volition is impelled by the Divine Mind, this does not imply a form of moral determinism or that the capacity of finite beings to choose their moral actions is inhibited in virtue of this relationship. The true consequence of the collaborative volition thesis is that man's perceptions are determined by the supreme will of the Divine mind. One of the advantages of our reading is that it provides a means of safeguarding the publicity of the natural world and the effects to which the action of finite spirits give rise. As each finite mind is impelled by the same divine principle, each finite mind will perceive the world in the same way. As opposed to an account in which ideas are supplanted in finite minds by the divine will of the creator, we propose an account in which sensory ideas are the products of finite spirits whose agency is impelled in the first instance by the supreme will of the creator.

We can also adduce that there are prominent existential concerns which may have made the collaborative volition thesis attractive to Berkeley. We can speculate that the capacity for genuine finite agency serves to address a key existential requirement which Berkeley believes to be central to human happiness and man's fulfilment. In the *Notebooks*, Berkeley laments the '[s]trange impotence of men,' stating that '[m]an without God' is '[w]retcheder than a stone or a tree, he having only the power to be made miserable by his unperformed wills, these having no power at all.'[550] Here Berkeley suggests that there is a sense in which action is the key to human fulfilment and that which brings about our personal salvation. While such a claim is

[550] Berkeley, *Notebook B,* section 107. Vol. I., p.18.

indeed speculative, it nonetheless accords well with the manner in which Berkeley lived his life, particularly in later years when he became a man of great practical wisdom, and established numerous industries and initiatives, dedicated to the betterment of the citizens of Cloyne and London.[551]

While reference to his personal history, may seem at odds with our analysis, we must acknowledge that for Berkeley philosophy was primarily a way of life and that it was not an academic discipline removed from the province of common concerns. As Bradatan notes, philosophy for Berkeley functioned as a form of *askesis* or religious exercise, which fulfilled a central soteriological function.[552] Having considered the centrality of human agency within Berkeley's system, we can say that his entire philosophical system converges on a central goal; to reform the substance tradition by providing a positive ontological system which demonstrates the manner in which the natural world is a product of God and man's collaborative volition. We can say furthermore that Berkeley's account of how this process unfolds, becomes the key to understanding the unity of God and man and his place in the world, as well as marking the road towards our own salvation in the service of our fellow man.

5.5 Overcoming Problems in Berkeley's Mature System

One of the principal reasons why Berkeley's philosophy has been the target of so much criticism is because of his purported views on the nature of substance. The notion that his rejection of material substance is tantamount to the denial of corporeality is precisely that which induces his early respondents to criticise his seemingly fantastical views. While

[551] I refer here to the various social and economically driven initiatives which Berkeley introduced, such as the spinning school in Cloyne for the production of linen and the workhouse for the production of rope. His social conscience is evident from his banning of wig powering in the Berkeley household during the famine of 1740-41. For a recent account of Berkeley's social idealism and sustainable economic approach to community development, see Flage, D. 2014, *Op., Cit*, chapter 1, pp.1-21.
[552] Bradatan, C. 2006, *Op., Cit.*, p.76

prevalent following the publication of the *Principles*, the notion that his philosophical system undermines the corporeal reality of the natural world was quickly quashed by Berkeley himself. Tipton comments that Berkeley 'believed that the ridicule and the criticism rested on *ignoratio elenchi* resulting from a prejudiced approach to the work and careless reading.'[553] It is precisely this prominent misconception that Berkeley seeks to address in the *Dialogues*, wherein the pragmatic materialist Hylas reproaches Philonous as a purveyor of strange paradoxes:

> You were represented in last night's conversation, as one who maintained the most extravagant opinion that ever entered into the mind of man, to wit, that there is no such thing as material substance in the world.[554]

The *Dialogues* is both a continuation and elaboration of the project of the *Principles* wherein Berkeley proceeds to defend his system against a host of charges and attempts to demonstrate that, once correctly understood, his system serves to vindicate commonsense and overcome the scepticism associated with materialism. He seeks to show that immaterialism does not entail a denial of corporeality or lead to scepticism, but rather that 'the same principles which at first view lead to scepticism, pursued to a certain point, bring men back to common sense.'[555] He outlines two central notions which constitute the substance of his philosophical position, stating that:

> My endeavours tend only to unite and place in a clearer light that truth, which was before shared between the vulgar and the philosophers: the former being of the opinion, *that those things they immediately perceive are the real things*; and the latter, that *the things immediately perceived are ideas which exist only in the mind.* [556]

It is widely held however, that in his endeavour to advance both of these notions that he is precluded from preserving the corporeal status of the natural world. One prominent criticism is that his system simply lacks the resources to establish the existence of ideas as anything other

[553] Tipton, I. 1974. *Berkeley: The Philosophy of Immaterialism.* (London: Methuen & Co. Ltd), p.16.
[554] Berkeley, *Dialogue I*, Vol. II, p.172.
[555] Berkeley, *Dialogue III*, Vol. II, p.262.
[556] Berkeley, *Dialogue III*, Vol. II, p.262.

than mental entities, in spite of Berkeley's best intentions to the contrary. The resultant implication is that things are reduced to ideas which exist only in the mind, which deals the deathblow to any attempt to safeguard his system from the anti-corporeal charge.

Another one of the controversial questions associated with Berkeley's mature system, is how the different aspects of his system cohere to present a holistic philosophical framework. Ian Tipton suggests that our attempt to frame a response should begin by asking two significant questions.[557] The first is connected with immaterialism and 'why he committed himself to the negative thesis that there is no such thing as material reality.'[558] The second relates to Berkeley's idealism and the reasons which induced him to embrace 'the positive thesis that sensible objects are just mind-dependent sensations.'[559] While two central doctrines characterise Berkeley's mature philosophical system, determining how idealism and immaterialism converge to form a single philosophical framework, is no straightforward matter, as Daniel Flage acknowledges. He points to the fact that while it is typically acknowledged that he is an idealist and an immaterialist, 'not all scholars agree that these aspects of Berkeley's system are on an equal footing or share an equal emphasis.'[560]

Determining the relationship between these central components, as well as understanding precisely what Berkeleian idealism and immaterialism entail, has direct implications for the status of ideas in his system. John Yoltan and Richard Watson have promoted a strong epistemological reading according to which Berkeleian ideas are ontologically neutral. They propose that his attempt to vindicate the mind-dependent status of

[557] Tipton, I., 1974. *Berkeley: The Philosophy of Immaterialism*. (London: Methuen and Co. Ltd.). In addition to the positive and negative theses which Berkeley espouses, Tipton claims that understanding Berkeley's philosophy requires that we also engage with the common sense component of his system and 'answer the question as to how someone upholding the negative and positive theses could believe that he was defending common sense.' p.12.
[558] Tipton, I., 1974. *Op., Cit.*, p.12.
[559] Tipton, I., 1974. *Op., Cit.*, p.12.
[560] Flage, D, 2014. *Op., Cit.*, p.56.

ideas, leads him to abandons ontology and establish epistemology as first philosophy.[561] On this interpretation the central difficulty with his view is that it is tantamount to a form of empirical idealism whereby ideas are purely mental constructs. If Berkeley is unable to establish the existence of ideas as anything other than purely mental entities, then he is a subjective idealist and very far from vindicating the so-called common sense viewpoint of the vulgar man and does not leave the reality of the world untouched. Tipton observes that Berkeley's system is so at odds with common sense that 'the mob then and now would probably think itself better represented by Dr Johnson, who expressed his conviction about the corporeality of a stone by kicking it to show that it had a real and independent existence.'[562]

As Marc Hight points out however, the view that Berkeley abandons ontology overlooks a fundamental aspect of his thought, namely, that 'ordinary objects in the world are not merely ideas of sense- they are also real things.'[563] We find that Hight's point is well made, for Berkeley is explicitly committed to preserving the substantial nature of the natural world. His commitment to preserving ontology is central to his mature philosophical system, and he states that 'by the principles premised, we are not deprived of any one thing in nature. .[t]here is a *rerum natura* and the distinction between reality and chimeras, retains its full force.'[564] Berkeley states furthermore that 'I am not for changing things into ideas, but rather ideas into things; since those immediate objects of perception, which according to you, are only appearances of things, I take to be the real things themselves.'[565]

---

[561] Yoltan, J., 1984. *Perceptual Acquaintance from Descartes to Reid* (Minneapolis: University of Minnesota Press)., p.94 & Watson, R., 1987. *The Breakdown of Cartesian Metaphysics* (Atlantic Highlands, N.J.: Humanities Press International), pp.122-128.

[562] Tipton, I. 1974. *Op., Cit.,* pp.15-16. For a discussion of what Berkeley means by 'common sense' as well as the degree to which his philosophy can be deemed consistent with a commonsense viewpoint, see Tipton, chapter 2.

[563] In reference to PHK 35-36, Marc Hight argues that the type of epistemological reading proposed by Yoltan and Watson offers a gross misrepresentation of Berkeley's views. Both authors are, according to Hight, proponents of an erroneous school interpretation which he describes as "the early modern tale", according to which 'advances in the philosophy of ideas led the moderns not only to reject the old ontology but also to *abandon ontology altogether with respect to ideas*.' Hight, M., 2008, *Op., Cit.,* p.3 & p.174.

[564] Berkeley, *Principles*, Section 34. Vol. II, p.55.

[565] Berkeley, *Dialogue III,* Vol. II, p.244.

While it is clear that Berkeley does not seek to abandon ontology, we can say that his philosophical orientation is nonetheless decidedly epistemological. As Daniel Flage points out, many commentators tend to 'ignore the fact that the nominal topic of the *Principles* is knowledge' and proceed to treat the work as one whose primary focus is ontology or metaphysics.[566] Throughout the *Principles*, Berkeley is centrally concerned to clarify and identify the principles which will become the basis of his system and upon which a thoroughgoing philosophical inquiry should proceed. His motivation in this regard, stems from his conviction that most of the central difficulties against which he erects his system have their origin here. He remarks that:

> My purpose therefore is, to try if I can discover what those principles are, which have introduced all that doubtfulness and uncertainty, those absurdities and contradictions into the several sects of philosophy; insomuch that the wisest men have thought our ignorance incurable, conceiving it to arise from the natural dullness and limitation of our faculties. And surely it is a work well deserving our pains, to make a strict inquiry concerning the first principles of human knowledge, to sift and examine them on all sides: especially since there may be some grounds to suspect that those lets and difficulties, which stay and embarrass the mind in its search after truth, so not spring from any darkness and intricacy in the objects, or natural defect in the understanding, so much as from false principles which have been insisted on, and might have been avoided.[567]

Berkeley's epistemological orientation is also evident in terms of his central preoccupation with perception and idea formation. We should note that he uses the terms 'know' and 'perceive' synonymously, stating that in addition 'to ideas or objects of human knowledge,' that 'there is likewise something which knows *or* perceives them, and exercises divers operations, as willing, imagining, remembering, about them.'[568] He states furthermore that 'all those bodies which compose the mighty frame of the world, have not any subsistence without

