

Words without Objects

On the semantics of *non-singularity*, and its bearing upon
issues of ontology and logic for *plurality* and *stuff*

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The moral rights of the author, and the right of Henry Laycock to be identified as the author of this work, have been asserted.

For my dear wife, France, my father, Douglas, and my mother, Helena.

All things, Thales held, come out of water and are resolved into water. (Aetius)

Thales declared water to be the beginning and the end of all things. As the water solidifies, things acquire firmness; as it melts, their individual existence is threatened. (Hippolytus, *Refutatio*)

It scatters and it gathers; it advances and it retires. (Heraclitus, *Fragments* 40)

The Unlimited is the first principle of things that are. It is that from which their coming to be takes place, and it is that into which they return when they perish. (Anaximander)

Anaximenes declared that the essence of things is one and unlimited ... it has the specific nature of air, which differs in rarity and density according to the kinds of things into which it forms itself. (Simplicius, *Commentaria*)

Everything flows and nothing abides; everything gives way and nothing stays fixed.
(Heraclitus, *Fragments* 20)

The above quotations are from *The Presocratics*, edited by Philip Wheelright (New York: Odyssey Press, 1966)

	1. Singular (‘one’)	2. Non-singular (‘not-one’)
3. Plural (‘many’)	X X X	‘things’ ‘apples’ ‘sheep’
4. Non-plural (‘not-many’)	‘thing’ ‘apple’ ‘sheep’	‘stuff’ ‘water’ ‘molasses’

Preface

The following work is intended in part as a project in what is sometimes called ‘descriptive metaphysics’, albeit at a relatively high level of abstraction, insofar as its most problematic topic is concerned. While that topic is, roughly and approximately, the general concept or category of *stuff* or *matter*—as ancient an issue in philosophy as any—the abstract theory of this concept consists in none other than an account of the formal behaviour, including that under quantifiers, of a large and central set of non-count nouns. These nouns are sometimes called *mass* nouns, but the term is not, for reasons I present, an expression I propose to use. The work addresses questions of ontology; and it does so on the principle that, to the extent that there is such a thing as ‘the ontology of stuff’, it is precisely in the semantics of these nouns that the key to understanding this ontology is found.

In Classical metaphysics, the problem of the category of matter is discussed extensively, if somewhat inconclusively, in Aristotle’s *Metaphysics*, though it is oddly nowhere present in his *Categories*. In the analytical philosophy of the past half-century, the problem emerges in a rather different, and more narrowly semantic form. Quine’s observations on what he calls ‘bulk terms’ or ‘mass terms’, along with Strawson’s early writing on ‘material names’—he later speaks of ‘feature universals’—mark something of a modern rebirth or revival of the interest in what seems a curiously problematic category.¹ The notion that non-count nouns do not individuate, in at least one sense of ‘individuate’—roughly, that they specify no boundaries, or introduce no concept of a discrete individual or ‘thing’—has some intuitive, albeit abstract and elusive, plausibility. Indeed, just such a thought would seem to be embodied in the pre-Socratic fragments, and particularly those of Anaximander and Anaximenes, which serve to introduce this work.

But efforts to coherently explain or clarify this thought seem hamstrung and frustrated by a diverse set of difficulties—in the last analysis, perhaps, no more than unreflective tendencies of thought, or subtle forms of prejudice or emphasis, lodged in the interstices of

an evolving logico-metaphysical tradition. There is, for example, a certain focus within philosophical grammar or philosophical logic, upon a range of purportedly fundamental sentences constructed on the basis of what Quine calls ‘the dichotomy of singular and general terms’; and there is a logical tradition one of whose central preoccupations, however it may be rationalised, happens to be the theorising of valid inference involving count nouns exclusively. The entry for MASS NOUN in one prominent dictionary of philosophy has simply ‘see COUNT NOUN’.²

At the same time, there exists a set of more or less ill-defined, unclear and indistinct usages for a variety of key expressions—including ‘objecthood’, ‘singular term’, ‘singular reference’ and ‘individuation’ itself—whose unclarity and indistinctness themselves constitute a major web of obstacles to progress in the field. This web of obstacles is of a disconcerting generality and scope, comprising also difficulties posed by doctrine. Among these, I would include the thought that it is reference, in some more or less full-blooded sense, which constitutes our basic intellectual or psychological connection with the world. In the philosophy of language, we are told, ‘the focus is on meaning and reference, on what are known as *the* semantic connections between language and the world’.³ These obstacles, in turn, appear related to a certain predilection in reflective thought for the general category of discrete countables, or in a very general sense, the category of ‘objects’, ‘individuals’ or ‘things’. There is a certain fundamental tie between the general category or concept *object* and that of reference—of reference which is *singular*, to be precise—and to the extent that such things exist, theories of matter and / or ‘mass nouns’ typically attempt to explicate these latter categories *via* that of reference. But ironically, perhaps the most central fact about the category of stuff or matter is that it is, in a sense I here attempt to explicate, profoundly antithetical to reference. Here then, if anywhere, is the nub of the group of issues which make up this work.

When I began to write the essay, some ten years ago at the University of Cambridge, it was not my intention to indulge (as I might have then conceived it) in Wittgensteinian therapeutic diagnostics. Nevertheless, in the course of the struggles to compose this work, I

became increasingly concerned and disturbed by the sense that there was something here quite other than and apart from a set of reasoned philosophical positions—some peculiar cognitive force, with an intellectually constricting and sometimes almost suffocating influence, seemed to be at work. It seemed then, and still seems, as if there exists some kind of opaque doctrinal / cognitive iceberg, something which is mostly below the surface, unseen but somehow influencing and threatening distortions of reflective thought. What the nature and origins of this iceberg might be—whether it is ultimately no more than a matter of ingrained traditions, or whether the existence of ‘systematically misleading expressions’ and a formal syntax / logic gap have crucial roles to play, or whether it is largely the reflective human vulnerability to embrace unduly simple, monolithic models or to be gripped by seductive yet false pictures, I do not know. But it is a somewhat mysterious fact that it is or seems to be a single iceberg—a remarkably consistent and coherent set of underlying influences or ideas, a set which seems to somehow constitute an integrated, consistent and coherent totality.

There is then no question, as it seems to me, but that Wittgenstein is right, and that in one way or another, a certain philosophical pathology has a substantial presence within metaphysics. A major case in point bears on the understanding of non-count nouns; but there are other striking cases which concern the understanding of related groups of nouns. At least in the domain of interest for this work, there seems to be a pattern of incongruities between the data we attempt to model and the models in terms of which we attempt to understand them—incongruities which are sometimes even recognised as such—and *yet* we somehow persist in attempting to force the data to fit the incongruous models. This strikes me as a particularly disturbing and extraordinary state of affairs, and it seems to fit the Wittgensteinian / pathology approach. Here however my concern is not so much to explain this state of affairs, as just to point up evidence suggesting that there is a systematic pattern of responses to these issues, not obviously based on any commonly acknowledged set of principles, or on explicit doctrinal agreement, a pattern of responses which is, at many points, curiously, because so deeply, incongruous with the syntactic and semantic data requiring to

be understood.

It will probably be obvious, from my remarks so far, that I am conscious of having gone out on a rather long limb; and the feeling is not entirely comfortable. It is not easy to feel adequate to the challenge, fascinating though it is, which is posed by trying to sort out these issues; the challenge is somewhat overwhelming. I shall be arguing that non-count nouns are, quite crucially, *non-singular*; and given the evident scope of the problems which bear upon the phenomena of non-singularity—of plural nouns and non-count nouns, of words for stuff or matter and their logico-metaphysical significance—the character of an enquiry of this length cannot be anything but programmatic. In Chapter One, for instance, among other things, I attempt to provide an ‘in principle’ comprehensive sketch of the semantical relationships of count and non-count nouns, while in Chapters Three and Four, I attempt to sketch out an account of the semantic character of those non-singular definite descriptions which are non-count, of the character of non-singular quantification involving non-count nouns, and of the inferential relationships which connect non-count denoting and non-count quantification. A credibly full development of the perspectives herein advocated would surely constitute a far more bulky work than this.

I am also, unhappily, conscious of the existence of what is by now a vast body of literature and data in linguistics on the syntactic and semantic aspects of these issues, a body to which, given the constraints of time, it is virtually impossible to do justice. Attention is here concentrated only on some of the more elementary logico-metaphysical issues; and especially on how the denotata of concrete non-count nouns and plural nouns are to be conceived. In short, I can here claim no more than that I have attempted to bring together, for preliminary examination, a number of very general yet relatively influential doctrines and ideas—to sketch out some of their apparent interconnections, to suggest certain interconnected weaknesses and difficulties, and in the course of so doing, to gesture at the outlines of what I would like to think of as a more inclusive and coherent view.

