

RELATIONSHIPS AMONG VARIOUS ONTOLOGIES  
AND ACCOUNTS OF MODALITY

by

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ABSTRACT

This dissertation explores connections between ontology (in particular, the issues of whether two or more physical objects can occupy a spatial volume at a time and of identity through time) and modality (in particular, whether the ordinary modal sentences of English are appropriately formalized using unary operators,  $\Box$  and  $\Diamond$ , which permit quantification into their scopes). Puzzles such as that of a statue and a piece of bronze which occupy the same spatio-temporal receptacle illustrate the linkage between ontologies and accounts of modal properties. Resolutions to the puzzle must address central issues concerning both ontology and modality. To clarify the resolutions, I make a threefold classification of ontologies in chapter one: monistic, mereological and pluralistic. Each possibility and its modal consequences are examined in subsequent chapters.

Chapter two discusses the monistic possibility, namely, that no more than one object can occupy a spatial volume at a time. I follow Chisholm in arguing that this position can only be maintained if one also maintains that ordinary objects are successions of "primary objects" which can neither gain nor lose parts. Such a view is incompatible with any straightforward interpretation of ordinary modal sentences along the lines usually suggested by philosophical logicians.

Chapter three looks at pluralism, that is, the view that distinct objects could occupy the same place at every moment of their respective existences. I believe that such a position is both (1) understandably controversial, and (2) the natural consequence of attempting to take ordinary modal judgments literally. I also argue that an attempt by Wiggins to make pluralism plausible by giving a nonmodal argument for it fails.

Chapter four examines the mereological view according to which objects have temporal parts and are related to each other

## ABSTRACT

as four-dimensional volumes are related in four-dimensional geometry. I argue that mereology is incompatible with literal accounts of ordinary modal sentences. This incompatibility has been embraced by many mereologists who conclude "so much the worse for modal properties" and go on to offer conceptualist explanations of modal discourse based on a mereological ontology. I sketch one such position according to which modal discourse is a constrained form of fictional discourse.

Chapter five looks at what I call fission puzzles (the ship of Theseus, split brains, etc.) and relates recent work on these puzzles by Chandler and Nozick to my general concern with the relationship between theories of ontology and theories of modality. I conclude that while fission puzzles are relevant to the broad issues raised in earlier chapters, the specific uses which Chandler and Nozick make of the puzzles are suspect.

Throughout the dissertation I contrast realist and conceptualist tendencies in the various ontologies and accounts of modality that I examine.

Thesis Supervisor: Dr. James Higginbotham

Title: Associate Professor of Philosophy

## PREFACE

During my undergraduate years, the dispute between Kripke and Quine concerning modality was at center stage. This thesis is part of a long struggle with the issues raised by such papers as "Three Grades of Modal Involvement," and "Naming and Necessity." As I probed more deeply into the issues, I realized of course that their works are representative of a much larger literature which has its own history. While Kripke and Quine are not the most frequently cited authors in what follows, their work underlies much of my thinking and that of the authors I do cite more often.

My debts are many.

David Lewis and Richard Rorty showed great patience with a struggling undergraduate. Their explanations frequently went over my head, but I remember many of their words.

Graduate classes on logic, modality, and reference with Richard Cartwright and George Boolos were invaluable.

George Smith contributed enormously.

My advisers deserve special thanks. Jim Higginbotham took over my committee at a crucial time and offered much needed guidance. Judi DeCew worked closely with me on every chapter.

My colleagues at the University of New Hampshire offered comments at two colloquia. Rick Wiley and I discussed several chapters.

## PREFACE

Alix Handelsmen found stray moments in her hectic life as an intern and resident to offer an unlimited supply of editorial assistance. Much more important was her presence (in thought if rarely in person).

## TABLE OF CONTENTS

Abstract	2
Preface	4
Table of Contents	6
ONE. Preliminaries	
Introduction	9
1. Multiple Occupants of a Spatial Volume	13
A. Heraclitus	
B. The Statue and the Piece of Bronze	
C. Persons and Bodies	
D. Scattered Objects	
2. Monistic, Mereological and Pluralistic Ontologies	17
3. The Statue Puzzle: A Link between Ontology and Modality	21
4. Controversies Among Realists and Conceptualists	27
5. Do Metaphysical Questions Have One Right Answer?	34
6. The Claims Revisited	37
Longer Notes to Chapter One	40
TWO. Monism	
Introduction	45
1. Monist Responses to Spatial Occupancy Puzzles	47
1.1 Repudiation	
1.2 The Contingent-Predicate Analysis	
1.3 Objects as Successions	
2. A Broad Critique of Monism	56
2.1 Count Nouns, Covering Nouns, and Identity	
2.2 Two Popular Principles of Identity	
2.3 The Conflict Between Monism and the Two Principles of Identity	
3. A Serious Objection to the Contingent-Predicate Analysis	66
3.1 The General Problem and an Example	
3.2 The Problem of Increase	

3.3 The Problem of Scatter	
4. Objects as Successions of Primary Objects: Chisholm's Monism	74
4.1 Chisholm's "Mereological Essentialism"	
4.2 Chisholm's Treatment of the Occupancy and Statue Puzzles	
4.3 Modal Consequences of Chisholm's Monism	
5. Chisholm's Monism and Quine's Mereology Compared	81
Chapter Summary	83
Longer Notes to Chapter Two	85
THREE. Pluralistic Ontologies	
Introduction	88
1. The Basic Modal Argument for a Pluralistic Ontology	90
1.1 A Defense of Modal Intuitions	
1.2 A Defense of Modal Properties	
2. Does Pluralism Require Modal Arguments?	101
2.1 Why a Nonmodal Argument for Pluralism Is Unlikely	
2.2 A Critique of Wiggins' Attempt at a Nonmodal Argument	
3. Connections among Basic Principles	112
Longer Notes to Chapter Three	119
FOUR. Mereology, Reductionism, and Modal Properties	
1. The Incompatibility between Mereological Ontologies and <u>De Re</u> Modality	121
1.1 Patterns in the Literature	
1.2 A More Formal Argument for Incompatibility	
1.3 Three Objections and Replies	
A. No Suitable Choice of F and G	
B. The Only Necessity is Logical Necessity	
C. Nothing Could Be Other Than It Is	
1.3 Unusual Objects and Modality	
1.4 Incompatibilities in Spirit	
2. Quine and Lewis: Two Mereological Accounts of Modality	132
2.1 Quine on the Elimination of Modality from Rigorous Discourse	

TABLE OF CONTENTS

2.2 Lewis on Explicating Modality in Terms of Similarity Among Possible Worlds	
3. Sketch of a Conceptualist Account of Modality	138
3.1 Consistency and Modality De Dicto	
3.2 Singular Terms	
3.3 The Necessity of Origin	
3.4 Objections and Replies	
3.5 Further Questions	
Longer Notes	151
FIVE. Fission Puzzles and Modality	
Introduction	154
1. Invention vs. Discovery and the Ship of Theseus	158
1.1 The Ship of Theseus	
1.2 Invention versus Discovery	
2. Resolutions	168
2.1 The Answer Is That There Is No Answer	
2.2 The 50% Solution	
2.3 The Concept of a Ship Is Ambiguous	
2.4 Sharing Parts	
2.5 Chisholm on the Loose and Popular Sense of Identity	
3. Fission and the Necessity of Non-Identities	178
3.1 Nozick and Closest Continuers	
3.2 The Problem of Jumps	
3.3 A Close Look at the Premises	
3.4 General Comments on Nozick's Position	
Bibliography	193



CHAPTER I  
PRELIMINARIES

Modal logicians aim to do for modal discourse what an earlier generation of logicians did for mathematical and much practical reasoning: that is, to provide symbolizations for the sentences of ordinary modal discourse and a deductive system that captures the logical relations among the symbolizations. A first step in this large project is to suggest that there are modal properties, or to be more linguistic, that the expressions "it is possible that..." and "it is necessary that..." are appropriately treated as transparent, unary operators.<sup>1</sup> For example, just as

John is a son of Mary's,  
is conveniently written for logical purposes as,

Son(John,Mary),  
so the sentence,

John is necessarily a son of Mary's,  
has a reading which is appropriately symbolized as,

□Son(John,Mary).

Rather surprisingly, the seemingly innocuous use of transparent modal operators has ontological implications.

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1. See longer note A at the end of this chapter for a discussion of transparency and modal properties.

Because of what is commonly called Leibniz's law (if  $x=y$ , then  $x$  has a property  $P$  if and only if  $y$  has  $P$ ), what properties there are bear directly on the ontological question concerning what objects exist. Philosophers who endorse modal properties have a larger set of properties than do those who reject modal properties. As we shall see shortly in what I call the statue puzzle, the additional properties are significant since there are examples in which the object(s?)  $A$  and  $B$  share all of their nonmodal properties and if a distinction is to be made between them, it must be on the basis of putative modal properties.

The following chapters explore the connections between the question whether there are modal properties and the question which of several ontological theories is best. The links between the two issues are complex. A commitment to modal properties constrains but does not determine which ontological theory one may consistently adopt. One conclusion that emerges from our exploration of the issues is that the use of standard quantified modal logic in codifying ordinary discourse is far from ontologically neutral and that when the ontological issue is given proper weight, theories which reject any straightforward commitment to modal properties appear at least as plausible as do theories which embrace modal properties and utilize standard quantified modal logic. In other words, an emphasis on ontology raises intriguing questions concerning modal properties and serves to motivate alternative accounts of modal discourse.

Quine has frequently argued that there are important connections between metaphysics and applied modal logic. He maintains that recent work on modality--in particular, the thesis that ordinary objects possess nontrivial modal properties--commits one to a highly problematic version of essentialism in the Aristotelian tradition.<sup>2</sup> I believe that Quine's thesis is somewhat too strong. I shall defend a similar thesis, which differs from Quine's claim in allowing for one additional possibility: attributing nontrivial modal properties to physical objects leads either to an understandably controversial version of Aristotelian essentialism or, following Chisholm, to a dramatic revision of common-sense ontology.

How are such theses concerning the links between ontology and modality to be investigated? After all, there is an enormous literature on modality which pays little attention to ontology and an enormous literature on ontology which is not explicitly concerned with modality. How is one to bridge the gap? My approach will be to note three broad approaches to ontology and to examine the characteristic responses within these approaches to a class of puzzles which explicitly link modality and ontology by containing premisses from each domain. The three approaches to ontology differ in their treatment of what I shall call putative cases of multiple occupancy, that

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 2. Quine, "Three Grades of Modal Involvement," 1966.

is, situations in which there is a prima facie argument that more than one object exists at the same place at the same time. The first, "monistic," resolution is examined in chapter two and seen, as Chisholm argues, to lead to a significant departure from the ontology of common sense and to a complex treatment of ordinary modal statements. The second, "pluralistic," resolution is discussed in chapter three; though compatible with essentialism, the pluralistic resolution is understandably controversial. The third, "mereological," resolution is incompatible with any straightforward account of modal properties.

After examining the various links between the ontological question of multiple occupancy and the question as to whether modal properties exist, it will be clear that the modal question is no more or less susceptible to an answer than is the ontological question. And after discussing the ontological issue, it will be clear how difficult the whole matter is. One result of this investigation is that we shall attain a clearer understanding of why the use of modal logic in formalizing modal discourse is so controversial among philosophers.

Several preliminary sections follow that will make a more rigorous presentation of my claims possible. The next two sections introduce resolutions of putative cases of multiple occupancy and their relationship to the question of modal properties. I by no means wish to suggest that ontology is the

only, or even the central issue in the debate concerning modal properties and quantified modal logic. In sections four and five, I discuss the connections between the ontological issues on which I focus and the broad range of issues which divide realist and conceptualist approaches to the topic. I also mention several important issues which I intend to leave open. The chapter concludes with a statement of the theses to be defended in subsequent chapters.

## SECTION 1.

## MULTIPLE OCCUPANTS OF A SPATIAL VOLUME

Central to my argument is a threefold classification--monistic, pluralistic, and mereological--of ontological theories. This section motivates the classification by examining several ancient puzzles.

Since at least the time of Heraclitus, ontologists have been concerned with putative cases of what I shall call multiple occupancy, by which I mean situations in which there is at least a prima facie argument that two distinct objects are in the same place at the same time. Because a genuine case of multiple occupancy would contradict the commonplace that no two physical objects can be at the same place at the same time, putative cases of multiple occupancy have understandably provoked extensive interest.

## I.1 MULTIPLE OCCUPANTS OF A SPATIAL VOLUME

Consider several putative cases of multiple occupancy, which are representative of the many examples in the literature.<sup>3</sup>

A. Heraclitus stepped into both the river and the water. On the following day he stepped into the same river but not the same water. Some philosophers maintain that this is a case of two entities--a river and a quantity of water--which on the first day occupied the same spatial volume and on the second day occupied distinct volumes. Thus, two entities can occupy the same place at the same time.

B. Suppose a statue is created simultaneously with a piece of bronze when molten metal solidifies in a mold.<sup>4</sup> Though originally the statue and the piece of bronze occupy the same volume, the statue is not identical with the piece of bronze since the statue, unlike the piece of bronze, is destroyed when a vandal hammers the statue into an amorphous lump. In other words, it is possible for a piece of bronze to "outlive" the statue which it at one time constituted.

Examples similar in structure to that of the statue and the piece of bronze are common in the literature. A piece of gold may be made into a ring, and then survive the destruction

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3. See longer note B for references.  
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4. See longer note C.

## I.1 MULTIPLE OCCUPANTS OF A SPATIAL VOLUME

of the ring. A long piece of rope may exist prior to being made into a hammock. A piece of yarn and a sweater might co-occupy a spatial volume during some but not all of their respective existences.

C. The most discussed and controversial case concerns persons and their bodies.<sup>5</sup> Those philosophers who maintain that persons are physical objects must explain the relationship between a person and his body. If they are identical, how can a person die (cease to exist?) and yet the body continue to exist. If they are distinct, then we appear to have a case of two objects occupying the same spatial volume at the same time.

D. A final, less familiar, case of putative multiple occupancy raises the issue of so-called scattered and contrived objects. No doubt some physical objects can survive at least a bit of scatter; my watch exists as a scattered object for a time when I remove the glass face to adjust the hands. Other objects do not scatter. Richard Cartwright gives the example of a matchbook, which, when a match is removed, instead of scattering, simply contains one less match<sup>6</sup>.

Now consider a particular matchbook, Charlie. Remove a match and put it on the table with Charlie. The match is no

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5. See longer note D.  
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6. Cartwright, "Scattered Things," 1975.

## I.1 MULTIPLE OCCUPANTS OF A SPATIAL VOLUME

longer a part of Charlie. But isn't there another object, Harry, which is the "sum" or "fusion" of Charlie and the match. If there is an object, namely, my watch, that is at times the sum of scattered parts, what reason is there to suppose that Harry doesn't exist? What sort of object is Harry? We might call him a "matchbook fusion." Of course matchbook fusions are not commonly discussed, but that is not an argument against their existence.

Charlie and Harry, if they both exist, are, or at least were at one time, multiple occupants; before the match was removed, the matchbook and the matchbook fusion occupied the same spatial volume. The general point is that philosophers who countenance scattered objects have good reason to think that there are genuine cases of multiple occupancy.

At this point it is natural to think that these controversial cases of multiple occupancy could be settled if only one had a clear definition of the term "physical object." After all, neither rivers nor matchbook fusions fit our pretheoretical stereotypes of physical objects. Unfortunately, the extension of the term "physical object" is much debated and is much at issue in discussions of ontology and modality. Those who defend the thesis that no more than one object can occupy a spatial volume are inclined to restrict the extension of "physical object," while those who reject the thesis are inclined to expand the extension and thus to have numerous



## I.1 MULTIPLE OCCUPANTS OF A SPATIAL VOLUME

examples of genuine multiple occupancy. For example, one philosopher might simply follow ordinary usage in finding it odd to think a quantity of water is a physical object, while another might maintain that ordinary language is an unreliable guide.<sup>7</sup> My own approach to this controversy shall be first to concentrate on the less problematic examples of moderate-sized dry goods<sup>8</sup> and second to discuss the controversy about the extension of the term "physical object" in contexts where it is relevant.

### SECTION 2.

#### MONISTIC, MERELOGICAL AND PLURALISTIC ONTOLOGIES

Those who defend what I shall call monistic ontologies maintain that despite appearances there are no genuine cases of multiple occupancy involving physical objects. Each putative case may be shown upon careful analysis to involve at most one legitimate physical object and one simulacrum. Of course there is considerable room for monists to disagree among themselves concerning specific analyses. In chapter two, I examine the three monist approaches that have been recently defended by Vera Chappell, Michael Ayers, and Roderick Chisholm. I shall argue that the most extreme of the three monist positions, that of Chisholm, is also the most plausible.

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7. See Ayers, 1974, and Quine, 1953.  
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8. The phrase is from Austin, Sense and Sensibilia, p.8.

## I.2. THREE ONTOLOGIES

Many philosophers, while finding some of the analyses proffered by monists convincing, doubt that the strategy of dispelling all putative cases of multiple occupancy can be plausibly achieved. Such philosophers typically maintain, for example, that a ring and a piece of gold may be distinct in virtue of existing for different periods of time, yet at times, occupy that same spatial volume. Among such anti-monists there is a deep disagreement concerning the precise relationship that holds among "co-occupants." On the one hand, those who maintain mereological theories believe that the relationships among co-occupants are analogous to those among geometrical volumes: proper part, overlapping parts, etc. Quine is perhaps the best known among the many contemporary defenders of a mereological ontology. On the other hand, pluralistic accounts, for example, that recently defended by David Wiggins in his Sameness and Substance<sup>9</sup>, involve yet another account of the relationship among co-occupants.

A clearer presentation of the differences among the three types of ontological theories will be possible after the introduction of several definitions and conventions. Let the function,  $v(x,t)$ , be the function which yields the spatial volume occupied by the physical object  $x$  at time  $t$ . No doubt there are problems in specifying the exact spatial volume

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9. Wiggins, 1980.

## I.2. THREE ONTOLOGIES

occupied by an object (e.g. fuzzy cats), but such questions play no role in what follows where, for the most part, the question is whether the physical objects  $x$  and  $y$  occupy the same volume, whatever volume that might be. If the object  $x$  does not exist at  $t$ , let  $v(x,t)$  be the null set  $\emptyset$ . The variables " $x$ ", " $y$ " and " $z$ " range over only physical objects; the variable " $t$ " ranges over moments of time. I shall assume that every physical object occupies space at some time, that is,  $(x)(\exists t)[v(x,t) \neq \emptyset]$ .

As defined above, monistic theories contain the intuitive principle, which we shall see is controversial, that no two physical objects can occupy the same spatial volume at the same time. I shall refer to this as the strong occupancy principle, which may be symbolized,

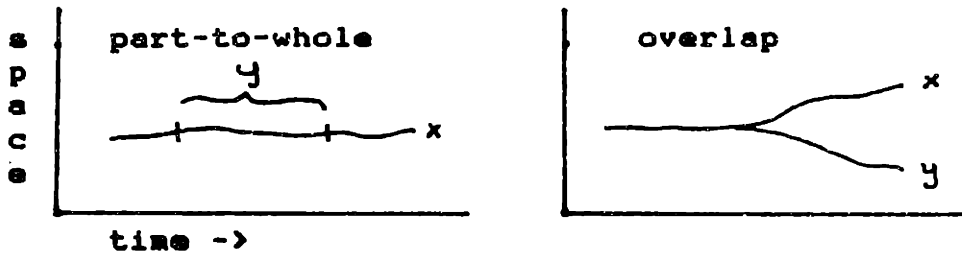
$$(SO) \quad (x)(y)[(\exists t)(v(x,t)=v(y,t)) \Rightarrow x=y],$$

or equivalently,

$$(SO) \quad \neg(\exists x)(\exists y)(\exists t)[x=y \ \& \ v(x,t)=v(y,t)].$$

On my classification, both pluralistic and mereological theories allow the possibility that more than one physical object can occupy a spatial volume at a time. In other words, pluralists and mereologists reject the sometimes heroic efforts of monists to dispel putative cases of multiple occupancy and thus, to defend the strong occupancy principle. The non-monist, for example, might maintain that the statue is distinct from the piece of bronze in the situation in which the

piece of bronze continues to exist after the statue has been destroyed. Where pluralistic and mereological theories differ is in their accounts of the relationships among objects which co-occupy a spatial volume. For an advocate of the mereological view, the relationships are analogous to the geometrical relationships that hold among n-dimensional volumes: two objects, x and y, which co-occupy a spatial volume at a time t may either "overlap" or stand in a part-to-whole relationship.



For example, a river and a quantity of water may overlap for an instant before going their separate ways while a ring could be a proper part of a piece of gold.

The mereologist endorses an occupancy principle, though one that is weaker than the monist's occupancy principle. According to the mereologist, while two objects may co-occupy the same spatial volume, no two objects may co-occupy a four-dimensional receptacle. The reason is that if x is a part of y and y is a part of x, then x and y are identical. Symbolically, the weak occupancy principle reads,

$$(WO) \quad (x)(y)[(t)((v(x,t)=v(y,t)) \Rightarrow x=y].$$

Both the strong and weak occupancy principles give a sufficient

## I.2. THREE ONTOLOGIES

condition for the identity of objects. The strong principle maintains that co-occupancy at any moment is sufficient; the weaker principle maintains that x and y must be co-occupants at every moment.

Pluralistic theories do not contain even the weak occupancy principle. Wiggins, for example, maintains that a statue and a piece of bronze would be distinct objects even if they were always to occupy the same spatial volume and always have the same physical attributes (weight, shape, color, etc.). Asked to explain the difference between the statue and the piece of bronze in a case of complete spatio-temporal coincidence, he might reply that the terms "statue" and "piece of bronze" convey distinct "criterion of identity" and that no one object can be subject to two criteria of identity. Wiggins emphasizes the similarities between this doctrine and the Aristotelian view that at most one form or essence characterizes an object. Asked to defend this view, Wiggins might turn, as we shall, to a modal argument.

### SECTION 3.

#### THE STATUE PUZZLE

A more formal discussion of the statue and the piece of bronze is useful in both motivating the distinction between pluralistic and mereological ontologies and in connecting our threefold distinction among ontologies with modal logic.

I shall assume that a statue, *s*, and a piece of bronze, *b*, could occupy the same spatial volume at every moment,

$$(t)[v(s,t)=v(b,t)].$$

Is this plausible? Well, God might create a bronze statue ex nihilo and later destroy it. If such a case is possible, monists, mereologists, and pluralists would agree that the statue and the piece of bronze occupy the same spatial volume at every moment they exist. More realistically, a statue and a piece of bronze could originate simultaneously when molten metals combined and hardened in a mold; and they might be destroyed simultaneously by an explosion.<sup>10</sup>

Admittedly, the possibility of simultaneous origination and destruction is rather esoteric, but modal logic involves the study of possibilities, not just likelihoods.

Let the predicate, "Lump(\_)", apply to "shapeless" objects. There is no need for great precision here. Suffice it to say that a piece of material is a shapeless lump if it has no recognizable shape, that is, if it is not a statue, tool machine part, etc.

What I shall call the statue paradox is a set of independently plausible, though mutually contradictory, sentences. The various ontological theories discussed above require different solutions to the paradox.

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10. Lewis, "Counterparts of Persons and Their Bodies," 1971, and Gibbard, "Contingent Identity," 1975, contain this sort of example

- (1)  $a = \text{the statue}$
- (2)  $b = \text{the piece of bronze}$
- (WO)  $(x)(y)[(t)(v(x,t)=v(y,t)) \Rightarrow x=y]$
- (3)  $(t)[v(a,t)=v(b,t)]$
- QED  $a=b$
- 
- (4)  $\Diamond \text{Lump}(b)$
- (5)  $-\Diamond \text{Lump}(a)$
- (LL)  $(x)(y)[x=y \Rightarrow (Fx \Rightarrow Fy)]$
- (6)  $a=b \Rightarrow [\Diamond \text{Lump}(b) \Rightarrow \Diamond \text{Lump}(a)]$
- QED  $a \neq b$

The premises in first half of the argument were discussed above. The second half of the puzzle is an argument that the statue is not identical with the piece of bronze since the former has a modal property, "possibly being a lump", that the other does not have. The intuitions behind (4) and (5) are,

(4') The piece of bronze,  $b$ , could survive being reshaped (hammered) into a lump, and

(5') The statue,  $a$ , could not survive being reshaped into a lump.

The formalization of (4') and (5') as (4) and (5), which makes use of a transparent, monadic operator, follows the usual practice in standard quantified modal logic. Leibniz's law, the schema (LL), is also standard in modal logic; if there is a property " $\Diamond \text{Lump}(\_)$ ", then it is legitimate substitutend for the schematic letter "F".

A contradiction proves no more than that at least one of the premises is false. But which one? Here there is much disagreement. Each of the three types of ontological theory precludes certain resolutions that are compatible with other ontological theories.

The statue puzzle illuminates a connection between modal properties and pluralism; for pluralists may well see this and analogous puzzles based on cases of multiple occupancy as nothing more than a proof that even the weak occupancy principle, (WO), is fallacious. After all, there is something baffling in thinking that a question of identity turns on whether the statue and the piece of bronze came into and went out of existence at exactly the same moment. On such a view, it is the first half of the argument that is flawed; a statue and a piece of bronze are not identical even if they occupy the same spatio-temporal receptacle. Wiggins, among others, draws this inference. In chapter three, I examine the case for the pluralist's conclusion and argue that it relies on a controversial use of modal properties. Similar modal arguments of course play a prominent role in the mind-body debate. There too, some philosophers find the case for modal properties so compelling that they use it in arguments favoring dualism<sup>11</sup>.

In contrast to the pluralists, many philosophers find it

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11. See longer note D.



absurd to deny the strong and weak occupancy principles. In rejecting pluralism, a monist would appeal to the extreme plausibility of the strong occupancy principle, namely, that at most one object can occupy a spatial volume at a time. Both the monist and the mereologist will challenge the pluralist's belief that objects could be distinct without at any moment manifesting distinct physical qualities. Both the monist and mereologist accept the conclusion of the first half of the argument, namely, that the statue and the piece of bronze are identical, so they must find an error in the second half of the puzzle. But where?

For reasons developed in chapter four, mereologists tend to question the coherence of modal properties. The mereologist is unlikely to challenge Leibniz's law, but he will question whether it is being properly applied in this particular instance. A few mereologists (for example, Quine in some moods), reject the ordinary language sentences,

(4') The piece of bronze, *b*, could survive being reshaped (hammered) into a lump, and

(5') The statue, *s*, could not survive being reshaped into a lump,

as pre-scientific gibberish. Others, notably David Lewis, Allen Gibbard and Anil Gupta<sup>12</sup>, accept the ordinary language statements but reject their formalizations as

(4)  $\Diamond$ Lump(*b*) and

-----  
12. See notes at the end of chapter four for references.

(5)  $\neg \Diamond \text{Lump}(a)$ .

They offer alternative formalizations of (4') and (5') which do not make use of modal properties and do not license the appeal made in the second half of the paradox to Leibniz's law.