[566] While I acknowledge that metaphysics and ontology are both concerned with existence and the nature of being, I do not use these terms synonymously as commentators like Daniel Flage chooses to do. This is principally because I want to distinguish between the metaphysical and ontological aspects of Berkeley's immaterialism, which are respectively concerned with first causes and the nature of substance. See Flage, D 2014 *Op., Cit.*, p.56.
[567] Berkeley, *Principles*, Introduction, Section 4, Vol. II, p.26.
[568] Berkeley, *Principles*, Section 2. Vol. II, p.42. [Italicisation my own].The quote in full reads: 'But besides all that endless variety of ideas or objects of knowledge, there is likewise something which knows or perceives them, and exercises divers operations, as willing, imagining, remembering, about them.'

a mind, that their being is to be perceived or known.'[569] This equation of knowing and perceiving is extremely significant as Daniel Flage notes, for it points to a fundamentally isomorphic relation between the epistemological and ontological elements of Berkeley's system.[570] Flage contends that as an epistemic ontologist Berkeley bases his 'metaphysics on epistemological foundations,' and that he is 'willing to grant the existence of something only if it is known.'[571]

Recognising that Berkeley is an epistemic ontologist enables us to understand the cohesion between the different components of his mature system.[572] I wish to claim that the central task to which he is devoted is the reform of the substance tradition. He seeks to replace a negative ontological frame work with a positive one and in order to achieve this must do two things. Firstly, he must avoid the pitfalls of his predecessors who have proceeded from 'false principles' which 'embarrass the mind in its search after truth.'[573] He aims therefore to build his positive ontology on revised and epistemologically warranted principles, as he indicates in the introduction to the *Principles*:

> But perhaps we may be too partial to our selves in placing the fault originally in our faculties, and not rather in the wrong use we make of them. .Upon the whole, I am inclined to think that the far greater part, if not all, of those difficulties which have hitherto amused philosophers, and blocked up the way to knowledge, are entirely owing to our selves. That we have first raised a dust, and then complain, we cannot see.[574]

As part of his attempt to begin from correct first principles, Berkeley proposes his central maxim; the *esse* is *percipi* principle which entails that there is a fundamental interrelation between being and perception. While this maxim is central to Berkeley revised epistemological

[569] Berkeley, *Principles*, Section 6, Vol. II, p.43.
[570] Flage, D., 2014. *Op., Cit.*, p.68.
[571] Flage, D., 2014. *Op., Cit.*, p.19.
[572] Daniel Flage claims that it is a mistake to overlook Berkeley's epistemological method of inquiry. He claims furthermore that commentators who advance the view that Berkeley is principally a metaphysician, tend to 'ignore the fact that the nominal topic of the *Principles* is knowledge; rather, they focus on the conceptual connections among the kinds of thing that are found in Berkeley's system, that is, they treat the work as a metaphysical or ontological work.' Flage, D., 2014. *Op., Cit.*, p.56.
[573] Berkeley, *Principles*, Introduction, Section 4. Vol. II, p.26.
[574] Berkeley, *Principles*, Introduction, Section 3. Vol. II, p.26.

approach, he is frequently criticised for failing to provide an argument in support thereof. As George Pitcher points out, this 'is very far from being a self-evidently true proposition.'[575] Berkeley's theory of ideas encounters a similar challenge, for while he is prepared to base his entire ontology on the existence of ideas, Georges Dicker is critical of the fact that he fails to provide any argument in support of their existence.[576] While it is true that Berkeley's idealism proceeds from a somewhat uncritical beginning, we should note that during the early eighteenth century the existence of ideas was treated as an axiomatic proposition for which no demonstration was required.[577] Like Descartes and Locke before him, Berkeley holds that ideas are the immediate objects of consciousness. Where his theory of ideas departs fundamentally from his predecessors however, is in terms of the account of perception which is proposed to account for idea formation and the status which Berkeleian ideas attain as a result.

Berkeley states at the conclusion of the *Dialogues* that 'the things immediately perceived are ideas which exist only in the mind.'[578] Here he adds the following caveat which signals his departure from representationalism, which is 'that those things immediately perceived are real things.'[579] The representational model entails that ideas do not acquaint the perceiver directly with the real world, but are rather indicative of the existence of primary qualities of material bodies which are said to cause them. Such representational realism, which postulates a distinction between ideas and the bodies which cause them, leads to a position of scepticism with regard to our capacity to form reliable beliefs about external objects. There is central epistemological problem which follows directly from representational realism, of which Locke was abundantly aware and which he outlines in the *Essay* as follows*:*

[575] Pitcher, G., 1977. *Berkeley* (London: Routledge & Kegan Paul), p.94.
[576] Dicker, G., 2011. *Berkeley's Idealism: A Critical Examination* (New York: Oxford University Press), pp.68-69 and 79-83.
[577] Flage also argues that such conceptual borrowing is reasonable. Flage, D., 2014. *Op., Cit*., p.59.
[578] Berkeley, *Dialogue* III, Vol. II, p.303.
[579] Berkeley, *Dialogue* III, Vol. II, p.303.

> It is evident the mind knows not things immediately, but only by the intervention of the ideas it has of them. Our knowledge, therefore, is real only so far as there is a conformity between our ideas and the reality of things. But what shall be here the criterion? How shall the mind, when it perceives nothing but its own ideas, know that they agree with things themselves?[580]

Locke is committed to an epistemic agnosticism which follows from the two-term relation associated with the representative model. Since only one term of the proposed relation is accessible, we are left without a means of establishing the requisite correspondence between ideas and the things they are said to represent. The central epistemological challenge which ensues is the search for a legitimate criterion of verifiability, which is required to ensure the objectivity of the ideas.[581] Berkeley is opposed to Locke's theory of representative realism primarily because he deems such an account to be responsible for external world scepticism and the view that our ideas never acquaint us with the real world, being but representations of independently existing material bodies. Berkeley proposes the following challenge to this feature of Locke's system, remarking that:

> But though it were possible that solid, figured, moveable substances may exist without the mind, corresponding to the ideas we have of bodies, yet how is it possible for us to know this? Either we must know it by sense, or by reason. As for our senses, by them we have knowledge only of our sensations, ideas, or those things that are immediately perceived by sense, call them what you will: but they do not inform us that things exist without the mind, or unperceived. It remains therefore that if we have any knowledge at all of external things, it must be by reason, inferring their existence from what is immediately perceived by sense. But what reason can induce us to believe the existence of bodies without the mind, from what we perceive, since the very patrons of matter themselves do not pretend, there is any necessary connexion betwixt them and our ideas?[582]

Berkeley's first move in responding to this challenge is to collapse the two-term relation and abolish the distinction between ideas and things. On his view, Locke's theory entailed a

[580] Locke, *Essay*, IV .iv .iii.
[581] This is precisely the type of problem which Russell identifies in his discussion of the attempt to establish a legitimate criterion of verifiability in the sciences. He states that a 'correlation can only be ascertained empirically by the correlated objects being constantly *found* together. But in our case, only one term of the correlation, namely, the sensible term, is ever *found*: the other term seems essentially incapable of being found. Therefore, it would seem, the correlation with objects of sense, by which physics was to be verified, is itself utterly and forever unverifiable.' Russell, B., 1918. *Mysticism and Logic and Other Essays.* (London: George Allen & Unwin Ltd.), p.145.
[582] Berkeley, *Principles*, section 18. Vol. II, p.49.

needless duplication between ideas and real things, and it is in relation to precisely such an unwarranted bifurcation that Berkeley points in the *Principles*, stating that 'we have been lead into very dangerous errors by supposing the twofold existence of the objects of sense'.[583] He also outlines the problem which follows from this two-term distinction:

> [T]he very root of scepticism ; for, so long as men thought that real things subsisted without the mind, and that their knowledge was only so far forth *real* as it was conformable to *real things*, it follows they could not be certain that they had any real knowledge at all. For how can it be known that the things which are perceived are conformable to those which are not perceived, or exist without the mind?[584]

We should recall at this juncture, that while Berkeley seeks to deny the realist claim that ideas represent independent material bodies, he wants to affirm the ontological thesis that ideas denote real things in the natural world. In order to establish the second of these claims, he must provide a means of ensuring the objectivity of the idea-things in his system, while also acknowledging their fundamental perceiver dependence. Berkeley introduces an important distinction between two types of ideas: ideas of imagination, which we can excite at will and ideas of sense, which he states 'have not a like dependence on my will.'[585] He states that '[t]he ideas of sense are more strong, lively, and distinct than those of the imagination' and that 'they have likewise a steadiness, order, and coherence, and are not excited at random, as those which are the effects of human wills often are, but in a regular train or series.'[586] Berkeley states that the ideas of sense are 'real things' and that they are determined in accordance with 'set rules' and 'established methods,' which we learn by experience. Furthermore the settled laws of nature ensure the universal uniformity among the ideas of sense, which 'gives us a sort of

[583] Berkeley, *Principles*, Section 86. Vol. II, p.78.
[584]Berkeley, *Principles,* Section 86.Vol. II, p.78 This is precisely the problem which Richard Rorty identifies as the central epistemological problem associated with the representative model of perception: 'The seventeenth century gave scepticism a new lease on life because of its epistemology…Any theory which views knowledge as accuracy of representation, and which holds that certainty can only be rationally had about representations, will make scepticism inevitable.' Rorty, R. 1979. *Philosophy and the Mirror of Nature* (Princeton, NJ: Princeton University Press), p.113.
[585] Berkeley, *Principles*, Section 29. Vol. II, p.53. See also sections 28 and 30-33.
[586] Berkeley, *Principles*, Section 30. Vol. II, p.54.

foresight, which enables us to regulate our actions for the benefit of life.'[587]

Berkeley's second move in responding to the problem of scepticism is to introduce a radically new epistemological principle which serves as a means of preserving the objectivity of ideas. The criterion which emerges from his discussion of the settled laws of nature is the principle of internal consistency which enables him to overcome the threat of subjectivism by presenting a legitimate criterion of verifiability. By focusing in the internal consistency of the ideas within the natural world, Berkeley is able to account for their coherence and their objectivity without recourse to occult qualities or material entities. Berkeley provides a solution to Locke's problem by obviating the need to establish the type of correspondence which the distinction between ideas and things had occasioned.

One of the chief advantages associated with the principle of internal coherence is that it provides a firm footing from which scientific investigation can proceed. Rather than seeking to posit occult causes and the manner in which an independent material substance causes ideas, Berkeley proposes a method of investigation which restricts knowledge claims to things which can in principle be known. In so doing, he provides a firm basis for all forms of natural inquiry which is guided by the attempt to study the regularities and connections between phenomena, by undertaking an '*induction of particulars.*'[588] Such an approach furthermore, enables the formulation of reliable predictions, which in turn provides a firm basis for scientific investigation.[589]

---

[587] Berkeley, *Principles*, Section 31. Vol. II, p.54.

[588] Berkeley states that: 'there is not any one *phenomenon* explained on that supposition, which may not as well be explained without it, as might easily be made to appear by an *induction of particulars.'* Berkeley, *Principles*, Section 50, Vol. II, p.62.

[589] Berkeley, *Principles*, Section 31. Vol. II, p.54. Here Berkeley also highlights the practical application of his principles stating that 'This gives us a sort of foresight, which enables us to regulate our actions for the benefit of life. And without this we should be eternally at a loss: we could not know how to act any thing that might procure us the least pleasure, or remove the least pain of sense. That food nourishes, sleep refreshes, and fire warms us; that to sow in the seed-time is the way to reap in the harvest, and, in general, that to obtain such or such ends, such or such means are conducive, all this we know, not by discovering any necessary connexion between our ideas, but only by the observation of the settled laws of Nature, without which we should be all in uncertainty and confusion, and a grown man no more know how to manage himself in the affairs of life, than an infant just born.'