Perhaps my chief regret is that I have been unable to benefit from a serious examination of Thomas McKay’s book *Plurals and Non-Distributive Predication* (Oxford:

Oxford University Press, 2005), which at the time of writing is in press. Having briefly scanned a draft version posted on the net, it seems to me that McKay has nicely put his finger on the preoccupation with singular count nouns which he dubs ‘singularism’, though his concern is chiefly with non-singular count nouns and not with non-count nouns.⁴ (But, lest the latter remark mislead, it is not as if I am here preoccupied essentially with those non-singular nouns which are non-count: the notion of plurality, and particularly what strikes me as the cavalier way in which set-theoretical notions are sometimes introduced on the basis of this notion, is an almost equally important topic in this work).

The spirit of the work has gone through two more or less painful reincarnations, inappropriately characterizable in their embodiments as ‘drafts’. The midwife for the first of these events was Alan Sidelle, whose deeply perceptive and copious observations transformed the focus of the work. Dean Zimmerman, the second birthing assistant, was less directly involved in the further metamorphosis, but was the overseer of healthy cognitive exercises without which that transformation could not have occurred. I have no reason to believe, however, that he would approve of the result. I owe a considerable debt of gratitude, too, to the anonymous referees for OUP, whose input was invaluable in helping to shape and clarify the argument and structure of the book.

Versions of parts of this work have been presented in talks at Clare Hall, Cambridge; the Czech Academy of Sciences, Prague; the Federal University of Brazil, Florianopolis; the Indian Institute of Technology, Bombay; the University of Leeds; Queen’s University at Kingston; the Institute for Philosophy at the University of Salzburg; the University of Wisconsin, Madison; the University of Sussex; and at UCLA (special seating arrangements thanks to David Kaplan). I am extremely grateful to those audiences for the opportunity to air my views, and for their sometimes most helpful comments. A development of certain key ideas was presented at the Rutgers Metaphysical Mayhem event in 2004. I owe a special debt of gratitude to Ted Bond for his unbounded support and enthusiasm. The wisdom and friendship of Devaki Nagarajan have also made their own distinctive mark. Kathrin Koslicki, Jose Benardete and Rob Stainton have offered stimulating and helpful comments. I must also

thank Barbara Partee for her sound advice. At much earlier stages, Jeff Pelletier, Calvin Normore, Lorne Maclachlan, and Art Sullivan contributed to the clarification of my thinking on these matters. I have also, over the years, benefitted from conversations with Peter Geach, Paul Grice, Peter Strawson, and Helen Cartwright, whose thought has been a defining influence upon this work. Again, David Pollock, of the British Humanist Association, has long offered sympathy and support; many thanks to David! I am also very much obliged to James Stuckey for his editorial assistance. Finally, I must express my heartfelt thanks to the President and Fellows of Clare Hall for granting me a Visiting Fellowship to initiate this project during the course of 1995-6.

NOTES

¹ W. V. Quine, 'Speaking of Objects' repr. in his *Ontological Relativity* (New York: Columbia University Press, 1969), 1-25; P. F. Strawson, 'Particular and General', *Proceedings of the Aristotelian Society* 54 (1953-54) .

² Robert Audi (ed.), *The Cambridge Dictionary of Philosophy* (Cambridge: Cambridge University Press, 1999).

³ Stephen Read, *Thinking about Logic*, (Oxford: Oxford University Press, 1994), 1, italics mine.

⁴ As it happens, two of McKay's colleagues at the time had seen an earlier draft (1999-2000) of my own work.

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Introduction

1. Engaging in the business of reflective, abstract thought, we nevertheless find ourselves initially most at home in contemplating the category of individual concrete *bodies*—individual chairs, tables, dogs, cats, snowflakes, ice cubes, jugs, flowers, trees, houses, stars, planets, bacteria, molecules, and so on—all seemingly distinguishable, discrete units, each countable as one, each one retaining its unique identity, possessing some cohesive causal unity, persisting for some finite period of time, surviving certain kinds of change and not surviving other kinds of change, interacting causally with other discrete units in a common space and time.

And yet a picture of the realm of space and time as first and foremost one of discrete bodies would be grossly incomplete. There are, for instance, large amounts of gold, and even larger quantities of salt, in the sea; but there are no discrete bits or pieces of gold, no distinguishable grains or lumps of salt in the sea.¹ Again, there is water in the atmosphere, and hydrogen in interstellar space; but the water in the atmosphere need not occur as drops or droplets—it may be simply in the diffuse form of vapour; and the hydrogen in space need not occur as discrete clouds: in varying degrees of density it is, we are told, virtually ubiquitous.² That picture of the world for which all matter is ‘enformed’ in discrete well-demarcated objects—a picture sometimes linked, perhaps mistakenly, with Aristotle’s doctrines—would seem to be a kind of myth.³

But it is only one among a strangely influential group of myths: for it is one thing to recognize a category of stuff distinct from that of body—even if, as it may seem with Aristotle, it is denied its independence vis-a-vis the concrete individual—and quite another to give no place to such a category at all. Hume for instance writes in the *Treatise* of ‘first observing the *universe of objects* or of *body*; the sun, moon and stars; the earth, seas, plants, animals, men, ships, houses and other productions...’.⁴ For all their brevity, Hume’s words explicitly encapsulate a certain stark and very general picture of the concrete world of space

and time—a picture of this world as simply one of concrete, discrete objects. The picture, sweeping as it plainly is, is nonetheless perplexing: it seems quite strikingly inadequate or incomplete. Within the realm of the material—of that which fills or takes up space—Hume’s list involves no mention of the diverse kinds of stuff which loom so large in everyday experience, as in our non-reflective thought and talk—no mention of, e.g., the water, wine or beer we drink, the air we breathe; nor of such substances as salt and sugar, silver, lead and gold.⁵ The point is not a point concerning terminology—not just a matter of the fact that Hume describes the world as one of ‘objects or of body’. It is rather that his list suggests some kind of blindness to examples of the group with which I am concerned. While it seems almost inconceivable that such examples are intentionally absent from Hume’s list, nonetheless, their absence might perhaps suggest an unarticulated intuition of their unsuitability within a list of different sorts of ‘objects or of body’ there may be.

And this serves just to emphasize a general puzzle about Hume’s and other such accounts: why should one omit, or somehow overlook, so prominent a category as this, and postulate instead a universe composed exclusively of ‘objects or of body’ in the first place? Hume is not, by any means, atypical in this connection; there would appear to be a common tendency within reflective thought to be influenced, and even gripped, by a conception of the world as intrinsically ‘divided’ into discrete bodies.⁶ The dramatic rise of atomism in the early modern period undoubtedly has no doubt worked to reinforce this world-of-bodies mode of thought, resulting in an intellectual environment whereby the wood / *hyle* has become obscured on account of the trees / *atomos*. At least on a classical, pre-quantum view of what such entities are like, atoms and molecules figure as paradigms of discrete bodies: a conception of the world as essentially divided into discrete pieces finds what are intellectually the most influential of these ‘pieces’ in them; such object-oriented thinking thus brings with it what is effectively a marginalization or eclipse of the (‘grosser’) category of stuff.⁷

2. So far as discrete bodies are concerned, we may think we have a fairly solid grasp on

certain central features of this category of things, and in particular on what it is for things belonging to this category *to be*. Indeed, the category was already explored in illuminating detail some 2500 years ago in Aristotle's *Categories*, through his paradigm of primary and secondary 'substance'. By way of contrast, it is a striking fact that in the case of non-Aristotelian substances, substances in the chemist's and the ordinary sense—oil, air, water, honey, salt and gold—the question of the general features of this category, including what it is for things of this sort to exist, is one which seems to have no very well-established or compelling answer, and certainly, no answer which is able to command the intellectual respect which continues to be accorded to Aristotle's own account of individual 'substance' in the *Categories*.⁸ Quite the contrary: to the extent that it is addressed at all—no small qualification in itself—the question of the ontic status of such ordinary substances remains a matter of significant contention.