Like mereologists, monists must contest the second half of the argument. But they have no pressing reason to question the use of modal properties since their theory commits them to challenging another assumption made in the second half of the argument, namely, that there are genuine cases of multiple occupancy. According to the monist, since at most one object can occupy a spatial volume,  $a$  and  $b$  are identical; thus, the sentences " $\langle \rangle \text{Lump}(a)$ " and " $\langle \rangle \text{Lump}(b)$ " must have the same truth-value, and either premise (4) or premise (5) is false. As we shall see in the next chapter, there are several monist theories. Ayers maintains that (5) is false. He argues that "being a statue" is merely a contingent predicate which happens to apply to the piece of bronze; in other words, references to the statue are references to the piece of bronze via one of its contingent properties (just as one may refer to a person via a contingent attribute as "the senator").<sup>13</sup> Chisholm, who offers what I believe are compelling arguments against Ayers' suggestion, proposes an alternative monist analysis according to which the statue puzzle is to be resolved by maintaining that the piece of bronze is no more able to survive the

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13. Ayers, "Individuals without Sortals," 1974.

vandal's hammer than is the statue.

#### SECTION 4

#### CONTROVERSIES AMONG REALISTS AND CONCEPTUALISTS

The resolutions to the statue puzzle which are explored below illustrate a major dichotomy in philosophy, namely, that between realist and conceptualist treatments of a particular domain.

The rough division between realist and conceptualist tendencies is discernible within many philosophical disputes. In ethics, there are those who insist that moralities are human inventions (or at least human genetic inheritances) and those who think that morality is to be intuited or discovered. Aestheticians concern themselves with the objectivity of aesthetic judgments. Mathematicians and philosophers have long concerned themselves with the existence of numbers, sets, etc. Mathematical realists maintain that the objects in question really exist, while conceptualists (in this case, intuitionists) have attempted to make the "objects" more knowable by attributing a major role to invention in mathematics. A philosopher might show conceptualist leanings in one domain and realist leanings in another. For example, I suspect that many, even most, contemporary philosophers show conceptualist tendencies in aesthetics (chacun a son gout) and realist tendencies in mathematics, which appears as objective

as anything could be.

I do not mean to suggest that the distinction between "realist" and "conceptualist" approaches to a philosophical issue is completely clear. Indeed, its current widespread usage virtually assures at least slight divergences in meaning.<sup>14</sup> However, I do think that the distinction is sufficiently clear to be helpful in discussing various approaches to ontology and modality, and I am hopeful that current interest in the realist-conceptualist dichotomy will result in further clarification.

The dichotomy between realists and conceptualists is a simplification, indeed, something of an oversimplification even when the terms are restricted to a particular domain. Typically there will be a number of conceptualist reconstructions of what talk about X's is really about and there will even be philosophers who maintain that there are no X's and that discourse about X's should be eliminated, not analyzed or reconstructed. For example, with respect to values, there are a number of relativist reconstructions of moral discourse as well as the emotivist dismissal.

In his survey article, "Essence and Existence," for the Encyclopedia of Philosophy, Alasdair MacIntyre summarizes a historical dispute concerning modality and essences in a way

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 14. See, for example, Davidson, 1974, Dummett, 1982, Horwich, 1982, Plantinga, 1982, Wiggins, 1980, and many recent papers by Putnam.

which makes clear its connection with conceptualist-realist disputes:

The mistake which Hobbes and Locke ascribed to Aristotelianism was that of confusing the meaning of an expression with the nature of the object which the expression characterizes. In the empiricist tradition this separation of the questions of meaning from questions of characterization continues to be influential.

For Aristotle, the essence of an object is what finds expression in the concept which the object embodies, the concept under which it must be identified as what it is. The natural response for someone trained in the empiricist tradition is to question this concept of an object. In any particular case the question "What is this?" can have more than one correct answer--for instance, "a coat" or "a piece of cloth."<sup>15</sup>

MacIntyre focuses on a fundamental question: To what extent do our modal intuitions depend on features of the world and to what extent do they reflect human conceptualization? Empiricists emphasize human conceptualization. This conceptualist tendency will be clear in both Chisholm's monist ontology and account of modality and in the various mereological accounts offered by Quine, Lewis, Gibbard and van Fraassen. Each suggests a sense in which the statue puzzle should be resolved by noting that one object can be categorized in two fundamentally different, seemingly "essential", ways. Whether an object is conceptualized as a piece of cloth (a piece of bronze) or a coat (a statue) will have a profound effect on what we think could or could not happen to the

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 15. MacIntyre, 1967, v.III, pp.59-61.

#### I.4 REALISTS AND CONCEPTUALISTS

object. Both Chisholm and the mereologists provide contemporary interpretations of what Hume called the mind's "propensity to spread itself on external objects." An opposing tendency will be evident in pluralism which places considerable stress on taking modal intuitions as literally as possible, that is, as ascribing modal properties to objects.

While different topics about which conceptualists and realists dispute raise a host of specific concerns, a number of patterns are evident. At this point I shall sketch the broad strategies used on each side. Later chapters will connect these strategies more closely with modality and ontology. Three central components in a conceptualist position are the following.

(i) First, the conceptualist case against any straightforward, realist interpretation of our discourse about X's (virtues, values, God, probabilities, mental states, universals, numbers, quarks, or what have you) stresses the putative unknowability of X's.<sup>16</sup> For example, one might wonder how there could be knowledge of numbers since it is clear that we do not have causal contact with "them"<sup>17</sup>. Similarly, one wonders about the seeming remoteness of values and virtues. In defending moral skepticism, J. L. Mackie makes what he calls "the argument from queerness:"

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16. See longer note E.  
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17. For example, Benacerraff, "Mathematical Truth," 1973.

#### I.4 REALISTS AND CONCEPTUALISTS

If there were objective values, then they would be entities or qualities or relations of a very strange sort, utterly different from anything else in the universe. Correspondingly, if we were aware of them, it would have to be by some special faculty of moral perception or intuition, utterly different from our ordinary ways of knowing everything else<sup>18</sup>.

There is a similar concern with modality since modal properties are not a matter for direct inspection.

(ii) In a conceptualist analysis of discourse about X's, one will stress, if possible, the lack of an agreed upon decision procedure for settling disputes, the broad spectrum of disagreement concerning X's, and the large area in which reasonable persons confess to having no idea how to resolve the disputes. While such a move may not be available in the case of mathematics or of theoretical science (in these domains, disagreement is not so central a phenomenon), it is available and powerful in such domains as ethics, aesthetics, theology and modality. When possible, it is also emphasized that there is a peculiarity in waiting around for further evidence on the topic; that is, while a scientist frequently waits because "the facts aren't in," with regard to morality or modality, what further "facts" could one wait for?

(iii) A conceptualist analysis of discourse about X's will attempt to analyze apparent references to X's as really being about more familiar entities. The conceptualist is likely to claim as benefits of his analysis that it clarifies talk of

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18. Mackie, Ethics, 1977, p.38.

#### I.4 REALISTS AND CONCEPTUALISTS

X's, puts it on a solid foundation, simplifies our overall picture of the world by reducing the number of fundamental categories, and explains why puzzles arose in the first place.

Those who would interpret our talk about X's realistically have a great many responses. They are likely to begin by maintaining that there is a presumption in favor of interpreting language realistically, and that no conceptualist program has ever "proven" that talk about X's need be interpreted otherwise. In brief, realism about X's is both consistent and plausible. For example, moral discourse could be consistent (no one has proven that it is inherently contradictory) and it is plausible to take it literally, if for no other reason than that what is "plausible" is socially determined and much of society takes moral discourse literally. Other important, general strategies for the realist about X's are as follows.

(1) The realist must examine the particular analysis being offered by the conceptualist. How close is the fit between ordinary talk of X's and the conceptualist's substitute? Most likely there will be places at which the proposed reconstruction appears particularly implausible. Has meaning been preserved? It is quite likely that the proposed analysis is sufficiently complex that one can doubt whether anyone who talked about X's meant what the analysis in terms of Y's suggests.



#### I.4 REALISTS AND CONCEPTUALISTS

(ii) Mackie suggests that the realist's best move is "to look for companions in guilt."<sup>19</sup> Suppose someone proposes a conceptualist analysis of our discourse about X's. A realist counter is to argue that no principled distinction can be drawn between talk of X's and talk of Z's, where the latter is something both sides interpret realistically. For example, it is frequently argued that moral discourse and science should be equally clear or obscure since both rest on unproven assumptions<sup>20</sup>.

(iii) Conceptualist programs run the risk of being circular. As a philosopher, the conceptualist is concerned with one or another fundamental domain of discourse, and because the domain is fundamental, it is frequently difficult to successfully step back from it sufficiently to offer an analysis which does not use terms from the domain itself. The realist does well to look for circles.

(iv) The realist must respond to what the conceptualist takes as a cornerstone of his position, namely, the degree of disagreement about X's. A number of responses are available. First, one can minimize the extent of the disagreement. With regard to moral discourse, this strategy usually takes the form of maintaining that people agree on general principles but disagree about the relevant facts. Second, one can note that

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19. Mackie, 1977, p.39.  
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20. For a sophisticated version of this argument see Putnam, Reason, Truth and History, 1982.

problems about X's are very hard, that we are still in the cave, and progress is always slow. Third, the confident realist might well see massive disagreement as further and not surprising evidence of massive ignorance.

## SECTION 5

### ONE RIGHT ANSWER?

Metaphysics requires that we not only examine the pros and cons of numerous competing theories, but also that we examine diverse conceptions of what constitutes either a pro or a con. With so many possibilities and so much controversy as to how to compare possibilities, the question inevitably arises whether there is one right answer to the issue at hand.

Skepticism concerning the fruitfulness of metaphysical inquiry has a long and honorable history. Philosophers as different as Hume and Kant shared the Enlightenment's conviction that something was deeply amiss in their predecessor's attempts to "prove" the existence of God or principles concerning the nature of being. For Kant, much metaphysics leads inexorably to antinomies. For Hume, most metaphysics is sophistry and illusion which must be committed to the flames since it does not contain "any abstract reasoning concerning number, nor does it contain any experimental reasoning concerning matter of fact and existence."<sup>21</sup> More

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21. Hume, Enquiry, Selby-Bigge (ed.) 1975, p.165.

recently, the positivists expressed contempt for metaphysics and the endless squabbles among philosophers over "meaningless" theories.

Contemporary philosophers are less optimistic than were Hume, Kant and the positivists about their ability to demarcate a special field, metaphysics, and commit it to the flames of eternal antinomy, meaninglessness, or what have you. Bradley's witticism, "The man who is ready to prove that metaphysics is impossible is a brother metaphysician with a rival theory of his own<sup>22</sup>," has been taken to heart. But while philosophers are less likely now to think that we can altogether avoid doing metaphysics, skepticism has not been put to rest. Instead, skepticism has taken a new form, namely, the belief that the most one can expect from philosophers is a host of incompatible, equally plausible theories.

Recently, such skepticism concerning the possibility of finding a unique, correct answer in metaphysics has found a number of forceful advocates. Nelson Goodman argues that there are a great many "ways of worldmaking," no one of which represents the truth<sup>23</sup>. Robert Nozick <sup>24</sup>expresses a similar thought,

There are various philosophical views, mutually incompatible, which cannot be dismissed or simply

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22. Cited in Rorty, 1967, p.5.  
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23. Goodman, Ways of Worldmaking, 1978.  
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24. Nozick, 1981, p.21.

rejected. Philosophy's output is the basketful of these admissible views, all together.

Richard Rorty maintains that those who see in philosophy anything more than an ongoing dialogue between competing theories are attempting to fulfill the ancient and impossible dream of studying the mind as an accurate mirror of nature<sup>25</sup>. Hilary Putnam attacks "metaphysical realism"--the view that "there is exactly one true and complete description of 'the way the world is'"--and defends an "internalist" perspective which allows that there is "more than one 'true' theory or description of the world."<sup>26</sup> These contemporary defenders of the claim that philosophy cannot hope to attain unique right answers are often quick to disassociate themselves from an extreme relativism which maintains that every theory is just as good as any other. They wish to break down what they see as a powerful and overly sharp dichotomy in our culture, namely, the distinction between "objective" and "subjective" disciplines.

I too am skeptical about metaphysical arguments. I am consciously leaving open the possibility raised by Goodman, Nozick, Putnam, and Rorty that perhaps there is no one right answer, no way of finally deciding among the competing theories discussed in this thesis. Consciously leaving this possibility open inevitably has an effect on the "tone" of my writing.

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25. Rorty, The Mirror of Nature, 1979, p.12.  
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26. Putnam, Reason, Truth and History, 1981, p.49.

Where others are confident, I am often cautious. For the most part, those writers in the Anglo-American tradition of contemporary metaphysics whose work I examine write as if there is one right answer which can be found by diligently pursuing one or another, frequently implicit and not carefully examined, methodology. I suspect that the range of defensible answers is so great, and the criteria for choosing among them so controversial and poorly understood that faith alone could supply one with conviction. What follows is not a brief for one side, but an attempt to critically survey a number of possibilities.

Even skeptical authors have leanings. My own leaning is towards those views (for example, Chisholm and Quine's) which follow Hume in "constructing" physical objects from one or another type of fundamental object and consequently (as explained in chapters two and four) reject modal properties and any straightforward application of standard quantified modal logic to ordinary language.

## SECTION 6

### THE CLAIMS REVISITED

I am now in a position to state more fully my major claims and how I aim to defend them.

My broad theme is the complex interconnections between ontologies and accounts of modal properties. Puzzles such as

that of the statue and the piece of bronze illustrate the linkage between ontologies and accounts of modal properties. Resolutions to the puzzle must address central issues concerning both ontology and modality. To clarify the resolutions I make a threefold classification of ontologies: monistic, mereological and pluralistic. Each possibility and its modal consequences are explored in turn.

Chapter two discusses the monistic possibility, namely, that no more than one object can occupy a spatial volume at a time. I follow Chisholm in arguing that this position can only be maintained if one also maintains that ordinary objects are successions of "primary objects" which can neither gain nor lose parts. Such a view is incompatible with any straightforward interpretation of ordinary modal sentences in terms of ordinary objects and modal properties.

Chapter three looks at pluralism, that is, the view that distinct objects could occupy the same place at every moment of their respective existences. I believe that such a position is both (1) understandably controversial, and (2) the natural consequence of attempting to take ordinary modal judgments literally. I also argue that one attempt to make pluralism plausible by giving a nonmodal argument for it fails.

Chapter four examines the mereological view according to which objects have temporal parts and are related to each other as four-dimensional volumes are related in four-dimensional geometry. I argue that mereology is incompatible with

straightforward, literal accounts of ordinary modal sentences. This incompatibility has been embraced by many mereologists who conclude "so much the worse for modal properties" and go on to offer conceptualist explanations of modal discourse based on a mereological ontology. I sketch one such position.

Chapter five looks at what I call fission puzzles (the ship of Theseus, split brains, etc.) and relates recent work on these puzzles by Hugh Chandler and Nozick to my general concern with the relationship between theories of ontology and theories of modality.

LONGER NOTES TO CHAPTER I

A. I follow Quine's terminology. He calls an occurrence of a singular term in a statement purely referential, "if, roughly speaking, the term serves in that particular context simply to refer to its object."<sup>27</sup> Quine gives the substitutivity salva veritate of co-referential terms as a necessary condition for a purely referential occurrence.

Taking a hint from Russell, we may speak of a context as referentially opaque when, by putting a statement / into that context, we can cause a purely referential occurrence in / to be not purely referential in the whole context.<sup>28</sup>

A context is transparent if it is not referentially opaque.

Quine's famous example,

(1) The number of planets is necessarily greater than 7 is frequently said to be ambiguous.<sup>29</sup> The de dicto reading is false since the sentence,

(2) The number of planets is greater than 7 is contingent. A major issue in this thesis is whether there is an intelligible de re reading which may be indicated

(3) The number of planets is such that it is necessarily greater than 7.

Three positions concerning the purported de re

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27. Quine, "Three Grades of Modal Involvement," 1966, pp.158-162.

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28. Quine, 1966, pp.158.

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29. This paragraph follows Cartwright, "Some Remarks on Essentialism," 1968, pp.615-617.



reading should be distinguished. One view is that (3) is clear and can be symbolized by,

(4) (Ex)[x numbers the planets &  $[(x > 7)]$ ].

A second view, favored by Quine, challenges the intelligibility of (4) and suggests that the use of open sentences such as "[ $(x > 7)$ ]" is either confused or part and parcel of "Aristotelian essentialism."<sup>30</sup> Chishola, Gibbard, Gupta, and Lewis defend a third possibility: contemporary essentialists are correct in thinking that (1) is ambiguous, but Quine is correct in criticizing (3). A correct rendition of the non-de dicto reading of (1) displays more structure than appears on the surface. For example, Lewis suggests

(3') The number of planets is such that regarded as a number it is necessarily greater than 7.

as the non-de dicto reading of (1). Chishola, Gibbard, Gupta, Lewis and others challenge (3) at least in part because of their views on ontology; chapter two discusses Chishola's approach and chapter four discusses Gibbard, Gupta and Lewis.

I do not make a sharp distinction between open sentences and properties because (1) there is no uniformity in the literature I am surveying and (2) I doubt that the distinction is important in addressing the questions raised by this thesis. Each of the positions addressed could be equally well phrased

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30. Quine, 1966, p.174.

either in terms of properties or in terms of open sentences. For example, a modal sentence such as "John could not be an alligator" raises the issue whether there is a modal property, "not possibly an alligator," or whether there is an open sentence "it is not possible that x be an alligator."

Chisholm, Kripke, Wiggins, Plantinga<sup>31</sup> and many others talk of modal properties; Cartwright and Quine<sup>32</sup> carefully eschew talk of properties in favor of open sentences. In either case the crucial question is whether the expression or putative property satisfies Leibniz's law,

$$(LL) \quad (x)(y)[x=y \Rightarrow (Fx \Rightarrow Fy)].$$

I do not mean to suggest that the distinction between properties and open sentences is insignificant; I suggest only that it is not directly relevant to the issues at hand.

It is important to clarify the relationship between standard quantified modal logic and the thesis that modal contexts in ordinary language have a transparent reading. Modal logic may of course be studied as a purely formal system. As such, the study of modal logic leaves untouched the question of whether modal contexts in English are transparent. But modal logic would not have received much attention were it

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 31. Chisholm, 1976; Kripke, 1971, p.140; Plantinga, 1974; and Wiggins, 1980, pp.109-111.  
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32. Cartwright, 1971 and 1979; and Quine, 1966.

thought to be a purely mathematical curiosity. Most modal logicians assume that the subject is applicable to English, and that it is applicable in the most straightforward and natural way. The application presupposes that modal contexts are transparent. Quine has long stressed that this is a nontrivial presupposition which requires justification.

Of course it is possible that modal contexts are transparent and yet none of the available modal logics captures the true logic of modal sentences. Thus, though the straightforward application of modal logic to ordinary English presupposes that such contexts are transparent, the assumption of transparency is compatible with a wide range of modal logics. Finally, there are nonstandard modal logics whose standard interpretations do not presuppose the transparency thesis.

B. Geach's Reference and Generality (first edition, 1962) initiated a large literature on Heraclitus' question as to whether one can step in the same river twice. Important responses to Geach were made by Helen Cartwright ("Heraclitus and the Bath Water," 1965) and by W.V.O. Quine (1964) in a review of Geach's book.

C. Aristotle uses examples of bronze circles and golden statues in his general discussion of form and matter, Metaphysics, Book Zeta, 1033a. Gibbard develops the

example of a statue made from a piece of clay in the context of modal logic, "Contingent Identity," 1975. Burge discusses the hammock made from a piece of rope in "Mass, Terms, Count Nouns, and Change," 1975, p.462. Several views concerning a sweater made from a single piece of yarn are examined in Wiggins, 1980, p.140.

D. Arguments similar to those of Descartes and Hobbes continue to play a major role in the mind-body problem. Recently, Kripke, following Descartes, has championed a modal argument for the distinction between persons and their bodies, "Naming and Necessity," 1972. Fred Feldman explores several monist replies in the tradition of Hobbes, "Kripke on the Identity Thesis," 1974. Lewis develops an anti-essentialist reply to Kripke based on a mereological ontology in "Counterparts of Persons and their Bodies," 1971.

E. The centrality of epistemological concerns in conceptualist-realist disputes is frequently noted. See for example, Rorty, The Linguistic Turn, 1967, p.39, and Katz, Language and Other Abstract Objects, 1981, p.193.

## CHAPTER II

### MONISM, ONTOLOGY, AND MODALITY

This chapter begins by examining attempts to defend the currently rather unfashionable view, monism, according to which no more than one physical object can occupy a spatial volume at a time. Among the questions addressed are "What strategies are open to someone wishing to defend monism?" and "Why is it currently unfashionable?" I argue that monism conflicts with two quite plausible principles governing identity statements--principles which have played an important role in recent criticisms of Geach's doctrine of relative identity. An additional objection is raised to what I call the "contingent-predicate" defense of monism. I then turn to Roderick Chisholm's version of monism, which I shall argue is the one defensible version. I explore the connections between Chisholm's ontology and the issues concerning modality raised by the statue puzzle. Finally, I place Chisholm's theory in perspective by noting its close similarities, stemming from their common empiricist and conceptualist background, with a popular alternative to monism, the mereological ontology of four-dimensional objects.

As mentioned in chapter one, the many putative cases of multiple occupancy pose a major difficulty for any monist wishing to defend the strong occupancy principle,

## II. INTRODUCTION

(SO)  $\neg(\exists xyt)[x \neq y \ \& \ v(x,t)=v(y,t)]$ .

Tyler Burge is typical of non-monists who show little patience with the strong occupancy principle. On his account, one example suffices to show its implausibility: "a rope and a hammock (woven from the rope alone) may be spatially indistinguishable at a given time, and not be identical."<sup>1</sup> Asked to elaborate, Burge would no doubt note that since the rope, which existed prior to the hammock, now exists as a hammock, and could again be a mere rope were the hammock unwoven, the rope and the hammock may be distinguished on the basis of many different temporal and modal properties. For example, it would appear to be a straightforward application of Leibniz's law that  $x$  is not identical with  $y$  if  $x$ , but not  $y$ , existed at a time,  $t$ .

Examples similar to Burge's case of the rope and the hammock were given in chapter one: statues and pieces of bronze, quantities of water and rivers, matchbooks and matchbook fusions, etc. The monist must take on the difficult task of showing that these putative counterexamples to the strong occupancy principle are appropriately analyzed in another manner. Furthermore, the monist analyses should be at least as plausible as the alternatives offered by pluralists and mereologists.

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1. Burge, "Mass Terms, Count Nouns, and Change," 1975, p.462.

## SECTION 1

## MONIST RESPONSES TO THE SPATIAL OCCUPANCY PUZZLES

I shall now introduce three strategies employed by various monists in defending their claim that that no more than one physical object can occupy a spatial volume at a time.

## 1.1 REPUDIATION

A number of the examples are rejected by monists as simply irrelevant to their understanding of the strong occupancy principle. For example, Ayers argues that entities such as quantities of water and quantities of clay belong to the "category of stuff" as opposed to the "category of thing."<sup>2</sup> Having made this distinction, Ayers cheerfully notes that of course two different physical objects might be made up at different times of the same stuff. As noted in chapter one, I am not particularly interested in such disputes concerning the extension of "physical object" or "thing." With regard to monism, the points which I wish to develop can be made without investigating borderline disputes. However, in sidestepping these disputes, I do not wish to minimize their importance. One virtue that mereologists sometimes claim for their position is that it presents a unified account of entities occupying space and time without needing to posit a metaphysical (as

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2. Ayers, "Individuals without Sortals," 1974, p.125.

opposed to psychological) distinction between categories of spatio-temporal entities. This is an important argument that would need to be addressed in a fuller discussion of monism.

Locke uses the repudiation strategy in his treatment of minds and bodies. Locke wrote, "...never finding, nor conceiving it possible, that two things of the same kind should exist in the same place at the same time, we rightly conclude, that, whatever exists anywhere at any time excludes all of the same kind, and is there itself alone."<sup>3</sup> In the relevant sense, Locke recognizes but three kinds: "We have the ideas of but three sorts of substances: 1. God. 2. Finite intelligences. 3. Bodies."<sup>4</sup> Thus, on Locke's view, while no two "bodies" (also "parcels of matter") can occupy the same place at the same time, the "three sorts of substances as we term them, do not exclude one another out of the same place." Locke's version of the strong occupancy principle thus rejects examples involving finite intelligences and their bodies.

## 1.2 THE CONTINGENT-PREDICATE ANALYSIS

A second strategy employed by monists in responding to putative cases of multiple occupancy is to claim that there is a tendency to confuse types of objects with contingent predicates of objects. For example, a coil of rope is uncoiled

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3. Locke, Essay, Bk. II, Ch. XXVII, section 1.  
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4. Locke, Essay, Bk. II, Ch. XXVII, section 2.



and wound into a lasso. It is natural to claim that there is only one object, a piece of rope, which is characterized for a period by the contingent predicate, "coil," and for another period by the predicate, "lasso." According to the second, contingent-predicate strategy, it is a mistake to be misled by talk of "the coil" into reifying coils and thinking that they are physical objects which are destroyed by being unwound. Similar mistakes would be to think that there is a distinct type of entity, a "senator," which is literally destroyed when voted out of office, or a "child," which is destroyed by maturing. References to "the child" or "the senator" are references to persons who possess certain contingent features.

This contingent-predicate analysis is an important tool for monists. Where the mereologist sees two distinct objects, the monist may claim that there is one object which goes through a period which the mereologist and pluralist wrongly reify. For example, Ayers applies the contingent-predicate analysis to the case of the statue and the piece of bronze.

What happens to a statue when a vandal beats it out of shape, if it is not destroyed? And what is a sculptor bringing about when he beats a piece of metal into shape, if he is not creating a statue? In so far as these questions do not answer themselves, a suitable reply to the first is that a piece of metal is ceasing to be a statue, and to the second, that a piece of metal is coming to be a statue. We can talk of destruction and creation if we like, for such talk can be fairly unserious, or at least detachable from considerations of substantial continuation. I can create an eyesore by cutting down a tree or destroy an aesthetic whole by painting my house red, white and blue. We could say that what the vandal is destroying is a shape or form. None of this gives

## II.1 MONIST RESPONSES

any grounds for arguing that one thing, the statue, ceases to exist, while another thing, the piece of metal continues existing. Paperweights are physical objects, and it is possible to make paperweights by scratching patterns on pebbles, but this is not a way of making physical objects.<sup>5</sup>

Note that Ayers readily concedes that our ordinary talk of "creation" and "destruction" sometimes runs counter to his metaphysics, but dismisses such talk as merely metaphorical; metaphysically, it need not be taken more seriously than poetic talk of lost innocence as "the destruction of a child."

Another example of the contingent-predicate analysis is provided by Fred Feldman<sup>6</sup> who utilizes it in a discussion of persons and their bodies. Without committing himself to monism or materialism (in the sense of someone who opposes person/body dualism), Feldman notes that one position that the materialist could adopt is that bodies are objects which, under certain circumstances, have the additional, contingent feature of being persons, just as ropes are sometimes coils. Such a position might be especially attractive to someone who held a computer model of mind; persons are to bodies as functioning computers are to pieces of hardware. Again, talk of something going out of existence at death is to be construed metaphorically; actually, what happens is that something ceases to function.

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5. Ayers, 1974, p.128.  
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6. Feldman, "Kripke on the Identity Theory," 1974, p.668.