In addition to the principle of internal coherence, Berkeley proposes three central directives which aim to reform natural philosophy and avoid the scepticism which had become a feature of the eighteenth century worldview. He states that we must 'distinguish mathematical hypotheses from the natures of things,' and 'beware of abstractions,' and that above all, we must '*be content with relative measures.*'[590] The last of these points is the most significant, for it highlights the union between ontology and epistemology in Berkeley's system. These directives entail that in order to frame a positive ontological system we must firstly adopt the correct principles of inquiry. We must then acknowledge that these principles are framed from an inexorable human standpoint, which necessarily entails that our perceptual states are subjectively determined. The phrase that Berkeley uses to assert the mind-dependence of sensory ideas is 'in the mind,' and by applying the principle of internal consistency, he can also hold that our ideas denote real things.[591] Berkeley revised epistemological approach gives him a distinct advantage over his predecessors and constitutes 'a radical departure from the representative realism of Descartes and Locke, who held that ordinary objects are distinct from our ideas of them.'[592] As Flage notes, Berkeleian ideas contain both an epistemic and an ontological aspect, whereby they are at once the objects of human knowledge and components of the natural world.[593]

While Berkeley's refutation of material substance is well trodden ground in the philosophical literature, a prominent misconception which persists is that Berkeley's immaterialist metaphysics undermines the corporeal status of the physical world. When we examine Berkeley's arguments against material substance, we find that such a view is

[590] Berkeley, *De Motu,* Section 66. Vol. IV, p.50.
[591] It is important to note that while Berkeley determines that ideas are 'in' the mind, this is not a literal claim which entails that what we perceive is literally located within the mind or reducible to a mental entity. In the *Dialogues*, Philonous states, 'Look you Hylas, when I speak of objects as existing in the mind or imprinted on the senses, I would not be understood in the gross literal sense, as when bodies are said to exist in a place, or a seal to make an impression upon wax. My meaning is only that the mind comprehends or perceives them.' *Dialogue III*, Vol. 2, p.250.
[592] Flage, D., 2014. *Op., Cit.*, p.71.
[593] Flage, D., 2014. *Op., Cit.*, p.69.

unfounded and results principally from the failure to understand the concept of matter which he seeks to undermine. According to Berkeley the concept of material substance is a relic of the scholastic age and an unwarranted metaphysical appendage which serves no positive role in a persuasive ontological system:

> I cannot but remark, how the nearly vague and indeterminate description of matter or corporeal substance, which the modern philosophers are run into by their own principles, resembles that antiquated and so much ridiculed notion of *materia prima*, to be met with in Aristotle and his followers.[594]

It is interesting to note that while Berkeley operates with a decidedly Aristotelian concept of matter in passages such as this one, elsewhere he invokes a conception which is more in keeping with Boyle's corpuscular hypothesis.[595] While this apparent vacillation may call the clarity of Berkeley's conception of matter into question, we should note there are two prominent theories of matter evident during the period, and that Berkeley is opposed to both.[596] While then Berkeley is opposed to 'theories' of matter, the arguments which he presents demonstrate a commonality of intent, as he launches an attack on the conceptual framework underpinning both.[597] His principal opponent is here Locke, and many of his arguments are directed aimed at Locke's account of material substance in the *Essay.*

Locke's ontology is based on the supposition of material substance as the substrate which gives rise to the perceivable qualities of the world. Locke's concept of material substance is problematic however and entails that substance is something fundamentally unknowable. In the second book of the *Essay,* he states that:

[594] Berkeley, *Principles*, Section 11, Vol. II, p.45.
[595] Berkeley, *Principles*, Section 9, Vol. II, p.45. Here Berkeley points to the distinction between primary and secondary qualities and outlines the definition of matter associated with its acceptance.
[596] Daniel Flage acknowledges this in his discussion of Berkeley's refutation of material substance. Flage, D. 2014, *Berkeley* (Cambridge, UK: Polity Press), pp.70-72.
[597] In *Principles* 20, Berkeley states that 'I think arguments *a posteriori* are unnecessary for confirming what has been, if I mistake not sufficiently demonstrated *a priori*.' Vol. II, p. 49.

> [I]f anyone will examine himself concerning his notion of pure substance in general, he will find he has no other idea of it at all, but only a supposition of he knows not what support of such qualities, which are capable of producing simple ideas in us; which qualities are commonly called accidents. If any one should be asked, what is the subject in which colour and weight inheres, he would have nothing to say, but the solid extended parts: And if he were demanded, what is it that solidity and extension adhere in, he would not be in a much better case than the Indian before-mentioned, who, saying that the world was supported by a great elephant, was asked what the elephant rested on; to which his answer was, a great tortoise. But being pressed to know what gave support to the broad-backed tortoise, replied, something he knew not what.[598]

Berkeley is keen to show that the supposition of a material substance is nothing more than a deep rooted conceptual prejudice which has no place in any positive ontological system. He states that:

> [B]ecause the tenet of the existence of Matter seems to have taken so deep a root in the minds of philosophers, and draws after it so many ill consequences, I choose rather to be prolix and tedious than omit anything which might conduce the full discovery and extirpation of that prejudice.[599]

In addition to voicing his objection to the hylemorphic or Aristotelian account of matter, Berkeley attacks the corpuscular hypothesis which had its origins in Boyle and which exerted considerable influence on Locke's philosophy.[600] Berkeley presents a series of arguments in the *Principles* designed to show that the concept of material substance which Locke upholds is philosophically untenable.[601] He argues that the concept of matter involves a contradiction on the basis that qualities such as extension, figure and motion, are in fact sensible qualities which

[598] Locke, *Essay.* Book II. Xxiii. ii.
[599]Berkeley, *Principles*, Section 9, Vol. II, p.45. [This entry omitted from the second edition of the *Principles*, published in 1734.]
[600] Boyle, R (1666) 'The Origin of Forms and Qualities According to the Corpuscular Philosophy' In: Stewart, M.A., (ed.). 1991. *Selected Philosophical Papers of Robert Boyle* (Indianapolis, USA: Hackett Publishing Company)
[601] Berkeley's arguments against matter occur in *Principles* 8-24. The arguments which he provides against the Lockean conception of matter are that: (1)it involves a contradiction on the basis that the qualities which it is said to possess such as extension, figure and motion are sensible qualities [*Principles*, section 9] (2) It is inconceivable on the basis that sensible qualities cannot be considered in abstract and are always relative to a perceiver [*Principles*, section 10)] (3) It is unnecessary as we are able to understand to understand the coherence of our ideas without recourse its existence [Principles, section 18]. Berkeley presents his 'Master argument' in *Principles* 22, which is an extended version of the argument from inconceivability which he presents in *Principles*, section 10; he writes 'I am content to put the whole upon this issue; If you can but *conceive* it possible for one extended moveable substance, or in general, for any one idea, or anything like an idea, to exist otherwise than in a mind perceiving it, I shall readily give up the cause.'

are 'ideas existing in the mind.'[602] While these qualities are said to be the real primary qualities of matter, Berkeley points to the fact that basis for the distinction between primary and secondary qualities is completely unfounded. He argues that it is not possible to 'frame an idea of a body extended and moved, but I must withal give it some colour or other sensible quality.'[603] This distinction, as made by Locke, is based on the notion that primary qualities are distinguishable from secondary qualities in that while the former are ontologically real and inhere in matter, secondary qualities by contrast are merely subjective responses which the perceiver has to the powers of real qualities acting upon their sensory organs. Berkeley argues that so-called primary qualities are inherently sensible qualities; they demonstrate the same irreducible mind-dependence as secondary qualities, and consequently the same degree of ideality, such that the distinction which is invoked by Locke is without foundation.[604] He states that, 'let any one consider those arguments which are thought manifestly to prove that colours and tastes exist only in the mind, and he shall find they may with equal force be brought to prove the same thing of extension, figure, and motion.'[605]

While the argument from perceptual relativity is one of his main arguments which Berkeley employs against Locke's account of matter, many commentators are critical of this strategy which they contend testifies to a careless reading of Locke's ontology.[606] It is held that Berkeley erroneously and misleading construes the distinction as one supposed to rest on ordinary experience of macroscopic objects, when in fact the distinction is based on the

[602] Berkeley, *Principles*, Section 9. Vol. II., p.45.
[603] Berkeley, *Principles*, Section 10. Vol. II, p.45.
[604] By ideal here we refer principally to the claim that sensible qualities are conditioned by the subject. We do not accept that such a claim entails a reductive ontological outcome whereby ideas become purely mental entities. Rather, we hold that ideas for Berkeley have a dual status; they are ideal in that they are conditioned by the subject, but they are also empirically real as they also denote real things.
[605] Berkeley, *Principles*, Section 15. Vol. II, p.47.
[606] Proponents of this view are Peter Alexander 'Boyle and Locke on Primary and Secondary Qualities,' in Tipton, I. (ed.) 1977. *Locke on Human Understanding* (Oxford: Oxford University Press)., pp.62-76. Mackie, J.L., 1976. *Problems From Locke* (Oxford: Clarendon Press), chapter 2. Maurice Mandelbaum, 1964 'Locke's Realism' in: (ed. Mandelbaum) *Philosophy, Science and Sense Perception* (Baltimore: Johns Hopkins Press), pp.27-28.

explanatory success of Boylean atomism.[607] It is clear however that Berkeley is well aware of the origin of this distinction, as well as the indelible legacy of Robert Boyle's corpuscular hypothesis:

> [Y]ou will say there have been a great many things explained by matter and motion; take away these, and you destroy the whole corpuscular philosophy, and undermine those mechanical principles which have been applied with so much success to account for the *phenomena.*[608]

Furthermore Berkeley's reliance on relativity considerations does not undermine his critique of the primary-secondary quality distinction.[609] A point which is frequently overlooked by supporters of Locke's position is that while the distinction may have emerged in response to the explanatory success of Boyle's corpuscular theory, the manner in which Locke employs this hypothesis has direct implications for his ontology. Locke bases his account of physical body largely on Boylean atomism. He accepts that bodies have a corpuscular substructure, which he describes as 'the internal Constitution, and true nature of things.'[610] He claims furthermore that this substructure represents the true qualities of bodies, stating that '[t]he particular *Bulk, Number, Figure, and Motion of the parts of Fire or Snow are really in them*, whether any senses perceive them or no: and therefore they may be called *real Qualities.*'[611] In terms of Locke's analysis, the fundamentally real qualities of body are unknowable, on the basis that we have no knowledge of the 'internal constitution and true Nature of things, being