Being phenomenally demarcated, discrete and countable, the *modus essendi* of individual bodies is readily represented, visualized or imagined—hence also, maybe, readily conceived. But the *modus essendi* of oil or air or water is not so readily visualized or imagined, and maybe, therefore, not so readily conceived.⁹ While bodies have a limited built-in stability and settled form, the diverse varieties of stuff appear both intellectually and practically more challenging to handle; they can be messy and elusive, particularly in a granular or fluid / gaseous state.¹⁰ Within the confines of the human sphere, we may resort to 'control-devices'—packaging, containers, dams, booms, and so forth; but there is a certain inexorable tendency towards disorder—leaks occur, bottles break, dams burst, bags develop holes; the contained substances are readily susceptible to being spilled, scattered, spread about, or otherwise dispersed.¹¹ It is no doubt human to prefer order, structure and predictability over disorder, chaos and uncertainty; but metaphysical questions regarding the constitution of reality crucially presuppose (awareness of) some difference between order which is introduced by us, and order which is independent of our presence or activities. And when it comes to theorizing *stuff*, we are very prone to make our footprints into aspects of the independently real.

3. To further concentrate ideas, I want to juxtapose two pairs of remarks. One, a relatively abstract logico-semantic pair, is taken from philosophers; the other, more concrete, is from the writings of ecologists. Thus, on the one hand, Quine:

We persist in breaking reality down somehow into a multiplicity of identifiable and discriminable objects, to be referred to by singular and general terms.¹²

Likewise, at a kindred level of generality, Russell:

When I say that my logic is atomistic, I mean that I share the common-sense belief that there are many separate things.¹³

And here—assuming the comprehensiveness of his ‘atomistic logic’—Russell presumably intends to suggest that he shares (what he takes to be) the common-sense belief that there are *only* ‘many separate things’.¹⁴ On the other hand, the ecologist Rachel Carson writes:

Seldom if ever does Nature operate in closed and separate compartments, and she has not done so in distributing the earth’s water supply. Rain, falling on the land, settles down through pores and cracks in soil and rock, penetrating deeper and deeper until it reaches a zone where all the pores of rock are filled with water, a dark, subsurface sea, rising under the hills, sinking beneath valleys. This groundwater is always on the move, sometimes at a pace so slow that it travels no more than 50 feet a year, sometimes rapidly, by comparison, so that it moves nearly a tenth of a mile in a day. It travels by unseen waterways, until here and there it comes to the surface as a spring, or perhaps is tapped to feed a well. But mostly it contributes to streams and so to rivers. Except for what enters streams directly as rain or surface runoff, all the running water of the earth’s surface was at one time groundwater. And so, in a very real and frightening sense, pollution of the groundwater is pollution of water everywhere.¹⁵

Again, and also speaking of water, the naturalist and mathematical ecologist E. C. Pielou writes that it

flows through the ground beneath our feet, floats as vapor in the air above, and collects in lakes, rivers, and streams everywhere. It is always in motion, forever

cycling, from the earth's surface into the air and back again. Wherever it flows, it shapes the land; it carves canyons in the rock and dissolves caverns deep underground; it permeates wetlands; it caps the mountain peaks with snow; and eventually it finds its way to the sea. Fresh water is an active force of nature; ever present, always at work.... Fresh water as nature made it is all around us, in rivers, lakes and wetlands, some of them still pristine; as hidden groundwater that bubbles to the surface in springs; as invisible water vapor in the air becoming apparent when it forms clouds; as rain, snow and ice.¹⁶

Their different levels of generality notwithstanding, these two pairs of remarks, it seems to me, are intuitively in tension—the contrast between the concept of an homogeneous substance, or what Michael Hallett calls an ‘undifferentiated material’, air or gold or water, and the idea of a range of ‘identifiable and discriminable objects’, tables, trees or planets, is both undeniable and striking.¹⁷ To gesture at the character of this tension in traditional metaphysical terms, the remarks might perhaps be described as relating to one another as the discrete relates to the continuous, the bounded to the boundless, or even, indeed, as solid Democritean atoms relate to fluid Thalesian stuff.¹⁸ Furthermore, while the continuous might in some sense be analysed in terms of the discrete—the ‘reduction’ of a geometrical line, for instance, to a set of real points, or for that matter, the theorization of a postulated fundamental stuff in atomistic terms—not only are the two sorts of concepts *prima facie* utterly distinct, but they seem clearly to be opposed.

To approach this opposition more concretely, it is enough to broach the question of where, in Carson's or Pielou's discourses on water, Quine's ‘identifiable and discriminable objects’, or Russell's atomistic ‘many separate things’, actually make their appearance. It is noteworthy that in the ecologists' remarks, the use of anything akin to genuinely referential expressions is displaced by discourse which seems somehow less determinate in form, and which often has a markedly generic flavour.¹⁹ In this regard, their focus differs from that of characteristic philosophical approaches. Examination of the semantics of words for stuff tends to focus upon modes of talk, particularly the use of referential expressions and definite

descriptions, which reflect an obvious phenomenal discreteness—‘the water in this glass’, ‘the gold of which his ring is made’, and so forth. Evidently, the phenomenal discreteness which is reflected in the use of such descriptions is a *contingent* fact of sorts, a function of distinct containers or of constituted objects; it is entirely adventitious from the standpoint of the stuff in such containers or such constituted objects. Nevertheless, the fact is that an holistic ecological perspective such as that exemplified above would not normally be thought to constitute a serious problem for the formal Quinean / Russellian conception of discrete object-centred thought. Indeed, it would typically be thought entirely irrelevant to it; and my purpose in this work is to explore some of the elements which underlie this kind of formal view.²⁰

4. Now the issues I have thus far touched upon have every semblance of being ontological or metaphysical; and there is indeed a certain sense in which this really is the case. However, appearances notwithstanding, the underlying nature of these issues (or at any rate, the nature of the underlying issues) is in no way metaphysical, but is purely semantical; and the way the issues have been here presented is at least potentially misleading. I have adopted such a superficially metaphysical strategy, simply because it represents a central aspect of what is in effect the ‘standard’ route into this set of issues. But the fact is that these issues themselves will not be adequately understood, let alone resolved, unless and until the metaphysical aspect which they have here assumed is set aside. This guiding thought is one which is developed incrementally throughout the work; my intent is to begin, albeit critically, from within the confines of the more common metaphysical perspective.

To begin to make these initial comments more appropriately concrete and precise, we shall need before all else to explicate a contrast between words for identifiable and discriminable objects, trees and tables and the like—and words for such materials as gold and water. Now linguists often distinguish *count* and *non-count* nouns (*count* + and *count* – nouns; *CNs* and *NCNs*, for short), and the contrast between ‘gold’ and ‘water’, on the one hand, and ‘tree’ and ‘table’ on the other, is certainly a contrast of *NCNs* and *CNs*. However

the CN / NCN contrast itself is one of two much broader, heterogeneous groups, each of which, it goes without saying, includes both concrete and non-concrete nouns; this contrast extends far beyond that one which is here at issue.²¹ CNs evidently include such terms as ‘hill’, ‘house’, ‘word’, ‘number’, ‘atom’, ‘planet’, ‘attribute’ and ‘cat’, while NCNs, by contrast, include such terms as ‘wine’, ‘wool’, ‘tension’, ‘furniture’, ‘xenon’, ‘leisure’, ‘refinement’, ‘beer’, ‘food’ and ‘good’.²² With CNs we may ask, almost truistically, ‘How many ... ?’, whereas with NCNs, whether abstract or concrete, we may only ask ‘How much ... ?’.²³ In the nature of the case, CNs alone accept numerical adjectives (‘one’, ‘two’, etc.) along with the quantifiers ‘every’, ‘each’, ‘a number of’, ‘few’ and ‘many’ (‘so few’, ‘too few’, ‘so many’, ‘too many’).²⁴ NCNs by contrast characteristically accept either ‘a degree of’ or ‘an amount of’, as well as ‘much’ and ‘little’ (‘so much’, ‘too much’, ‘so little’, ‘too little’).²⁵ The distinction, though hardly simple, is both exhaustive and entirely natural, and precisely how it is to be understood is, it seems to me, a matter of some considerable interest.