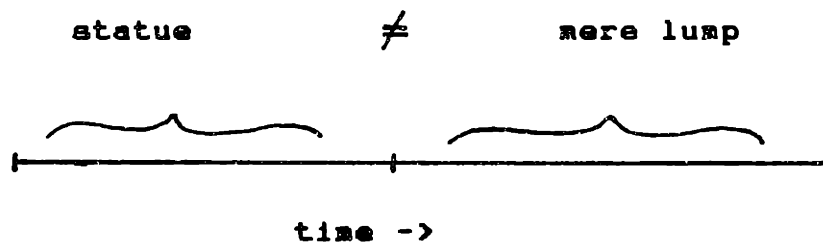
On any view, some common nouns are properly applied to an object only during certain phases of its existence; for example, the terms "boy" and "antique." What is distinctive about the contingent-predicate analysis is the attempt to maintain that there is an analogy between the logical behavior of "boy" and "antique" and that of "statue," "hammock," "ring," and the other terms which figure in the multiple occupancy puzzles. In sections two and three, I shall examine two criticisms of monists who attempt to use the contingent-predicate strategy quite generally in treatments of multiple occupancy. Roughly speaking, the objections are first (section two), that the results of the strategy are sometimes extremely implausible and second (section three), that the strategy fails completely in a significant class of cases involving "branching and increase."

### 1.3 OBJECTS AS SUCCESSIONS

A third strategy that is used by some monists in countering putative cases of multiple occupancy is to claim that what may appear to be a single object is in fact a succession of closely related objects. Relatively uncontroversial examples of the type of succession involved are common. Suppose a candle melts and the resulting puddle of wax hardens and is rolled into a ball. Rather than having one physical object throughout (mass of wax?) we are inclined to think in terms of a succession of objects. First there was the

candle; then the puddle; and then the ball of wax. The candle, puddle, and ball of wax are composed of the same wax, but this does not suffice to make them the same object. I suspect that on any view, there are such cases of continuous succession where distinct objects, which share the bulk of their matter, follow one another. What is distinctive about monists who employ the succession strategy is their claim that the spatial occupancy puzzles can be resolved by noting analogous successions.

Consider Vere Chappell's treatment of the statue and the piece of bronze. He distinguishes among pieces of bronze: some are mere pieces of bronze and some are statues. A mere piece "can be bent, dented, or crunched up, and not be destroyed, unlike a statue."<sup>7</sup> If the vandal destroys a statue, then he also destroys the piece of bronze which was the statue and replaces it with a mere lump. According to Chappell, the proper picture of the situation is:



In differentiating the contingent-predicate and succession approaches it is useful to note their opposing tendencies: the contingent-predicate analysis of the statue and the piece of

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 7. Chappell, "Matter," 1973, p.684.

bronze finds only one object (the piece of bronze), as opposed to the two (a statue followed by a mere lump of bronze) which Chappell recognizes. The contingent-predicate analysis results in objects which last a long time and can undergo dramatic changes; the succession analysis tends toward short-lived objects which cannot change as much.

Chappell's thought may be that objects are indeed "form plus matter" and that "mere piece of bronze" and "statue" are distinct forms. An object is destroyed by the vandal because a "form" is destroyed. Chappell's exposition of the position is rather terse. He motivates it in part by appeal to the strong occupancy principle, but does not motivate his rejection of the contingent-predicate analysis of the statue puzzle, nor does he discuss the cases (e.g. ropes and lassos) most clearly favorable to the contingent-predicate approach. This oversight<sup>8</sup> is all the more puzzling in light of a previous paper in which Chappell had himself adopted a contingent-predicate analysis in a defense of the strong occupancy principle.

A further difficulty with Chappell's view is that the intuitions to which he appeals are hardly compelling since they are rather easily defused by an appeal to H.P. Grice's work on conversational implicatures.<sup>9</sup> According to Grice, dialogue

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8. Chappell, "Stuff and Things," 1971, p.74.  
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9. Observation by Jim Higginbotham.

is guided by the implicit mutual awareness of speakers of a multitude of conversational maxims. The Gricean maxim most relevant to Chappell's examples is, "Make your contribution as informative as is required (for current purposes of the exchange)."<sup>10</sup> Other maxims include,

Do not make your contribution more informative than is required.

Do not say what you believe is false.

Do not say that for which you lack adequate evidence.

Be brief (avoid unnecessary prolixity).

Grice of course does not think that speakers always obey the maxims; indeed, they can violate, flout, or even opt out from the normal operation of a maxim.<sup>11</sup> But such failures to comply with a maxim are to be taken seriously; they usually indicate that the speaker does not intend to be taken literally.

Returning to Chappell's examples, we see the possibility of giving a Gricean explanation of why it may be inappropriate on some occasions to call a statue a "lump of clay." A defender of the contingent-predicate analysis might respond to Chappell's claims as follows. Yes, one can well imagine a context in which one needs to make a sharp distinction between mere lumps of clay and statues but this is only because the

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10. Grice, "Logic and Conversation," 1975, p.67.

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11. Grice, 1975, p.69.

situation demands that we be informative, and not because there is an ontological difference in kind. It is analogous to the usual convention that we be specific as to whether the person who entered the room is male or female, child, adult, or elderly. If it sounds odd or inappropriate to say that "two people just entered," when in fact two three-year-olds crawled in unexpectedly, this is not because the statement is literally false; rather, it is uninformative.

Chappell might respond by noting that while it is possible to give a Gricean analysis of the distinction marked in ordinary usage between "mere lump" and "statue," it is also possible to take the distinction more seriously as one reflecting a fundamental distinction between two covering nouns.

Though Chappell's position has been useful in introducing the succession approach, I shall turn to Chisholm in section four when I take a closer look at the succession strategy. I switch because Chisholm gives good reasons (see section three, below) for thinking that Chappell's approach is not sufficiently radical and that it stays too close to ordinary language.

Prior to examining Chisholm's motivation and defense of the succession strategy, I shall in the next two sections first, consider two plausible principles which conflict with all versions of monism, and second, consider a specific

objection to the contingent-predicate analysis.

## SECTION 2

### A BROAD CRITIQUE OF MONISM

I noted earlier a widespread sense that monism can be rather easily dismissed. Having taken a somewhat closer look at how monism is defended, I am now in a position to explicate further two widely accepted principles which are at least tacitly appealed to in rejecting monism. One of the two principles conflicts with the contingent-predicate strategy and the other with the succession strategy.

The two principles are widely discussed in relation to Peter Geach's doctrine of relative identity. First presented by Geach in the early sixties, the doctrine generated a spate of replies. Despite the many serious differences among Geach's critics, I believe that there was a fair degree of agreement among philosophers on certain basic principles concerning count nouns and identity.<sup>12</sup> My concern is not with Geach's doctrine, nor with all of the points of agreement among those who responded to Geach; rather, I am concerned with two principles or assumptions that are central to what might be called the standard response to Geach. The main claim of this section is that these very plausible principles are

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12. Perry, 1970, Quine, 1964, and Wiggins, 1980.



incompatible, not only with Geach's doctrine of relative identity, but with both the contingent-predicate and succession of objects analyses offered by monists. Since the principles are accepted by many, and familiar in part because of the controversy concerning relative identity, we shall have a better understanding of why so many contemporary philosophers reject monism.

Three aspects of Geach's views on identity are relevant for my purposes.<sup>13</sup> First, he places considerable stress on the role of count nouns in reference.

All but a few hardy thinkers would admit that if we have to do with a thing, even just by naming it or referring to it, there is no telling whether we've got on to the same thing again unless it is specifiable what sort of thing we mean.<sup>14</sup>

Second, he denies that statements with the form "x is the same F as y" are ever appropriately analyzed as "x=y and x is an F and y is an F."

there is no such thing as being just 'the same'....<sup>15</sup>

Third, he maintains that "x is the same F as y" is an equivalence relation that cannot be further analyzed.

it makes no sense to judge whether x and y are "the same"...unless we add or understand some general term--the same F.

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 13. Perry, "The Same F," 1970 contains an excellent exposition of Geach's views.  
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14. Geach, 1977, p.1329.  
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15. Cited in Perry, 1970, p.184.

## II.2 A BROAD CRITIQUE OF MONISM

It may be useful to begin with a rough account of the two assumptions central in the usual response to Geach made by his critics, who frequently laud his emphasis on the importance of kinds and count nouns, while rejecting his doctrines concerning the expression "x is the same F as y." The case of the statue and the piece of bronze involves two count nouns which are said, "to convey distinct criteria of identity." In understanding the noun "statue" we understand what it would be for objects a and b to be the same statue. And if a and b are the same statue, they are identical. Inspection reveals both that "piece of bronze" and "statue" convey criteria of identity that apply throughout the life span of the objects to which they apply, and second, that distinct criteria of identity are supplied by "statue" and "piece of bronze." On this account, the problem with monism is that it misconstrues how count nouns, identity and reference are linked.

In the remainder of this section, I shall attempt to formulate a more careful version of the above reply to Geach. I shall avoid relying on the problematic notion of a "criterion of identity."<sup>16</sup> My aim is to sketch just so much of reply as is needed to reveal the points of dispute with the monist.

### 2.1 COUNT NOUNS, COVERING NOUNS, AND IDENTITY

I wish to use the term count noun as it is generally

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16. See longer note A.

## II.2 A BROAD CRITIQUE OF MONISM

used in the literature: that is, a general term F is a count noun if it makes sense to ask, "How many F's are there?"<sup>17</sup> For example, excepting quirky cases of statues composed of statues, there is a definitive answer to the question, How many statues are on the table? There is no answer to, "How many golds are on the table?"

Some count nouns, which I shall call covering nouns, apply to an object at every moment during which the object exists, if they apply to the object at any moment. In other words, F is a covering noun if it satisfies the schema,

(CN) (x)[(Et)(x is an F at t) => (t)(x is an F at t)].

Exactly which count nouns are covering nouns is an important issue in discussing monism; offhand, it is plausible to suppose that "physical object," "rock," "statue" and "sweater" are covering nouns. Examples of count nouns that are clearly not covering nouns are "red thing," "obstacle," and "boy."

What I have called a covering noun, Wiggins would call a substance sortal (or substance concept).<sup>18</sup> Wiggins intends his terminology to suggest the Aristotelian distinction between substantial alterations and mere changes; a red thing can persist if painted green (a mere change), but a tree does not survive being chopped into logs (a substantial alteration). Note however that the covering noun schema, (CN), does not make

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17. For a survey of the literature on count nouns see Griffin, 1977, p.23.  
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18. Wiggins 1980, pp.21-25, 59-74.

use of modal notions. My reason for coining the more neutral term, "covering noun," is to avoid these Aristotelian connotations because, as we shall see in the next two chapters, there are mereologists who distrust the Aristotelian distinction between mere changes and substantial alterations while maintaining that there is a significant class of covering nouns. A mereologist is likely to maintain that covering nouns indicate the temporal "length" of four dimensional objects but do not apply to the objects essentially.

The term "covering noun" is useful in explicating the strategies monists use in analyzing putative cases of multiple occupancy. Those who favor what I called the contingent-predicate analysis are maintaining that there is a tendency to erroneously think that certain count nouns, for example, "a statue," are covering nouns; on this view, there are fewer covering nouns than many philosophers are inclined to suppose. Those who favor the succession of objects approach tend in the opposite direction, supposing there to be more covering nouns than one might initially suppose.

## 2.2 TWO POPULAR PRINCIPLES OF IDENTITY

The first of the two principles which figure prominently in the standard critiques of both Geach and the monists is that, if  $F$  is a count noun and the expression "a is the same  $F$  as b" is true then, with the exception of elliptical uses, the expression "a is an  $F$  and b is an  $F$  and  $a=b$ " is true. For

example, if this Chevy is the same car that tailgated me yesterday, then this Chevy is a car which is identical to an object that is a car and tailgated me yesterday. Let us formulate the general principle.

(I) If a and b are singular terms, and F is a count noun, then the sentence "a is the same F as b" has a non-elliptical reading which implies that a is identical to b.

By an elliptical use of "the same F," I have in mind cases such as when I point and say "that's the same car I own," and mean that the car to which I am pointing is of the same model as my car. Or when I say, "that's my cat" and mean that the cat to which I am pointing is behaving like my cat.<sup>19</sup>

Copies of a book, pressings of a record, and statues formed in the same mold can be said to be the same book, record or statue respectively. Principle (I) allows for such elliptical readings of "x is the same F as y," while positing non-elliptical uses that entail strict identity.

A slight weakening of (I) allows for somewhat greater generality. Some mereologists<sup>20</sup> maintain that the terms a and b in "a is the same F as b" refer, at least on some occasions, to distinct temporal parts of one F. For a philosopher who accepts temporal parts, such an analysis would provide for a plausible reading of such sentences as "this is

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 19. Example from Jim Higginbotham.  
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20. Gabbay and Moravcsik, "Sameness and Individuation," 1973, pp.513-526.

the same piece of gold I bought in Italy but not the same ring": the "this" refers to a temporal part of both a ring (which was not bought in Italy) and a piece of gold (which was bought in Italy). Whatever the merits of this analysis, it shares with (I) the consequence that only one F is directly involved in the relevant readings of "a is the same F as b." An appropriately weakened version of (I) is,

(I') If a and b are singular terms, and F is a concrete count noun, then there is a reading of "a is the same F as b" which entails either that  $a=b$  or that there is an F of which a and b are both parts.

What is the status of (I) and (I')? They are extremely natural and plausible assumptions that are frequently and understandably appealed to without question. Exercises in introductory logic books assume that you will treat "is the same F as" in the manner suggested by (I). The extreme resistance met by both Geach and Chisholm suggest the appeal of the two versions of the principles.

The second principle maintains, loosely speaking, that covering nouns are ubiquitous and can be identified readily by competent speakers of the language. I hesitate to call anything so loosely stated a "principle." Perhaps it would be better described as an assumption. At any rate, it is commonly made and carries with it significant consequences for monism.

(II) English contains many count nouns that are also covering nouns and a competent speaker can distinguish covering from noncovering nouns.

## II.2 A BROAD CRITIQUE OF MONISM

How do we know for a particular F if it is a covering noun? In other words, how do we know if it is true for all x that if x is an F at one moment, it is an F at every moment? This is a difficult question and no one would deny that there are difficult cases. But it is reasonable to suppose that ordinary speakers mark the distinction between alterations and mere changes in their talk of objects. Ayers and Feldman clearly realize that they are in the minority in suggesting that the terms "statue" and "person" are not covering nouns, that is, that the vandal does not literally destroy the object which is the statue and that death is not the end of the entity which is the person. It is the majority view that the second principle would have us take seriously.

The second assumption is frequently motivated by drawing an analogy between the purported temporal function of covering nouns and their clearer spatial function. Concerning spatial extension, it is reasonable to assume that there are "rules" associated with a count noun which we understand in tracing the spatial boundaries of objects. Part of understanding a term like "room" or "house" is to be able to individuate their spatial form. For example, we learn that something can be part of the same house without being part of the same room.<sup>21</sup> If "room" can individuate a spatial volume smaller than that individuated by "house," why can't "statue" delineate temporal

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21. Quinton, The Nature of Things, 1973, pp.70-71, for both the spatial and temporal claims.

boundaries shorter than those delineated by "piece of clay"?

### 2.3 ANOTHER LOOK AT MONISM

In this section I shall make explicit what may already be clear, namely, that (I) and (II) are incompatible with the various strategies suggested earlier for defending monism.

On the one hand, if the monist analyzes putative cases of co-occupancy in terms of a succession of objects, he will contradict (I) and even the weaker (I'). What advocates of the standard approach to sameness-statements have in common is the sense that ordinary references to the "same F" entail that there is but one F at issue. This is not to say that the monist is clearly wrong in providing analyses which depend on successions of objects; the point is simply to localize the areas of controversy, one of which is (I).

On the other hand, suppose the monist follows the suggestions of Ayers and Feldman; where many find a covering noun, the monist finds only a contingent predicate. But this approach will conflict with (II) according to which distinguishing covering nouns from noncovering nouns is a matter of linguistic competence and does not require subtle philosophical inquiry.

A closer look at the case of the sweater and the piece of yarn reveals the extent of the conflict between the second principle and the monist's use of the contingent-predicate strategy. If "piece of yarn" and "sweater" are both covering



nouns, then it seems reasonable to suppose that the piece of yarn might cease to exist while the sweater remained (imagine extensive repairs to the sweater) or that the piece of yarn remained while the sweater was destroyed (through unravelling). The point of the example is that a sweater is not naturally treated as a phase of a piece of yarn (since it may be constituted of different pieces at different times) nor is a piece of yarn plausibly thought to be a phase of a sweater. Letting F be a sweater and G a piece of yarn, we have a case in which F cannot be treated as a phase of the G nor vice versa. Ayers' treatment of the case is instructive.

...it might be thought that in unravelling of the sweater we remove or destroy one principle of unity, and by cutting the thread we remove a second. Each operation is possible without the other, and so each principle of unity seems independent of the other. The latter and more realistic view, however, is that, if a sweater consists of a single thread, then this means only that the different parts of the wool hang together in more than one way, and so have a unity that is more difficult to destroy than would otherwise be the case.

Roughly, the unity or structure of a sweater knitted from a hundred separate threads is destroyed by unravelling, and the unity of a single thread by cutting; while the unity of a sweater knitted from a single thread survives either operation but not both.  
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On Ayers' view, there was one object, a piece of yarn, which was knit into a sweater and remained the same object despite no longer being a piece of yarn; it remained a continuous, material body throughout. Whatever the

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22. Ayers 1974, pp.132-33.

plausibility of Ayers' claim, it clearly entails the rejection of both "sweater" and "piece of yarn" as covering nouns. As indicated by the title of his paper, "Identity without Sortals," he readily accepts our conclusion that his defense of monism is incompatible with the two assumptions that many other philosophers adopt.

### SECTION SUMMARY

This section has isolated two widespread assumptions concerning identity and count nouns, and indicated the extent of the conflict between these assumptions and the strategies open to monists. While the two assumptions are hardly proven, they are well-motivated; it is not surprising that many philosophers reject monism.

### SECTION 3

#### A SERIOUS OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

In the previous section we noted that the monist must give up at least one of two attractive and plausible principles relating count nouns and identity. We further saw that some monists, e.g. Ayers, see virtue in their rejection of what they take to be an erroneous theory of identity. Ayers maintains that concrete count nouns other than "material object" (and its like) are restrictions of "material object" in the sense that if "a is the same F as b" is true, then so is "a is the same

## II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

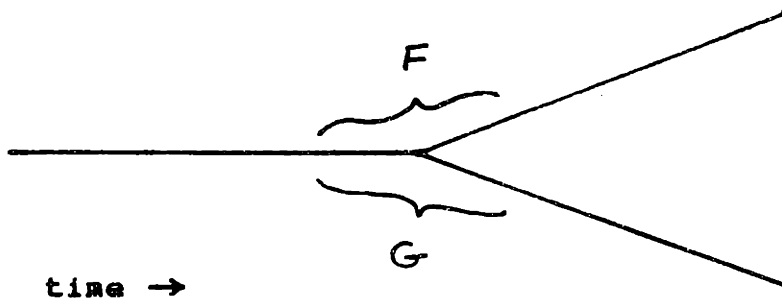
material object as b" and that an F is strictly speaking created or destroyed only if the material body which constitutes the F is created or destroyed. I believe that Ayers' conception, unlike Chisholm's, is not only counterintuitive, but fatally flawed. I begin by presenting two abstract characterizations of the flaw and then develop several illustrations of the difficulty.

### 3.1 THE GENERAL PROBLEM AND AN EXAMPLE

The puzzles discussed in previous sections may be characterized as involving the "same matter with distinct forms." Before and after the vandal's attack, the same bronze was a coherent whole. The yarn was woven into a sweater, and then only gradually was the matter changed through repairs. Such cases lend themselves to Ayers' approach. But it would be highly misleading to concentrate, as does Ayers in his paper, only on such cases. The difficult cases will be ones in which one seems to be dealing with the "same form but distinct matter."

It is also useful to think of the difficulty for the contingent-predicate analysis as one of branching. The "geometry" of such cases rules out the possibility of saying that the F and the G stand in a relation analogous to that of the senator and the person.

### II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS



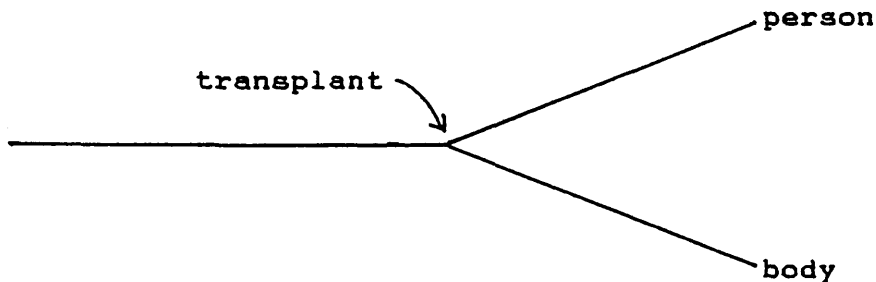
The phrase "the F" cannot be analyzed along the lines of "the G while it is an F" because there are times at which the F is either not a G, or at least not the same G as it was previously. Similarly, "the G" cannot be analyzed as a disguised, contingent predicate of the F. And unlike the case of the sweater and the piece of yarn, there is no third covering noun (material object) which is plausibly said to subsume both F and G.

A detailed example should make these points somewhat less abstract. Consider again Feldman's suggestion that the relationship between persons and their bodies is analogous to that relationship common sense sees between senators and persons. Roughly speaking, a person is a body in working order. Note again the analogy with computers which can stop working without ceasing to exist. Such a view, which Feldman lists as one option for the "materialist," does allow for a straightforward response to the person/body dualist who makes much of the fact that bodies continue to exist after "the person ceases to exist." Presumably, such a materialist would welcome the consequence that on his analysis, contra Descartes,

### II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

persons cannot exist disembodied. We have already noted one objection to Feldman's suggestion, namely, that despite its formal resolution of a puzzle, it diverges radically from our firm sense that "person" is a covering noun. But there is a further difficulty.

We are now in a position to see why the materialist position just outlined has such difficulty with branching. For the sake of illustration, let us follow the many philosophers who maintain these days that persons can undergo body-transplants, that is, that the same person could have a different body. Sameness of senator entails sameness of person, since a senator cannot break away from the person who he or she is. But sameness of persons cannot be analyzed in terms of sameness of bodies if body-transplants are possible.<sup>23</sup>



Of course the materialist may revise his position. He might maintain that the predicate "person" is a contingent predicate of bodies and that sameness of persons does not entail identity of bodies but rather a possibly complex

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23. This argument appears frequently in the literature on personal identity. See longer note B.

## II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

successor relation. Such a view simply gives up the contingent-predicate strategy and adopts the successor approach.

### 3.2 THE PROBLEM OF INCREASE

I hope it is clear that cases of branching would pose a difficulty for the contingent-predicate analysis. But are there any convincing cases of branching? As noted earlier, a monist may well simply reject cases involving persons and their bodies as irrelevant; or he might find talk of body-transplants to be silly and unconvincing.

As Chisholm notes,<sup>24</sup> the problem of branching need not involve such esoteric cases as body-transplants. He credits Aristotle and Aquinas with the central insight. Aristotle wrote:

One might raise this difficulty: What is it that grows? Is it that to which something is added?<sup>25</sup>

In his commentary on this passage, Aquinas makes the point more explicitly.

He [Aristotle] says therefore first, that, since a thing grows by the addition of something, the question still remains as to what it is that is increased: whether only that to which something is added, but not what is added, or whether both are increased.<sup>26</sup>

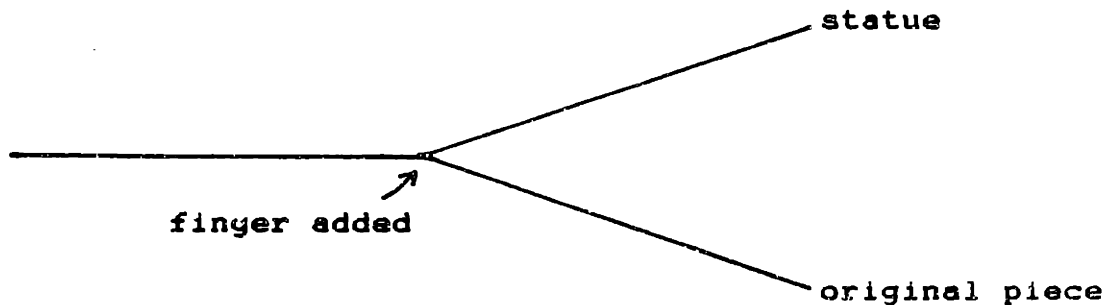
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24. Person and Object, 1976, III and Appendices A and B.  
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25. Aristotle, Generation and Corruption, 321a, cited in Chisholm, 1976, p.157.  
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26. Aquinas, Exposition of Aristotle's Treatise on Generation and Corruption, Book I, cited in Chisholm, 1976, p.222.

### II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

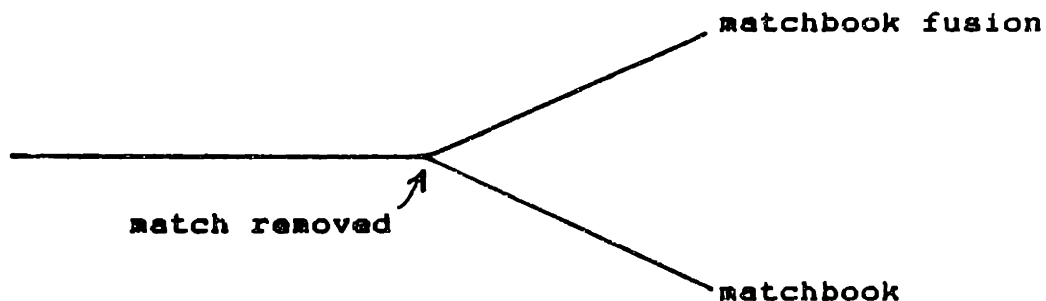
Consider again the case of the statue and the piece of bronze. Suppose the statue, as originally cast, had a minor defect; perhaps a finger was missing. At  $t$ , a finger is added. The statue would appear to increase in size; after time  $t$  it contains a bit more matter than prior to time  $t$ . There is another object, perhaps we can characterize it as the original piece of bronze, which does not increase, but remains the same size and has a finger attached to it. The "original piece" may seem odd, but one can imagine an art historian tracing its outline and a metallurgist comparing its composition with the composition of the added finger. At one time, the statue and the original piece occupy the same spatial volume, but at  $t$ , they "branch" and come to occupy distinct volumes (one of which is a proper part of the other).



As with other cases of branching, the putative counterexample to the principle of unique occupancy cannot be resolved using the contingent-predicate analysis. Chisholm takes the example as evidence for his claim that the succession strategy must be followed. Many will see in it yet further evidence for the wisdom of a four-dimensional approach.

3.3 THE PROBLEM OF SCATTER

Another type of branching is evidenced by "scattered" objects. Recall from chapter one Cartwright's clever example of two objects occupying the same spatial volume at a time; he has us imagine a matchbook, Charlie, from which a match has been removed and placed nearby. Suppose, as seems natural enough, that when a match is removed from a matchbook, the match is no longer a part of the matchbook.<sup>27</sup> But this feature of matchbooks is by no means universal. There are other covering nouns which apply to objects which can scatter. Certainly a part can be temporarily removed from my car, and my encyclopedia can be widely scattered. Let us invent a count noun, match-book fusion, which applies to the sum of the matchbook and its matches, even if the matches are detached. The volumes occupied by the matchbook and the matchbook fusion diverge over time.



One likely response is to argue that "original pieces" and "matchbook fusions" are extremely unnatural objects. Two

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 27. Cartwright, "Scattered Things," 1975.



## II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

replies to this charge of unnaturalness are in order.

First, even if one could draw a clear distinction between "natural" and "contrived" objects, how would this help the defender of the contingent-predicate analysis? Is the idea to restrict the strong occupancy principle to natural objects? Thus qualified, the principle is of little interest.