[607] Wilson identifies the following criticisms which are brought against Berkeley by defenders of Lockean realism: (1) Locke's distinction should be viewed as being grounded principally in the explanatory success of Boylean atomism. (2)Berkeley erroneously and misleading construed the distinction as one supposed to rest on ordinary experience of macroscopic objects.(3)Through his stress on relativity considerations, Berkeley is responsible for long history of misinterpreting Locke as relying on such considerations. Wilson, M 'Did Berkeley Completely Misunderstand the Basis of the Primary-Secondary Quality Distinction in Locke?' In Turbayne, C. (ed.), 1982 *Berkeley: Critical and Interpretative Essays.* (Manchester: Manchester University Press), p.109.
[608] Berkeley, *Principles,* Section 50. Vol. II, p.62.
[609] Margaret D. Wilson and Barry Stroud also defend Berkeley's critique of Locke's Primary-Secondary quality distinction. See Wilson, M., 1982. *Op., Cit.* pp.108-126. Stroud, B., 1980. 'Berkeley v. Locke on Primary Qualities,' in *Philosophy* 55, April, p.150
[610] Locke, *Essay*, II, xxiii, xxxii.
[611] Locke, *Essay*, II, viii, xv. .

destitute of the Faculties to attain it.'[612] It is precisely this form of agnosticism regarding the true nature of objects in the natural world that Berkeley deems to be one of the chief difficulties confronting natural philosophy during the early eighteenth century. He writes:

> All that stock of arguments they produce to depreciate our faculties and make mankind appear ignorant and low, are drawn principally from this head, namely, that we are under an invincible blindness as to the true and real nature of things..We are miserably bantered, say they, by our senses, and amused only with the outside and show of things. The real essence, the internal qualities and constitution of every the meanest object, is hid from our view.[613]

A second difficulty associated with Locke's account is the explanatory gap associated with his account of material causation. Berkeley is keen to highlight the fact that material substance cannot fulfil the role which Locke's ontology requires, for the supposition of matter moves us no closer to framing a coherent account of how material bodies produce ideas. Berkeley argues accordingly that:

> [T]hough we give the materialists their external bodies, they by their own confession are never the nearer knowing how our ideas are produced, since they own themselves unable to comprehend in what manner body can act upon spirit or how it is possible it should imprint any ideas in the mind.[614]

Locke's account of material causation has direct implications for the status of objects at the macroscopic level of observation and consequently for our ordinary pre-scientific perceptual experience.[615] We find that Berkeley's criticisms are not the result of a careless reading of Locke but rather serve to demonstrate the uncritical manner in which many of the key scientific discoveries of the early eighteenth century were being interpreted by natural philosophers.

---

[612] Locke, Essay, II, xxiii, xxxii.
[613] Berkeley, *Principles*, Section 101. Vol. II, p.85.
[614] Berkeley, *Principles*, Section 19. Vol. II, p.49.
[615] Daniel Garber claims that the type of scepticism which Locke's employment of Boyle's corpuscular hypothesis entails is of a restricted kind which he identifies as 'corpuscular scepticism.' Such a variation, he claims, is to be distinguished from the scepticism deriving from Locke's representative realism, on the basis that corpuscles are perceptible in principle, while material objects are not. I do not think that this distinction rescues Locke from Berkeley's criticism, as both forms of scepticism are equally pernicious and entail that our faculties are inherently incapable of accessing the true nature of reality. See Garber, D., 1982. 'Locke, Berkeley and Corpuscular Scepticism.' In: Turbayne, C. (ed.), *Op., Cit.*, p, 117-179.

While Berkeley's arguments serve to demonstrate the untenability of the prevailing concept of material substance, he also seeks to expose the spurious chain of reasoning which lead to its initial formulation. Berkeley works to expose the error which had led to the supposition of matter as an ontological substrate in the first instance. Locke had reasoned that since we observe an object and perceive its qualities, there must be some underlying support which provides an ontological grounding to the ideas themselves, if they are to exist as anything other than purely mental entities. Locke argues that '[n]ot imagining how these simple ideas can subsist by themselves, we accustom ourselves to suppose some substratum wherein they do subsist and from which they do result.' [616] Locke's proposes the following justification to account for his substratum hypothesis:

> The idea then we have, to which we give the general name substance, being nothing but the supposed, but unknown, support of those qualities we find existing, which we imagine cannot exist *sine re substante*, without something to support them, we call that support substantia; which, according to the true import of the word, is, in plain English, standing under or upholding.[617]

Berkeley's critique of the substratum fallacy demonstrates a keen awareness of the pathological nature of language, which is the source of much philosophical error according to Berkeley.[618] He is keen to highlight a prevalent fallacy underpinning Locke's conception of material substance, which has its origin in language. He states that:

> It is said extension is a mode or accident of matter, and that matter is the *substratum* that supports it. Now I desire that you would explain what is meant by matter's *supporting* extension: say you, I have no idea of matter, and therefore cannot explain it. I answer that, though you have no positive, yet if you have any meaning at all, you must be supposed to know what relation it bears to accidents, and what is meant by its supporting them. It is evident that support cannot here be taken in its usual or literal sense, as when we say that pillars support a building: in what sense therefore must it be taken?[619]

---

[616] Locke, *Essay*, II, xxiii, i.
[617] Locke, *Essay*, II. xxiii, .ii.
[618] Referring to the potentially pathological nature of language, Berkeley writes 'we need only draw back the curtain of words, to behold the fairest tree of knowledge, whose fruit is excellent and within reach of our hand. Berkeley, *Principles*, Introduction, section 24, Vol. II, p.40. In *De Motu*, Berkeley writes '[i]n the pursuit of truth we must beware of being misled by terms which we do not rightly understand.' Berkeley, *De Motu*, section1, Vol. IV, p.31.
[619] Berkeley, *Principles*, Section 16. Vol. II, p.47.

Here Berkeley points to the potentially pathological nature of language, and also the need to distinguish between literal and metaphorical language usage.[620] In his particular employment of the concept of a material substratum as support of the qualities of his system, Locke had become, as Colin Turbayne puts it, a 'victim of metaphor' and had inadvertently given the metaphorical an ontological weight.[621] Berkeley is eager to distinguish the philosophical concept of matter from the sensible or the 'vulgar' conception thereof. The latter conception refers to sensible qualities and the ideas which are perceived and which the much exalted man of ordinary common sense is directly familiar with though his perceptual experience of the world of objects: Rather than undermining the corporeality of the natural world, Berkeley works to redefine the concept of substance in positive terms and replace an untenable philosophic definition with a sensible one and in so doing, provide a a positive ontological framework which would be free of the scepticism associated with realism:

> [I]f the word *substance* be taken in the vulgar sense-for a combination of sensible qualities, such as extension, solidity, weight, and the like-this we cannot be accused of taking away: but if it be taken in a philosophic sense- for the support of accidents or qualities without the mind-then indeed I acknowledge that we take it away. [622]

Regarding the claim that Berkeley's immaterialism entails a denial of the substantial nature of the physical world, we can now say that such a claim is unfounded and based on a careless and inaccurate understanding of the precise conception of matter which he seeks to undermine. Berkeley's denial of material substance is a limited claim which pertains to an esoteric philosophical conception which has no bearing on what might be described as matter in the sense of everyday objects. While the latter occupies physical space in three dimensions and manifest solidly through resistance, the former is an esoteric philosophical conception which refers to a metaphysical substrate which is said to support the ideas which we perceive. It is

[620] Berkeley warns that 'a philosopher should abstain from metaphor.' Berkeley, *De Motu*, Section 3. Vol.VI, p.32.
[621] Turbayne, C., 1962. *The Myth of Metaphor* (New Haven: Yale University Press). p.22.
[622] Berkeley, *Principles*, Section 37. Vol. II, p.56.

exclusively the philosophic concept of matter which Berkeley seeks to deny. He confirms this stating that the only 'thing whose existence we deny is that which the *philosophers* call Matter or corporeal substance. And in doing this there is no damage done to the rest of mankind, who, I dare say, will never miss it.'[623]

[623] Berkeley, *Principles*, Section 35. Vol. II, p.56.

Conclusion

We have sought to offer a response to the 'old chestnut question' of Berkeleian scholarship by providing a revised account of the core claims of the *New Theory of Vision* and examining their role within Berkeley's overall philosophical system.[624] While many prominent accounts have been offered, I have sought to show that many existing treatments fail to capture the full complexity Berkeley's undertaking in the *New Theory* and have accordingly misconstrued its significance within his system as a whole.

We have challenged two prominent views which aim to show that the *New Theory* is devoted to paving the way for Berkeley's larger metaphysical project. Proponents of the prelude view maintain that the *New Theory* is essentially a half way house to the metaphysics of the later works wherein he seeks to establish the immaterial status of visual ideas. Proponents of the irrelevance view claim, that as a partial iteration of his immaterialist hypothesis, Berkeley's undertaking in the *New Theory* is largely unsuccessful and ultimately inconsistent with his final metaphysical position. One of the primary reasons why it is held that the *New Theory* is at odds with the later works is because it is alleged that Berkeley makes a significant concession to materialism by allowing for the real or mind-independent status of tangible ideas.

We have shown that the attempt to read the *New Theory* as a prelude to the metaphysics of the later works fails to accurately identify Berkeley's central aim. We have sought to show that the *New Theory* must be understood in the context of early eighteenth century optical theory and the debates which were ongoing at the time of its publication. We have argued with proponents of the continuity view that Berkeley is not aiming to offer a partial iteration of his later immaterialist metaphysics, but that he is working to offer a solution to the problem of

[624] Lennon, T. M., 2008, 'The Historical consistency of Berkeley's Idealism,' in: *British Journal for the History of Philosophy*, vol. 16, issue 1, p.101.

distance perception. When we acknowledge that Berkeley is responding to this prominent eighteenth century problem, then we are able to recognise that he is presenting an account of visual spatial perception, rather than working to establish the immaterial status of visual ideas; a task which he subsequently undertakes in the *Principles* and *Dialogues.*

While he is centrally concerned to establish the immaterial status of ideas in the later works, in the work on vision he is advancing an account of relative space and extension and offering an account of distance, size and magnitude perception. Such an account furthermore forms part of his attempt to countermand the Newtonian account of absolute space. We have seen that providing an account of spatial perception forms an important part of Berkeley's larger philosophical ambit as the concept of absolute space possessed all of the attributes that Berkeley found objectionable in matter. Berkeley's strategy to this end is two-fold: he provides arguments designed to show that the concept of absolute space is philosophically untenable and he also presents a positive account of relative space and extension. It is to the latter task that he devotes the *New Theory*.

We have sought to expose and undermine many of the central misconceptions associated with the *New Theory*, including the view that Berkeley is committed to a form of two-dimensional viewing whereby what is immediately seen is a two-dimensional visual image.[625] It is alleged that he is 'deceived by the two-dimensional nature of the simulacrum' and is led to conclude that visual experience is two-dimensional because of the fact that a two-dimensional image is projected onto the retina.[626] We have shown however, that Berkeley rejects the two-dimensional hypothesis and that he is a discerning critic of early modern visual theory and acutely aware of the types of conceptual difficulties which were endemic to the then prevailing geometrical model. Another such difficulty which he succeeds in highlighting is the

[625] A.D. Smith (2000) and David Armstrong (1960) are prominent proponents of this view as we have seen.
[626] Armstrong, D., 1960, *Op., Cit.*, p.10.

homunculus fallacy which is evident from his treatment of the problem of the inverted retinal image.