Nevertheless, given an interest specifically in the metaphysical contrast of discrete bodies and undifferentiated materials, and in this sense in a correlated contrast between ‘words for things’ and ‘words for stuff’, it is clear these two pairs of contrasts, and that of CNs and NCNs, do not coincide. Among other things, the latter contrast includes non-concrete nouns; and among the concrete nouns, there is a substantial group which, though semantically non-count, are ontologically or metaphysically terms denoting discrete, concrete *things*. This group includes, for instance, ‘furniture’, ‘cutlery’, ‘traffic’, ‘machinery’ and ‘footwear’; and since too much furniture might simply be too many chairs, the contrast with CNs is rather obviously non-metaphysical. To make an existential assertion to the effect that there is furniture (cutlery, traffic) in a certain place is to say no more than that there are pieces of furniture (items of cutlery, moving vehicles of one sort or another) in that place. Consequently, and especially in philosophical writings, it is not unusual to employ a linguistic dichotomy which is conceived as reflecting the purely metaphysical contrast; and it is in this way that the dichotomy of count nouns and *mass nouns* (CNs and *MNs*) is commonly although not universally introduced and understood. Amongst philosophers, the

appellation ‘mass noun’ tends to be reserved for the metaphysically distinctive sub-set of NCNs.²⁶

Perhaps the first author to use an expression of the ‘mass noun’ genre is Otto Jespersen, who speaks of *mass words*, contrasting these with what he calls ‘countables’ or *thing words*. Jespersen writes:

There are a great many words which do not call up the idea of some definite thing with a certain shape or precise limits. I call these ‘mass-words’; they may be either material, in which case they denote some substance in itself independent of form, such as ... water, butter, gas, air, etc., or else immaterial, such as ... success, tact, commonsense, and ... satisfaction, admiration, refinement, from verbs ...²⁷

Subsequent writers typically differ from Jespersen in treating the domain of ‘mass words’ as one of concrete nouns exclusively; but insofar as these latter nouns are concerned, Jespersen’s approach would seem to represent a certain norm—with Jespersen, it would appear, a certain die was cast. In particular, whereas ‘water’, ‘butter’ and ‘air’ may be said to ‘denote a substance in itself independent of form’, ‘furniture’, ‘cutlery’ and the like may not; and for essentially this reason, the appellation *mass noun* is not uncommonly withheld from them. Peter Hacker, for example, classifies such words as *pseudo-mass*, remarking that they are not what he calls ‘stuff nouns’, since they do not represent an ontic category distinct from ‘things’, and are conceptually derivative from what he calls ‘antecedently given’ CNs, such thing-words as ‘knife’, ‘slipper’, ‘table’, and the like.²⁸ But in any case, given that ‘words for substances independent of form’ do not ‘call up the idea of some definite thing with a certain shape or precise limits’, the question then arises, of what idea, precisely, they do ‘call up’.

CNs, so it is commonly supposed, are quite well understood; but NCNs are another matter altogether. These nouns just do not figure in our logico-semantic canon; they typically receive no significant examination—perhaps not even a single mention—in standard logic texts. What Donald Davidson has called ‘the problem of mass nouns’—which would for him, presumably, include the problem of the logical form of non-count sentences, and so perhaps of their ontological significance—remains in my view unresolved.²⁹ Now this putative linkage

between questions of ontology and representations of logical form is vividly expressed in a remark of Quine's: 'The quest of a simplest, clearest overall pattern of canonical notation', so he declares, 'is not to be distinguished from a quest of ultimate categories, a limning of the most general traits of reality'.³⁰ And here I attempt to elucidate a certain sense in which an account of the distinctive semantics of NCNs is a crucial precondition of explicating the logico-semantic structure of the concept of stuff or matter, and thereby also of explicating the *modus essendi* of matter, the modality in which the concept is realised or made manifest.

In this respect, my strategy diverges markedly from that of certain views which have been influential in the recent past: I have in mind a loosely constituted group of views which construe talk of stuff in terms of talk of things, or which in effect simply assimilate, in one way or another, the semantics of NCNs to that of CNs. While the so-called 'mass nouns' are widely perceived to resist assimilation into Quine's basic 'canonical notation', the first-order calculus of predicates, one chief response to this is to contrive some strategy whereby, ironically, resistance can be somehow overcome. Quine's theory itself, considered briefly here in an appendix, is an example of just this sort of view. And in a remark which is entirely representative of this general tendency, another author writes that his analysis 'will consist in showing how to translate sentences containing mass nouns into a "logically perspicuous notation" ... our background "logically perspicuous notation" simply is the first-order predicate calculus ... the task is to paraphrase mass nouns in terms of names and CNs.'³¹

But there is it seems to me a major problem with approaches of this sort; indeed there is a threat of paradox. While the study of generality is typically pursued within the formal framework of one or another variant of the predicate calculus, the issue of the formal scope and limits of this calculus itself is not so commonly addressed. Yet the fact is that our canonical notation, with its standard apparatus of singular terms, individual constants and variables, is contrived precisely for the representation of CNs, and a restricted group of them at that. It is hardly surprising that Quine speaks of his so-called 'mass terms' as being 'archaic', 'protean', 'ill fitting' and 'indecisive' in relation to his so-called 'adult' dichotomy of 'singular and general terms', and proposes a theory described as an 'artifice' involving the

‘reduction of universals to particulars’. In fact, he strongly suggests that there can be no objectively correct account of these nouns within ‘our adult scheme’ of the world, but only ones which inevitably, somehow, misrepresent the phenomena they aim at understanding: he notes, on the one hand, that his mass terms are ‘ill-fitting’ our adult scheme, but on the other hand insists that they can be made to fit.

NCNs, as I will urge, are semantically non-singular—a concept which also comprehends the category of the plural; and while plural nouns seem rather less intractable than NCNs, the plain fact is that neither of these categories can be said to be well understood. Semantically, the categories have much in common—a fact which, in one form or another, is now increasingly recognised—and they are distinguished from singular nouns, in the everyday, syntactico-semantic sense of ‘singular’, in roughly parallel ways. Examination of their mutual interplay, so I believe, throws light on both; and among other things, a commonplace ‘ontologised’ conception of plurality is thereby called in question. Plurality, so it is here maintained, is a semantical and not also an ontological construction. In consequence, the semantic scope of the enquiry is a good deal more wide-ranging than its metaphysical concerns.

NOTES

¹ Nor, it should perhaps be said, with an eye to naturalist preoccupations, are there any *molecules* of salt in the sea. Salt, being an ionic compound, has no smallest units each of which itself is salt. As standard chemistry texts explain, ionic compounds are substances in which the typical constituent units are not, as in water, molecules combining atoms of each of the constituent substances, but are instead ions, free-floating or uncombined and electrically charged ‘incomplete atoms’ of the several constituent substances—objects which unlike atoms are electrically non-neutral, positively or negatively charged, having a surplus or deficit of electrons—such that it is the electrical imbalance of these units which serves to constitute the compound as a compound. For example, to the extent that salt may be said to be composed of constituent particles, these particles are separate sodium ions and chlorine ions, whose positive and negative charges are what collectively constitute the compound as a compound, and at the same time balance out so that the salt itself is, of course, electrically neutral.

² A perceived multiplicity of discrete clouds in this context might well be more phenomenal than real, perhaps resolving itself into merely more or less dense concentrations of material in a rarified gaseous continuum. See Peter Unger’s discussion of clouds in ‘The Problem of the Many’, in P. French, T. Uehling, and H. Wettstein (eds.), *Midwest Studies in Philosophy* 5 (Mineapolis, Minn.: University of Minnesota Press, 1980), 411-67, and Neil McKinnon, ‘Supervaluations and the Problem of the Many’, *The Philosophical Quarterly* 52 (2002), 320-339. Unger is in my view, however, unduly anxious to generalize from this kind of case; and the point has nothing to do, as McKinnon appears to think, with the micro-constitution of the clouds.

³ Although there is a tendency to talk and think of stuff as if it comes in discrete bits and pieces, it seems obvious that in the most common sense of ‘bits and pieces’, this need not be the case. In this common sense, to say that stuff occurs in discrete bits and pieces is in fact to imply something which, as a universal claim, everyone knows to be false—that it occurs in a solid form, as discrete chunks. (Notice however that ‘bit’, unlike ‘piece’, has a certain ambiguity: a bit may, like a piece, be a solid chunk of stuff; but unlike a piece, a bit may just be a small amount or quantity, regardless of the state the stuff is in. Though one cannot be said to drink a *piece* of water, it is possible, colloquially at any rate, to speak of drinking a *bit* of water). Remarkably enough, there is a tendency, reflected in a famous remark of Isaac Newton’s which is quoted in Appendix One, to think of matter as fundamentally and essentially *solid*. Locke, for instance, though displaying some concern about the precise meaning of the term ‘solidity’, maintains that solidity is ‘the idea most intimately connected with, and essential to body; so as nowhere else to be found or imagined, but only in matter’ (*Essay*, Bk.II, ch. 4). The objectifying tendency is remarkably pervasive; it occurs not only within philosophy but also in other theoretical disciplines. The following, taken from the *New Columbia Encyclopedia*, is a straw in the wind:

Clouds are formed when air containing water vapour is cooled below a critical temperature ... The classification used today comprises four main divisions ... altocumulus, a layer of patches ... arranged in groups, lines or waves, with individual clouds sometimes *so close*

together that their edges join ... stratocumulus, a cloud layer of patches ... arranged in groups, lines or rolls, often with the rolls so close together that their edges join. Harris, W. and Levey, J. (eds.), *The New Columbia Encyclopedia* (London, New York: Columbia University Press, 1975), 582-3, my emphasis.