Second, the examples place major obstacles in the way of characterizing a notion of an "uncontrived" object which does not appeal to human conventions. The problem, as Cartwright notes, is that our intuitions concerning naturalness seem to depend on context. A statue may increase in volume when a finger is attached, but what if a wad of gum is stuck on? Whether objects increase or decrease with additions, whether they scatter or fail to scatter with decreases, appears to be a matter of context and convenience. For the monist, the problem with such a result is that there is no reason why a convention could not arise that permitted two objects to occupy the same place at the same time.

### SECTION SUMMARY

I have argued that the problems of increase and decrease reveal the extreme limitations of the contingent-predicate strategy which some monists use in defending their position. Some, especially those who accept the two principles discussed in section two, will see in this yet another reason for rejecting all versions of monism. But nothing in the argument

## II.3 AN OBJECTION TO THE CONTINGENT-PREDICATE ANALYSIS

thus far has ruled out the possibility that the succession strategy will, when applied relentlessly, yield a defensible version of monism. It is this possibility, most successfully explored by Chisholm, to which I now turn.

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...all objects to which we ascribe identity, without observing their invariableness and uninterruptedness, are such as consist of a succession of related objects.<sup>28</sup>

We cannot say, speaking according to the great truth of things, that the same whole is preserved when a part is lost.<sup>29</sup>

### SECTION 4

#### ORDINARY OBJECTS AS SUCCESSIONS OF PRIMARY OBJECTS: CHISHOLM'S MONISM

Chisholm's basic idea is not unfamiliar to students of philosophy.<sup>30</sup> In their reading of Hume, most philosophers were first exposed to the idea that what we ordinarily take to be objects--chairs, rocks, statues, and trees--are in fact successions of more fundamental objects, that ordinary talk of identity involves a great deal of loose feigning. In recent years, Chisholm has been a forceful defender of such a view,

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28. Hume, Treatise, p.255.

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29. Leibniz, New Essays, cited in Chisholm, 1976, p.145.

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30. See longer note C for a list of the relevant essays by Chisholm.

though without Hume's phenomenalist overtones. Chisholm's position, perhaps the most fully developed and carefully critiqued of succession views, merits a close look. Our overall goal is to see how plausible it really is and what its consequences are for issues concerning both temporal and modal properties.

#### 4.1 CHISHOLM'S "MERELOGICAL ESSENTIALISM"<sup>31</sup>

The advocate of a succession analysis must answer at least two basic questions. First, if what we take to be ordinary objects are mere successions, then what are the fundamental objects which make up the succession? Second, how is our ordinary talk of objects and identity related to these more fundamental objects?

For Chisholm, the fundamental objects are so-called "primary objects" that satisfy the principle of "mereological essentialism," according to which a primary object cannot gain or lose a part without being destroyed.<sup>32</sup> Conversely, a primary object persists so long as it neither gains nor loses parts. Chisholm's name for his approach, "mereological essentialism," underscores what he takes to be the nature of genuine physical objects; each part, no matter how small, is essential to the continued existence of the whole.

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 31. Chisholm's use of "mereological" differs from mine. See note D.  
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32. Chisholm, 1976, pp.145-157.

According to Chisholm, in sorting out our ordinary talk of objects and reidentification it is necessary to distinguish between the loose and popular and the strict and philosophical senses of the terms "identity", "same", and "object". Most puzzles concerning identity are resolved by carefully removing ambiguities in the relevant premises. In the strict and philosophical sense of identity, no primary object is identical with any object other than itself; but in the loose and popular sense, the primary object which was my car last year is said to be identical with the primary object which is currently my car, despite wear and tear, replacement of faulty parts, changes of tires, etc.

In explicating his view, Chisholm has used a number of terms to characterize the true nature of ordinary objects. In an early paper, objects in the loose and popular sense are characterized as "evolving systems of composita." Ordinary proper names are said to be, in truth, "generic names" for primary objects. Just as in ordinary discourse, a number of distinct baseballs may wear the title, "game ball" (and on different days different trains of cars make up Amtrak's "Patriot"), in the strict and philosophical view of things, as time passes a number of distinct primary objects wear the title "Christie's Mazda."<sup>33</sup> Borrowing from a medieval tradition, Chisholm sometimes calls ordinary objects "entia successiva" as

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33. Chisholm, 1969, pp.99-100, 131.

opposed to "entia per se." From Hume and Russell, Chisholm inherits talk of "logical constructions" and "feigning identity."<sup>34</sup>

It is useful to distinguish between individuation (singling out an object at a moment) and reidentification (identifying the same object at a later time). Concerning individuation, Chisholm's views follow common sense; he certainly doesn't suggest that in the strict and philosophical sense there are no statues, rocks, automobiles, etc. Reidentification is another matter. Here Chisholm rejects the view of common sense, expressed in the first of the two assumptions appealed to by the critics of both Geach and monism, namely, that "x is the same F as y" normally entails "x=y". He also maintains that our practice of identifying distinct primary objects as "the same F" is highly conventional in the sense that there are many borderline cases and that within limits, different systems of reidentification are possible.

#### 4.2 CHISHOLM'S TREATMENT OF THE OCCUPANCY PUZZLES

One major advantage of Chisholm's version of monism is that it permits simple resolutions of the puzzles presented in earlier sections. Consider the problem of increase. Chisholm maintains that after the addition of the finger, it is only in

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34. Chisholm, 1976, pp.97-104.

the loose and popular sense that one can be said to have "the same statue."<sup>35</sup> Concerning the ship of Theseus, what is clear is that strictly speaking, there are distinct ships before and after the replacement of parts. Whether or not one has "the same ship" in the loose and popular sense may well be indeterminate, since our loose practice of "feigning identity" admits of many borderline cases.<sup>36</sup>

What if, in the loose and popular sense, a statue is destroyed by a vandal? I originally presented the case as one of two objects, the statue and the piece of bronze, that purportedly occupied the same volume at the same time. For Chisholm, the situation can be accurately described only after distinguishing among senses of "object".<sup>37</sup> At most one primary object can occupy a volume at a time, but there is nothing to prevent one primary object from being linked (identified in the loose and popular sense) with distinct primary objects at later times utilizing distinct criteria of reidentification. This is only to note that the relations "statue successor" and "piece of bronze successor" are distinct relations according to Chisholm. That two entia successiva, or logical constructions, might occupy the same volume at the same

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 35. Chisholm, 1976, p.157.  
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36. The ship of Theseus is discussed at length in my chapter five. For Chisholm's most extended discussion of the puzzle see his 1969 article.  
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37. Chisholm, 1973, pp.600-601.

time is neither a puzzle nor a rejection of monism when properly understood.

#### 4.3 MODAL CONSEQUENCES OF CHISHOLM'S MONISM

If Chisholm is correct, then ordinary language is a very imperfect guide for ontologists who are interested in what there is and for philosophical logicians who are interested in the "logical forms" of temporal and modal sentences. Though my concern in this section is with the modal implications of Chisholm's monism, it is useful to begin by considering certain nonmodal contexts. For example a simple past-tense sentence,

The car used to be blue,

which many philosophical logicians would analyze as,

$(\text{Et})[(t < \text{now}) \ \& \ \text{Blue}(c,t)]$ ,

requires on Chisholm's view a more complex analysis because of the likelihood that the current car is not in the strict and philosophical sense identical with the car which used to be blue (perhaps the spark plugs have been changed). An analysis along the lines suggested by Chisholm involves the use of a relation, "x at t is a primary thing which is a successor car of the primary thing y at t'." Symbolizing the successor relation, "C(x,t,y,t')," the original sentence is equivalent to

$(\text{Et})[(t < \text{now}) \ \& \ \text{Blue}(c',t) \ \& \ \text{C}(c,\text{now},c',t)]$ .

The original sentence, despite appearances, does not involve reference to one car; rather, it involves references to a succession of distinct primary objects, each of which is a

car.<sup>38</sup>

A similar increase in complexity occurs in the analysis of modal sentences. To say that the car could be painted red is to say that there could be a primary thing which would be a red car and a successor of the current car; that is,

$$(Et) [(t > \text{now}) \ \& \ \Diamond (Ec') (Red(c', t) \ \& \ C(c, \text{now}, c', t))] ]$$

The red successor car in the possible future situation need not be in the strict and philosophical sense identical to the current car; indeed, the successor car might never exist.

If Chisholm's ontology of primary objects and logical constructions is correct, then neither temporal nor modal sentences can be analyzed in anything like the straightforward manner suggested in textbooks on logic.

Is Chisholm an "essentialist?" After all, he calls his position "mereological essentialism" and maintains the modal principle that an object cannot gain or lose parts. It is necessary to distinguish between two things which might be meant by "essentialism."

On the one hand, Chisholm is an "essentialist" if what is meant is that he maintains that there are objects which have some of their properties essentially and others accidentally. According to the principle of "mereological essentialism," primary objects cannot gain or lose parts, and Chisholm is

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 38. Chisholm's position concerning temporal contexts is analogous to Lewis's modal theory. See longer note E.



perfectly willing to represent such principles by using the unary modal operators  $\diamond$  and  $\square$ .

On the other hand, Chisholm is not an essentialist if what is meant is that he believes that ordinary objects have, at least roughly, the nontrivial accidental and essential properties which are reflected in many philosophers' analyses of ordinary language. The essential properties endorsed by Chisholm are not those endorsed by the Aristotelian tradition, which focuses on kind terms. Furthermore, the essential properties Chisholm advocates are not particularly problematic within the empiricist tradition.

## SECTION 5

### CHISHOLM'S MONISM AND QUINE'S MEREOLGY COMPARED

While there are significant differences between Chisholm's version of monism and a four-dimensional, mereological ontology of temporal parts, such differences should not blind us to a number of deep similarities. These similarities may be brought out by noting several ways in which both positions are plausible developments of Hume's remarks on physical objects and identity through time. Both Chisholm and Quine show conceptualist tendencies concerning the traditional puzzles of identity through time and modality.

(1) Both Chisholm and his four-dimensional adversary take

to heart Hume's talk of successions.<sup>39</sup> Quine, for example, notes the analogy between his own "succession of momentary stages" and Hume's "succession of ideas." The differences between Quine's momentary stages and Chisholm's primary things are slight indeed if, as physicists suggest, ordinary objects gain and lose molecules continuously. In other words, actual primary objects may be as momentary as Quine's momentary stages.

(2) Both views rely on distinguishing between senses of "same" and "object". Both maintain that resolving puzzles concerning identity through time requires more objects than are dreamt of in our common-sense ontology. Though the advocate of a four-dimensional ontology countenances even more objects than does Chisholm, the difference may seem minor compared with the fundamental decision to enlarge our common-sense universe.

(3) Chisholm follows those advocates of a four-dimensional ontology who maintain that much in our practice of reidentification is "conventional."<sup>40</sup> They seem to mean that with regard to many puzzling cases there is no fact of the matter and that reasonable decisions could be made in more than one way; no amount of studying the nature of ships or even of our "conceptual scheme" will resolve the ship of Theseus.<sup>41</sup>

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 39. Chisholm, 1969, p.132 and Quine, "Identity, Ostension, and Hypostasis," 1953, p.-----

40. Chisholm, 1969, pp.97-98.  
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41. This conceptualist theme is elaborated in chapter five.

Of course neither view is incompatible with the claim that some of our individuating and reidentificative practices are so rooted in our psyches--empirical or transcendental--that we could not act otherwise.

(4) Both views are at odds with substantive theories of essentialism according to which objects manifest nontrivial sets of both contingent and essential properties.

(5) Both views involve resolving puzzles concerning ordinary objects by reference to entities that are unusual, at least in the sense that one is very unlikely to have heard them discussed except by philosophers. Sellars notes that a central distinction between the "manifest" (some would say common-sense) view of things and the "scientific" image is that the manifest image does not permit "the postulation of imperceptible entities, and principles pertaining to them, to explain the behavior of perceptible things."<sup>42</sup> Though Quine's momentary objects and Chisholm's primary objects are not imperceptible, they do go beyond the manifest image as do electrons and electromagnetic fields.

#### CHAPTER SUMMARY

I began by distinguishing three ways--repudiation, the contingent-predicate analysis, and the succession analysis--in which monists have responded to the traditional puzzles in

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42. Sellars, "Philosophy and the Scientific Image of Man," 1963, p.7.

which more than one object appears to occupy a spatial volume at a time. I explained the current unpopularity of monism by appealing to two plausible and common assumptions concerning covering nouns which conflicted with the various defenses of monism. The two assumptions have figured prominently in recent criticisms of Geach's doctrine of relative identity. The "problem of branching" presented yet a further difficulty for the contingent-predicate analysis. I then examined Chisholm's version of monism, which though it conflicts with the two plausible assumptions discussed in section two, is nonetheless attractive because of its simple resolutions of the traditional puzzles concerning identity through time. The most modal significant consequence of Chisholm's ontology is that there are no objects which have the modal properties which are attributed to ordinary objects by those in the Aristotelian tradition. Finally, I compared Chisholm and Quine's views and found a conceptualist and empiricist core of agreement.

## LONGER NOTES TO CHAPTER II

A. Though I avoid it, I suspect that the notion of a "criterion of identity" is important and can be made relatively precise. There is an analogy with talk of "the rules of English grammar." Both the individuation of objects and the formulation of grammatical sentences are extremely sophisticated human activities which are reasonably thought to be "rule governed." One striking feature of the rules in each case is that they cannot currently be written explicitly. One even wonders if "the rules" denotes one set; might not different people use different rules in making reidentifications. Surely some work is needed to clarify the matter. Characterizations of criterion of identity as sketchy as Geach's--"That in accordance with which we judge whether identity holds..."<sup>43</sup>--are not helpful. Fortunately, just as one can say a great deal about grammar without being completely precise as to what is meant by "the rules of grammar," so one can defend principles relating count nouns and identity without reference to "criterion of identity."

B. There is considerable discussion of "branching" cases in the literature on personal identity.<sup>44</sup> In cases of

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 43. Geach, Reference and Generality, 1980, p.64.  
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44. See Parry, 1975 and Rorty, 1976.

"brain-transplants," the form (person) is preserved while the matter (body) is changed. Lewis<sup>45</sup> gives this as his reason for thinking that a contemporary "materialist" cannot follow Feldman's suggestion and give a contingent-predicate analysis of the term "person."

C. Chisholm has addressed questions concerning modality and ontology in a series of papers over the past fifteen years. His 1967 paper, "Identity through Possible Worlds: Some Questions," expresses doubts about the coherence of the then fashionable talk of transworld identity. Chisholm's monistic resolution of the traditional problems of identity through time first appeared in "The Loose and Popular and the Strict and Philosophical Sense of Identity," 1969 and was further developed in "Problems of Identity," 1971. The connections between identity through time and modality were explored in "Parts as Essential to their Wholes," 1973, and "Mereological Essentialism: Some Further Considerations," 1975. An excellent exposition of the material in the previous essays is contained in Person and Object, 1976.

D. Our usual talk of parts and wholes concerns ordinary three-dimensional objects. The philosophers who I am calling mereologists see an analogy between the usual relation of

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 45. Lewis, "Counterparts of Persons and their Bodies," 1972, p.202.

spatial part-hood and the relation among four-dimensional volumes which is sometimes called temporal part-hood. Chisholm calls his position "mereological essentialism" because he claims that the spatial parts of an object are essential to it. I avoid Chisholm's use of "mereological," which I reserve for temporal parts. Chisholm carefully distinguishes spatial and temporal parts in Person and Object, "The Doctrine of Temporal Parts," 1976, pp.138-147.

E. Chisholm's views on temporal properties parallel those of Lewis on modal properties. For Lewis, an object is "world bound" and in "identifying objects across possible worlds" we feign identity and use similarity. Chisholm's primary objects are temporally bound and only similar, not identical, to their successive "temporal counterparts." Just as Lewis believes that the logical form of ordinary modal statements is much more complex than is presented in treatments of standard quantified modal logic, Chisholm maintains that the logical form of ordinary temporal statements is more complex than is captured by the usual treatment in terms of subjects and tensed predicates. Chapter four contains a more extended discussion of Lewis' view.

CHAPTER III  
PLURALISTIC ONTOLOGIES

This chapter discusses the case for a pluralistic ontology of physical objects and the extent to which this case relies on modal arguments. Recall from chapter one that a pluralistic ontology is one in which both the monist's strong occupancy principle and the mereologist's weak occupancy principle are false; in other words, the pluralist allows that two distinct physical objects might occupy the same spatial volume at every moment of their respective existences.

As noted in chapter one, the statue paradox contains the basic elements required for an argument supporting pluralism, that is, one might defend the following premises,

- (1)  $s = \text{the statue}$
- (2)  $b = \text{the piece of bronze}$
- (3)  $(t)[v(s,t) = v(b,t)]$
- (4)  $\Diamond \text{Lump}(b)$
- (5)  $\sim \Diamond \text{Lump}(s)$
- (LL)  $(x)(y)[x=y \Rightarrow (Fx \Rightarrow Fy)]$

and conclude,

QED  $s \neq b$

QED The strong and weak occupancy principles are false. Thus, the statue "paradox" is resolved by arguing that it is nothing more than a counterexample to the strong and weak



occupancy principles, so monism and mereologicalism are false.

Of course there is nothing special about the statue and the piece of bronze; similar arguments can be made using other putative cases of multiple occupancy. I shall call such arguments modal arguments for a pluralistic ontology. This chapter focuses on various efforts by pluralists to defend, circumvent, and supplement such modal arguments.

In section one, I shall present a number of important considerations frequently cited in support of modal arguments. Central points in the defense of the modal argument are first, that modal intuitions along the lines of (4') and (5') above are very common and powerful, and second, that the analysis of the sentences which uses modal properties is natural, simple and attractive.

Section two argues that a reliance on modal properties is central to a defense of pluralism. The section begins with an argument designed to show why modal arguments are so central to pluralism. I then criticize a recent attempt by Wiggins to show that pluralism can be defended without an explicit appeal to modal properties. Though Wiggins' argument fails, he succeeds in illuminating important connections between identity, essentialism and pluralism; these connections are discussed in section three.

## SECTION 1

## A DEFENSE OF THE BASIC MODAL ARGUMENT FOR PLURALISM

The basic modal argument for a pluralistic ontology may be conveniently separated into two steps: first, the defense of the relevant modal intuitions concerning what could or could not happen to objects, and second: a defense of the application of Leibniz's law to modal contexts. My division into two steps reflects two concerns that critics of modal arguments have expressed: first, that the modal sentences of ordinary English are pre-scientific gibberish which are far too insignificant to serve as premises in a metaphysical argument; and second, that such sentences, even if true, cannot be analyzed in a straightforward manner using modal properties. The division parallels the distinction between conceptualists concerned with X's (in this case modal properties) who would eliminate altogether talk of X's and those who believe that analysis and reconstruction are in order.<sup>1</sup>

## 1.1 FIRST STEP: A DEFENSE OF MODAL INTUITIONS

Central to the modal argument for pluralism are two specific modal claims:

(4') The piece of bronze, b, could survive being reshaped (hammered) into a lump, and

(5') The statue, s, could not survive being reshaped into a lump.

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1. See chapter one, section four.

### III.1 A MODAL ARGUMENT FOR PLURALISM

These statements are about a statue and piece of bronze. As noted in chapter one, similar arguments could involve analogous claims about ropes and hammocks, or molecules and aggregates of atoms. Different defenders of pluralism may be most comfortable with different cases of multiple occupancy.

A full discussion of (4') and (5')--or any similar pair--would involve both a number of specific points about the particular case as well as general observations about modal claims. At this point I shall examine the general issue; many of the specifics will be considered in later sections when alternative analyses of modal statements are discussed.

In examining the broad debate concerning the objectivity of modal claims, it is useful to bear in mind the parallels with similar debates concerning the objectivity of statements in such domains as ethics, aesthetics, and theology. As I noted in chapter one, these domains have in common a running battle between large numbers of "realists" and large numbers of "conceptualists". In each case, a number of philosophical moves are made by the realists: (i) appealing to intuitions, particularly intuitions about paradigm cases, (ii) limiting one's claims, (iii) explaining the lack of a "decision procedure," (iv) sharply separating fact from fiction, and (v) distinguishing between the truth and what reasonable people agree about. Let us consider the application by the pluralist of these general realist themes to the case of modality.

i. INTUITIONS There is a significant degree of agreement concerning modal sentences. Modal claims are extremely common. The modalist notes that people make them all the time. Surely the burden of proof is on those, mainly philosophers with an ax to grind, who wish to challenge the intuitions. Why would one doubt that a statue cannot survive being hammered into a shapeless lump? Why question that a piece of bronze could survive such a transformation? Such claims seem the plainest common sense.

Such appeals to the plainest common sense are of course as good a place as any to begin the defense of a position. Note the parallel with "realist" defense of either ethical or aesthetic claims which begin with an appeal to common sense. Surely, Hitler's slaughter of the six million was immoral. Surely, it would be wrong to put ownership rights for children on the market. Surely, Beethoven's Fifth Symphony is beautiful. The realist with regard to either modal, aesthetic or ethical claims maintains that his intuitions are clear as they stand and do not benefit from conceptualist analyses or reductions; along this line, Kripke is fond of citing Bishop Butler, "Everything is what it is and not another thing."<sup>2</sup>

ii. LIMITS The moderate defender of modal intuitions sets limits to what statements are known to be true. A defense of

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 2. Kripke, "Identity and Necessity," 1971, p.160.

### III.1 A MODAL ARGUMENT FOR PLURALISM

the modal statements (4') and (5'), or an analogous pair, can certainly allow the possibility that there are other modal statements that are either not known to be true or are intrinsically indeterminate, perhaps due to vagueness. Analogously, one may defend the claim that some ethical statements are obviously true without maintaining that every ethical statement is either true or false, let alone obviously true or false.

iii. LACK OF A DECISION PROCEDURE There is a striking dissimilarity between statements in the more developed sciences and statements in such domains as aesthetics, ethics, and modality. It is not uncommon in our culture to hear the difference described in terms of that between the "objective" which, is based on "hard" data, and the merely "subjective," which is a matter of individual taste. The positivists made much of this distinction, and while positivism in any narrow sense is dead as a philosophical movement, a distinction between objective and subjective domains of discourse remains potent. For example, Quine with his emphasis on physical theory as the paradigm of knowledge, follows the positivists in finding ethical, aesthetic and modal statements problematic. Cartwright also expresses concern about the basis of modal judgments:

I see no reason, then for thinking essentialism unintelligible. At the same time, I do not mean to suggest that it is without its perplexities. Chief among these is the obscurity of the grounds on which

### III.1 A MODAL ARGUMENT FOR PLURALISM

ratings of attributes as essential or accidental are to be made....<sup>3</sup>

A defender of modality must respond to those who claim that modal intuitions are merely subjective. The modalist's response again parallels responses that are frequently made in ethics and aesthetics, namely, that no one has shown, despite numerous attempts, that disciplines which differ markedly from the paradigm of physics are for that reason deficient. It may just be that very different methodologies are appropriate in different spheres.

iv. SEPARATING FACT FROM FICTION The modal argument for pluralism assumes that one can, at least in some cases, distinguish between those transformations through which an object persists and those which destroy it. For example, someone defending a modal argument for pluralism based on the statue paradox maintains that a statue would persist despite being painted but would be destroyed by being completely crushed.

In my discussion of monism, I noted that Ayers questions the pluralists' view of statues and suggests, instead, that the term "statue" be treated as a contingent predicate. Marjorie Price develops Ayers' objection.<sup>4</sup> She maintains that the pluralist is simply not sufficiently imaginative in considering

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3. Cartwright, R., "Some Remarks on Essentialism," 1968, p.626.  
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4. Price, "Identity through Time," 1977.

what transformations objects can undergo. Consider the claim that the term "statue" is a covering noun and that a statue could not become a person. Price suggests that there are counterexamples to this claim because Aphrodite turned Pygmalion's statue into a person, namely, Galatea. And if a statue can become a person, why can't it become a piece of bronze or just about anything else? Only limited imagination could prevent one from seeing these possibilities. Or suppose the theory of reincarnation is true; then a mouse could become a cat (in its second life).

The modalist's response is "no." On his view one must distinguish fact from fiction, genuine possibilities from mere myths that are logically consistent.<sup>5</sup> The Pygmalion story is no doubt logically consistent; in this sense it is "logically possible." But there is no valid inference from the extremely weak claim that something is logically possible to the claim that it is metaphysically possible. There is no reason to think that the Pygmalion story is anything other than a mere myth. Similarly, in ethics and theology it is necessary to disparage a number of competing theories as mere myths. No doubt Price will be skeptical about the grounds used to separate fact from fiction. But this may simply be another way of saying that she is not happy with the intuitive method defended in (i), or that she bemoans the lack

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 5. Kripke, "Naming and Necessity," 1972, p.267.

of a scientific research program discussed in (iii).

v. SEPARATING METAPHYSICAL FROM EPISTEMOLOGICAL

POSSIBILITY A critic of the modal argument for a pluralistic ontology might also object, "But isn't it presumptuous to dismiss the theory of reincarnation as a mere myth. It could, after all, be true. Before Einstein, people used to think that nothing was more certain than that Euclidean geometry correctly described space." At this point the modalist needs to introduce another distinction: call something epistemologically possible if it is compatible with the available evidence.<sup>6</sup> The epistemologically possible must be distinguished from the metaphysically possible, just as in science one must distinguish between the true theory (which may not be known) and the various theories compatible with the evidence.

Kripke ably defends this distinction in his discussion of "contingent identities."<sup>7</sup> He argues that if the morning star is identical to the evening star, then they would be necessarily identical. One may defend this without claiming that we know whether the morning star and the evening star are in fact identical. In short, if metaphysical possibilities are objective, then one must allow that they could be mistaken. Even our best evidence, rationally considered, might lead us

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6. Kripke, 1972, pp.149-51.  
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7. Kripke, 1971, pp.153-163.



astray.

A similar distinction is made in ethics and aesthetics. One has to allow that there may be more to be learned, that what we now take to be certain could turn out to be false.

The five considerations and distinctions just sketched provide a powerful case for taking modal intuitions, contra Quine, very seriously. Whether this case is eventually accepted or rejected, there is little doubt that the reliance on modal intuitions in the modal argument for pluralism is plausible.

#### 1.2 SECOND STEP: A DEFENSE OF MODAL PROPERTIES

The pluralist maintains not only that the modal statements

(4') The piece of bronze, *b*, could survive being reshaped (hammered) into a lump, and

(5') The statue, *s*, could not survive being reshaped into a lump,

are true (at least some such pair is true) but further, that one may validly infer from the pair that the statue is not identical with the piece of bronze. What justifies this inference? Why should it be legitimate to conclude in the above case that the statue is not identical to the piece of bronze, but not legitimate to draw the same conclusion from the following pair:

John believes that the statue he bought is beautiful.

John believes that the piece of bronze he sold is now an amorphous lump.

### III.1 A MODAL ARGUMENT FOR PLURALISM

One cannot conclude from these premises that the statue is not identical with the piece sold last year because John may be mistaken in his beliefs.

The pluralist will be quick to explain that modal contexts are transparent whereas belief contexts are not. But this is only to relabel the problem. Why think that modal contexts are transparent? After all, as we shall see in the next chapter, Gibbard, Lewis, Quine and other mereologists deny that they are.

Three considerations favoring the treatment of modal contexts in ordinary language as transparent are (i) that it appears to accord with the structure of English, (ii) that it appears to be a fruitful hypothesis, and (iii) that the alternatives are considerably more complex. Let us consider these turn.