We have also seen that Berkeley's departure from the geometrical model is far more significant than is generally acknowledged. While we have sought to rectify many of the exegetical difficulties associated with the core claims of the *New Theory*, our analysis also serves to highlight Berkeley's lasting contribution to visual theory. He is one of the first theorists to recognise that computational models of visual perception often involve the illegitimate application of geometrical principles to the cognitive operations of the human mind.[627] Berkeley's critique of geometrical optics demonstrates that Descartes' early computational model operates with an account of mental processing which entails that the mind functions accordingly to the laws of geometry. While then Berkeley is astute in highlighting a central problem which is endemic to computational models of perception, it can be argued that such an insight has not been fully grasped and is the subject of ongoing misgivings about the nature of visual spatial perception. This is evident when we consider that Lloyd Kaufmann and Irwin Rock offer a defence of Descartes' account of size perception and argue that the model of spatial perception which Berkeley opposes is in fact the correct one.[628]

We have also claimed that existing associationist readings fail to resolve a significant tension in Berkeley's account of the proper objects of vision. We have proposed a means of resolving this tension by pointing to a distinction in Berkeley's account between *perceptual immediacy* on one hand, and *process immediacy* on the other. Such a distinction enables us to show that while Berkeley is working to establish a thesis about visual signs which serve as signifiers for tangible objects in the environment, he is also engaged in the attempt to understand the underlying processes which result in the apprehension of visual signs or ideas

[627] Robert Schwartz comments that one of the major contributions that Berkeley makes to the development of visual theory is the recognition that there is an important distinction between optical theory and psychological explanation. Schwartz, R., 1994. *Op., Cit.*, p.21.
[628] Kaufmann, L. & I., Rock, 1962. 'The Moon Illusion' in: *Scientific American*, 207, pp.120-131.

in the first instance. In so doing, we can say that Berkeley's account operates on precisely the same level as Descartes and the other opticians of the period who had sought to offer theoretical accounts of the process underlying visual spatial perception.

While proponents of the continuity view have succeeded in identifying the main aim of the *New Theory*, the model of spatial perception which they attribute fails to capture the full complexity of his position. Our attempt to offer a clear and coherent account of Berkeley's model of spatial perception has focused to a large extent on his discussion of the Molyneux man. We have argued that he employs the case of the Molyneux man as the pathological case which reveals the hidden complexities of the process of spatial perception. We have claimed that this discussion reveals that he is committed to the constitutive volition thesis which entails that the ability to perceive spatially is intimately linked to bodily action and movement and that there is a constitutive relation between bodily action and the content of experiential states.

We have also seen considered Kant's critique of Berkeley and have claimed that the constitutive volition thesis aligns Berkeley more closely to Kant's critical philosophy than the project of classical empiricism. Kant's departure from the early modern tradition occurs most forcibly in terms of the revised epistemological framework which he presents in the *Critique of Pure Reason*. His central claim is that inner experience is possible only on the supposition of outer experience, stating that 'the mere, but empirically determined, consciousness of my own existence proves the existence of objects outside me.'[629] The claim that outer experience is a necessary prerequisite for inner experience departs significantly from the Cartesian tradition and the attempt to identify an apodictic foundation for knowledge in the form of the Cogito, and the project of classical empiricism, which seeks to ground knowledge in sensory experience. Kant rejects the view that knowledge has either an *a priori* or *a posteriori* origin and distinguishes his epistemological approach stating that:

[629] Kant, *Critique of Pure Reason*, [B275], p.326.

> Hitherto it has been assumed that all our knowledge must conform to objects. But all attempts to extend our knowledge of objects by establishing something in regard to them a priori, by means of concepts, have, on this assumption, ended in failure. We must therefore make trial whether we may not have more success in the task of metaphysics, if we suppose that objects must conform to our knowledge [630]

We have seen too that Berkeley's account of space demonstrates a close affinity with two central aspects of Kant's critical philosophy. Firstly, in rejecting the Newtonian conception of absolute space, he is rejecting the view that space exists independently of the subject's formal capacities. Secondly, Berkeley offers an account of spatial perception which is based on the central contention that our knowledge of space is conditioned by the subjective capacities of the human subject, which aligns him very closely to Kant and the view that 'we can never go beyond the boundaries of possible experience.'[631] Berkeley's account is based on the central contention that the subject has a formal role in determining perceptual content and in missing this; Kant becomes one of the most influential thinkers of the post-modern period to misrepresent Berkeley's account of spatial perception.

We have also shown that that Berkeley's account of spatial perception forms an integral part of his attempt to reform the substance tradition of the eighteenth century. In the *Principles* and the *Dialogues*, Berkeley works to countermand the scepticism associated with Locke's representative realism by offering a revised ontological system which seeks to preserve the corporeality of the natural world. Berkeley's rejection of the Newtonian account of absolute space fits well with his rejection of matter for the former possesses all of the features which Berkeley deems objectionable in Locke's description of matter. The strategy which Berkeley employs in his critique of matter is again evident in his treatment of the concept of space. Not only does he reject the concept of absolute space, but he works to present a viable alternative in the *New Theory*, wherein he highlights the role of the subject in determining the content of

[630] Kant, *Critique of Pure Reason*, [B vxi], .22.
[631] Kant, *Critique of Pure Reason*, [B xix], p. 111-112.

experiential states. While traditionally it has been held that Berkeley's account of perception entails that the perceiver is merely passive during perception, our reading serves to challenge this view. It can be argued that one of the main reasons why this has been overlooked is because Berkeley never offers an explicit characterisation of his theory of volitional causation.[632] In terms of our reading, we have sought to offer an account of how volition operates within the context of Berkeley's account of spatial perception. We have claimed that what emerges from this account is that there is a form of human activity which shapes the content of what is perceived.

We have also offered a revised account of agent causation based on the theory of spatial perception which Berkeley presents in the *New Theory*. We have challenged readings which claim that that Berkeley restricts finite agency to mental activity or forms of non-constitutive volition, and have claimed that he subscribes to the constitutive volition thesis which entails that finite agents have a constitutive role in the production of the ideas of sense. We have also sought to account for the relationship between Divine and finite minds by proposing the collaborative volition thesis which entails that finite agents are impelled by the Divine mind with whom they work in concert to co-create the ideas which constitute the natural world.

While the notion that Berkeley points to the significance of bodily action during perception, has already been proposed by A.D. Ritchie, we go farther in claiming that Berkeley endorses the view that human action constitutes the content of ideational states. Ritchie restricts human action to forms of exploration and acts of auxiliary volition alone; he claims that for Berkeley 'we can discover what bodies are doing and what is being done to them, directly by handling these bodies..just looking gets us nowhere.'[633] While we find Ritchie astute in his claim that the body has an important role during perception, the nature of

[632] Cummins, P., 2005. 'Berkeley on Minds and Agency' In: Winkler, K (2005) *The Cambridge Companion to Berkeley* (Cambridge: Cambridge University Press). Cummins argues that while Berkeley 'affirmed volitional causation by minds, he never offered a systematic characterisation of his alternative.' (p.190).
[633] Ritchie, A.D. (1974) *Berkeley: A Reappraisal*, p.92.

the role which he assigns fails to capture the full complexity of Berkeley's position. In pointing to the importance of touch as a means of empirical investigation, the position which Ritchie attributes is one in which bodily activity is merely an additional means of engagement and which entails a non-constitutive relation between bodily action and perceptual experience. While Berkeley does accept that acts of non-constitutive volition are one prominent form of human activity, his theory of spatial perception demonstrates his commitment to a constitutive relation between bodily action and perceptual experience, whereby the former capacity is intrinsic to the perception of spatial properties. In the latter case our capacity to perceive an object and apprehend its extended properties is shaped by our early experiences of embodied action.

We have also sought to show that the Berkeleian subject is an embodied actor of a particular kind; while this subject is essentially a spiritual being; embodied action is nonetheless requisite in order to perceive the world and apprehend the spatial qualities of objects. While the divine mind is the supreme principle of volition and the efficient cause of finite action, we have shown that human action is nonetheless necessary for perception to occur and that there is a constitutive relation between human action and the content of experiential states. Our examination of Berkeley's account of mind and mental operations has also served to demonstrate that he is prepared to countenance the existence of unperceived mental transactions and we have considered the manner in which he introduces the doctrine of notions to account for knowledge of the mind and mental operations. I think that we may speculate that one of the reasons why Berkeley never presented a final account of mind is because of the difficulty associated with offering a positive description of non-ideational mental states. Such a difficulty furthermore may account for his reliance on the Molyneux case and its prevalence throughout the *New Theory*. It is precisely because he was trying to find a means of investigating phenomena which were not amenable to introspection, that he employs the

pathological case to vindicate his theoretical position. While the experience of the Molyneux subject is markedly different than that of the typical perceiver; the pathological case provides an insight into the types of underlying processes that he is interested in exploring.

Our study also has significant implications for how we are to understand the methodology which Berkeley employs in the *New Theory*. We will recall that Berkeley highlights a significant methodological transition which occurs from the analytic method which is employed in the *New Theory*, to the synthetic method which is employed in the later works. He states that analytic method which he employs in the *New Theory*, form the basis of the principles of the synthesis wherein the conclusion from which he proceeds is that '*Vision is the Language of the Author of* Nature.'[634] I submit that Berkeley employs a method of analysis which is based on inference, whereby he extrapolates from the pathological case to achieve an insight into the process which subtends spatial perception in the case of the typical sighted perceiver. While the nature of the process involved in spatial perception is not evident in typical case, the pathological case offers an insight into the stages involved in learning to perceive spatially.

In conclusion, I propose that there is a strategic connection between the *New Theory* and the later works, and that the former is devoted to offering an account of the process involved in spatial perception. It is my contention furthermore that any attempt to understand Berkeley's system must take the *New Theory* seriously; as a work which provides an significant insight into his overall philosophical aims and methodology and that we should reject the tendency to regard his work in vision as a prelude to his mature views which emerge only after 1709. When we consider that he publishes his work on vision a total of ten times and in three different styles, the notion that he is either disingenuous with respect to the core claims of the *New*

[634] Berkeley, *TVV* Section 38, Vol. I, p.264.

Theory, or that he abandons his position by the time he comes to write the *Principles* in 1710, must be forever quashed.

Final Remarks

While our analysis has served to highlight the manner in which Berkeley's theory of visual spatial perception makes a lasting contribution to the field of perceptual theory, in order to arrive at a clear and accurate understanding of Berkeley's system we must at all times be mindful of the debates which were prominent during the early eighteenth century. Much of our discussion has accordingly focused on the widespread influence of Locke's *Essay*, and in particular his theory of representative realism which was the dominant theory of perception during the eighteenth century. Not only did this model have a direct impact upon theories of perception during the early eighteenth century, but as David Berman points out it also provided the foundation for theological representationalism which had a number of prominent adherents during the time when Berkeley was completing his studies at Trinity College.[635]

We will recall that Locke's representative model of perception is based on a three term relation, between the mind, its ideas and material bodies and their qualities. One of the central reasons why Berkeley is opposed to this model as we have seen, is because it leads to scepticism, which follows from the distinction between ideas and the things which they are said to represent, he states that:

> The supposition that things are distinct from Ideas takes away all real Truth & consequently brings in a Universal Scepticism, since all our knowledge & contemplation is confin'd barely to our own Ideas. [636]

[635] The doctrine of theological representationalism upholds the same three term relation which forms the basis of Locke's representative model; between minds, ideas and the material objects which are said to cause ideas. The doctrine of theological representationalism holds that there are minds, our ideas of God's attributes and God's attributes as they are in themselves. Berman, D., 2005, *Op., Cit.*, p. 90.
[636] Berkeley, *Notebook A*, entry 606. Vol. I, p. 75.