Now ‘cloud’ has a familiar non-count sense—‘The region was blanketed in cloud’—and what seems to be actually described in the above text, when ‘clouds are formed’, is not so much a class of truly discrete objects, distinct and separate clouds, as a diffuse atmospheric region of cloud displaying a certain internal structure or pattern (much as a homogeneous medium such as water displays internal structure in the form of ripples, eddies, waves and so forth). Here however, the non-count use seems to be overlooked, and what is adopted instead is a manifestly artificial, ‘pseudo-objectifying’ count use of the term.

⁴ ‘After this’, he continues, ‘I consider the other system of being, *viz.*, the universe of thought’. *A Treatise of Human Nature*, ed. E. Mossner (Harmondsworth, Middlesex: Penguin, 1984), 290-1, first italics in original. Although the world-of-bodies view would seem to represent a certain norm, that norm does not achieve universal acceptance. Descartes, for example, conceives the material universe as an infinite homogeneous fluid, in which distinct material particles or bodies are differentiated from one another only by differential motions in the fluid; and Kant, as I note in the ‘atomism’ appendix, appears to embrace a not dissimilar view.

⁵Here I use the term ‘substance’ in the everyday sense, which is also that of the chemist, but not of course that of the Aristotelian tradition.

⁶ ‘The *natural* or *pre-scientific* view of the world’, we are told, ‘regards it as a plurality of ‘things’, each possessing qualities, standing in relation to others, and interacting with them’ A. E. Taylor, *Elements of Metaphysics* (London: Methuen, 1903), 120. The suggestion, I take it, is that a conception which regards the world as exclusively a ‘plurality of things’ (and specifically, insofar as it is concrete, as a plurality of concrete things) just is the natural or pre-scientific view. Again, Milton Munitz writes, somewhat more ambiguously, albeit in a Kantian vein, that ‘On the level of primitive thinking as well as in the majority of classic philosophic systems, a central role is played by the idea of “objects”, “things” or “substances” ... ’ Milton K. Munitz, *Space, Time and Creation* (New York: Collier Books, 1957), 93. Since it is difficult to see what else he could mean, it would seem that by ‘primitive’ thinking, Munitz also means ‘pre-scientific’ or ‘everyday’ thinking. With a disarming modesty, this tendency to represent material reality in its entirety as cut and dried, as simply discrete ‘bits’, ascribes itself to common sense and everyday experience, or to the everyday conception of the world. The fact however is that it is theoretic or reflective—a tendency whose roots in common talk and everyday experience are tenuous at best. The phenomenology of matter is that of something which is not essentially ‘divided’; it is a feature of the world, as manifest perhaps most strikingly in fluid stuff like air and water, without intrinsic boundaries; and it is just such a feature which seems quite central to those early forms of metaphysical thought which stress the underlying unity and not the separation of all things. Indeed, Susanne Langer writes:

All science tries to reduce the diversity of things in the world to mere differences of appearance, and treats as many things as possible as variants of the same stuff. When Benjamin Franklin found out that lightning is one form of electricity, he made a scientific discovery... an amazing number of things can be reduced to this same fundamental

‘something’, this protean substance called ‘electricity’.... Electricity is one of the essential things in the world that can take on a vast variety of forms. Its wide mutability makes nature interesting, and its ultimate oneness makes science possible. Susanne K. Langer, *An Introduction to Symbolic Logic* (London: Allen and Unwin 1937), 21-22.

(In the interests of historical accuracy, it should be noted that the authenticity of Franklin’s purported discovery has recently been called into question).

⁷ See now Appendix I: Atomism.

⁸ It goes without saying that there is no uncontentious interpretation of the system of Aristotle’s *Metaphysics*; yet Aristotle certainly appears to endorse a view akin to that of Munitz et. al., maintaining that insofar as the contents of the spatio-temporal framework are concerned, it is precisely material bodies, and centrally substances, which form the ontologically basic, independent realm of being. At the same time, it is evident that Aristotle takes some notion of stuff or matter very seriously, insofar as individual material substances are themselves conceived (as he himself puts it) as ‘composites’ of matter along with form. The supposed fundamentality of the category of individual substances vis-a-vis matter might then be thought to result from the fact that while, in Aristotle’s view, the stuff or matter of the world, as such or in itself, is unindividuated or ‘formless’, it cannot exist apart from concrete individuals whose matter it must be. Bronze always, and of some sort of necessity, comes ‘in the form of’ statues, spheres, and discrete bits and pieces. Stuff or matter cannot be independent; the world of stuff or matter cannot but be a world of things or substances composed of matter—a world in which matter as such or in itself is hence a kind of abstraction. Perhaps then there is here a logico-metaphysical thesis to the effect that the *categories* (or concepts) of ‘body’ and ‘matter’ are distinct, alongside a metaphysical thesis concerning the ontological independence, primacy or fundamentality of material bodies exclusively.

⁹ The noted naturalist and mathematical ecologist E. C. Pielou writes:

As liquid water changes to vapor, it becomes invisible. Although mist and the visible steam issuing from the spout of a kettle are often spoken of as ‘vapor’, this is a misnomer. True water vapor is an invisible gas ... Water as a vapor can only be sensed by feel—and only vaguely at that—as a moistness, dampness or mugginess in the air’. E. C. Pielou, *Fresh Water* (Chicago: University of Chicago Press, 1998).

¹⁰ They are sometimes dramatically depicted in works of art—for instance in the chaotic swirling air and fire and water scenes of J. W. Turner, the impressionism of Monet, and also in the music of Debussy. Debussy writes that because he loves music, he tries ‘to free it from barren traditions that stifle it.’ Music, he continues, ‘is a free art gushing forth, an open air art boundless as the elements, the wind, the sky, the sea ... Music is the expression of the movement of the waters, the play of curves described by the changing breezes ...’. Quoted on the CD of Debussy’s *Preludes* Book 2, as performed by Gordon Fergus-Thompson. Debussy’s beautiful remark highlights phenomenological analogies between music and the elements. Like music itself, the stuffs of his musical impressionism—mist, water, cloud and fog—are in a free, diffuse, unbounded fluid motion. Nietzsche, known for his contrast of what he calls the ‘Apollonian’ and ‘Dionysian’ attitudes, famously speaks of the world as ‘a monster of energy ... a play of forces and waves of forces, at the same time one and many, increasing here and at the same time decreasing there; a sea of forces

flowing and rushing together, eternally changing, eternally flooding back ... with an ebb and a flood of its forms'. Nietzsche, F. *The Will to Power*, trans. W. Kaufmann and R. Hollingdale (New York: Vintage Books, 1968), Book Four, 1067.

¹¹ By the same token, it should be said that *things*—'in the plural'—can be disorderly, and are more easily manipulated and controlled when collectively confined to enclosed spaces. The comparison is theoretically significant and re-emerges especially at 1.4.

¹² 'Speaking of Objects', p.1. It is, he appears to suggest, the *plain folk* 'we' who thus persist in 'breaking reality down somehow'—and not just those, like Quine himself, whose aim is to reflect upon and represent semantically our talk or thought. The suggestion that it is somehow we who are thus responsible does not comport well with the oddly popular realist view that the existence of discrete snowflakes, planets, organisms, and the like is not typically a result of human (cognitive or non-cognitive) activity.

¹³ 'The Philosophy of Logical Atomism', in *Logic and Knowledge*, ed. Robert C. Marsh (London: Allen and Unwin, 1956), 178. To explicate the force of his remark, Russell here continues: 'I do not regard the apparent multiplicity of the world as consisting merely in ... unreal divisions of a single indivisible Reality'. As F. J. Pelletier succinctly notes, 'Many writers have taken the position that our conceptual scheme presupposes an ontology of things, and therefore that sortal terms set the paradigm for predication' (for Pelletier, as for most others, sortal terms are understood to be a subset of count nouns). 'Mass terms, Count Terms and Sortal Terms', in F. J. Pelletier, (ed.), *Mass Terms, some Philosophical Problems* (Dordrecht: Reidel, 1979), vi. Surprisingly, this remains the (one and only) collection of essays on 'the problem of mass nouns'. Similarly, Jose Benardete contrasts the outlook of 'the early pre-Socratics', and in particular what he calls their 'mass-noun ontologies'—their preoccupation with the ancient elements of earth, air, fire and water — with the outlook of the 'count noun ontologists who came to dominate the field forever after'. *Metaphysics: the Logical Approach* (New York: Oxford University Press, 1989), 36-7. For further examples of discrete object-oriented outlooks, see my 'Theories of Matter' in the same volume, especially section 1, 'The ontology of objects', and section 3, 'The meaning of the doctrine'.