1. STRUCTURE A major attraction of treating modal contexts in ordinary language as transparent is that it licenses an especially simple structural analysis of modal sentences. On the hypothesis that modal contexts may be treated as unary, transparent contexts, the resulting logical forms are especially close to the original sentences, which they match, part by part, quite closely. This notion of a "close fit" is somewhat vague, but the basic idea is simple, namely, that other things being equal, an analysis of a

sentence is to be preferred which "preserves structure" in the sense that it neither adds nor subtracts parts. Consider again that sentence,

(4') The statue could not be a lump.

It is natural to think of the sentence as having four parts: a singular term, "the statue"; a modal verb phrase, "could be"; a predicate phrase, "a lump"; and a logical operator, "not".

These four parts are reflected in the representation of (4')

as,

(4)  $\sim \Diamond \text{Lump} (s)$ .

ii. SUCCESS Treating modal contexts as transparent, unary contexts appears not only natural but also quite fruitful. Philosophical logicians have been offering formalizations of fragments of English for at least fifty years. The great success story is first order quantification theory within which a number of arguments may be successfully analyzed. Other areas of discourse have been more recalcitrant. Standard modal logic appears to be, at least relatively speaking, a success story. Compare modal logic with deontic or epistemic logic. The attempts to formalize both epistemic and deontic logic using a unary operator have run into numerous relatively simple counterexamples. By way of contrast, the putative counterexamples to the standard analysis of modal sentences using modal logic have turned out to be either fallacious or extremely complex, as is the statue puzzle.

iii. COMPARISONS My principal aim in this thesis is to compare and contrast alternative analyses of modal sentences and the ontological assumptions associated with each analysis. A major strength of the straightforward analysis of modal sentences as involving a unary, transparent operator is that it is simpler than the alternative offered by the monist, Chisholm, which involves quantification over primary objects. The straightforward analysis is also simpler than the analyses (explored in the next chapter) offered by mereologists. The defender of pluralism will no doubt stress this comparative simplicity. Though simplicity does not by itself settle the issue, it is an important consideration and one that favors the standard treatments of modal sentences in terms of a unary, transparent operator.

In conclusion, I have argued that pluralism is plausibly defended by an appeal to modal arguments. Two major steps in the defense of the modal argument were first, a justification of relying on modal intuitions such as (4') and (5'), and second, a justification of the claim that modal contexts in ordinary English are appropriately represented using a transparent, unary operator. Since part of the argument involves a comparison with alternatives, a fuller evaluation of the argument must wait until the mereological alternative has been developed. However, even without examining all the

alternatives, it is clear that the modal argument has considerable intrinsic appeal.

## SECTION 2

### DOES PLURALISM REQUIRE MODAL ARGUMENTS?

My topic is the defense of pluralist ontologies and yet I have focused almost exclusively on modality. Are the two topics really so intimately connected? Perhaps there are considerations favoring a pluralistic ontology of physical objects that have nothing whatsoever to do with modality. Such an argument would be welcome to the modalist, for pluralism would then be an independently defensible position, rather than a curious consequence of seemingly unrelated theses concerning modality. And if no such argument can be found, then pluralism will appear questionable to those who find the modal argument unconvincing and think that pluralism is inherently implausible.

I doubt that there are nonmodal arguments for a pluralistic ontology of physical objects. This doubt is based in part on having failed to find such arguments in the literature and in part on a simple argument (given below) that there could not be such an argument. In the next section I examine and find wanting an attempt by Wiggins to provide nonmodal considerations favoring a pluralistic ontology;

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

Wiggins does what I believe is inevitable, namely, to appeal, at least tacitly, to the assumption that modal contexts have a transparent reading.

I have spoken rather vaguely of a "nonmodal argument." It may be useful to illustrate what I have in mind. Recall that in criticizing monism, both mereologists and pluralists appealed to temporal properties to distinguish objects which at one time occupied the same spatial volume; to use Burge's example, a hammock and the rope of which it is made are distinct if the one existed at a time when the other did not. In such cases, mereologists and pluralists alike appeal to the transparency of temporal contexts; the argument in no way turns on modal considerations. This suggests a way in which the pluralist might give a nonmodal argument for his position, namely, by presenting nonmodal properties on the basis of which two objects co-occupying the same spatio-temporal receptacle might be distinguished.

#### 2.1 WHY A NONMODAL ARGUMENT FOR PLURALISM IS UNLIKELY.

There is reason to be skeptical as to whether there could be a nonmodal argument for a pluralistic ontology. Suppose  $x$  and  $y$  are physical objects which occupy the same spatial volume at every moment of their respective existences. Since they are physical objects, they are composed of atoms (or other particles). Which atoms? Since  $x$  and  $y$  occupy the same spatial volume, it seems they must be composed of the same

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

atoms. Similarly, they must have the same weight, the same shape, the same color, and so forth. Indeed, since they appear to have the same physical properties at every moment during which they exist, there appears to be nothing that could distinguish them, except, perhaps, modal properties. In other words, the pluralist who wishes to give a nonmodal argument for his position will have to base the argument on properties other than modal and physical properties, but where could he find such properties? I certainly do not claim to have proven that the pluralist must rely on modal properties, only that it is difficult to see what else he might utilize in distinguishing between co-occupants of a spatio-temporal receptacle.<sup>8</sup>

#### 2.2 A CRITIQUE OF WIGGINS' ATTEMPT AT A NONMODAL ARGUMENT

The remainder of this section deals with a notable recent attempt by Wiggins<sup>9</sup> to present an argument for a pluralistic ontology that does not rely on modal considerations. I have suggested above that it is doubtful whether there could be such an argument, thus, it is of interest to see where Wiggins goes astray. I shall argue that even if we grant Wiggins a number of controversial assumptions, his argument is flawed in one of two ways: either Wiggins simply overlooks the alternative offered by mereologists, or he

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8. This argument is frequently made by materialists and physicalists. See, for example, Gibbard, 1975, pp.192-3.  
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9. Longer note A.

begs the question by tacitly assuming that there are nontrivial modal properties.

As several reviewers have noted, Wiggins' Sameness and Substance is a complex and difficult book in which parts of a detailed argument are likely to appear in many different sections and footnotes.<sup>10</sup> In what follows I criticize a position which is reasonably attributed to Wiggins on the basis of the structure of Sameness and Substance. Wiggins presents his thoughts on identity and individuation in the first three chapters of his book and begins the fourth chapter, "Marking the end of modal abstinence, I now seek to deduce certain 'essentialist' consequences of the theory of individuation expounded in the preceding chapters."<sup>11</sup> Taking seriously Wiggins' avowed "modal abstinence," I shall examine the first three chapters of the book, which contain a defense of principles which entail pluralism, and see if the defense succeeds in avoiding what I have called the modal argument for pluralism.

Central terms in Wiggins' discussion are "substance sortal" and "persistence condition." As noted in the previous chapter, he uses "substance sortal" as I am using "covering noun," namely a general term, F, which satisfies the schema,

$$(CN) \quad (x)[(Et)(x \text{ is an } F \text{ at } t) \Rightarrow (t)(x \text{ is an } F \text{ at } t)].$$

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 10. Shoemaker, 1970 and 1981.  
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11. Wiggins, 1980, p.103.



### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

In other words, if anything is an F at one moment it is an F at every moment during which it exists. Wiggins is one of the foremost defenders of the two principles discussed in chapter two:

(I) If a and b are singular terms, and F is a count noun (substance sortal), then the sentence "a is the same F as b" has a non-elliptical reading which implies that a is identical to b.

(II) English contains many count nouns that are also covering nouns and a competent speaker can distinguish covering from noncovering nouns.

Among nonmonists, the assumption that there is a sizeable class of covering nouns seems unproblematic. It is plausible to maintain with Wiggins and many other nonmonists that "person," "rock," "statue," and "piece of bronze," are count nouns, whereas "senator," "boy," "red thing," and "kitten" are not. What distinguishes Wiggins' position from that of many other nonmonists (in particular, mereologists) are several additional principles governing covering nouns.

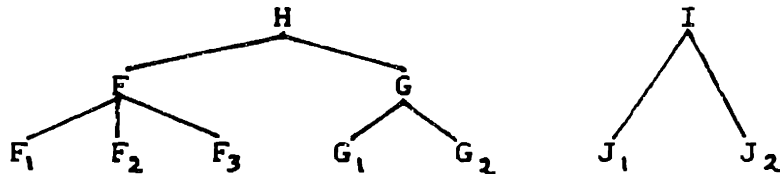
According to Wiggins, two substance sortals (I shall use his term rather than "covering nouns" in explicating his position) are disjoint if there is nothing to which they both apply. For example, the common nouns "cat" and "dog" are disjoint since there is nothing which is both a cat and a dog. Another important relation among substance sortals occurs when one is subsumed under another. For example, since every cat is an animal, the substance sortal "cat" is subsumed under the substance sortal "animal." Wiggins maintains that in an

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

important sense these are the only possible relations between substance sortals. I shall call this the principle of sortal hierarchy since it implies that substance sortals are ordered in a rigid hierarchy,

(Sortal Hierarchy) If F and G are substance sortals, then either they are disjoint or one is subsumed under the other.<sup>12</sup>

The hierarchy of sortals may be pictured as follows, where lines represent one sortal's being subsumed under another.



The principle of sortal hierarchy is a descendent of the Aristotelian notions of real definition and taxonomy. Each object belongs to at most one "species" and the species are subsumed under differentia and genera. The claim that substance sortals are so ordered is, if nothing else, aesthetically pleasing to those with a taste for structure.

Why is the principle of sortal hierarchy controversial? And how does it relate to the issue of a nonmodal argument for a pluralistic ontology? Consider again the case of the statue and the piece of bronze. If we assume that the nouns "statue" and "piece of bronze" are both substance sortals, then according to the principle of sortal hierarchy, either they are disjoint or one is subsumed under the other. It is clear that

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12. See longer note B for a qualification.

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

not every statue is a piece of bronze (some statues are made of clay) and not every piece of bronze is a statue (some pieces of bronze are swords or mere lumps). Thus, neither "statue" nor "piece of bronze" is subsumed under the other. According to the principle of sortal hierarchy, since neither term is subsumed under the other, they must be completely disjoint. In other words, no statue could be identical with a piece of bronze and since it is plausible that a statue and a piece of bronze could co-occupy a spatio-temporal receptacle, then, as Wiggins concludes, both the strong and weak occupancy principles are false.

Thus far, the argument appears too quick. After all, one cannot simply assert the principle of sortal hierarchy. It seems just as plausible to maintain that "statue" and "piece of bronze" provide a counterexample to the principle. Of course the hierarchy principle is attractive and might appeal to our sense of neatness, but this is hardly a decisive argument in its favor. Other things equal, I would like my filing cabinet to reflect unique categories (one and only one appropriate file for each sheet of paper), but why think that the world is any better organized than my filing cabinet?

Wiggins' remarks on this crucial question are unusually terse. He thinks that Geach's theory of relative identity, which he symbolizes by "(R)," is relevant. Wiggins believes, as do the majority of philosophers who have addressed the topic in the literature, that Geach's theory is false. I shall not

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

dispute Wiggins on this point. What is unusual is his contention that the falsity of (R), coupled with the recognition of substance sortals, supports the principle of sortal hierarchy.

...we can expect that, for every completely determinate continuant, there will be at least one sortal concept that it falls under and that determines a principle of persistence for it. But the denial of (R) then tells us that, if there are several such concepts, then they cannot disagree in the persistence condition they ascribe.<sup>13</sup>

And now the denial of (R) ensures that, if there are several such concepts, then they will all agree in the persistence condition that they ascribe to an individual lying within their extension. (Such a set of concepts may be called sortally concordant.) For it is excluded that some entity A might answer to both F and G, F and G being substance concepts, and be the same F as B but not the same G as B.<sup>14</sup>

My strategy at this point is to consider two interpretations of what Wiggins might mean by a "persistence condition." On the nonmodal reading, the denial of (R) in no way supports the hierarchy principle; a mereologist, say Quine, provides the relevant counterexample, namely, a theory that rejects both (R) and the hierarchy principle, yet finds room for substance sortals and persistence conditions. On the second, modal reading of "persistence condition," Wiggins is indeed making an important argument, but it is an argument which presupposes the existence of modal properties and fails to supply an argument for pluralism that avoids the use of the modal argument.

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13. Wiggins, 1982, p.60.  
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14. Wiggins, 1980, p.65.

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

THE MERELOGICAL POSSIBILITY Wiggins is mistaken if he thinks that the denial of (R), together with the view that there are substance sortals which convey persistence conditions, implies that substance sortals are hierarchically ordered. To challenge the implication, one need only display a way in which the premises could be true and yet the conclusion false. A mereologist can supply such a theory. Quine suggests the relevant details.

Suppose a mereological ontology of physical objects. That is, at most one object can fully occupy a spatio-temporal receptacle and there are instances in which more than one object occupies a spatial volume. It is reasonable to assume that there are substance sortals (count nouns) which characterize the whole "temporal length" of at least some of the objects. A mereologist could, but need not, question whether Wiggins' list of substance sortals is correct, but as a nonmonist, he is likely to agree that a list similar to Wiggins' is correct.

The mereologist might offer reasons for the importance of substance sortals very similar to those offered by Wiggins. Philosophers have often noted that our interaction with an object may be sporadic, and yet we are quite confident that we are seeing the same object again. What underlies these judgments of identity? One suggestion is that substance sortals "convey persistence conditions." For example, when I learn to

use the term "rock," part of what I learn is a general criteria for the reidentification of rocks.

I have sketched a mereological position that is (1) compatible with Geach's theory of relative identity, (2) countenances substance sortals that convey nontrivial persistence conditions, and yet (3) does not satisfy the principle of sortal hierarchy. Thus, the short paragraphs in which Wiggins appears to defend the hierarchy principle by appealing to the falsity of Geach's theory are either mistaken (since they fail to take seriously the mereological possibility) or they contain a suppressed premise. I shall now argue that the only candidate I can find for the suppressed premise involves an illicit appeal to modality.

#### A MODAL NOTION OF A PERSISTENCE CONDITION

In an important footnote, Wiggins appears to make an addition to his argument that the denial of (R) is relevant to the principle of sortal hierarchy.

If [two substance sortals] are not finally subject to the same individuating principle [persistence conditions], then we are not guaranteed against the possibility of contradiction of (R) or indeterminacy if we trace an entity under these distinct individuating principles [persistence conditions] which (in so far as they are not concordant) potentially disagree at some point.<sup>15</sup>

At another point, Wiggins gives a characterization of substance sortal which is far richer than the covering noun schema which

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15. Wiggins, 1980, p.205.

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

he originally suggests is the appropriate test of a substance sortal.

D(iv): F is a substance concept [substance sortal] only if F determines (with or without the help of further empirical information about the class of f's) what can and cannot befall an x in the extension of f, and what changes x tolerates without there ceasing to exist such a thing as x.<sup>16</sup>

I have emphasized the explicitly modal terms in both citations. Their occurrence raises the possibility that Wiggins is tacitly assuming that modal contexts are transparent. How else are we to construe his talk of "what can and cannot befall an x"?

In the first citation, Wiggins is concerned with what might happen if we "traced" one object using persistence conditions that "potentially" disagreed. I suspect Wiggins has in mind something like this. His argument is intended to be a reductio. Suppose it were possible for a statue and a piece of bronze to be the same physical object, x. Suppose x is now in front of me. Since x is both a statue and a piece of bronze, it must obey the persistence conditions conveyed by the relevant substance sortals. Since these substance sortals convey different persistence conditions, it is possible that object y could be the same piece of bronze as x, and yet not be the same statue as x, which is absurd, since Geach's theory of relative identity is absurd.

This argument presupposes the transparency of modal contexts. Note that it requires the intelligibility of

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16. Wiggins, 1980, p.68.

### III.2 DOES PLURALISM REQUIRE MODAL ARGUMENTS?

asserting of an object  $x$  that it could be the same piece of bronze without being the same statue. The argument reduces to the modal argument that I examined in section one, namely, that a statue and a piece of bronze could not be identical because the piece of bronze but not the statue manifests the modal property, "could be a lump." As stressed in the first section of this chapter, such modal arguments are important and not obviously false. But we had hoped to get from Wiggins an independent argument for a pluralistic ontology.

I conclude that Wiggins' effort to defend pluralism while observing modal abstinence fails because he either overlooks the mereological possibility or tacitly appeals to modal properties.

### SECTION 3

#### CONNECTIONS AMONG BASIC PRINCIPLES

Wiggins does not succeed in giving a nonmodal argument for pluralism. Nonetheless, there are significant connections among the principles which Wiggins discusses. In this section, my primary goal is to elucidate these connections and use them both in speculating as to what Wiggins is attempting and in illuminating the relations among monism, pluralism, and mereology. I use the informal term "connections" because I doubt that the relations can be fully formalized; the



### III.3 CONNECTIONS AMONG BASIC PRINCIPLES

connections for which I argue have the form, "Given A it is much more plausible to conclude B than -B."

In explicating monism in chapter two, I noted that many philosophers (including Wiggins and most mereologists) accept two basic principles governing identity statements about physical objects.

(I) If a and b are singular terms, and F is a count noun, then the sentence "a is the same F as b" has a non-elliptical reading which implies that a is identical to b.

(II) English contains many count nouns that are also covering nouns. A competent speaker can distinguish covering from noncovering nouns.

The above principles do not make use of any explicitly modal concepts; the schema defining covering nouns is concerned only with identity and existence through time, not identity through possible worlds. But the addition of third assumption changes the situation.

(III) The modal sentences of ordinary language are appropriately analyzed in a straightforward manner using the unary operators  $\Diamond$  and  $\Box$ . Quantification into the scopes of the  $\Diamond$ - and  $\Box$ -operators is permitted and necessary to analyze de re modal sentences.

As I argued in section one, a strong case can be built for this third principle in terms of its naturalness and comparative simplicity. Wiggins of course accepts (III). Note that (I) through (III) are not explicitly concerned with essentialism, the hierarchy principle or pluralism; each appears to be relatively innocuous and independently

### III.3 CONNECTIONS AMONG BASIC PRINCIPLES

defensible. However, when taken together, the three principles make a significant version of essentialism, the hierarchy principle, and pluralism all but inescapable. It is this inescapability that I believe both Wiggins and Quine appreciate. Let us consider in turn the consequences of assuming (I), (II), and (III).

#### ESSENTIALISM

By essentialism I mean the doctrine that covering nouns could not fail to belong to their bearers:

(E) If and object  $a$  is an  $F$ , and  $F$  is a covering noun, then  $\Box Fa$ .

Now suppose someone were to maintain (I), (II) and (III) and deny (E). Let  $F$  be a covering noun that did not apply essentially to an object  $a$ . Like every other  $F$ , the object  $a$  is an  $F$  throughout its existence. Nonetheless, it could have failed to be an  $F$ . Though no  $F$  is ever anything other than an  $F$ , some  $F$ 's might be something other than  $F'a$ . But this is absurd. How could it be that no  $F$  ever was or will be a  $G$ , and yet it could have been the same object (without being an  $F$ ) and have been a  $G$ . The problem is that someone who accepts (I), (II), and (III) will undoubtedly accept for covering nouns the de dicto principle

(A)  $\Box (x)[(\exists t)(x \text{ is an } F \text{ at } t) \Rightarrow (t)(x \text{ is an } F \text{ at } t)]$

which makes it difficult to deny the de re principle,

(B)  $(x)[(\exists t)(x \text{ is an } F \text{ at } t) \Rightarrow \Box (t)(x \text{ is an } F \text{ at } t)]$ .

I do not see how being an F could be a necessary condition for reidentification through time and fail to be a necessary condition for identity in other possible situations.

I am not claiming that (B) follows from (I), (II), (III) and (A) as a matter of logic; it is easy to construct formal counterexamples to such an inference.<sup>17</sup> Rather, I am claiming that the formal models do not have philosophically reasonable interpretations.

THE HIERARCHY PRINCIPLE

Suppose the hierarchy principle did not apply to covering nouns, and yet (I), (II), (III) and (E) were true. Then there would be an object a which was both an F and a G where neither F nor G would be subsumed under the other. But according to (E), F's and G's satisfy distinct modal principles and thus would ascribe contradictory properties to the object a. In other words, if being an F entails the possibility of surviving one set of transformations, and being a G entails the possibility of surviving a distinct set, then there would be transformations which any object which was both an F and a G could both survive and not survive. For example, if statues are essentially statues and pieces of bronze are essentially pieces of bronze, then no object could be both a statue and a piece of bronze since it would both survive and not survive

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 17. See longer note C for a simple modal theoretic counterexample.

### III.3 CONNECTIONS AMONG BASIC PRINCIPLES

being squashed.

The above argument is the one which I attributed to Wiggins when I accused him of tacitly appealing to modal principles; he explicitly endorses (I) and (II), but also makes inexplicit use (III) and (E).

#### PLURALISM

If (I) and (II) are true, then I do not see how one can avoid concluding that there are distinct covering nouns which at times apply to some of the same spatial volumes. The multiple occupancy puzzles discussed in chapter one provide a number of such examples. But as argued above, if (I), (II), and (III) are true, then distinct covering nouns must be associated with distinct objects. Since there is nothing to prevent an F and a G from occupying the same spatio-temporal receptacle (as in Gibbard's statue puzzle), pluralism is true.

Quine has long maintained that quantification into modal contexts leads to the "metaphysical jungle of Aristotelian essentialism."<sup>18</sup> The argument above shows one sense in which Quine is clearly right. A basic assumption made by most modal logicians, (III), along with a very plausible theory of covering nouns, (I) and (II), leads naturally to essentialism with regard to covering nouns, the hierarchy principle and pluralism--doctrines that an empiricist like Quine naturally

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18. Quine, 1966, p.174.

### III.3 CONNECTIONS AMONG BASIC PRINCIPLES

characterizes as an "Aristotelian jungle." On my interpretation of Quine's remark, the suppressed premises are (I) and (II). But it is not surprising that Quine tacitly assumes these premises since he has at times argued explicitly for them. Quine would have us avoid Aristotelianism by rejecting (III) and keeping (I) and (II).

In section two, I argued that Wiggins was mistaken if he thought that essentialism, the hierarchy principle, and pluralism followed from (I) and (II) alone. He must be tacitly assuming (III). A great merit of Wiggins' Sameness and Substance is that it contains the materials for a defense of (I), (II) and (III) as well as an exploration of their consequences.

On my reading, Quine and Wiggins agree that (I), (II), and (III) lead inescapably to essentialism in the Aristotelian tradition, though of course their receptions of this conclusion are diametrically opposed. Furthermore, both authors accept (I) and (II). The focus of disagreement is (III).

This thesis is organized around the threefold division--monist, pluralist, and mereological--among ontological theories. Considering the argument for essentialism and pluralism based on (I), (II) and (III) provides a somewhat different perspective on the division.

Wiggins and other modal realists in the Aristotelian tradition defend all three of the principles. Chisholm

### III.3 CONNECTIONS AMONG BASIC PRINCIPLES

believes that what we ordinarily call objects are really successions of primary objects; in the strict and philosophical sense of identity, principle (I) is not true.

(I) If a and b are singular terms, and F is a count noun, then the sentence "a is the same F as b" has a non-elliptical reading which implies that a is identical to b.

Ayers uses the contingent-predicate strategy, which I found wanting, to challenge,

(II) English contains many count nouns that are also covering nouns. A competent speaker can distinguish covering from noncovering nouns.

Quine and other mereologists, whose work is examined in more detail in the next chapter, reject:

(III) The modal sentences of ordinary language are appropriately analyzed in a straightforward manner using the unary operators  $\Diamond$  and  $\Box$ . Quantification into the scopes of the  $\Diamond$ - and  $\Box$ -operators is permitted and necessary to analyze de re modal sentences.

I have argued in this section that (I), (II), and (III) form a powerful trio that leads to a substantive version of essentialism. Far from disputing this connection, the authors I examine appear to endorse it by focusing their energies on (I), (II), and (III).

## LONGER NOTES TO CHAPTER THREE

A. Wiggins has concerned himself with a broad range of problems concerning identity through time, personal identity, reference and modality in his two books, Identity and Spatio-Temporal Continuity, 1967, Sameness and Substance, 1980; and numerous articles.

B. A more careful formulation of the hierarchy principle would require a distinction between genuine and contrived "substance sortals." To see this, let F be "is either a pig or a rock" and G be "is either a pig or a tree." The predicates F and G both satisfy the covering noun schema and yet they violate the hierarchy principle in that neither is subsumed under the other and they are not disjoint. I think that Wiggins would say that the predicate "is a pig or a tree," unlike the predicates "is a pig" and "is a tree," has "no autonomous individuating force of its own, and must be variously supplemented, where it appears in contexts of identification, according to the kind of individual in question."<sup>19</sup> Since my interest lies elsewhere, I simply grant Wiggins that pigs form a single kind while the set of pigs and trees does not.

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19. Wiggins, 1980, p.63; see also n.18, p.144-45.

C. To see that

(B)  $(x)[(Et)(x \text{ is an } F \text{ at } t) \Rightarrow \Box(t)(x \text{ is an } F \text{ at } t)]$

does not follow from

(A)  $\Box(x)[(Et)(x \text{ is an } F \text{ at } t) \Rightarrow (t)(x \text{ is an } F \text{ at } t)]$

consider a model in which there are two worlds but just one object. The object is an F at all times in the first world and a G at all times in the second world.



CHAPTER IV  
MEREOLGY, REDUCTIONISM, AND MODAL PROPERTIES

This chapter addresses several connections between de re modality and mereological ontologies. Adequate treatment of the two requires that we discuss a third position, modal reductionism, which can be traced at least as far back as nominalist concerns with natures and universals. The connections among the three which are discussed below are (1) the virtual logical incompatibility between mereology and a straightforward reading of de re modality, (2) the traditional contrast between taking de re modality literally (modal realism) and modal reductionism; and (3) the possibility of giving an account of de re modal contexts which is compatible with a mereological ontology.

SECTION 1

THE INCOMPATIBILITY BETWEEN MEREOLGICAL ONTOLOGIES AND DE RE MODALITY

This section further develops a theme from previous chapters, namely, that there is an incompatibility between mereological ontologies, which satisfy the weak occupancy principle,

$$(WO) \quad (x)(y)[(t)(v(x,t)=v(y,t)) \Rightarrow x=y],$$

and all but the most unusual accounts of de re modalities. In other words, those who adopt a mereological ontology cannot, at least not without making implausible assumptions, also attribute de re modal properties to such objects. While there is some overlap between this section and the previous chapter, I hope the difference in emphasis justifies some repetition.

### 1.1 PATTERNS IN THE LITERATURE

Consider first a bit of circumstantial evidence. As a generalization about the literature, it is safe to say that those philosophers who have adopted a mereological position have rejected the attribution of de re modal properties to objects. For example, Quine, Goodman, Gibbard, Gupta and Lewis have taken this position.<sup>1</sup> Quine and Goodman show a general scorn for modal contexts. Lewis, Gibbard, and Gupta see a need for extensive paraphrasing of modal discourse if their mereological position is to be defended. C.D. Broad (discussed below) is an interesting exception to the rule; he buys consistency at the price of maintaining that nothing could be in any way different from what it is or was. Conversely, philosophers who have explicitly accepted de re modality and considered ontological puzzles, reject mereological ontologies. Examples are Kripke, Shoemaker and

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1. See longer note A.

Wiggins.

Of course I don't mean to suggest that examining patterns in the literature constitutes an argument. But it does suggest that there is an argument which would explain the pattern. Three such explanations follow.