One of the central problems associated with the representative model is that our claims to knowledge are based on a relationship of resemblance, between ideas and the material bodies which are said to cause them. Berkeley argued that while knowledge claims are based on such a relationship of resemblance that we are forever reduced to a position of scepticism regarding the true nature of the external world.

The predominance of Locke's system is also clearly evident in the theological discourses of the time. While John Toland employs Locke's theory of meaning to demonstrate that religious mysteries are meaningless in C*hristianity Not Mysterious* published in 1696, the attempt to account for man's knowledge of Divine attributes was also based firmly on Lockean foundations. [637] Arch Bishop William King formed part of a prominent movement in Dublin which adapted Locke's representative model to theological ends. David Berman writes that King forms part of the 'prelatal triumvirate' which also included Peter Browne and Edward Synge, each of whom espoused theological representationalism and the view that Divine attributes were essentially unknowable. Theological representationalism is based upon the same three term relation which forms the basis of Locke's representative model: the mind, our ideas of God's attributes, and God's attributes as they are in themselves. Berman comments that Archbishop King in particular, uses the representative model with some ingenuity to explain man's knowledge of God. King uses the example of secondary qualities as an analogy to explain our knowledge of God. King states that:

> I think it is agreed by most Writers of *Natural Philosophy*, that *Light* and *Colours* are but Effects of certain *Bodies* and *Motions* on our Sense of seeing, and that there are no such Things at all in Nature, but only in our Minds. ..But it would seem very strange to the Generality of Men, if we should tell them there is no *Light* in the *Sun*, or *Colours* in the *Rain-Bow*: And yet strictly speaking, it is certain, that which in the *Sun* causes the Conception of *Light* in us, is as truly different in Nature from the Representation we have of it in our Mind, as our *Fore-knowledge*, is from what we call so in God. [638]

[637] Toland employs Locke's theory of meaning to argue that the Christian Mysteries are meaningless since they do not stand for ideas. Since they do not stand for ideas, he argues that either the Christian Mysteries are meaningless, or that Christianity is essentially non-mysterious.

[638] King, W., 1709. 'Predestination and Foreknowledge Consistent with the Freedom of Man's Will.' Quoted in Berman, D., 2005. *Berkeley and Irish Philosophy*. (Dublin: Continuum) pp. 91-92.

Berkeley is a staunch opponent of theological representationalism, precisely because it entails the same type of sceptical outcome which he had discerned to follow from Locke's theory of representative realism. The 'universal scepticism', against which Berkeley warns, refers not only to the 'causes of error and difficulty in the Sciences' but more perniciously to the causes of 'Atheism, and Irreligion,' as the subtitle of the *Principles* confirms. [639] The threat which theological representationalism presents is highlighted by Berman who states that in terms of such a view 'God's attributes are entirely different from what we can understand.'[640] Theological representationalism entails that we can have no direct knowledge of God, which accordingly leaves the door open for scepticism regarding God's existence and the accompanying threat of atheism and irreligion to which Berkeley is expressly opposed. Berman claims that the principal reason for his opposition was the fact that 'the prelatal triumvirate had assigned to God the same epistemological position to which Berkeley endeavoured to assign matter.' [641]

It is my contention that one of the reasons which induced Berkeley to present his account of agent causation was to demonstrate that finite beings have direct and incorrigible knowledge of God's existence. For Berkeley, the view that we are only indirectly aware of Divine attributes would not do and as such he sets out to provide an account which would demonstrate our immediate awareness of God's presence in the world. As such, Berkeley offers an account of agent causation which demonstrates not only the fundamental link between God and man but which also attests to the presence of the Divinity in the natural world. In so doing, it can be claimed that Berkeley offers an account of Divine revelation, by demonstrating the

[639] The full Title of Berkeley's 1710 masterpiece reads: '*A Treatise concerning The Principles of Human Knowledge: Wherein the chief causes of error and difficulty in the Sciences, with the grounds of Scepticism, Atheism, and Irreligion, are inquired into*.'
[640] Berman, D., 2005. *Op., Cit.*, p. 92.
[641] Berman, D., 2005. *Op., Cit.*, p. 98.

manner in which God works in concert with finite spirits to reveal himself in the natural world.

In the *Principles*, he points to one of the chief sources of atheism, claiming that: '[i]t seems to be a general pretence of the unthinking herd, that they cannot see GOD. Could we but see him, say they, as we see a man, we should believe that he is, and believing obey his commands.' [642] Here Berkeley indicates that man's capacity to have a direct experience of God's directly influences the degree to which they will act in accordance with Divine law. Berkeley is at pains to show that God is immanent in the world and present in every facet of human existence for precisely this reason. He contends that we do have direct knowledge of God's existence and that we perceive God in the same manner by which we perceive other human beings, stating that:

> A Humane sprit or person is not perceived by sense, as not being an idea; when therefore we see the colour, size, figure, and motions of a man, we perceive only certain sensations or ideas excited in our own minds: and these being exhibited to our view in sundry distinct collections, serve to mark out unto us the existence of finite and created spirits like ourselves.[643]

Berkeley goes on to state that the manner in which we encounter God's presence in the natural world is even more immediate and direct than our knowledge of other finite spirits, for while a 'finite and narrow assemblage of ideas denotes a particular human mind, by contrast, 'whithersoever we direct our view, we do at all times and in all places perceive manifest tokens of the divinity: every thing we see, hear, feel, or otherwise perceive by sense, being a sign or effect of the Power of GOD.' [644]

The collaborative volition thesis enables Berkeley to present a viable alternative to theological representationalism and to show that we have a direct experience of Divine attributes in the natural world. He maintains that finite agents are endowed with genuine active and causal powers and that God's general assistance impels finite volition. Such an account

[642] Berkeley, *Principles*, Section 148, Vol. II, p. 109.
[643] Berkeley, *Principles*, Section 148, Vol., II, p. 109.
[644] Berkeley, *Principles*, Section 148, Vol., II, p. 109.

furthermore enables Berkeley to demonstrate the presence of the Divine in the natural world, and his intimate involvement in the lives of his creatures. We are therefore provided with direct and immediate confirmation of the Divine attributes when we observe the natural world and the signs of Divine providence which are contained throughout:

> And for those who shall be at pains to examine and consider this subject, it is hoped they may be pleased to find, in an age wherein so many schemes of atheism are restored or invented, a new argument of a singular nature in proof of the immediate care and providence of a God, present to our minds, and directing our actions. As these considerations convince me that I cannot employ myself more usefully than in contributing to awaken and possess men with a thorough sense of the Deity inspecting, concurring, and interesting it self in human actions and affairs. [645]

Berkeley holds that the Divine presence is expressed through the visual language of nature, and we have argued that this visual language is the result of a collaborative activity between God and Man; such that Divine presence is immanent in the lives of his creatures and the natural world. We have also seen that Berkeley's link to the *liber mundi* tradition is extremely significant as Costica Bradatan's treatment of the issue reveals. A line composed before Berkeley's birth by Sir Thomas Browne in his *Religio Medici*, speaks to a theme which was prominent throughout the early modern period; the attempt to provide a legitimate account of the natural world, which was consistent with the notion of a benevolent creator and judicious benefactor. Browne writes:

> Thus there are two Books from whence I collect my Divinity; besides that written by God, another of his servant Nature, that universal and publick Manuscript, that lies expans'd unot the Eyes of all. [646]

Having considered Berkeley's joint ambition, to combat scepticism in its epistemic and theological variations, we can say that his philosophical system facilitates the marriage of faith and reason. He seeks to show that the book of nature, like the book of scripture, is a text of

[645] Berkeley, *TVV*, section 8, Vol. I, p. 255
[646] Browne. T., 1943 [1643] 'Religio Medici,' in: Edman, I., (ed.) 1943. *The Consolation of Philosophy* (New York: Random House), p.337.

which God is the primary author. Berkeley religious zeal does not detract however from his prodigious analytical ability, and we have seen that any temptation to treat Berkeley as a devout rather than an intellectual does him a disservice, as T.E Jessop has rightly noted, It is the manner in which Berkeley strives to create a legitimate scientific framework, while vindicating the providence of the Deity that sets him apart from his early modern contemporaries and secures his lineage not only as Ireland's greatest philosopher, but as one of the most prodigious thinkers of the eighteenth century.

Bibliography

Aaron, R.I., 1932. 'A Catalogue of Berkeley's Library,' in: *Mind*, Vol. 41, Issue 164, Oct, pp. 465-475.

Airaksinen, T., & B. Belfrage, (eds.) 2011. *Berkeley's Lasting Legacy: 300 Years Later*. (Newcastle upon Tyne: Cambridge Scholars Publishing).

Alexander, P. 'Boyle and Locke on Primary and Secondary Qualities,' in Tipton, I. (ed.) 1977. *Locke on Human Understanding* (Oxford: Oxford University Press)., pp. 62-76.

Alison, H.E. 1983. *Kant's Transcendental Idealism: An Interpretation and Defence*. (New Haven & London: Yale University Press).

Aristotle, 1984. *The Complete Works of Aristotle*, vols. 1-2, Barnes, J. (ed.) (Princeton: Princeton University Press).

Armstrong, D., 1960. *Berkeley's Theory of Vision: A Critical Examination of Bishop Berkeley's Essay Towards a New Theory of Vision*. (Victoria: Melbourne, University Press).

Atherton, M. 1990 *Berkeley's Revolution in Vision*. (Cornell, NY: Cornell University Press).

Atherton, M., 2008, '"The Books are in the Study as Before": Berkeley's Claims about Real Physical Objects, in: *British Journal for the History of Philosophy*, Vol. 16, Issue 1, p.85-100.

Bailey, S., 1842. *A Review of Berkeley's Theory of Vision, designed to show the unsoundness of that celebrated speculation*. (London: James Ridgway).

Baxter, D.M., 1991.'Berkeley, Perception and Identity,' in: *Philosophy and Phenomenological Research*, Vol.51, Issue 1, March, pp.85-98.

Belfrage, B., 'The Constructivism of Berkeley's New Theory of Vision,' in: Cummins, P.D., & Zoeller, G. (eds.) 1992. *Minds, Ideas, and Objects: Essays on the Theory of Representation in Modern Philosophy.* North American Kant Society Studies in Philosophy, vol. 2. (Atascadero, CA: Ridgewell Publishing), pp.167-186.

Belfrage, B., 2010.'A Paradigm Shift in George Berkeley's Philosophy 1707-1709,' in: *Revue Philosophique de la France Et de l'Etranger*, Vol. 200, Issue 1, pp.71-82.

Bennett, J., 1971. *Locke, Berkeley Hume: Central Themes. (Oxford: Clarendon Press).*

Bennett, J., 2001. *Learning from Six Philosophers*, Vol. 1. (Oxford: Clarendon Press).

Bennett, M.R., & Hacker, P.M.S., 2003. *Philosophical Foundations of Neuroscience*. (Oxford: Blackwell Publishing Ltd.).

Berkeley, G., 1948-57. *The Works of George Berkeley, Bishop of Cloyne*, vols. 1-9, edited by A.A. Luce, A.A. & T.E. Jessop. (London: Thomas Nelson and Sons).