¹⁴ Roughly, the point is one which for Russell concerns the constituents of facts, and does not, I take it, concern 'the facts' themselves.

¹⁵ *Silent Spring* (Cambridge, Mass.: Houghton Mifflin, 1962). Jonathan Porritt writes, in a promotional brochure published by the Folio Society: 'Before *Silent Spring* the world was largely silent on the assault on Nature that was already under way by 1962. Most people were ignorant of what was happening. Some saw it as an acceptable price to be paid for material progress. A few cried plaintively in the wilderness. Rachel Carson changed all that. She took the battle to the big farmers, the chemical companies and the corrupted politicians, stripped bare their arrogance and the inadequacies of their science, and spoke with a measured lyricism of the intricate, fragile interdependence of humankind and the natural world. If anyone did, Rachel Carson sowed the seeds (both philosophical and tactical) of the modern environmental movement, and inspired a generation of academics and activities to carry on her work in defence of the Earth'. In 1992, a panel of distinguished Americans declared Rachel Carson's *Silent Spring* the most influential book of the past

50 years.

¹⁶ Pielou, *Fresh Water*, dust jacket and x.

¹⁷ M. Hallett, 'Continuous/discrete', *A Companion to Metaphysics*, ed. J. Kim and E. Sosa (Oxford: Blackwell, 1995), 97-99.

¹⁸ Somewhat more precisely, the relationship could be said to be that of the essentially discrete to the not essentially discrete, or of the essentially bounded to the not essentially bounded.

¹⁹ Pielou writes in concrete detail concerning the various states and conditions of water, sometimes from the standpoint of the field naturalist; and more suggestive—and perhaps representative—uses of definite descriptions are available in her work. She writes, for instance, that to

judge whether flowing water is safe to wade, multiply its depth in meters by the speed of flow in meters per second ... then avoid wading without a life jacket if the result is greater than one. Since you cannot foretell the depth of the water ahead of you, apply the test repeatedly as you wade ... *Fresh Water*, 88.

Since the phrase 'the water ahead of you' applies to flowing water, this use of a definite description, however exactly it is to be understood, is very different from that of, say, 'the bridge ahead of you', for *pace* Heraclitus, even while denoting continuously, it does not denote the same water from one moment to the next.

²⁰ At the same time, it must be acknowledged that this approach is not quite canonical. Thus Quine himself, perhaps following the earlier example of Strawson, has described his so-called mass terms as 'pre-individuative', and subsequently, as terms which (unlike 'apple' and 'rabbit') do not 'divide their reference'. Quine's views on this matter are deeply problematic; but his work can be thought of as being fundamentally an attempt to account for the intuition that stuff like water, although *scattered*, is not *divided* into discrete individual objects, whereas an individuative type or kind, e.g. humankind, might be whimsically or metaphorically described as being both scattered and *also* divided into a multiplicity of distinct individuals. Happily, as I have noted, Quine describes his account as an artifice (99), involving what he characterizes in a discreet footnote as 'the reduction of universals to particulars' (98, fn.3); and such an artifice it surely is. The issue is pursued in a brief Appendix, 'Substances and physical objects: Quine's labyrinth'.

²¹ It may turn out that narrowing the focus of enquiry in certain ways—much as the authors I have cited do—will be helpful to the progress of enquiry at a later stage; but the significance of any such narrowing will be clear, only within the context of an initial more comprehensive distinction. To begin with a focus of the narrower sort is to risk de-centering or even losing sight of what is, so I believe, the theoretically fundamental issue. I comment further on this point at 1.3.

²² I use 'good' here in the sense in which we say 'It will not do you any good', 'It will do me some / no / a lot of good', etc.

²³ ‘Almost truistically’, since the criteria for identifying CNs, and for distinguishing between CNs and NCNs, are not entirely clear. And in particular, there is a diverse assortment of syntactically plural nouns, including e.g. ‘ashes’, ‘clouds’ and ‘groceries’, which do not (always or ever) come with determinate criteria for counting that of which they are true. Natural language—perhaps reflecting reality in this regard—can be a pretty messy business. And while my focus here is upon concrete nouns, and while the appellation ‘mass noun’ is typically applied to concrete nouns exclusively, abstract CNs and NCNs are commonplace (among the former group, such terms as ‘word’, ‘number’, ‘attribute’ and ‘vice’; among the latter, such terms as ‘tension’, ‘leisure’, ‘refinement’ and ‘pleasure’). Here I focus upon concrete nouns, or uses or occurrences of nouns, in part to mark a contrast with those contexts in which nouns are used generically, or as so-called ‘abstract’ nouns. For the fact is that the very words we class as NCNs, in such contexts, may themselves be used for counting—for counting kinds or types—and phrases like ‘a wine’, ‘one wine’ and ‘several wines’ are perfectly in order. And it seems appropriate to speak of uses or occurrences of nouns, in part because on one view of word individuation, some words are used concretely both as NCNs and as CNs. Not only do we have ‘less beer’, ‘less cheese’, and so forth, we also have the non-generic ‘fewer beers’ and ‘fewer cheeses’. There are numerous expressions which, like ‘cheese’ and ‘hair’, can figure as both CNs and NCNs; and Quine points out that ‘apple’ has a non-count use; see *Word and Object*, 91. (But whereas nothing need be done to hairs to justify the application of the non-count ‘hair’ to them, that of which ‘apple’ as an NCN is true is the result of doing certain things to apples such as chopping or pulping them).

²⁴ To echo and expand on the previous note, these remarks are hardly sufficient to precisely demarcate the categories; the categories themselves are far from being neat and tidy. For one thing, it is plainly not the case that all CNs take ‘one’. There are various kinds of irregular nouns—plural invariable nouns, among others, nouns such as ‘riches’, ‘goods’, ‘baked goods’, ‘goods and chattels’, ‘hops’, ‘groceries’, ‘wares’, ‘housewares’, ‘clothes’, ‘cattle’, ‘droppings’ and so on—which have no singular, hence do not fit the paradigm. Indeed though these particular nouns all have a syntactically plural form, it is not even clear that they are all semantically CNs. Somewhat arbitrarily, perhaps—the issue is both theoretical and insufficiently explored—I shall take it to be necessary and sufficient for a noun to be classed as semantically count that it allows talk of *few*, *some* and *many* items of the type, even if the assignment of specific numerical adjectives, e.g. ‘seven clothes’, is not standard English. By the same token, if a term ‘P’ is to be counted as semantically plural, then whatever its syntactic stripe, it seems to be essential that such forms of words as ‘one of the P’ and ‘each of the P’ should make sense; and this is evidently not the case with *bona fide* NCNs. (Again, where ‘one of the P’ makes sense, there must also be at least the possibility of some singular CN ‘S’ such that ‘one of the P’ counts also as ‘one S’. This does not, naturally, preclude the typographical identity of ‘P’ and ‘S’). On this view of the matter, ‘riches’, for example, would probably not be classed as a count noun. Furthermore, the boundaries between CNs and NCNs are far from clear. For example, the contrast between ‘ash’ and ‘ashes’, in the sense of what, for instance, burning wood results in, looks as if it is that between an NCN and a plural invariable CN. But do we or can we speak of few or many ashes? And finally, some nouns which seem to be semantically non-count can take syntactically plural forms: ‘snows’, ‘sands’, ‘waters’, ‘molasses’ and the like. It may of course turn out that intuitions of what is semantically a *bona fide* plural fail us at the borders, and that for the purposes of a neatly regimented theoretical account, some such

condition as the one I have suggested may have to be simply stipulated as criterial.

²⁵ This feature of the entire class of NCNs extends beyond the class of concrete NCNs, but it nonetheless remains of fundamental interest when we focus only upon NCNs which are concrete. Work is evidently called for on distinguishing *bona fide* abstract nouns (which correspond to concrete adjectives) from the generic uses of what are otherwise concrete nouns. The contrast is that of ‘humility’, as in Quine’s ‘Humility is a virtue’, and ‘water’, as in ‘Water is a liquid’. As against Putnam *et. al.*, it is my working hypothesis that generic (‘abstract’) uses of nouns in general, and NCNs in particular, are best approached by way of their concrete or specific cognates, and not, Platonistically, vice-versa.

²⁶ With Vere Chappell and Peter Hacker, among others, the contrast of MNs and CNs is explicitly and directly correlated with an ontic contrast between *stuff* and *things*. See Chappell’s ‘Stuff and Things’, *Proceedings of the Aristotelian Society* 71 (1971), 61-76; and also Hacker’s ‘Substance: the Constitution of Reality’, in P. French, T. Uehling and H. Wettstein (eds.), *Midwest Studies in Philosophy* 4 (Mineapolis, Minn.: University of Minnesota Press, 1979), 239-261. The fact remains, however, that although the concrete CN / MN contrast is not usually taken to be exhaustive, there are no generally agreed upon criteria for the relationship or difference between this and the concrete CN / NCN contrast.