## 1.2 A MORE FORMAL ARGUMENT

Consider the general features of the statue puzzle. If one adopts a mereological approach to at least one of the many putative cases of multiple occupancy, then there are cases in which an F and a G occupy the same spatial volume at one time. And if they co-occupy a volume for one moment, what is to keep them from co-occupying the volume at every moment? If we assume a mereological ontology, then the F and the G are identical. But the co-occupancy puzzle arises because F and G are distinct kind terms whose members characteristically survive different sorts of transformations. Something could have happened to the F which could not have happened to the G. But this violates our assumption that the F and the G are identical.

Somewhat more formally, let us assume with the mereologist that for some choice of kind terms F and G,

1. A = the G
2. B = the F
3.  $(t)[v(A,t)=v(B,t)]$
4. A = B,

and for some choice of a differentiating property  $P(\_)$ ,

5.  $\Diamond P(A)$

6.  $\sim \Diamond P(B)$ .

A contradiction follows using Leibniz's law,

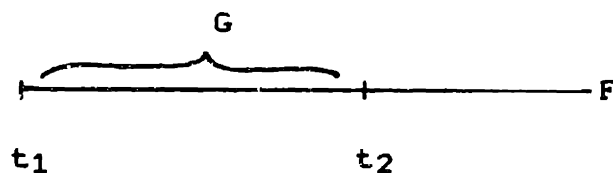
7.  $A=B. \Rightarrow [\Diamond P(A) \Leftrightarrow \Diamond P(B)]$

8.  $A \neq B$

The mereologist concludes that the difficulty lies in attempting to apply Leibniz's law in modal contexts.

Several ways in which a mereological ontology might be thought to be consistent with the attribution of modal properties merit discussion.

First, one might try to get around the above argument for incompatibility by claiming that there are no suitable covering nouns,  $G$  and  $F$ . Judith Thomson expresses doubt on this score.<sup>2</sup> But this would be challenge a principal motivation for a mereological ontology, namely, to resolve in terms of parts and wholes at least some of the traditional occupancy puzzles. That is, if a typical relation among  $F$ 's and  $G$ 's is,



then there must some events which terminate  $F$ 's, but not  $G$ 's, as well as events which terminate both. And if there are

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 2. Thomson, "Part-Hood and Identity Across Time," section 7, forthcoming. See longer note B.

events which terminate both F's and G's, then I don't see how a mereologist could avoid concluding that it was at least possible for an F and a G to occupy the same spatio-temporal receptacle.

A second attempt to circumvent the general argument based on the statue puzzle would be to argue that there is no suitable differentiating property,  $P(x)$ , to be used in the premises

5.  $\Diamond P(A)$  and

6.  $\sim \Diamond P(B)$ .

There are at least two ways to defend such a view, but neither defends the use of ordinary modal intuitions to guide attributions of de re modality.

A first way of defending the lack of a suitable differentiating property is to maintain that the only necessary attributes of material objects are those possessed by every material object; for example, logical properties such as "being red or not red" and perhaps properties such as "having a mass" or "having a position." On this view, it would be a mistake to say that a statue could not survive being hammered into a lump of bronze--anything could be anything. Clearly such a theory is at odds with the ordinary modal intuitions which modal realists have tended to honor. Furthermore, even if one did believe that in the strict and philosophical sense anything could be anything, the issue would remain as to how best to

account for ordinary modal intuitions. The point is not that it is impossible to combine a mereological ontology with a theory of de re modal properties, but that such a combination could only come at a price most philosophers have found unacceptable.

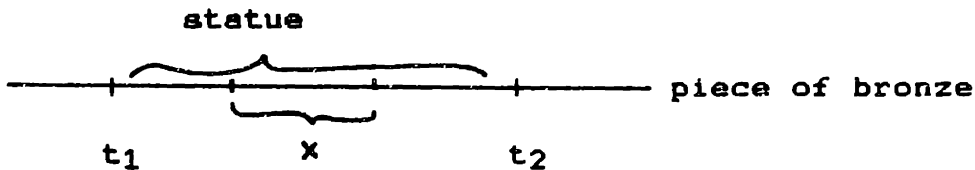
The first suggestion trivialized modality by severely restricting the quantity and types of necessary properties. The second suggestion goes to the opposite extreme: every property of an object is either necessary or impossible. There are no contingent features of the world, and thus, there is no differentiating property  $P(x)$  to be used in premises (5) and (6) of the argument. Such a position is not indefensible. C.D. Broad appears to defend it with an ingenious argument.<sup>3</sup> The world is completely determined; nothing could have happened other than it did. To the suggestion that initial conditions might have been distinct, Broad replies that this might be so, but under different conditions there is no way of saying that there would have been the same objects. Broad's argument, which he develops at length, raises a number of issues, but for my purposes, the main point is as above: even if defensible, the view that nothing could have been other than it is is very much at odds with what most de re modalists have wanted to maintain and leaves unresolved the matter of ordinary intuitions.

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 3. Broad, An Examination of McTaggart's Philosophy, 1933.

It is useful to talk of modalism in the Aristotelian tradition. The Aristotelian thinks that some nonlogical, nontrivial properties are contingent and others necessary. Of course there is room for much disagreement as to which properties fall under which category. The two views considered above are not in the Aristotelian tradition. The one finds too many contingent properties (all properties except tautologous properties are contingent) and the other finds no contingent properties. So long as the Aristotelian advocates a mixture of necessary and contingent properties, his view is incompatible with a mereological ontology.

1.3 UNUSUAL OBJECTS AND MODALITY

A further incompatibility between a mereological ontology and modalism in the Aristotelian tradition is seen by considering the many unusual "objects" that are included in a mereologist's ontology. Having chosen a mereological position, one is tempted to maintain that the proper parts of objects are themselves objects. For example, just as the statue is an object which overlaps with the piece of bronze between  $t_1$  and  $t_2$ , there is an "unnatural" object, X, which overlaps with the statue but does not last so long.



A mereologist need not endorse such objects, but it is little

surprise that so many do. After all, having opened the door for proper parts which are singled out with a covering noun, there is no reason to think that other parts could not also be singled out. Let us suppose that the mereologist makes this likely move; there is now a further difficulty with attempting to combine a theory of de re modality with the mereological ontology, namely, that the modal attributes of these "unnatural" objects are exceedingly obscure. Could the temporal first half of a house have been the second half? Could a momentary temporal slice have lasted longer? I do not see any clear way of answering such questions.

Mereologists are also inclined to maintain that if  $x$  and  $y$  are objects, then so is the "sum" of  $x$  and  $y$ .<sup>4</sup> Again, the modal properties of such objects are obscure. What changes could the sum of Ronald Reagan and the Eiffel Tower undergo?

In brief, the mereologist is likely to have numerous objects in his ontology to which modal properties are not readily attributed. From the mereological perspective, the distinction between four-dimensional entities about which we converse and the other, "unnatural" entities is a complex matter of human psychology and convenience. A similar relativity to human concerns will enter the mereologist's account of modality. This contrasts sharply with the Aristotelian for whom modal properties are among the

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4. See R. Cartwright, "Scattered Things," for a careful discussion of mereological "sums."



significant features of the world.

#### 1.4 INCOMPATIBILITIES IN SPIRIT

Finally, there are at least two ways in which the general considerations given in favor of a mereological ontology conflict with those favoring a realist approach to modality in the Aristotelian tradition. These conflicts reflect a great difference in spirit, if not in logic. This section builds on my observation in chapter two, section five that the ontologies of Chisholm and Quine have a great deal in common despite great differences in detail.

First, the mereologist (like Chisholm) is willing to stray further from ordinary language and pretheoretical intuitions about ontology than is an ontologist in the Aristotelian tradition. Wilfrid Sellars<sup>5</sup> draws a useful distinction between the "manifest" and "scientific" images of the world. The manifest (also "common-sense") image is populated with persons, Austin's "moderate-sized specimens of dry goods,"<sup>6</sup> plants, animals, and the other objects of normal discourse. Among their noteworthy attributes are that they are colored, textured and persist through time. According to Sellars, each "image" is a proper object of philosophical reflection as is the question of the relationship between the two. The manifest image, far from being a hodgepodge of fleeting and

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5. Sellars, 1963, chapter 1.  
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6. Austin, Sense and Sensibilia, 1962, p.8.

contradictory intuitions, is a sophisticated, law-governed network; its structure is unveiled only with difficulty.

The central difference between the manifest and scientific images is not that the former is undisciplined but that "it by stipulation, does not include...the postulation of imperceptible entities, and principles pertaining to them, to explain the behavior of perceptible things."<sup>7</sup> Sellars sees the manifest image as being one of "the poles towards which philosophical thinking is drawn."<sup>8</sup> There is a correct and an incorrect way of describing this objective image that we have and "the so-called "analytic" tradition in recent British and American philosophy, particularly under the influence of the later Wittgenstein, has done increasing justice to the manifest image."

Even this brief sketch of Sellars' distinction is sufficient to suggest a difference in spirit between contemporary mereologists, who for the most part look to the scientific image, and contemporary ontologists in the Aristotelian tradition, who for the most part look to the manifest image. A concern with the manifest image leads naturally to placing considerable weight on both one's ordinary modal intuitions and one's initial sense that a mereological ontology is bizarre. A concern with the scientific image

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7. Sellars, 1963, p.7.  
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8. Sellars, 1963, p.14.

prepares one for the wholesale reinterpretation of common-sense intuitions and for the acceptance of counterintuitive ontologies.

A second and related difference in spirit between mereological ontologies and ontologies in the Aristotelian tradition is apparent in their relations to the empiricist tradition. Empiricists give priority to the occurrent, physical qualities of objects. The pattern is evidenced by the classical empiricist's concern with "ideas"; the turn of the century concern with sense-data; and Quine's "stimulus meanings" and "occasion sentences." Modal properties are not the sort of occurrent, physical quality that empiricists have stressed. However, mereology fits neatly with the view that objects are differentiated and individuated on the basis of occurrent, physical qualities. Empiricists will respond sympathetically to the question, "How could a statue and a piece of bronze be different if they had all the same physical qualities at every moment of their existences?"

Not surprisingly, mereological ontologies have been most appealing to those philosophers who look to science and the empiricist tradition for inspiration while modal properties have been especially popular among philosophers who place an emphasis on ordinary language and common-sense idioms.

## SECTION 2

## TWO MERELOGICAL ACCOUNTS OF MODALITY: QUINE AND LEWIS

My result thus far has been purely negative, namely, that there is an incompatibility between a mereological ontology and any attempt to take literally ordinary Aristotelian de re intuitions. To leave things here would simply leave modal discourse unaccounted for. It is reasonable to wish for something more. This section responds to the modal views of two well known mereologists--Quine and D. Lewis. Finding both of their views unacceptable, I shall explore an alternative in section three.

### 2.1 QUINE ON THE ELIMINATION OF MODALITY FROM RIGOROUS DISCOURSE

Quine's response to modal puzzles is to say so much the worse for modality.<sup>9</sup> He sees no reason to give an account of de re modality; instead, he would ignore it.

Quine emphasizes science. His approach to metaphysics is, roughly speaking, to examine the ontological commitment of scientific theories after they have been formalized in canonical notation. Quine maintains that modal idioms are not called for in scientific discourse and are too obscure to have any place in the canonical language.

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 9. Here and below I follow Word and Object, 1960.

But there are at least two reasons why even philosophers who think of ontology purely in terms of physical theories might show more interest in modality than Quine does.

First, as was noted in the previous chapter, even if modality is a form of obscurity, it is a particularly common form of obscurity, one about which most individuals appear to have many strong intuitions and about which dispute is possible. As defenders of pluralism and modal arguments stress, there is no evidence that one is dealing with random, nonsense symbols.

A Quinean might reply that astrology too is an extremely systematic subject, yet once one sees that it is mere fiction, there is no philosophical reason to study it.

But perhaps a more appropriate analogy is with moral discourse. Like modal discourse, ethics is a subject of perennial concern to philosophers and not one that even Quine would see as "unphilosophical" even if he sees it as irrelevant in "limning the ultimate structure of reality." The point is that many philosophers see themselves as explicating our common-sense conceptual scheme, and such an explication need not lose all interest simply because the scheme is "unscientific."

Bas van Fraassen gives a second good reason for not dismissing modal discourse as philosophically uninteresting,

namely, that contemporary science makes extensive use of probability, a concept which is closely linked to modality.<sup>10</sup> Van Fraassen's point is that modal-like concepts are at the heart of contemporary science and that a concern with modality is a natural step in examining the contemporary language of science (Quine's main interest).

Two connections between probability and modality are noteworthy. First, there is a close parallel between saying an event is physically impossible and saying that the probability of its occurrence is zero; similarly, an event is possible if the probability of its occurrence is greater than zero. Second (and this point is of special relevance to Quine's program), probability contexts are not extensional. Let  $t$  abbreviate the singular term, "the percentage of electrons which pass through the slit," and let " $\text{Prob}(P) = x$ " abbreviate "the probability that  $P$  is  $x$ ." To see that probability contexts are not extensional (substitution of co-referential singular terms need not preserve truth), note that both

$t = 50\%$ , and

$\text{Prob}(t = 50\%) = 50\%$

could be true and yet it is false that

$\text{Prob}(50\% = 50\%) = 50\%$ .

Thus, probability sentences suffer from the same purported defects that Quine finds in modal and belief sentences.

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10. van Fraassen, The Scientific Image, 1980, chapter 6.

Despite his close association with Carnap, Quine has shown curiously little interest in the nonextensional character of probability contexts. But many other philosophers of an empiricist bent have been interested in this, and their interest has been spurred, at least in part, by a Quinean preference for extensional languages and an ontology of physical objects and occurrent, physical qualities.<sup>11</sup>

My point is not that contemporary science is committed to irreducibly probabilistic statements (conceptualist reductions are frequently suggested), but that whether it is so committed is an extremely difficult question which requires serious examination by philosophers. In brief, modal-like idioms occur in contexts more familiar to contemporary scientists than Aristotle's Metaphysics and Anselm's ontological proof.

## 2.2 LEWIS: EXPLICATING MODALITY IN TERMS OF SIMILARITY AMONG POSSIBLE WORLDS

David Lewis is a mereologist who takes modality seriously. The basic features of Lewis's metaphysics are familiar.<sup>12</sup> There are other possible worlds, like ours, only not actual. Objects are in worlds. Each object is in one and only one world. Objects in distinct worlds, though not identical, can be similar. Modal statements are to be explicated in terms of

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 11. See Weatherford, Philosophical Foundations of Probability Theory, 1982, for an overview.  
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12. Lewis, "Counterpart Theory and Quantified Modal Logic," 1968.

quantification over possible worlds and counterparts. What vagueness there may be in our modal intuitions corresponds to the vagueness in the similarity relation among counterparts which underlies our modal intuitions.

I have little to add to the most frequent criticisms made of Lewis. First, his ontological commitments are extraordinary.<sup>13</sup> I simply do not believe that are other possible worlds which "are the same sort of thing as the actual world." Second, I am unmoved by purported "explications" of possibility, meanings, counterfactuals, etc., in terms of functions among possible worlds since the explications analyze the obscure in terms of the more obscure. Third, Lewis's program seems to suffer from internal difficulties which make it unlikely that the notion of similarity can do what he asks of it.<sup>14</sup> Finally, if there are other possible worlds ("ways things might have been"), Kripke is surely right in claiming that the same objects can exist in more than one of them.<sup>15</sup> In other words, insofar as I understand talk of other possible worlds and objects being in them, Lewis seems mistaken as to how they work.

Lewis's papers merit close reading. While often fantastic

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13. Stalnaker, "Possible Worlds," 1976.  
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14. Bowie, "The Similarity Approach to Counterfactuals," 1979.  
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15. Kripke, 1972, pp.266-67; see also Feldman, "Counterparts," 1971.



in both their assumptions and conclusions, they contain a wealth of detail. One detail is of particular importance in the next section.

Upon noticing puzzles like the statue puzzle, Lewis offered a significant modification of his counterpart theory.<sup>16</sup> Instead of just one counterpart relation, Lewis presents distinct counterpart relations for distinct covering nouns. Consider our piece of bronze which is also a statue. Lewis's view is that regarded as a statue it has different counterparts in some worlds than when regarded as a piece of bronze. Implicit in de re sentences are indications as to what sort of counterpart one is considering.

Lewis's suggestion that referential positions in modal contexts be relativized to covering nouns has a number of antecedents. First, it is a philosophical commonplace that judgments of similarity are relative, sometimes implicitly, to criteria of similarity. Two cars might be similar in appearance but very dissimilar in performance. Since Lewis would treat modality in terms of similarity, it is natural that he should see a need to be explicit concerning the type of similarity involved. Second, Geach had earlier suggested the relativization of referential positions to covering nouns was necessary even in nonmodal contexts. While the mereologist sees no need to make such a relativization in the case of

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16. Lewis, "Counterparts of Persons and Their Bodies," 1971.

ordinary identity statements, the idea was in the air.

Third, as noted in chapter two, there are parallels between Lewis's account of modality and Chisholm's account of identity through time. Recall that for Chisholm, so-called primary objects can neither gain nor lose parts. Ordinary objects are "logical fictions" and apparent references to them are to be contextually defined in terms of references to sequences of primary objects. Just as for Lewis, the question as to whether  $x$  is a counterpart of  $y$  is relative to a covering noun, so too for Chisholm it is possible that two primary objects be part of the same ordinary statue without being part of the same piece of bronze (in the loose and popular sense).

Lewis's idea of relativizing singular terms to covering nouns is an intriguing one that will play a role in the next section.

### SECTION 3

#### SKETCH OF A CONCEPTUALIST ACCOUNT OF MODALITY

In this section I wish to sketch what I believe is a promising mereological position which both takes modal contexts more seriously than does Quine and yet rejects Lewis's ontology of possible worlds. The general goal is to explicate and analyze ordinary modal intuitions in a manner which is compatible with a mereological ontology and does not appeal to irreducibly modal concepts. The conceptualist program which I

shall outline follows others in attempting to add detail to such time-honored slogans of nominalists and empiricists as, "The only necessity is verbal necessity," and "What is thought to be the essence of an object is really just one particularly revealing way of describing it."<sup>17</sup> I make no claim to uniqueness; it is entirely possible that there are a number of ways, differing in what is considered a philosophically acceptable nonmodal base, of giving a conceptualist reduction of modal discourse.

### 3.1 THE BASIC IDEA

The basic idea is that possibilities are really just "stories" (to use a somewhat denigrating term) or "theories" and "models" (to use a more dignified terms). When we talk about what might have happened we are exploring the ramifications of a set of assumptions. Not just any story (or model, or theory) is relevant; our modal discourse embodies a complex set of constraints on what assumptions are worthwhile and permissible. Different modalities (technological and financial possibility, metaphysical necessity, logical possibility, etc.) correspond to different sets of assumptions.

For the modal realist, modal properties are a fundamental feature of the world; their existence and nature is a matter for exploration and discovery. By contrast, the conceptualist

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17. See longer note C.

#### IV.3 A CONCEPTUALIST ACCOUNT OF MODALITY

analogizes our modal discourse with other practices which do not involve the discovery of genuine properties.

For example, as literary critics often stress, fiction writing involves the creation of "new worlds":

We should always remember that the work of art is invariably the creation of a new world, so that the first things we should do is to study that new world as closely as possible, approaching it as something brand new, having no obvious connection with the worlds we already know.<sup>18</sup>

These new worlds have factual assumptions and rules all their own. Nowhere is this clearer than in science fiction where one "eases the throttle back and jumps into hyperspace." Furthermore, the writer is given enormous leeway in what world he wants to create; readers are more likely to be disturbed by any internal inconsistency displayed by the author than by unusual background conditions. My aim in mentioning these familiar points is simply to emphasize that we are perfectly capable of constructing and working with sets of assumptions. If a modal realist insists on a sharp line between "genuine possibility" and "mere fiction," at least he must acknowledge that the construction of mere fictions is an ongoing, coherent practice.

A second practice of relevance is the scientific investigation of erroneous theories.

...we are much more flexible in language use than many philosophers seem to assume: we are quite used to suspensions of belief or of conceptual commitment

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18. Nabokov, V., Lectures on Literature, 1980, p.1.

#### IV.3 A CONCEPTUALIST ACCOUNT OF MODALITY

in dialogue with adherents of theories which we personally do not accept.<sup>19</sup>

Note that such investigation often involves exploration of "physically impossible" phenomena, that is, phenomena that are incompatible with our current theories.

##### 3.2 DE DICTO AND DE RE

It is useful to begin with de dicto statements and expand to include de re contexts. I accept a rather simple account of de dicto possibility, namely, a sentence is possible if it is logical consistency with general laws.<sup>20</sup> To ask whether something is physically possible is to ask whether it is consistent with the laws of nature. To ask if it is technologically possible is to add to the set of constraining laws with which it must be compatible.

$\Diamond S$  iff Consistent(S & Laws)

##### RELATIVIZATION AND SINGULAR TERMS

Simply adding singular terms does not yield a plausible theory. For example, since the sentence "Drew is a rock" is logically consistent with the laws of nature (which make no mention of particular individuals) one would have  $\Diamond \text{Rock}(\text{Drew})$  or even  $\Diamond \text{Drew}=\text{2}$ . Such a notion of de re modality, sometimes called "logical possibility", is far off the mark if

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19. van Fraassen, 1980, p.202.  
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20. See longer note D.

our concern is with explicating ordinary intuitions. But we can add to the consistency set particular facts about the objects in question. Suppose *c* is the only singular term occurring in *P*. Then,

$\Diamond Pc$  iff Consistent(*P* & Facts(*c*) & Laws).

The statue puzzle and our discussion of Lewis suggest at least one fact that ought to be included in Facts(*a*), namely, an applicable covering noun.<sup>21</sup> To say that an object, regarded as a statue, could not survive being crushed is to say that its survival would not be consistent with one general persistence criterion for statues, namely, that they not change shape dramatically.

#### THE NECESSITY OF ORIGIN AND BRANCHING

Kripke emphasizes intuitions which can be handled by the inclusion of more information in the "Facts(\_)" predicate. Objects could not have had origins much different from those they actually had. I could not have had different parents. My work table, if it was originally wood, could not have been fashioned from another material. Such intuitions can be accommodated in the consistency scheme by insisting that Facts(*a*) include not only a covering noun but also data on the object's origin. Quite a few philosophers have suggested a branching condition according to which a world *w* contains

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21. See longer note E.

an actual object *c* only if *w* began to differ from the actual world at some time after *c* came into existence.<sup>22</sup>

### 3.3 QUESTIONS AND REPLIES

1. Question: Does the consistency approach to modality sketched above reduce the de re to the de dicto?

The question can be made more precise in at least two ways. First, would a consistency theorist recognize a distinction between what are often called the de re and de dicto readings of modal sentences? Yes. The scope distinction in

Consistent( Laws & The number of planets = 9 )  
remains significant. On the narrow scope reading, it is false (the laws of nature do not dictate the exact number of planets) while on the wide scope reading it is true (the sentence "9 / 9" is inconsistent with the general principle, " $(x)(x=x)$ "). On a consistency account, de re statements are about a specific object and their truth value is sensitive to the particulars of the object's history and kind.

A second reading of the question stems from Quine's habit of reading de dicto statements (the "first grade of modality") as analytic, or true in virtue of meaning.<sup>23</sup>

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22. See longer note F.  
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23. Quine, "Three Grades of Modality," 1966.

The consistency interpretation does not reduce de re modal claims to analytic statements. One reason is that the laws of nature on which the scheme depends are not clearly analytic. Similarly, the most general metaphysical and mathematical truths are not, as Quine has argued, meaningfully said to be analytic. For example, the mereologists claim that two physical objects could not occupy the same spatio-temporal receptacle does not appear to be true in virtue of the meaning of the words.

2. Lewis considers the view that "'possibly A' means that A is a consistent sentence," and concludes that the view is "either circular or incorrect."<sup>24</sup> Is Lewis's objection relevant to what I am calling the consistency approach?

Lewis's objections are not relevant, but to see this it is necessary to cite from him at length.

But what is consistency? If a consistent sentence is one that could be true, or one that is not necessarily false, then the theory is circular; of course one may be more artful than I have been in hiding the circularity. If a consistent sentence is one whose denial is not a theorem of some specified deductive system, then the theory is incorrect rather than circular: no falsehood of arithmetic is possibly true, but for any deductive system you care to specify either there are falsehoods among its theorems or there is some falsehood of arithmetic whose denial is not among its theorems. If a consistent sentence is one that comes out true under some assignment of extensions to the nonlogical vocabulary, then the theory is incorrect: some

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24. Lewis, 1973, in Loux, 1979, p.183.



#### IV.3 A CONCEPTUALIST ACCOUNT OF MODALITY

assignments of extensions are impossible, for instance one that assigns overlapping extensions to the English terms "pig" and "sheep".

The view that Lewis is criticizing reduces " $\langle \rangle A$ " to "Consistent(A)" which differs from the analysis in terms of "Consistent(Laws & Facts(A) & A)". Lewis is surely right that it would be circular to analyze consistency in terms of possibility, but that it no part of the consistency approach. Nor is Lewis's appeal to Godel's Incompleteness Theorem relevant to the consistency approach, since there is no requirement that the set of laws be axiomatizable. If every truth of arithmetic is in the Laws sentence, then whether or not " $\langle \rangle A$ " is true is sometimes formally undecidable, and sometimes practically undecidable in that it would require more computer time than is available in a finite universe.

3. How does the relativization work? What happens when I regard this computer as a rock? Could this boy, regarded as a child, become an adult?

The computer is not a rock and the question is, to use an old phrase, a category mistake. Philosophical logicians have explored a number of ways of treating misfires such as "The present king of France is bald": one could follow Russell in saying they are false, or Strawson in saying they are indeterminate.

In asking about John, regarded as a child, one is failing

to mark the distinction between contingent predicates and covering nouns. The consistency approach follows Wiggins and others in noting the distinction between merely contingent predicates and covering nouns.

4. Couldn't I have been conceived a few minutes earlier, if for example, the sperm from which I descend had been a somewhat faster swimmer? Yet the branching condition appears to require that I would not exist in situations which differed from the actual situation at times prior to my conception.

The branching condition may be too strict. What we count as a sufficiently rich story to be a story about an actual individual is an empirical question. Perhaps it suffices that the same egg and sperm be involved? Gupta suggests that we allow "there to be alternative pasts branching from future moments."<sup>25</sup> It would not be surprising if the question whether or not one is dealing with the "same F" in a particularly difficult situation is indeterminate just as whether a novel is about an actual individual is sometimes a difficult question left to the courts.

My intuitions in this area are not as firm as some people report.<sup>26</sup> I see no reason why I couldn't have had parents other than the one I actually had. In working out a

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 25. Gupta, 1982, p.522.  
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26. Similar doubts are expressed in Chomsky, 1975, p.49.

consistency approach, one might try to specify not only the clear cases but also the factors which contribute to uncertainty.

5. It is common in the literature on modality to see the central metaphysical issue posed as "What are possible worlds?" One is told to choose between accepting an ontological commitment to possible worlds or reducing them to some other sort of entity, "ersatz worlds," to borrow William Lycan's phrase. This stark choice, which assumes the necessity of taking possible worlds seriously, is sometimes preceded with a litany of the many results produced by two decades of work on possible-world semantics.