Berman, D., 1994.*George Berkeley: Idealism and the Man. (*Oxford: Clarendon Press).

Berman, D., 1997. *Berkeley: Experimental Philosophy*. (London: Orion Publishing Group Ltd.).

Berman, D., 2005. *Berkeley and Irish Philosophy.* (London: Continuum).

Bettcher, T.M. 2011. 'Berkeley's Theory of Mind: Some New Models,' in: *Philosophy Compass,* Vol. 6, issue 10, pp. 689-698

Bohr, N. 1948. 'On the Notions of Causality and Complementarity,' In: *Dialectica,* Vol 4, p. 318.

Boyle, R., 1666. 'The Origin of Forms and Qualities According to the Corpuscular Philosophy.' In: Stewart, M.A., (ed.) 1991. *Selected Philosophical Papers of Robert Boyle* (Indianapolis, USA: Hackett Publishing Company).

Bradatan, C., 2006. *The Other Bishop Berkeley: An Exercise in Re-enchantment*. (New York: Fordham University Press).

Braund, M., 2007. 'The Indirect Perception of Distance: Interpretive Complexities in Berkeley's Theory of Vision' in: *Kritike,* Vol. 1, No. 2, Dec., pp.49-64.

Brook, R., 1973. *Berkeley's Philosophy of Science*. (The Hague: M. Nijhoff).

Brook, R. 2003. 'Berkeley's Theory of Vision: Transparency and Signification,' in: *British Journal for the History of Philosophy,* Vol. 11, No. 4, p.691-699.

Browne. T., 1643. 'Religio Medici,*'* in: Edman, I., 1943. *The Consolation of Philosophy* (New York: Random House).

Bruno, M and Mandelbaum, E., 2010. 'Locke's answer to Molyneux's Question,' in: *History of Philosophy Quarterly,* Vol. 27, Issue 2, pp.165-180.

Campbell, J. 1996. 'Molyneux's Question,' in: *Philosophical Issues*, Vol. 7, Perception, pp. 301-318.

Cassirer, E. 1951. *The Philosophy of the Enlightenment* (Boston, Mass: Beacon Press).

Cheselden, W., 1928. 'An Account of some Observations Made by a Young Gentleman, who was Born Blind, or Lost his Sight so Early, that he had No Remembrance of Ever Having Seen, and was Couch'd between 13 and 14 Years of Age,' in: *Philosophical Transactions,* (London: The Royal Society),Vol. 35, No. 402, pp.447-50.

Cooper, J.M, & Hutchinson, D.S (eds.) 1997. *Plato: The Complete Works*. (Indianapolis & Cambridge: Hackett Publishing Company).

Cummins, P.D., 1963. 'Perceptual Relativity and Ideas in the Mind,' in: *Philosophy and Phenomenological Research*, Vol. 24, Issue 2, Dec, pp. 202-214.

Cummins, P.D., 1987. 'On the Status of Visuals in Berkeley's New Theory of Vision.' In: Sosa, E., (ed.), *Essays on the Philosophy of George Berkeley*. (Dordrecht: Reidel Publishing Co.), pp.165-194.

Cummins, P.D., 'Berkeley on Minds and Agency' In: Winkler, K., (ed.) 2005. *The Cambridge Companion to Berkeley* (Cambridge: Cambridge University Press)., pp.190-229.

Cummins, P.D., & Zoeller, G. (eds.) 1992. *Minds, Ideas, and Objects: Essays on the Theory of Representation in Modern Philosophy.* North American Kant Society Studies in Philosophy, vol. 2. (Atascadero, CA: Ridgewell Publishing).

D'Alembert, J. B., 1752. *Essai d'un nouvelle theorie de la resistance des fluides* (Paris).

Daniel, S., (ed.) 2007. *Reexamining Berkeley's Philosophy*. (Toronto: University of Toronto Press).

Daniel, S.H. 2007. 'Berkeley's Stoic Notion of Spiritual Substance.' In: Daniel, S.H. (Ed.), 2007. *New Interpretations of Berkeley's Thought*. (Amherst, New York: Humanity Books), pp. 203-30

Degenaar, M., 1996. *Molyneux's Problem: Three Centuries of Discussion on the Perception of Forms.* (Dordrecht, NL: Kluwer Academic Publishers).

Dennett, D., 1969. *Content and Consciousness*. (London: Routledge & Kegan Paul).

Descartes, R., 1984-85. *The Philosophical Writings of Descartes*, vols. 1-3, (trans.) Cottingham, J., R. Stoothoff & Dugald Murdoch. (Cambridge: Cambridge University Press).

Descartes, *Optics*, in: Olscamp, P.J. (trans. & intro), 2001. *Discourse on Method, Optics, Geometry, and Meterology* (Indianapolis, Cambridge: Hackett Publishing Company).

Diderot, D. & Jean le Rond d'Alembert (eds.) 1751-66.*Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers*. (Paris: André le Breton).

Donaghan, A., 1978. 'Berkeley's Theory of the Immediate Objects of Vision,' in: Machamer, P.K. & R.C. Turnball (eds.) *Studies in Perception: Interrelations in the History of Science and Philosophy.* (Columbus: Ohio State University Press), pp.312-335.

Duddy, T., 2002. *A History of Irish Thought.* (London: Routledge).

Edman, I., (ed.) 1943. *The Consolation of Philosophy* (New York: Random House).

Egan, F., 1998. 'The Moon Illusion' in: *Philosophy of Science*, Vol. 65, No. 4, pp., 604-623.

Evans, G., 'Molyneux's Question,' in: Noë, A. & E. Thompson (eds.) 2002. *Vision and Mind: Selected Readings in the Philosophy of Perception.* (Cambridge, Massachusetts: MIT Press).

Fields, K., 2011. Berkeley: *Ideas, Immaterialism and Objective Presence*. (Plymouth, UK: Lexington Books).

Flage, D., *2014. Berkeley* (Cambridge, UK: Polity Press).

Fontenelle, Bernard de, 1990. *Conversation on the Plurality of Worlds*. Trans. H.A. Hargreaves. (Berkeley and LA: University of California Press)

Foster, J. & H. Robinson (eds.) 1985. *Essays on Berkeley: A Tercentennial Celebration*. (Oxford: Oxford University Press).

Fraser, A.C., 1901. *The Works of George Berkeley*, Vol. I (Oxford).

Furlong, E.J., 1963. 'Berkeley and the "Knot about Inverted Images"' in: *The Australian Journal of Philosophy*, Vol.41, pp.306-316.

Gapenne, O., E. Di Paolo & J. Stewart, 2010. *Enaction: Toward a New Paradigm for Cognitive Science* (Cambridge, MA: MIT Press).

Gal, O. & Chen-Morris, and R. 2010 'Baroque Optics and the Disappearance of the Observer: From Kepler's Optics to Descartes' Doubt.' In: *Journal of the History of Ideas*, Vol. 71, Issue 2, April, pp.191-217.

Gallagher, S., 2005. *How the Body Shapes the Mind*. (Cambridge, MA: MIT Press).

Garber, D., 1982. 'Locke, Berkeley and Corpuscular Scepticism.' In: In Turbayne, C., (ed.), 1982. *Berkeley: Critical and Interpretative Essays.* (Manchester: Manchester University Press), pp. 117-179.

Gaukroger, S. J. Schuster & J. Sutton, (eds.) 2000. *Descartes' Natural Philosophy.* (London: Routledge).

Gibbs, R.W. 2006. *Embodiment and Cognitive Science.* (New York: Cambridge University Press).

Gibson, J.J., 1950. *The Perception of the Visual World.* (Boston: Houghton, Mifflin).

Gibson, J.J.,'Three Kinds of Distance that can be seen, or How Bishop Berkeley Went Wrong in the first place,' in Flores D'Arcais, *G.B., (ed.)* 1976. *Studies in Perception*: *Festschrift for Fabio Metelli,*. (Milan and Florence.: Aldo Martello-Guinti).

Gibson, J.J., 1979. *The Ecological Approach to Visual Perception* (Boston: Houghton Mifflin).

Grayling, A.C., 1986. *Berkeley: The Central Arguments*. (La Salle: Open Court Publishing)

Hamlyn, D.W., 1983. *Perception, Learning and the Self.* (London: Routledge & Kegan Paul, Ltd.).

Hatfield, G., 1991. *The Natural and the Normative: Theories of Spatial Perception from Kant to Helmholtz*. (Cambridge, MA: MIT Press).

Hatfield, G & W. Epstein, 1979. 'The Sensory Core and the Medieval Foundations of Early Modern Perceptual Theory.' In: *Isis: A Journal of the History of Science*. (70), pp. 363-384.

Hight, M., 2006. 'Berkeley's Half-way House,' in: *Philosophy Compass*, Vol. 1, Issue 1, pp.28-35.

Hight, M., 2008. *Idea and Ontology: An Essay in the Early Modern Metaphysics of Ideas.* (Pennsylvania, US: Pennsylvania State University Press).

Hume, D. 1978 [1739/40]. *A Treatise of Human Nature*. (eds) Selby-Bigge, L.A. & P.H. Nidditch. (Oxford: Clarendon Press),

Hochberg, J., 1964. *Perception*. (New Jersey: Prentice Hall, Inc.).

Hooke, R., 2014. *Micrographia: The Complete Facsimile of the First printing of 1665*. (Netherlands: Leopold Publishing).

Howard, I.P. & B.J. Rogers, 1985. *Binocular Vision and Stereopsis*. (New York: Oxford University Press).

Jensen, R. T., 2009. 'Motor Intentionality and the case of Schneider' in *Phenomenology and Cognitive Science*, Vol. 8, pp. 371-388.

Jessop, T.E. 1953. 'Berkeley and the Contemporary Physics', In: *Revue Internationale de Philosophie* , Vol.7, pp. 87- 100.

Jolley,.N., 1990. The *Light of the Soul: Theories of Ideas in Leibniz, Malebranche, and Descartes.* (Oxford: Clarendon Press).

Kaufmann, L. & I., Rock, 1962. 'The Moon Illusion' in: *Scientific American*, 207, pp.120-131.

Kant, I., 1998 [1781]. *The Critique of Pure Reason,* (trans. & ed.) Guyer, P. and A. M. Wood. (Cambridge: Cambridge University Press).

Kearney, R., (ed.), 1985. *The Irish Mind: Exploring Irish Intellectual Traditions*. (Dublin: Wolfhound Press).

Kepler, J., 1604. *Ad Vitellionem Paralipomena, quibus astronomiae pars optica traditvr*. in: Von Dyck, W. & M. Casper (eds) , 1937. *Gesammelte Werke (GW) 1571-1630.* (Munich: C.H. Beck).

Kepler, J. [1604] 2000. *Paralipomena to Witelo and the Optical Parts of Astronomy*. Translated by Donoghue, W.H (Santa Fe, N.M: Green Lion Press).

Kendrick, N., 2014 'The Empty Amusement of Willing: Berkeley on Agent Causation,' in: *Berkeley Studies* 25, pp.3-15.

Lennon, T. M., 2008, 'The Historical consistency of Berkeley's Idealism,' in: *British Journal for the History of Philosophy,* Vol. 16, Issue 1, pp.101-124.

Lindberg, D., 1976. *Theories of Vision from Al-Kindi to Kepler.* (Chicago, US: The University of Chicago Press).