²⁷ O. Jespersen, *The Philosophy of Grammar* (London: Allen and Unwin, 1924), ‘Mass-Words’, 198-201.

²⁸ Hacker avers, of his class of so-called stuff nouns, that such nouns ‘designate stuff, not things, or properties of things’, ‘Substance: the Constitution of Reality’, 247.

²⁹ D. Davidson, ‘Truth and Meaning’, *Synthese* 17 (1967), 304-323, p.103, fn.9.

³⁰ W. V. Quine, *Word and Object* (Cambridge, Mass.: M.I.T., 1960): 161.

³¹ T. Parsons, ‘An Analysis of Mass Terms and Amount Terms’, in *Mass Terms, some Philosophical Problems*, 138. Surprisingly, this remains the (one and only) collection of essays on ‘the problem of mass nouns’. Some central features of the leading treatments of such nouns are nicely illustrated in an essay by a perceptive (and indeed sceptical) sponsor of one such approach, in which the writings of a fair selection of other sponsors are cited and discussed. See Dean W. Zimmerman, ‘Theories of Masses and Problems of Constitution’, *The Philosophical Review*, 104 (1995), 53-110.

1. A proposed semantical solution to the so-called ‘problem of mass nouns’

1.0 *Metaphysics without bodies*. I want to begin now to consider in some detail what might perhaps be called the project of ‘entification’ within the realm of stuff. Quine’s suggestive observation, that we are prone to ‘breaking reality down into identifiable and discriminable objects’, has a peculiar relevance to any project of this sort; and one among the more lucid instances of just such a project is to be found in the work of Vere Chappell, who employs the MN / CN contrast to distinguish what he calls ‘words for stuff’ from ‘words for things’.

Chappell writes

It has been said that a mass noun ... does not “wholly determine criteria of distinctness and identity for individual instances” or “provide a principle for distinguishing enumerating and re-identifying particulars of a sort” (Strawson); and that, whereas a cat “is a particular thing, the concept ‘gold’ does not determine an individual thing in this way” (Anscombe). Such statements are true enough so long as they are taken to mean just that there is not such a thing as “one gold” or that, as Geach puts it, “the question ‘how many golds?’ does not make sense”; for this much is guaranteed by the grammar of “gold” as a mass noun. But it does not follow that what “gold” is used for or applied to ... as a general term, is not one single thing, as individual and capable of being counted as any cat.... Suppose it is true that this lump is gold ... This lump may be made into a ring, and the ring then cut up into a number of bits. There is something that survives these changes, some one thing that we can pick out and follow through them; and though this is always gold ... for it is this gold that survives, and the same gold that is first a lump, then a ring, and then a collection of bits—it is not always a lump. We need a count noun, therefore, that will be true of this thing and remain true of it so long as it keeps its identity as this same gold.¹

The author, it seems clear, here takes himself to make a point which is essentially semantic—a

point about the meaning of a word like ‘gold’, and specifically regarding its supposed semantic kinship with an ordinary substance-designating term like ‘cat’. The syntactic contrast notwithstanding, so he maintains, both ‘cat’ and ‘gold’ apply to discrete, concrete objects. What ‘gold’ is true of as a general term is always and straightforwardly a single concrete thing—‘as individual and capable of being counted as any cat’. In consequence, although there is no non-technical CN available for the item in question, a subject term such as ‘the gold in this lump’ in fact denotes a single discrete item, much as does, for instance, ‘the cat in this bag’. An appropriate CN which can serve to be true of this thing, it is proposed, is the technical CN ‘parcel of stuff’—‘parcel of sugar’, ‘parcel of water’, ‘parcel of gold’.² And it is precisely in the existence of such putative objects, that the existence of a substance such as gold (sugar, water, air, etc.) is said to consist—‘parcel’, as Chappell remarks, is intended to be ‘a noun as broad in its application as “stuff” itself.’³

Implicit in Chappell’s remarks, evidently, is some contrast between that familiar conception of body noted in the Introduction, and a substantially more general notion of physical object, independent of what I have dubbed ‘cohesive unity’—a notion conceived as suitable to anything which might be counted as both physical or concrete and, however broadly understood, as a single unit or as *one*. The gold in my ring, the ice in my G&T, the wax in this candle or the air now in my study is not a body in the familiar sense. Although whilst in my study the air may be said to constitute a discrete mass, it need not constitute a single compact and connected whole, it has no inner unity, etc..⁴ Nevertheless, it is plainly physical, and its potentially or actually scattered character is not taken to preclude it, on this kind of view, from counting as a single concrete unit.⁵ The idea of a physical object in this sense is not the notion of a natural kind or range of natural kinds, but a highly general abstract notion—an essentially formal concept, capable of including artificially individuated objects such as parcels of land, stretches of road, expanses of sand, and (perhaps more contentiously) arbitrary undetached body-parts, mereological parts and wholes and so forth.⁶ In regions where there is no discrete and separate body, so it may be said, there might exist a multitude of distinct concrete objects—the air in the upper half (quarter, eighth, sixteenth,

etc.) of my study, or equally, the air in all the world's museums, might be counted as an instance of exactly one such thing.

Now views of this genre—which have, in one way or another, been promoted by a variety of writers over the past half-century—attempt to extend the analytical / metaphysical horizon of the concrete beyond the range of discrete bodies, and to find a place for the category of stuff or matter as distinct from that of ordinary concrete ‘things’.⁷ And as such they deserve, it seems to me, to be seen as representing a significant advance beyond the world-of-bodies view. But if the introduction of a category of the physical distinct from that of bodies represents an expansion of the metaphysical landscape, there remains a question regarding the nature of this advance.

Chappell proposes, as the intuitive overall distinguishing principle for his conception of a physical object of this type, a parcel of stuff or matter, what he calls *form-indifference*.⁸ Semantically, the key thought is that it is at least a necessary condition of a word for stuff's having the distinct metaphysical significance which it has, that it not involve a ‘form-specifying’ component in its meaning.⁹ And it is fair to say that in general, when the question is raised of what semantic element constitutes the putative MNs as a distinct category of concrete nouns, the answer tends to be that it is precisely the absence of something variously described as a ‘reference-dividing’ element, or as a lack of ‘criteria of distinctness’, or of ‘boundary-drawing’ or ‘individuating’ principles.¹⁰ In this regard, Quine nicely represents the general view. To learn a body-designating, ‘full-fledged general term’ like ‘apple’, it is not enough, so he remarks, to learn ‘how much of what goes on counts as apple’: ‘we must learn how much counts as *an* apple, and how much as another. Such terms possess built-in modes ... of dividing their reference’. So-called ‘mass terms’, in contrast, do not thus divide their reference. Water, Quine writes, ‘is scattered in discrete pools and glassfuls ... still it is just “pool”, “glassful”, and “object”, not “water” ... that divide their reference.’¹¹ If such a noun is involved in the individuation of a full-fledged, ‘substantial’ object, it needs an individuating adjunct. There is after all no learning ‘how much counts as some water and how much counts as some more’; there is no such distinction to learn. Whereas any sum of

parts which are each an apple is not another apple, this lack of a boundary-drawing element confers upon the putative mass nouns what Quine calls ‘the semantical property of referring cumulatively’—‘any sum of parts which are water is water’, as he puts it. I shall call this criterion for distinguishing the putative category of MNs from CNs, in whichever of the various equivalent forms it is fleshed out, the ‘no built-in reference-division’ (no-RD) criterion.

1.1 *Metaphysics without physical objects.* Now so far as the processes of reformation and division of the gold in his thought-experiment are concerned, Chappell asserts with confidence that during these processes ‘there is something, some one thing, which survives’, and which survives so long as it ‘retains its identity as this same gold’. It is appropriate to ask, therefore, just what the parameters of this survival are, or what the criteria for the identity of ‘this same gold’ might be. The standard understanding of identity as a relation is reflected in the condition that, when expressions denoting individual objects are substituted for ‘x’ and ‘y’ in the schemata ‘Are x and y the same?’, ‘Is x at t1 the same as y at t2?’, etc., then borderline cases apart, the resulting questions can be expected to receive clear and unequivocal answers—either *Yes* or *No*. Objects x and y, if not the same, or non-identical (that is, if two) must be distinct; and if not distinct, must be identical (and so, be one). These remarks, I take it, are resounding truisms. Nevertheless, once we shift our attention to identity statements involving CNs, to ones involving concrete NCNs like ‘gold’—it is immediately evident that the formal properties of these statements do not match this standard understanding.