By positing nonactual worlds or states of affairs, we may achieve our familiar but still remarkable reduction of the alethic modalities to quantifiers, formulate Tarski-style semantics for propositional attitudes and hosts of other troublesome constructions, display the otherwise mysterious connections between Fregean senses and linguistic meanings, illuminate the pragmatics of counterfactuals, and provide a rigorous format for the theoretical study of decision making.<sup>27</sup>

I see no reason why the conceptualist should feel compelled to accept the challenge. Without condemning the work of possible world semanticists, one can doubt the fruitfulness of defining "meanings" as certain functions between "possible worlds" and extensions, or of analyzing counterfactuals in

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 27. Lycan, 1979, pp.274-75.

terms of similarity among possible worlds. Such theories have not proven so fruitful that anyone who offers an analysis of modal discourse is obliged to offer a substitute for possible worlds. It may well be that philosophers taking a conceptualist position along the lines sketched above will have to forsake the fruits of possible world semantics; I suspect they'll say "good riddance."

6. As was emphasized in chapter three,<sup>28</sup> one virtue of taking modal contexts literally is the simplicity of the approach. The consistency account attributes a very complex form to seemingly simple statements. Why think that ordinary speakers mean anything so complex?

First, it must be readily conceded that the consistency account is more complex than that offered by those who would take de re modalities literally and that other things equal, the simpler account is to be preferred. But other things are not equal. The consistency account is motivated at least as much by deficiencies in the opposition as by its intrinsic attractions.

Second, the consistency approach is certainly not committed to the claim that when people assert  $\Diamond Pc$  they are actively entertaining the sentence, Consistent(  $Pc$  & Facts(c) and Laws ), if for no other reason than that not all the laws

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28. Chapter three, section one.

#### IV.3 A CONCEPTUALIST ACCOUNT OF MODALITY

or facts are relevant to each claim. Support for the view comes from the observation that when an assertion,  $\Diamond Pc$ , is challenged, discussion turns to particular facts about  $c$ 's make-up and general principles. If you tell me that it is not possible to build a computer as versatile as the human mind, I want to know what constraints you have in mind.

Finally, something like the consistency theory is frequently used even by advocates of modal properties. Kripke, for example, distinguishes between metaphysical and epistemological possibility, where the latter is explicated in terms of consistency with what is known. But if such an interpretation is reasonable for some contexts, there is no reason to reject it out of hand as too complex for others.

7. Isn't the consistency approach really just an uninformative cheat? The "Laws" sentence and the "Facts( )" predicate merely summarize certain modal intuitions without explaining anything?

This question highlights a fundamental issue that the conceptualist must at least acknowledge. There is a long tradition in philosophy of purporting to explicate one or another philosophical concept by an appeal to modal concepts. For example, attempts to distinguish genuine scientific laws from mere coincidental generalities are often based on an appeal to physical necessity.<sup>29</sup> Any philosophical concept

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29. Recent examples include Brody, 1980, chapter 6, and Fisk, 1973, chapter 4.

#### IV.3 A CONCEPTUALIST ACCOUNT OF MODALITY

as basic and ubiquitous as modality will be linked in numerous ways with other basic concepts. If one philosopher attempts to explain or analyze X's in terms of Y's and Z's, it should come as no surprise if another turns the tables and says Z's are to be explained in terms of X's and Y's. In taking as fundamental the concepts of a law and consistency, anyone defending the consistency approach must reject requests to explain these notions in more fundamental terms.

## LONGER NOTES TO CHAPTER IV

A. Explicit endorsements of mereological ontologies coupled with reservations about the coherence of any straightforward attribution of modal properties to physical objects may be found in Gibbard, 1975; Goodman, 1955; Gupta, 1980; Lewis, 1971; and Quine, 1960.

B. Thomson's skepticism may be fueled in part by the difficult question on which her example of the putative multiple occupancy of a spatio-temporal receptacle depends: could a piece of ice that originated in the shape of a house have been the same piece of ice had it originated as a ship.<sup>30</sup> Cases in which an object is supposed to have an origin radically different from the one that it actually had are notoriously problematic. My treatment of the statue and the piece of bronze does not assume that the same piece of bronze could have originated as a sword; rather, the point is that having originated together, there are transformations which the piece of bronze but not the statue can survive.

C. Noteworthy recent attempts to explicate modal discourse in a way compatible with an empiricist ontology are Elgin, 1983; van Fraassen, 1977, 1978, 1980; Gibbard, 1975; Goodman, 1955;

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30. Thomson, 1982, section 7, forthcoming.

Gupta, 1980; Kwart, 1982; Mackie, 1974; and Mondadori and Morton, 1976.

Conceptualist concerns with modality have a long history: see MacIntyre, 1969 (cited on p.19 of this thesis), and van Fraassen, 1978.

D. The consistency approach is an amalgam of ideas in the literature.

The close connection between consistency and modality has long been recognized. One expression of this idea is in the claim that possible worlds are nothing but maximally consistent sets of sentences. Carnap's "state descriptions" are one such approach. Hintikka also followed this approach. Other philosophers have preferred to speak of consistency among propositions.

George Boolos, Robert Solovay and others have explored in detail the behavior of consistency predicates of Godel numbers within formal systems: see Boolos, 1979, for a bibliography of mathematical work on consistency predicates in formal systems.

E. The relativization of open, referential positions inside the scope of a quantifier was suggested by Lewis as a way of dealing with multiple occupancy puzzles. Gibbard and Gupta follow Lewis. Kwart has recently made such a suggestion. His motivation is, roughly speaking, epistemological; cross-moment identification is relative to covering nouns, and he aims to



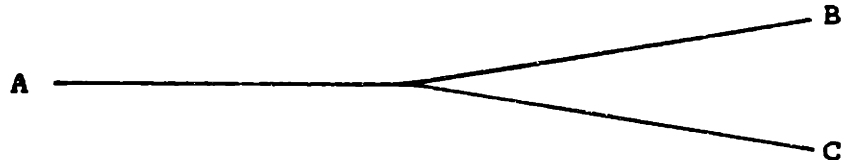
make cross-world identity no less mysterious. As noted earlier, Geach suggests that all referential positions need to be relativized and Chisholm's position also requires that much ordinary talk be construed as involving at least implicit guidelines for when two primary objects are the same in the "loose and popular sense."

F. The branching condition is suggested by Brody, 1980, pp.116-123; Gibbard, 1975, pp.196-197; and Mackie, 1974, pp.551-559. The proposal that particular facts about objects are involved in de re propositions can be found in a number of places: examples, Nelson Goodman, 1955, and Mondadori and Morton, 1976.

## CHAPTER V

### FISSIONS, MODAL PROPERTIES, AND ONTOLOGY

Among the most popular puzzles in the recent literature on identity are those involving split brains, divided amoebas, machines that duplicate persons, distinct ships which "originate" together, etc. What these examples have in common is that one F is followed by two F's in such a way that it is puzzling as to whether either of the subsequent F's is identical to the original F. These "fission puzzles" are usefully diagrammed by branching lines, with time flowing towards the right.<sup>1</sup>



The fission puzzles have figured prominently in the recent literature on modality and on the necessity of identities in particular.<sup>2</sup> Chandler appeals to such a puzzle in arguing that not all names are, as Kripke claims, "rigid designators."<sup>3</sup> Nozick uses fission puzzles to challenge

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1. Significant contributions concerning fission puzzles are Shoemaker, Self-Knowledge and Self-Identity, 1962, Williams, Problems of the Self, 1973, and the essays by Lewis, Parfit, Perry, and Wiggins in Rorty (ed.), The Identities of Persons, 1976.

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2. See longer note A for a characterization of rigid designators and the necessity of identities.

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3. Chandler, "Rigid Designation," 1975, pp.363-369.

Kripke's views on the necessity of identities.<sup>4</sup> Wiggins turns the tables and appeals to the necessity of identities in dismissing treatments of the puzzles along the lines of Chandler and Nozick.<sup>5</sup>

This chapter examines these various connections that are suggested in the literature between the fission puzzles and the straightforward interpretation of ordinary de re modal sentences as involving the attribution of a modal property to an object. The chapter has two major focuses.

(I) The first connection between fission puzzles and modality which I explore is very broad. Fission puzzles figure prominently in arguments for two empiricist ontologies discussed in previous chapters: the four-dimensional, mereological ontology of temporal parts (Gibbard, Goodman, Lewis, Quine, etc.) and the successionalist ontology of primary objects (Chisholm, Locke?, Hume?). The puzzles illustrate both confusions and conflicts in our judgments concerning cross-temporal identifications. These confusions and conflicts call for explanation, which is what the empiricist ontologists in the tradition of Hume purport to do. I argued in previous chapters that both successionalist and mereological ontologies are incompatible with a straightforward, literal reading of

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 4. Nozick, Philosophical Explanations, 1981, p.659.  
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5. Wiggins, Sameness and Substance, 1980, p.208.

ordinary modal sentences.<sup>6</sup> Thus, one connection between the fission puzzles and current work on modality is that the puzzles are a significant element in the defense of ontologies which are incompatible with modal realism.

(II) The second focus of this chapter is on recent work by Chandler and Nozick. They maintain that a proper analysis of certain puzzles reveals counterexamples to the necessity of identities and related principles. Since the necessity of identities is central to the straightforward reading of de re contexts, a clear and compelling counterexample would be significant.<sup>7</sup> But the analysis and examples offered by Chandler and Nozick are far from clear or compelling. There are several reasons to be suspicious of "resolutions" to fission puzzles: first, they depend on intuitions in a region where vagueness and conflict are rampant to an even greater extent than usual; second, the criteria for a resolution are unclear; and third, there are several different resolutions available. Furthermore, the particular proposal of Chandler and Nozick is especially problematic.

A brief look at Locke's treatment of identity will place this chapter in historical perspective. Locke discusses three

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6. See chapter two, section four, and chapter four, section one.  
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7. See longer note A for an explanation of the connection between the necessity of identities and modal properties.

different (though related) problem areas involving individuation. First, there are the puzzles that concerned us in previous chapters which involve multiple occupancy of a single volume by objects of distinct kinds. In particular, Locke considers "wherein an oak differs from a mass of matter."<sup>8</sup> Second, there are puzzles concerning identity through time. Locke foreshadows contemporary discussion of the issues in his analyses of "same body," "same plant," "same man," and "same person." Here we find the "soul of a prince" entering the body of a cobbler, split personalities, and the doctrine that "person" is a forensic term.<sup>9</sup> The fission puzzles are one aspect of this cluster of concerns. Third, Locke expresses skepticism concerning the relationship among objects, "X is of the same kind as Y." Are kinds associated with Aristotelian essences, or are they human artifacts? Here we find concern with the "boundaries of the species" and monsters with the head of a man and the body of a hog.<sup>10</sup>

Locke's categorization is still helpful. Significant recent criticisms of the revival of modal realism, which has flourished with the advent of possible worlds, have taken off from each problem area. I shall not consider the third area in this dissertation, though a number of arguments in the

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8. Locke, Essay, Book II, p.443.

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9. Locke, Essay, Book II pp.456-467.

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10. Locke, Essay, Book III, p.78.

literature are very interesting.<sup>11</sup> It is to be expected that critics of the modal realism and standard quantified modal logic will build on Locke's concerns. Locke saw himself as following Boyle in opposing the adverse influence of Aristotelian metaphysics on science.<sup>12</sup> Since the Aristotelian character of the new essentialism has been frequently noted, it is only natural that critics of the movement should turn to the seminal discussions of Locke and the other early empiricists.

## SECTION 1

## INVENTION VERSUS DISCOVERY AND THE SHIP OF THESEUS

In this section and the next, I argue, with reference to the paradigmatic example of the ship of Theseus, that (1) our ordinary intuitions concerning identity through time lead to contradictions when confronted with esoteric fission puzzles, and (2) that there are a number of sensible, consistent approaches concerning how we might speak about such situations, no one of which is clearly "correct". These are not original claims but they are worth developing in some detail since they provide support, which I hope to explicate, for Humean ontologies<sup>13</sup> and are important preliminaries to examining

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 11. See Rorty, 1979, duPre, "Biological Kinds and Natural Taxa," 1981, and Wilson, "Predicate Meets Property," 1982.  
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12. Ayers, "Locke versus Aristotle on Natural Kinds," 1981.  
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13. See longer note B.

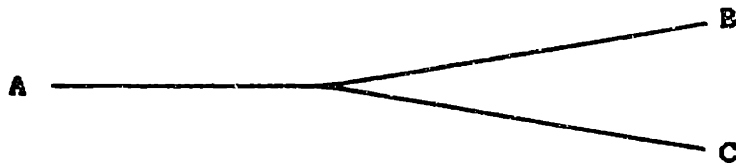
the claims of Chandler and Nozick.

1.1 THE SHIP OF THESEUS

The ship of Theseus provides a frequently discussed entry point. Hobbes, who borrowed the example from Plutarch, is concerned with the question "in what sense it may be conceived that a body is at one time the same, at another time not the same as it was formerly." The example of the ship is intended to challenge the theory that "preservation of form" is a sufficient condition for identity through time.

According to the second opinion, [preservation of form], two bodies existing both at once, would be one and the same numerical body. For if, for example, that ship of Theseus, concerning the difference whereof made by continual reparation in taking out the old planks and putting in new, the sophisters of Athens were wont to dispute, were, after all the planks were changed, the same numerical ship it was at the beginning; and if some man had kept the old planks as they were taken out, and by putting them afterwards together in the same order, had again made a ship of them, this, without doubt, had also been the same numerical ship with that which was at the beginning; and so there would have been two ship numerically the same, which is absurd.<sup>14</sup>

Here is a diagram of the situation:



Recall from chapter two that Chisholm, among others, questions whether identity through time is strict identity.<sup>15</sup> So as

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 14. Hobbes, De Corpore, pp.136-37.  
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15. Chapter two, sections two and four.

not to reject this possibility out of hand, it is useful to symbolize "is the same ship" with a neutral symbol, "=S=". The absurdity to which Hobbes alludes may be symbolized by the contradictory sentences,

(1) B =S= C

(2) A =S= B

(3) A =S= C

(ER) "x=S=y" is an equivalence relation.

QED B =S= C

where an equivalence relation is any relation R satisfying for all x, y, and z the conditions:

(reflexivity)  $xRx$

(symmetry)  $xRy \Rightarrow yRx$

(transitivity)  $(xRy \ \& \ yRz) \Rightarrow xRz$

The puzzle has survived so long because each of the contradictory premises is so inherently plausible. The complete disassembly and reassembly of objects is a familiar enough phenomenon. Soldiers are forever having to tear down their rifles into the smallest possible pieces, clean the pieces, and then attempt to reassemble them. The Star Trek process of "beaming" objects from place to place has captured the imagination of philosophical writers.<sup>16</sup> Museums and historical villages are filled with objects that have been transported piece by piece. The curators at the Athens Museum

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16. See Hirsch, The Concept of Identity, 1982, chapter 7 for the specific example and an excellent general discussion.



## V.1 INVENTION VERSUS DISCOVERY

would no doubt want Theseus's "original" ship, made up of the original parts. But the ship's captain, who had sailed and maintained the ship for years, might reasonably claim to be operating the same ship. He too would have a strong case. Certainly we speak of the "same car," even after years of replacing parts. Such talk shows no particular concern with the total amount of replacement, provided it takes place gradually.

My point in going over this familiar ground is to insist that the ship of Theseus presents us with a genuine paradox. By this I mean that each premise is very plausible and the denial of each premise seems ad hoc.

The conflict among intuitions revealed by the ship of Theseus raises important questions. First, we need an explanation of how such a vital and everyday notion as identity through time, which for the most part functions unproblematically, could lead to a contradiction. What are we and the world like for this to be possible? Second, which, if any, of the many proposed resolutions is best?--and by what standard? Even framing the matter in these terms is somewhat controversial and it is appropriate to discuss the general issue of invention versus discovery in metaphysics.

### 1.2 INVENTION VERSUS DISCOVERY

There are two quite different attitudes with which puzzles concerning identity are approached. The descriptive attitude

is one of discovering the correct resolution, where correctness might be measured in terms of either nature or closeness to our conceptual scheme. There is a presumption that neither nature nor our conceptual scheme is inherently contradictory.

Wiggins's, Sameness and Substance, is a sustained attempt to be descriptive. He sees his Aristotelian descriptions as "the only explanation which can possibly measure up to the surprising determinacy of most of the identity questions that we encounter in real life."<sup>17</sup> Typically, such investigators speak with considerable confidence about "our intuitions." Faced with an apparent puzzle, the descriptive metaphysician wants to dispel the puzzle by trying harder to get the description right. It is this process of "getting things right" that I question with regard to the fission puzzles.

The puzzles may be approached in an alternative and, I think, preferable, spirit; they can be seen as evidence that our ordinary concepts of "sameness" and "identity" are nowhere near as precise as the logicians use of "=" and that puzzles are to be expected--especially when one is dealing with such recherche situations as fission. Mathematicians and logicians assume that if "s" and "t" are singular terms denoting natural numbers, then there is a definite answer whether  $s=t$ . Certainly the identity relation in logic and mathematics is an

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 17. Wiggins, 1980, p.54.

equivalence relation which satisfies Leibniz's law. But why assume that our ordinary "same-F" concepts will conform to such a high standard?

In his The Mirror of Nature, Richard Rorty suggests one extreme view: since there is no such thing as mirroring nature "exactly" or "according to its standards", and our "conceptual scheme" is a flimsy, pragmatic affair which struggles as best it can to help us eat, sleep, make war, and carry on as humans, there are insufficient data for metaphysicians to examine.<sup>18</sup> They are one and all in the business of very loosely constrained invention--invention which lacks the glory of science, music or poetry.

One need not accept Rorty's sweeping skepticism concerning ontological exploration and discovery to question whether there is anything to be discovered in many specific areas; for example, Quine writes:

Scientists and philosophers seek a comprehensive system of the world, and one that is oriented to reference even more squarely and utterly than ordinary language. Ontological concern is not a correction of lay thought and practice; it is foreign to lay culture, though an outgrowth of it.<sup>19</sup>

The ship of Theseus is not an isolated case. Several examples and analogies should serve to motivate further the idea that there are areas in which our concepts are vague or fail to satisfy apparently natural principles.

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18. Rorty, 1979.  
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19. Quine, 1981, p.9.

One favorite example of such indefiniteness is that of nations. Useful as it is to talk about nations and to speak of "the same nation," in many particular situations it is unclear as to whether x is the same nation as y. Parfit gives a good example: "Was England the same nation after 1066?"<sup>20</sup>

Hume's examples of the sound and church are also relevant.

...a man who hears a noise, that is frequently interrupted and renew'd, says, it is still the same noise; tho' 'tis evident the sounds have only a specific identity or resemblance, and there is nothing numerically the same, but the cause, which produc'd them. In like manner it may be said without breach of propriety of language, that such a church, which was formerly of brick, fell to ruin, and that the parish rebuilt the same church of free-stone, and according to modern architecture. Here neither the form nor materials are the same, nor is there any thing common to the two objects, but their relation to the inhabitants of the parish; and yet this alone is sufficient to make us denominate them the same.<sup>21</sup>

It may be objected that the most such examples show is that many of our "same F" concepts are vague and admit of borderline cases, not that they could lead to actual contradictions. Here a Wittgensteinian game analogy is useful. One can imagine a sport which had been successfully played for years before someone noticed that the official rule book allowed for the extraordinary possibility that one "inning", I<sub>1</sub>, could be part of the same game as I<sub>2</sub> and also part of the same game as I<sub>3</sub>, where I<sub>2</sub> and I<sub>3</sub> were not

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20. Parfit, 1971, in Perry, 1975, p.204.  
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21. Hume, Treatise, p.258; see also longer note C.

part of the same game. Much debate ensued as to whether the rules were worth changing since (1) people had grown accustomed to them, (2) the resulting change would be quite complex, and (3) no one imagined that any actual situation would arise in which the anomaly mattered.

### 1.3 AN INDIRECT CRITICISM OF MODAL PROPERTIES

The broadly conceptualist themes defended above are, I want to show, closely related to issues discussed in previous chapters. By drawing these connections, we shall be in a position to see how the confusion resulting from fission puzzles can be turned into an argument against the literal interpretation of ordinary modal sentences.

In chapter four, I noted a fundamental division between on the one hand those philosophers who find that our common-sense ontology of tables, persons, billiard balls and other moderate-sized dry goods<sup>22</sup> is adequate and coherent as it stands and those who maintain that it is necessary to supplement, indeed explain, the ordinary ontology in terms of more basic entities--for instance, "temporal slices," "primary objects," or "aggregates of atoms." Particular proposals raise particular problems, but several trends can be seen in broad outline. The devotees of common sense will stress how peculiar and unnatural the "creations" of the theorists are, how cumbersome the proposed analyses of seemingly simple statements

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 22. The phrase is from Austin, 1962, p.8.

## V.1 INVENTION VERSUS DISCOVERY

become. The theorists will counter that they are driven to the views by the puzzles and inconsistencies in ordinary thought, as well as the difficulties in fitting our pretheoretical judgments with the data--in short, the usual reasons for theory construction.

We noted above Quine's feelings about the limitations of ordinary discourse, feelings which are shared by philosophers in the tradition of Hume who speak of a "loose and popular" sense of identity. Wiggins provides us with rhetoric from the other side:

In the twentieth century, analytic philosophy has also been prey to the illusion, most likely produced by an irrelevant admiration of what is admirable in science, that by judicious enrichment of the object language the theorist can rise to some vantage point on a higher plane of theory and then inspect and describe from on high, in his own theoretical way, the subject matter of ordinary thought and discourse. Perhaps it is almost enough to put this hope into words to see that, almost by definition, philosophy is the place where its disappointment is nearly inevitable, and to conclude that technical terms whose sole advertised purpose is to achieve this are to be shunned (as Leibniz so quaintly and vehemently put it in Preface to Nizolius) as worse than dog or snake.<sup>23</sup>

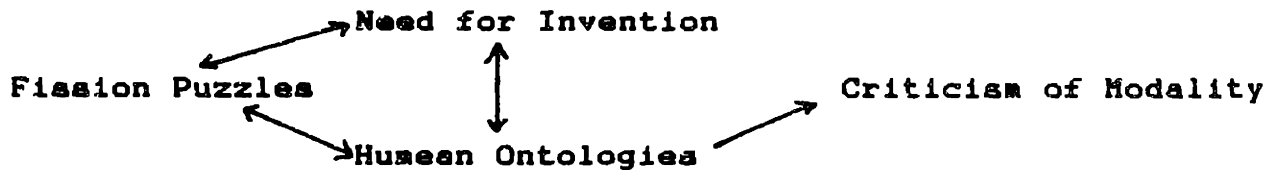
Puzzles concerning identity through time are one issue on which the debate focuses. Theorists in the tradition of Hume see them first, as clear evidence that all is not well in our common-sense world, and second, as test cases with which the power of the conceptualist approaches can be demonstrated. Both a mereological position (Quine and Goodman) and a

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23. Wiggins, 1980, p.6.

successionist picture (Chisholm) provide intriguing pictures of what is going on in the Theseus puzzle; each accords the mind a role in "carving up" or "linking together" basic entities and each provides a picture of the world--a spatio-temporal framework full of basic entities.

If my contention in earlier chapters is correct, then puzzles like the Theseus puzzle provide indirect support for criticisms of literal interpretations of ordinary modal sentences in that they lend support to the general Humean position, which is in turn antithetical to contemporary modal realism in the Aristotelian tradition.

The relations I am suggesting may be diagrammed as follows:



The fission puzzles and other anomalies suggest that ontology requires an element of invention, that the possibilities for discovery are limited. Humean ontologies in turn are both particularly suited for such invention and offer an explanation of how our same-F notions could fall into confusion. Finally, as stressed in earlier chapters, there is a tension between Humean ontologies and the literal interpretation of ordinary modal sentences.

## SECTION 2

### RESOLUTIONS

This section outlines several resolutions to the ship of Theseus puzzle. The resolutions discussed both illustrate and are used in defense of typical constructions in the tradition of Hume and provide benchmarks for comparison when we turn to the rather involved discussion of Chandler and Nozick in the next section.

#### 2.1 THE ANSWER IS THERE IS NO ANSWER.

If by a resolution to the Theseus puzzle one means a systematic way of answering all of the relevant identity questions, then it is quite reasonable to claim that there is no "resolution" to the puzzle. Rather, one is faced with a situation which can be described quite clearly without any such sorting out of the identity claims. Parfit suggests such a general skepticism when he recommends that discussions of "personal identity" and fission turn toward what would really matter in fission situations, namely, personal survival, and turn away from the irrelevant and unsolvable questions of ontology and identity:

If all the possible answers are implausible, it is hard to decide which of them is true, and even hard to keep the belief that one of them must be true. If we give up this belief, as I think we should, these problems disappear. We shall then regard the case as like many others in which, for quite unpuzzling reasons, there is no answer to a question about identity.<sup>24</sup>

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24. Parfit, "Personal Identity," 1971, in Perry, 1975, p.204.

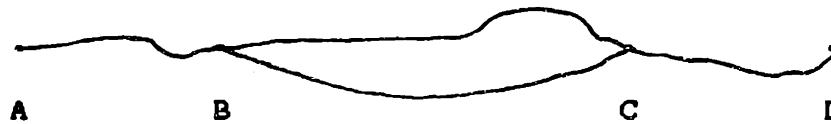


Three theses need to be distinguished. First, that ordinary language does not supply a straightforward "resolution." Second, that there are several equally acceptable ways of "handling" the puzzles, no one of which is clearly best--indeed there is a serious question as to what standards one is to use in this area. Third, that the situations can be described clearly as they stand.

I have discussed the claim that there is nothing further to be found in ordinary language. The claim that there is no best resolution would require for a full justification an examination of the options. Some of these will be discussed below. But even without examining all of the options, the claim can be motivated. Because of the conflicting nature of our intuitions, and the fabricated nature of the puzzles, philosophical logicians have even greater freedom than usual in fission cases to construct consistent systems. No one would be surprised if one ended up with a number of acceptable resolutions. Furthermore, there are no clear criteria for choosing among resolutions. Of course one says the usual things about "closeness of fit with our conceptual scheme" and such, but the problem is one of finding a metric. Particular contexts might supply a metric, but without a context, one is at sea.

Consider an analogous situation. Rather than representing evolution through time, let the lines be an ordinary

two-dimensional map of a highway.



Suppose one were to ask, How many roads are there between A and D? A natural answer, "two", raises the pseudo-puzzle as to whether two roads can occupy the same place at the same time. One could say by analogy with the mereologist that the two roads have certain parts in common. Or one could say by analogy with the successionist that strictly speaking there are four roads, AB, upper BC, lower BC, and CD. Or one could question the question. Who cares? What more is there to know once one has a clear map of the situation? Why think that our ordinary talk concerning roads (or pipes, or rivers) is sufficiently determinate to favor one resolution over another? Perhaps the situations are sufficiently complex that what one needs is a map, not a resolution.

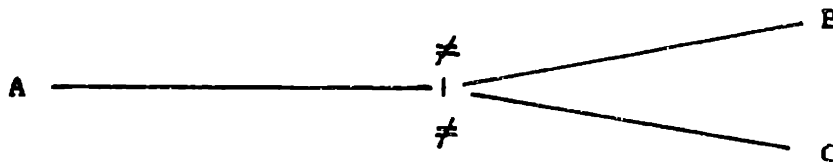
The suggestion that there is no reason or way to choose among consistent resolutions to a fission puzzle is compatible with a range of ontologies. From a mereological perspective, there are a great many entities (occupants of four-dimensional receptacles) and the question of which are roads (or ships) could be settled in a variety of ways. A successionist could see whatever controversy there is as a controversy surrounding the "loose and popular" sense of identity. Or one might think, ontology itself being so controversial, that the sorts of

questions which have so occupied writers in the "theory of reference" are best left open.

Other suggestions have been made in the recent literature. Of those mentioned below, two are seriously flawed and two, though plausible, are hardly compelling.