Locke, J., 1963 [1690]. *An Essay Concerning Human Understanding*, (ed.) Nidditch. P.H. (Oxford: Clarendon Press).

Luce, A.A., 1945. *Berkeley's Immaterialism.* (Oxford: Clarendon Press).

Luce, A.A., 1967. *Berkeley and Malebranche. (New York:* Oxford University Press).

Mabbott, J.D, 1968. 'The Place of God in Berkeley's Philosophy.' In: Martin, C.B & D. Armstrong (eds.) *Locke and Berkeley*. (London: McMillian), p. 364-379.

Machamer, P.K. & R.C. Turnball (eds.) 1978. *Studies in Perception: Interrelations in the History of Science and Philosophy.* (Columbus: Ohio State University Press).

Mackie, J.L., 1976. *Problems From Locke.* (Oxford: Clarendon Press).

Malebranche, N., 1997 [1674]. *The Search after Truth*, (trans. & ed.) Lennon, T. M. & P. J. Olscamp. (Cambridge: Cambridge University Press).

Mandlebaum, M., (ed.) 1964. *Philosophy, Science and Sense Perception*. (Baltimore: Johns Hopkins Press).

Maull, N. 1982 'Berkeley on the limits of Mechanistic Explanation.' In Turbayne, C. (ed.) *Berkeley: Critical and Interpretative Essays.* (Manchester: Manchester University Press), pp.95-107.

Martin, C.B. & D.M. Armstrong, (eds.) 1968. *Locke and Berkeley*. (London: MacMillan).

Migely, G., 2009 'Berkeley's Cartesian Account of Volitional Causation,' in: *MANUSYA: Journal of Humanities Regular*, vol. 12, issue 1, pp.11-25.

McDonough, J., 2008. 'Berkeley, Human Agency and Divine Concurrentism.' in: *Journal of the History of Philosophy*, Vol. 46, Number 4, October, pp.567-590.

Merleau- Ponty, M., 1962 [1945]. *The Phenomenology of Perception* (trans.) Smith, C. (London: Routledge and Kegan Paul).

Molyneux, W. 1692. *Dioptrica Nova: A Treatise of Dioptrics in two parts wherein the Various Effects and Appearances of Spherick Glasses, both Convex and Concave, Single and Combined, in Telescopes and Microscopes, together with Their Usefulness in many Concerns of Human Life, are explained.* (London: Benj. Tooke).

Moran, D. & Mooney, T. (eds.) 2002. *The Phenomenology Reader*. (London & New York: Routledge).

Morgan, M.J., 1977. *Molyneux's Question: Vision, Touch and the Philosophy of Perception*. (New York & London: Cambridge University Press).

Muehlmann, R., 1992. *Berkeley's Ontology.* (Indianapolis: Hackett).

Noë, A. & E. Thompson (eds.) 2002. *Vision and Mind: Selected Readings in the Philosophy of Perception.* (Cambridge, Massachusetts: MIT Press).

Noë, A., 2004. *Action in Perception.* (Cambridge, MA: MIT Press).

O'Connor, T. & C. Sandis, (eds.) *A Companion to the Philosophy of Action*. (Oxford: Blackwell).

Pappas, G., 2000. *Berkeley's Thought*. (Cornell NY: Cornell University Press).

Pasnau, R., 1997. *Theories of Cognition in the later Middle Ages* (Cambridge: Cambridge University Press).

Pastore, N. 1971. *Selective History of Theories of Visual Perception: 1650-1950*. (Oxford: Oxford University Press).

Pitcher, G., 1977. *Berkeley*. (London; Boston: Routledge & Kegan Paul).

Peacocke, C., 2002. 'Sensation and the Content of Experience: A Distinction,' in: Noë, A. & E. Thompson (eds.) *Vision and Mind: Selected Readings in the Philosophy of Perception*. (Cambridge, Massachusetts: MIT Press).

Popper, K. 1963. *Conjectures and Refutations: Growth of Scientific Knowledge.* (London: Routledge and Kegan Paul).

Power, H. 1664. *Experimental Philosophy* (London).

Radcliffe, M. & Gallagher, S., 2008. 'Introduction to Special Edition on Embodiment,' in: *International Journal of Philosophical Studies*, Vol 16, Issue 3, pp. 279-280.

Radman, Z. (ed.) 2013. *The Hand, an Organ of the Mind*. (Cambridge, Mass: MIT Press).

Ribe, N.M., 1997. 'Cartesian Optics and the Mastery of Nature,' in: *Isis*, Vol. 88, Issue 1, pp. 42-61.

Risner, F. (trans.), 1972, *Opticae thesaurus Alhazeni Arabis libri septem, nuncprimun editi. Eiusdem liber De Crepusculis et nubiem ascensionibus. Item Vitellonis Thuringopoloni.* (New York: Johnson Reprint Corporation).

Ritchie, A.D., 1967. *Berkeley: A Reappraisal.* (Manchester: Manchester University Press).

Rorty, R. 1979. *Philosophy and the Mirror of Nature* (Princeton, NJ: Princeton University Press).

Russell, B., 1918. *Mysticism and Logic and Other Essays.* (London: George Allen & Unwin Ltd.).

Schopenhauer, A., 1966. *The World as Will and Representation*, Vol. I. (New York: Dover Publications Inc.).

Schopenhauer, A., 1966. *The World as Will and Representation,* Vol. II. (New York: Dover Publications Inc.).

Schumacher, R. 'Berkeley on Visible Figure and Extension,' in: Daniel, S., (ed.) 2007, *Reexamining Berkeley's Philosophy*. (Toronto: University of Toronto Press)., pp. 109-120.

Schwartz, R., 1994. *Vision: Variations on Some Berkeleian Themes*. (Cambridge, MA: Blackwell).

Shapiro, L.A., 2011. *Embodied Cognition*. (London: Routledge).

Smith, A.D. 2000. 'Space and Sight,' in: *Mind,* 109, July, pp. 481-518.

Sosa, E., (ed.), 1987. *Essays on the Philosophy of George Berkeley*. (Dordrecht: Reidel Publishing Co.).

Stack, George J. 1970. 'Berkeley's New Theory if Vision,' in: *The Personalist,* vol. 51, no.1, pp. 106-138.

Steward, J, O. Gapenne & E.A. Di Paola (eds.) 2010. *Enaction: Towards a New Paradigm for Cognitive Science*. (Cambridge, Mass: MIT Press).

Steinkraus, W.E., (ed.) 1981. *New Studies in Berkeley's Philosophy*. (Washington: University Press of America, Inc).

Stoneham, T., 2002. *Berkeley's World: An Examination of the Three Dialogues*. (Oxford: Oxford University Press).

Stoneham, T., & A. Cei, 2009. 'Let the Occult Quality Go: Interpreting Berkeley's Metaphysics of Science,' in: *European Journal of Analytic Philosophy,* Vol. 5, Issue 1, pp. 73-91.

Stoneham, T. 2010 'Berkeley.' In: O'Connor, T. & C. Sandis, (eds.) *A Companion to the Philosophy of Action*. (Oxford: Blackwell), pp. 496-504.

Stoneham, T., 2011. 'Catching Berkeley's Shadow.' In: *The Southern Journal of Philosophy,* 49 (2):116-136.

Stratton, G., 1988. 'The Spatial Harmony of Sight and Touch' in *Mind,* Vol. 8, pp. 492-505.

Strawson, P.F., 1966. *The Bounds of Sense: An Essay on Kant's Critique of Pure Reason.* (London: Methuen & Co. Ltd).

Stroud, B., 1980. 'Berkeley v. Locke on Primary Qualities,' in *Philosophy, Vol.* 55, Issue 212, April, pp. 149-166.

Taylor, C.C.W., 1985. 'Action and Inaction in Berkeley,' in: Foster, J. & H. Robinson (eds.) 1985. *Essays on Berkeley: A Tercentennial Celebration*. (Oxford: Oxford University Press)., pp.211-225.

Tipton, I. C. 1974. *Berkeley: The Philosophy of Immaterialism* (London: Methuen & Co. Ltd.).

Thrane, G. 1982, 'The Spaces of Berkeley's World', In Turbayne, C. (ed.) 1982 *Berkeley: Critical and Interpretive Essays* (Oxford: Manchester University Press)., pp. 127-147.

Thompson, J.F., 1968. 'G. J. Warnock's *Berkeley*.' in: Martin, C.B & D. Armstrong (eds.) *Locke and Berkeley*. (London: McMillian), pp. 426-435.

Turbayne, C.M., 1955. 'Berkeley and Molyneux on Retinal Images,' in: *Journal of the History of Ideas*, vol. 16, pp.339-355.

Turbayne, C.M., 1956. 'The Influence of Berkeley's Science on his Metaphysics,' in: *Philosophy and Phenomenological Research*, Vol. 16, Issue 4, pp. 476-487.

Turbayne, C.M., 1962. *The Myth of Metaphor*. (New Haven & London: Yale University Press).

Turbayne, C. M, (ed.) 1963. *Works on Vision: George Berkeley* (Bobbs-Merril Company Inc.).

Turbayne, C.M., (ed.),1982. *Berkeley: Critical and Interpretive Essays*. (Minnesota: University of Minnesota Press).

Varela, F., E. Thompson and E. Rosch, 1993.*The Embodied Mind: Cognitive Science and Human Experience*. (Cambridge, MA: MIT Press).

Van Cleve, J. 2007. 'Reid's Answer to Molyneux's Question': In: *The Monist*, Vol. 90, Issue 2, pp. 251-270.

Von Senden, M. 1960. *Space and Sight: The Perception of Space and Sight in the Congenitally Blind Before and After Operation.* (London: Methuen & Co. Ltd).

Warnock, G.J., 1982. *Berkeley.* (Oxford: Basil Blackwell).

Watson, R., 1987. *The Breakdown of Cartesian Metaphysics* (Atlantic Highlands, N.J.: Humanities Press International).

Wild, J., 1940. 'The Concept of The Given in Contemporary Philosophy- Its Origin and Limitations,' in: *Philosophy and Phenomenological Research*, Vol. 1, No. 1, Sep, pp.70-82.

Wilson, M., 1982. 'Did Berkeley Completely Misunderstand the Basis of the Primary-Secondary Quality Distinction in Locke?' In Turbayne, C., (ed.) *Berkeley: Critical and Interpretative Essays.* (Manchester: Manchester University Press)., pp.108-126.

Wilson, C., 1988 'Visual Surface and Visual Symbol: The Microscope and the Occult in Early Modern Science', In: *Journal of the History of Ideas*, Vol. 49, Issue. 1, pp.85-108.

Wilson, C., 1995. *Early Modern Philosophy and the Invention of the Microscope*. (Princeton, New Jersey: Princeton University Press).

Winkler, K., 1989. *Berkeley: An Interpretation.* (Oxford: Clarendon Press).

Winkler, K., (ed.), 2005. *The Cambridge Companion to Berkeley* (Cambridge: Cambridge University Press).

Wolf-Devine, C., 2000. 'Descartes' Theory of Visual Spatial Perception.' In: Gaukroger, S., J. Schuster & J. Sutton, (eds.) *Descartes' Natural Philosophy.* (London: Routledge) pp. 506-523.

Yoltan, J., 1984. *Perceptual Acquaintance from Descartes to Reid* (Minneapolis: University of Minnesota Press).