2.2 TWO INADEQUATE SOLUTIONS

THE 50% SOLUTION One rather bad idea has some currency in the literature. It is sometimes suggested that the problem stems from our permissiveness in matters of replacement and reassembly: a little bit is permissible (otherwise one would be a "mereological essentialist," like Chisholm) but too much generates paradox.<sup>25</sup> Of course any particular cut off point will appear arbitrary, but some vagueness can be allowed in this matter. The basic idea is similar to what I remember hearing as a child, namely, that if a dollar bill is ripped in two, the part that comprised more than 50% of the original was worth a dollar while the other part was worthless. This is certainly a practical resolution to a division problem. And it might at first blush appear to work in resolving fission puzzles:

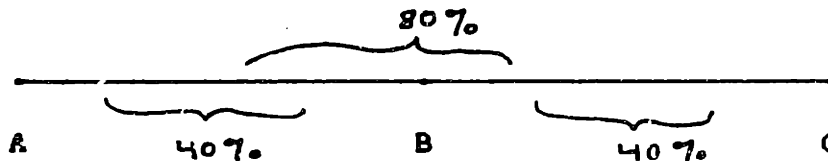


But there is a simple reason that a cutoff point, which

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25. Ayers, 1974, p.133, and Wiggins, 1980, p.97.

may work for dollar bills, fails for physical objects (if the goal is to provide a consistent way of talking which ensures that the relation "is the same F as" is an equivalence relation.) Intransitivities arise over time. A might be less than 50% different than B which in turn is less than 50% different from C, but C would be over 50% different than A.

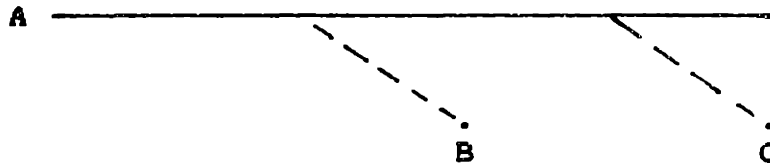


In brief, the problem with a cutoff point is not only that it would be arbitrary, but that even allowing for a range of vagueness, intransitivities would arise. Relations such as "differs only slightly from" or "shares most parts with" are simply not equivalence relations. This "solution" fails miserably.

THE CONCEPT OF A SHIP IS AMBIGUOUS A second inadequate resolution stems from the thought that puzzles "about words" usually result from ambiguities and a failure to define one's terms with adequate care. This suggests the possibility of simply defining two types of "ships": continuous-ships, and reassemblable-ships. Ayers suggests this as something he would expect (but not accept) from his opponent whom he labels "the conceptualist."<sup>26</sup> But the "conceptualist" would certainly be mistaken to embrace such an approach. A problem arises

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26. Ayers, 1974, p.133.

because the Theseus process can be repeated:



Is B or C the same "reasseable-ship" as A? No natural answer suggests itself. In addition, the idea of having two types of ship at the same place at the same time is sufficiently at odds with common sense to require considerable justification.

### 2.3 TWO MORE PROMISING RESOLUTIONS

#### LEWIS AND THE OVERLAPPING PARTS RESOLUTION

In previous chapters I noted that with the exception of monists, philosophers tend to accept that two objects of different kinds can occupy the same place at the same time: for example, a ring and a piece of gold. But can two objects of the same kind occupy the same place at a time? Perhaps there are, even at the outset, two ships of Theseus, one which remains afloat throughout its life and one which will be disassembled? Rather than finding an ambiguity in the general noun, "ship," this suggestion finds an ambiguity in the singular term "the ship of Theseus." Lewis makes such a suggestion concerning person fusion and split brains.<sup>27</sup>

Lewis's proposal is most easily motivated in the case of persons. Suppose John's brain were split and transferred to

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 27. Lewis, "Survival and Identity," in A. Rorty, 1976.

two new bodies. Each awoke and recalled his earlier life in just the way the rest of us do. It is quite plausible that John<sub>1</sub> and John<sub>2</sub> would talk and think about themselves as having been the same person at one time. They might reminisce about the time they were together in much the same way that persons who grew up in the same family do.

Of course the idea of two persons occupying the same place at a time is extremely curious, but that is (Lewis might argue) because we've never experienced it. From a mereological perspective, the situation is analogous to a ring and a piece of gold sharing a temporal part. Faced with the objection that there is originally only one person, Lewis responds that we do or could count persons using the relation identity-at-a-time, which is an equivalence relation holding among objects sharing a temporal part at a time. By analogy, we sometimes use the relation, identical at a place, in speaking about highways: for example, I-95 and Route 128 are the same road near Boston.<sup>28</sup>

The mereologist will further attempt to remove any lingering puzzle surrounding the resolution by distinguishing between two senses of the principle that no two objects of the same kind can occupy the same volume at a time. The principle is false if it precludes two objects sharing a temporal part. But on another reading, it raises a puzzling question which is

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 28. The highway example is a favorite. See Chisholm, 1976, p.93, and Lewis, 1976, p.93.

not at issue, namely, Could the matter composing two objects come to occupy exactly the same place at the same time?<sup>29</sup>

Lewis's approach to split brains seems less plausible when applied to artifacts, though one might argue that this is an uninteresting consequence of our being relatively unconcerned about the identity of ships as opposed to persons.

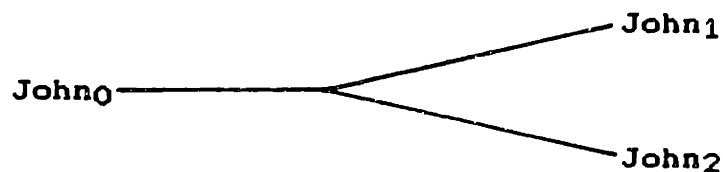
How does Lewis's resolution in terms of shared temporal parts fit into my argument? If I am right in claiming that ordinary language yields conflicting intuitions when confronted with fission puzzles, then of course the shared-temporal-part solution cannot be the uncontroversial outcome of an examination of our conceptual scheme. Furthermore, there are, as outlined above, reasons to question whether there is or could be any resolution of the puzzles divorced from a clear context and a specific purpose. Such considerations have no doubt prevented most philosophers from wholeheartedly embracing Lewis's ontology. I share what I take to be the general wariness. But we can also draw a more positive moral from Lewis's scheme. Like Chisholm, Lewis advocates a consistent, motivated system which is fundamentally at odds with attempts to interpret literally ordinary modal sentences. Does this support a critique of the straightforward interpretation of modal claims? If not a decisive criticism, the incompatibility

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29. Robinson, Denis, "Re-Identifying Matter," 1982, pp.317-343.

between the literal reading of modal sentences and Lewis's scheme at least casts some doubt on the straightforward interpretation; if Lewis's position is not clearly correct, it is not clearly incorrect, as it would be if the straightforward interpretation of modal claims were a firm rock from which decisive criticisms could be launched against other theories.

My final remarks on Lewis's approach to fission puzzles are especially relevant to those who would relativize de re contexts to a count noun.<sup>30</sup> Consider again the suggestion that an object regarded as a G might survive certain transformations that it would not survive regarded as an F. Roughly speaking, the invocation of F and G is sufficient to distinguish two alternative life histories that this object might have had. But the situations we are now considering only involve one covering noun ("ship" or "person") and thus simple relativization to a count noun is inadequate as shown by the example below.

Imagine a case in which John does not, but could, undergo a fission operation.



Suppose, following Lewis, that John<sub>1</sub> and John<sub>2</sub> are

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 30. Gibbard, Gupta, Kvart and Lewis defend this position. See chapter four, section three.



distinct persons who share a common temporal part. They also share their youth with John<sub>0</sub>. They cannot both be John; they cannot both be "John regarded as a person." Is it true of John<sub>1</sub> and John<sub>2</sub> that they are contingently diverse, that they could have been identical (and identical to John) had the operation failed? Such puzzling questions are easily generated using Lewis's approach. Some may see in this evidence that Lewis's theory is mistaken. Lewis's own resolution is his well-known counterpart theory: John, John<sub>1</sub>, and John<sub>2</sub> are distinct, very similar, objects which are counterparts of one another.<sup>31</sup> John and John<sub>1</sub> exist in distinct possible worlds, though they have exactly similar youths.

#### CHISHOLM ON THE LOOSE AND POPULAR SENSE OF IDENTITY

According to Chisholm, whose views were discussed in chapter two, puzzles like the ship of Theseus arise when we take too seriously what is really only "loose and popular" talk of identity. The mistake comes from expecting a relation like "is the same ship as" to have the same logical properties as strict identity.

Two issues ought to be distinguished. First, does the relation "A is the same ship as B" imply that A and B are identical. Chisholm disagrees with the majority of

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31. Lewis was also discussed in chapter four, section two.

philosophers who answer "Yes." Second, is the relation an equivalence relation. Anyone who answered the first question affirmatively must also answer the second question affirmatively. But Chisholm is free to answer that in the loose and popular sense, identity among ships is not even an equivalence relation. If this denial appeared puzzling, Chisholm would hasten to add (1) that identity in the strict and philosophical sense is certainly an equivalence relation, and (2) that the loose and popular relation, "is the same ship as," is undoubtedly an equivalence relation for all practical purposes.

## SECTION 3

## FISSION AND THE NECESSITY OF NON-IDENTITIES

I have already noted at least one way in which fission puzzles are relevant to our concern with modal properties, namely, that such puzzles are readily interpreted as requiring a Humean ontology along the line of either Quine or Chisholm, and that such ontologies are (if the arguments in chapters one through four are successful) incompatible with any straightforward attribution of modal properties to objects. We now consider the further connections that have been thought to exist by Chandler and Nozick.<sup>32</sup>

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 32. Chandler, "Rigid Designation," 1975; and Nozick, Philosophical Explanations, Part I, 1981.

My overall assessment is very critical. The ideas of Chandler and Nozick lead directly into a puzzling morass of their own making (see subsection 3.2 below) and the counterexamples they propose to the necessity of identities are based on many questionable assumptions. While I share their conviction that fission puzzles are relevant to questions of modality, the connections have been traced at least as well by traditional Humeans like Quine and Chisholm, as well as by Lewis. I shall concentrate on Nozick's presentation because it is the most fully developed and to my mind most fully reveals the weaknesses of the approach.

### 3.1 NOZICK AND CLOSEST CONTINUERS

Nozick argues at length for what he calls a "closest continuer" and Wiggins calls a "best candidate" account of identity through time. Concentrating on fission puzzles, Nozick says, "To be something later is to be its closest continuer.":<sup>33</sup>

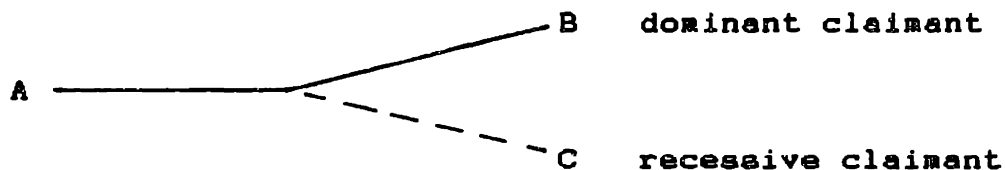
The closest continuer view presents a necessary condition for identity; something at  $t_2$  is not the same entity as  $x$  at  $t_1$  if it is not  $x$ 's closest continuer. And "closest" means closer than all others; if two things at  $t_2$  tie in closeness, then neither is the same entity as  $x$ . However, something may be the closest continuer of  $x$  without being close enough to be  $x$ .<sup>34</sup>

Nozick's language suggests a certain picture, one to which

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33. Nozick, 1981, p.33.  
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34. Nozick, 1980, p.34.

he is not adverse. If one speaks of a "warmest coat", there is an assumption that one has more than one coat and that should something happen to it, another of your coats would be your warmest. It is only a short step to cases of contingent diversity among objects of the same kind. At least some of the fission puzzles, diagrammed as before,



are described as situations in which B and C are both "continuers" of A, B is in fact the closest continuer, but had it failed to exist, C would have been the closest continuer. Thus A and C are contingently non-identical.<sup>35</sup> Nozick, without endorsing a specific example, arrives at this conclusion.

It certainly appears that some counterexample should emerge, even to Kripke's specific claim, the necessity of non-identities, from closest continuer considerations.<sup>36</sup>

My main interest is in relating these concerns to modality, in particular, the necessity of non-identities. I suspect that there is considerable truth in Nozick's ideas about how our notion of "same F" works. But does any of this provide a convincing counterexample to the necessity of identities? I now give three reasons for doubting that "best

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35. See longer note A.  
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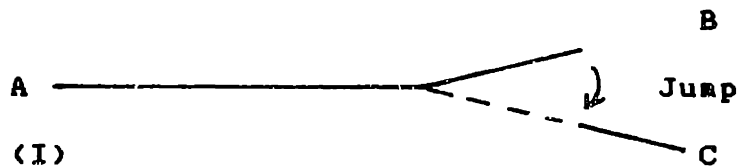
36. Nozick, 1981, p.659.

candidate" or "closest continuer" theories succeed.

### 3.2 THE PROBLEM OF JUMPS

A serious difficulty for the closest continuer scheme is that it rapidly entwines itself in puzzles concerning whether a recessive claimant can inherit an identity title from a deceased dominant claimant. Depending on whether one sees the continuer scheme as a description or an invention, the puzzles will appear as either further evidence that our ordinary same-F concepts are not equivalence relations or as evidence that the closest continuer scheme fails as a resolution.

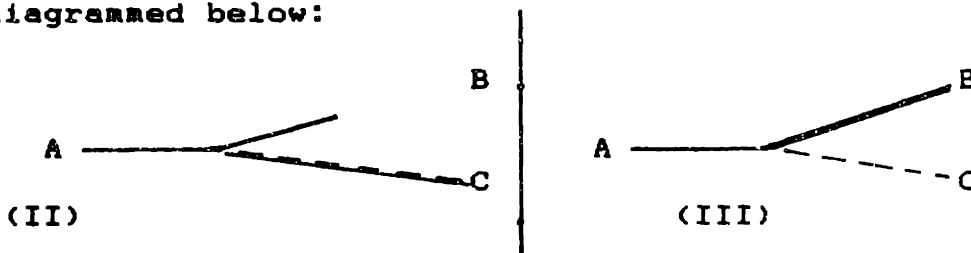
Suppose with Chandler that the spatio-temporally continuous ship is the dominant claimant. What happens when it is destroyed in a fire? Does the recessive claim take over? Does it matter how much time passes between the division and the fire?



Suppose the recessive, reassembled ship C becomes the original ship A after the fire. Then Theseus's ship makes a spectacular jump through space as indicated by the red line. Such a jump would violate four conditions that are frequently suggested as necessary for ordinary judgments about the continuity through time of physical objects: spatio-temporal connectedness, qualitative similarity from moment to moment, continuity (with

replenishment permitted) of composition and causal connectedness from moment to moment.<sup>37</sup> Such jumps fail to fit our ordinary notion of bodily continuity. As a recommendation, they would require considerable justification--justification which no proponent of a best candidate theory has even tried to offer.

Suppose "jumps" are impossible. Two other possibilities are diagrammed below:



If the dominant claimant lasts for a long time after the division, then (II) conflicts with the very notion of a dominant claimant. For a defender of the closest continuer schema, there is a similar difficulty with (III): it would require that the division be sharp and that the dominant claimant not linger at all. But this would seem to require a overly detailed knowledge of the division process. Identity or non-identity would be a matter of seconds. Here is a case that puzzles Nozick:

...it seems absurd that there should be some sharp temporal line which makes the difference to whether or not the person continues to live in the other body. ("Doctor, there's only one minute left! Hurry to end the life in the old body so the person can live on in the new one." And out of which body would these words come?)<sup>38</sup>

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 37. Hirsch, 1982, especially Chapter 7, contains a detailed discussion of the four conditions.  
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38. Nozick, 1981, p.44.

The problem of jumps is a morass into which talk of best continuers naturally leads. What are we to make of this? Suppose Nozick and Chandler are metaphysical inventors who intend to recommend a coherent, plausible resolution to fission puzzles; the difficulties created by jumps would count heavily against their recommendation. If he is a discoverer, then jumps are also a problem. For suppose they are intending to describe our ordinary conceptual scheme; that there are conflicting intuitions is something which is clear without considering puzzling jump cases. Perhaps Nozick and Chandler would allow that their description is puzzling and maintain that a good description of a puzzling practice should locate the problem areas. For example, it might be thought a merit of a grammar that it correctly divided sentences into "clearly grammatical," "clearly ungrammatical," and "borderline." I doubt that any convincing counterexamples are going to evolve from the borderline phenomena associated with fission puzzles.

It is useful to isolate what I shall call the principle of internal development which maintains that identity depends only on the internal arrangement and development of an object's matter and is not affected by external events. Nozick explicitly challenges this principle while Wiggins explicitly defends it.<sup>39</sup> Nozick writes.

If x at time t is the same individual as y at later

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39. See longer note D.

time  $t'$ , that can depend only upon facts about  $x$ ,  $y$ , and the relationships between them. No fact about any other existing thing is relevant to (deciding) whether  $x$  at  $t$  is (part of the same continuing individual as)  $y$  at  $t'$ .<sup>40</sup>

Wiggins considers a similar principle,

...for a relation  $R$  to be constitutive of the identity of  $a$  and  $b$ ,  $a$ 's having  $R$  to  $b$  must be such that objects distinct from  $a$  or  $b$  are irrelevant to whether  $a$  has  $R$  to  $b$ .<sup>41</sup>

Chandler and Nozick maintain that at least some fission puzzles are best resolved by denying the principle of internal development. On their view, whether or not  $A$  is identical with  $B$  depends not only on the internal development of the  $AC$ -history but also on details of the  $AB$ -history. I have argued that such a denial leads to a difficulty with jumps.

### 3.3 A CLOSER LOOK AT THE PREMISES

One might think of the difficulties sketched above as an awkward but non-fatal defect. No position in the area appears to be without some such awkwardness. Let us turn then to a closer look at the many assumptions made by Chandler and Nozick in supposing that the closest continuer schema generates counterexamples to the necessity of identities.

Modal puzzles based on the closest continuer schema have a common structure. So as not to prejudge the question as to whether cross-temporal identities are strict identities, let

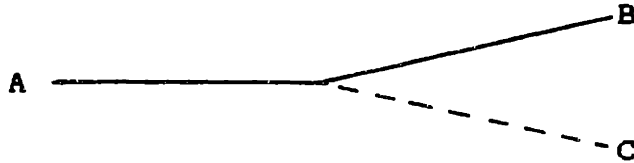
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40. Nozick, 1981, p.31.  
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41. Wiggins, 1980, p.96.



"=F=" abbreviate "is the same F as." The first case is one in which there is a branch. In the second case, there is no branch.

Case 1



Case 2



The puzzle schema:

- (1)        A = B
- (2)        A = C
- (3)        A = C\*        in case 2
- (4)        C = C\*
- (N-I)      $x \neq y. \Rightarrow -\Diamond x=y$

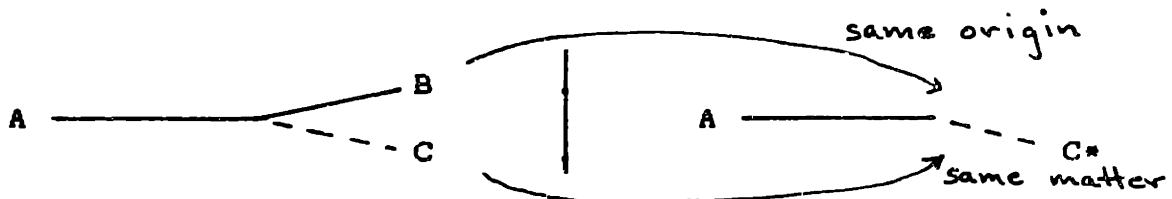
Virtually all of the premises are problematic. Chandler and Nozick face serious obstacles in attempting to pin the blame on the necessity of identities. In keeping with the spirit (which I questioned above) of the closest continuer approach, let us accept the first three premises. Of the remaining three, there is good reason to challenge (4) and little reason to reject (NI) without an alternative.

As noted in chapter three, a number of writers maintain

that "transworld" identity statements need to be justified in terms of the actual origins of objects.<sup>42</sup> If they are right, then the problem with Nozick's putative cases of contingent non-identity is with,

$$(4) C = C^*.$$

If the time and circumstances of C's origin are so different from those of C\*'s origin then what reason is there to think that the two are identical? If identity statements are, as Nozick and Chandler maintain, sensitive to external circumstances, then why not conclude that C does not exist in the second situation and that it is B which is identical to C\*?

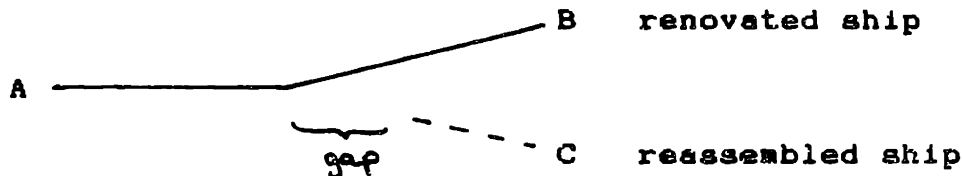


What is at issue is whether it is the sameness of origin or sameness of configuration and matter which dominates in cross-world identifications. An emphasis on origin would be compatible with a rejection of the principle of internal development but would also undermine challenges to the necessity of identities along the lines suggested by Chandler and Nozick. I see no more reason to accept  $C = C^*$  than to accept  $B = C^*$ ; hence, I see some reason to distrust both. The two possibilities illustrate the need to distinguish carefully between challenges to the principle of internal development and

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 42. Chapter four, section three.

challenges to the necessity of identities.

Christopher Lowe offers an interesting reason for rejecting  $C = C^*$  and accepting  $B = C^*$  in the case of Theseus' ship.<sup>43</sup> He bases his argument on two main premises: first, that a ship cannot have an "interrupted existence" in which it exists, goes out of existence, and then exists again; and second, that distinct ships cannot share the bulk of their parts at a time. It follows that there could not be a continuous ship-path linking A and C, since for a period of time after the "branching" starts there aren't enough parts for two ships.



But there is no reason why the history between A and C\* could not be that of a single ship. Lowe concludes that there is a significant difference between the A-C and the A-C\* paths and that we can reasonably conclude that  $A=B=C^*$  and  $C \neq C^*$ .

I find Lowe's approach to the puzzle, which does not challenge the necessity of identities, to be at least as satisfying as Nozick's approach.<sup>44</sup>

### 3.4 GENERAL COMMENTS ON NOZICK'S POSITION

In the previous section, we noted two profoundly different

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 43. Lowe, "On the Identity of Artifacts," 1982, pp.5-8.  
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44. Further remarks on Lowe are contain in longer note E.

attitudes towards the ship of Theseus. For philosophers in the tradition of Hume, the puzzle provided evidence that our "loose and popular" sense of identity required complex analysis and supplementation. Others saw in it the need for resolution short of introducing "primary objects," "temporal slices," etc. Nozick departs from both of these traditions in ways that can generate confusion. He freely acknowledges that the closest continuer approach leads to anomalies at least as severe as any that it purports to solve; it simply pushes back the difficulties a level. The assumption common to both attitudes described in section one is that no good argument could be premised on a contradictory theory. A logician will remind us that "anything follows from a contradiction."

Perhaps Nozick is providing a description of how we are inclined to make judgments of "same F". In this regard, I suspect he is quite successful. I certainly feel the pull of the intuitions he describes in cases of body snatchers, brain transplants, etc. But if, as he admits, these intuitions lead to antinomies, then he has come to the traditional Humean conclusion using slightly different examples. Why not stick with the ship of Theseus? And if our ordinary judgments are contradictory, why not recommend a better, strict and philosophical, sense of identity? As it stands, attacks on the necessity of identities based on the closest continuer scheme appear to be of a piece with Carneades suggestion during antiquity that fission puzzles disproved the transitivity of

identities.<sup>45</sup> Nozick supplies additional support for the longstanding Humean contention that our loose and popular sense of identity is contradictory; as such, it is a useful counterweight to Wiggins' valiant efforts to show that ordinary talk is coherent. But does it provide us with a "theory of identity"?--Not in the sense most philosophers have wanted, namely, a consistent, compelling way of sorting out and describing identity claims.

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45. Chisholm, 1969, p.85.

## LONGER NOTES

A. Kripke popularized the phrase "the necessity of identities." A standard theorem of modal logic is,

$$(NI) \quad (x)(y)[x=y \Rightarrow \Box x=y],$$

which follows from

$$(x)(x=x)$$

and the assumption that predicates formed from the identity relation and modal operators are legitimate substitution instances of Leibniz's law,

$$(LL) \quad (x)(y)[x=y \Rightarrow (Fx \Rightarrow Fy)].$$

B. I noted in chapter two the similarities between Chisholm's ontology of primary objects and Quine's temporal parts. Each follows Hume in constructing ordinary objects from other entities with which the ordinary person is not explicitly concerned. For convenience, I refer to ontologies which have this feature as "Humean ontologies."

C. It is frequently suggested that Hume's example is too extreme and that a moment's reflection will reveal that one has a case in which the same congregation--"church" in one sense of the word--comes to occupy a distinct building--"church" in another sense.<sup>46</sup> But before dismissing Hume's church so

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46. Wiggins, 1980, p.198.

readily, two points should be noted. First, in Japan, where many of the ancient building materials are extremely fragile, the historic temples are rebuilt every few years.<sup>47</sup> It is common to speak of "the same temple" where some would require us to say, strictly speaking, there was "a distinct though similar temple with the same foundation." The residents of Nantucket show a similar "looseness" in their reidentifications of houses which have been frequently "destroyed" by the weather. Second, even if Hume's example is too extreme, he provides the materials for more convincing cases such as Sydney Shoemaker's:

In 1944 the Germans destroyed the four-century-old bridge of Santa Trinita in Florence. Six years later it was decided that it (?) should be rebuilt. On the original site there now stands a bridge of a design exactly like that of the original, constructed by Renaissance techniques, and built in part with the original stones (each standing in its original place), in part with new stones taken from the original quarry. The facts are clear, but how are we to answer the question "Is the present bridge of Santa Trinita the very bridge that spanned the Arno four hundred years ago?" One can imagine one person saying "This is a modern copy of a Renaissance bridge that once stood here," and another, equally cognizant of the facts, saying "This bridge has been the pride of Florence for four centuries." Clearly no factual considerations could settle the issue between them. And a third person might say, not unreasonably, "You are just disputing about words."<sup>48</sup>

D. What I am calling the principle of internal development

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47. Observation by Yutaka Yamamoto.  
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48. Shoemaker, Self-Knowledge and Self-Identity, 1963, p.29.

plays a significant role in Nathan Salmon's Reference and Essence, 1981. In the main body of the book he finds the principle "exceedingly plausible, almost to the point of being indubitable (p.211)," and suggests that Kripke tacitly appeals to it in an effort to "derive essentialism from the theory of reference (p.5)." But in an appendix Salmon rejects the principle (p.229) after considering Chandler's treatment of the ship of Theseus.

E. Lowe's approach may be preferable to that of Chandler and Nozick, but it is not without difficulties. Two seem noteworthy. First, like Chandler and Nozick, in giving up the principle of internal development, Lowe invites the problem of jumps discussed in subsection 3.2. What if one were to start to renovate the ship of Theseus and then stop because the replacement parts were found to be defective. It would seem that the original parts that were removed could be returned to their original places without creating a new ship, but this appears impossible on Lowe's account. Second, I do not share Lowe's confidence that the renovation path has a stronger claim to identity than does the path of the reconstructed ship; a museum curator could with justification argue that the reassembled, original parts had a greater claim to be the authentic ship of Theseus.



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