It is perhaps significant that Chappell himself speaks only of the expression ‘gold’ and what it designates; but from a purely semantic standpoint, this noun is hardly to be preferred to, for example, ‘sugar’, ‘ice’ or ‘wax’, or any other concrete NCN or ‘word for stuff’. We may however wonder whether Chappell would have quite so confidently affirmed the persistence of some object—‘some one item which survived the changes’—had the lump in question not been gold, but had instead been, for example, ice or wax—the wax, perhaps, of a

burning candle, or the ice in a gin and tonic. For there is here an obvious and rather striking contrast with the status of a substance like a cat.

On the one hand, then, suppose that I place a cat inside a bag at t_1 . And allow, furthermore, that 'the cat in this bag' denotes continuously between t_1 and t_2 . Then regardless of whether its identity is somehow metaphysically guaranteed or not, we have the very best of reasons to believe that what is denoted by this phrase will remain the very same between t_1 and t_2 (the fact that the cat in question might weigh less at t_2 than t_1 notwithstanding). And suppose that, in the meanwhile, you are preparing a gin and tonic; at t_1 ice is added to the drink, and remains in the drink between t_1 and t_2 . Realistically, we may suppose that once it has been added, the ice begins to melt, so that at $t_1 + \delta t$, there is less ice in the G&T than at t_1 ; and we may suppose also that by t_2 the ice has entirely disappeared. Then among other things, like 'the cat in this bag', 'the ice in your G&T' will *ex hypothesi* denote continuously between t_1 and t_2 . But this mere fact of continuity provides no reason whatsoever to believe that what is denoted will remain the same amount of ice between these times, or indeed from one moment to the next; and given our realistic assumption that the ice is slowly melting, then sameness of amount through time is automatically precluded.

But not only do we have no sameness of amount through time—there is an obvious sense in which (while we would wish to affirm that ice persists through $t_1 + \delta t$) we are inclined to deny that just the ice which was added to the G&T at t_1 persists through $t_1 + \delta t$ —to deny that the ice at $t_1 + \delta t$ is strictly speaking the same ice as that which was added at t_1 , precisely because it is less. There is a sense in which a necessary condition for the identity of ice—some ice, it should perhaps be said—through time is what might be called 'quantitative' identity, or sameness of amount. If some of the original ice has melted, that ice which has melted has plainly ceased to be, and so has compromised the identity of the ice which was originally in the drink at t_1 (though for all that, needless to say, the glass may still contain the same ice cube or cubes).¹²

However, although we are inclined to endorse the proposition [i] that, so far as its identity and persistence are concerned, some ice, a certain amount of ice, cannot survive any

change in its amount—less ice can hardly be identical with more—it also seems completely natural to affirm [ii] that only when all of the ice which you added to your drink has melted, will that ice have finally ceased to be. To say that the ice has gone, has disappeared, is clearly to say that all of it has gone. Indeed, if we chose to say that some ice would cease to be, just as soon as any of it melted, as soon as it ceased to be the same amount, then it would seem to follow that ice could never be said to *melt*.¹³ And were we to pursue a straightforward, conventional predicate-calculus account of this metaphysically interesting situation, we would then be confronted with the following propositions: from [i], it would follow that at $t_1 + \delta t$

$\sim[\exists x][x = \text{the ice you added to your drink}]$,

while from [ii] it would follow that

$[\exists x][x = \text{the ice you added to your drink}]$.

Since both of these cannot be true, at least one of them must misrepresent the situation it purports to capture, yet both involve the same semantic postulate. Evidently, to the extent that they apply at all, the concepts of identity-criteria and persistence-conditions do not apply in the same straightforward manner to what expressions like ‘the ice’ denote as to what expressions like ‘the cat’ denote.¹⁴

Notice now that there is no paradox or incoherence in the propositions [i] and [ii] advanced above, nor any violation of the law of the excluded middle; these propositions are not contradictories but contraries. The sense in which we want to say that the ice persists, only if it is the same amount, is of course the sense in which it all persists; whereas the circumstances under which we wish to say that it has ceased to be are circumstances in which none of it persists, or in which all of it has ceased to be. And these remarks could make no sense whatsoever, were what ‘the ice’ denoted understood in the way that Chappell proposes, as a single object, individual or thing—in other words, were ‘the ice’ itself a semantically singular description. That would, indeed, engender outright paradox. To say both that some object persists or retains its identity only so long as it remains the same amount of stuff of some particular kind, and also that it does not cease to be until all that stuff has disappeared,

is simply incoherent—for an individual, loss of identity coincides with extinction, and so long as it is not extinguished, it cannot fail to persist. But the above remarks were not incoherent: unlike ‘the piece of ice’, ‘the ice’ cannot denote a single individual, and the concept of an amount of stuff is simply not that of an individual persistent. The view adopted by Chappell involves the imposition of what is in effect an *alien logic* on concrete NCNs and what these words denote.¹⁵

1.2 *Persistence, things and stuff.* It is a characteristic and perhaps essential feature of bodies quite generally that they endure, taking up not only space but also time. The concept of identity for such things is then *inter alia* a concept of persistence, or numerical identity through time. It is part of the very concept of such a (kind of) object as a worm, a tree, a planet or a star, that (as Aristotle especially emphasizes) it remains one and the same through a wide variety of sorts of changes. More precisely, it is part of the concept of an individual substance, that its existence is bounded by a pair of limiting events—its formation, appearance or creation and its disappearance, dissolution or extinction—such that although it may undergo all sorts of changes, between these limiting events the individual perforce maintains a stable, fixed identity as that same individual. Having come into being, then truistically, unless and until it ceases to be, the object is bound to persist as one and the same, to remain the very same individual thing.¹⁶

On the other hand it is a feature of stuff of any particular kind that it does not come full-blown into being as of some particular amount, possessed of some determinate magnitude, subsequently proceeding to maintain a stable, fixed identity for some finite extent of time, and then more or less abruptly disappear. Particular kinds of stuff, unlike particular kinds of things, typically come to be and cease to be through continuous and progressive transformations in other kinds of stuff—transformations which typically or often involve a growth in the amount of stuff of one kind and a diminution in the amount of stuff of some other kind. Ice ceases to be in melting and becoming water; there comes to be more water because less ice. Conversely, the coming into being of ice—its formation, the transformation

through crystallization of a liquid—is not to be distinguished from an increase in the amount of ice there is within some region of space-time.¹⁷ Flesh comes to be through the complex transformation of fruit, vegetables, grains, and the parts of animals; there comes to be more flesh because less fruit, etc. Wax ceases to be in burning, going up in smoke; there comes to be more smoke and fumes because less wax. Particular kinds of stuff incorporate principles not so much of conservation as of transformation, as observed in everyday experience and theorized in chemistry. And while there may perhaps be, in these transformations, a conservation principle for mass or some such quantity—for the amount of stuff perhaps, however this is understood, where ‘stuff’ is not confined to some specific kind—there is evidently no such thing as a principle of conservation of amount for particular kinds of stuff. While it is natural to think of stuff of a kind (whether, for instance, ice, water, fog or snow) as persisting, to speak of the presence of a certain amount of stuff of a particular kind in a particular region is not to speak of something with a built-in feature of persistence.¹⁸ Again, it seems clear that not all ‘continuous’ transformations in matter are of the same sort. The transformation of grape juice into wine, or wine into vinegar, are not transformations in which there comes to be more wine and less juice or more vinegar and less wine, where there is some clear demarcation between distinct kinds of stuff. Here, rather, one kind of stuff itself undergoes gradual qualitative transformation into another kind of stuff, and there is no clear demarcation between the two kinds of stuff themselves—such differences between ‘kinds’ do not seem clearly distinct from differences of degree.

The instability and flux of ‘designated matter’, its absence of built-in identity through time, is noted in effect by Lucretius, who, in an eloquent passage on the omnipresence of change, writes:

Again, in the course of many annual revolutions of the sun a ring is worn thin next to the finger through continual rubbing. Dripping water hollows a stone. A curved plowshare, iron though it is, dwindles imperceptibly in the furrow. We see the cobble-stones of the highway worn by the feet of many wayfarers. The bronze statues by the city gates show their right hands worn thin by the touch of travellers

who have greeted them in passing ... whatever is added to things gradually by nature and the passage of days, causing a cumulative increase, eludes the most attentive scrutiny of our eyes. Conversely, you cannot see what objects lose by the wastage of age ... or at what time the loss occurs ... ¹⁹

This flux, as he remarks, is largely imperceptible. Although the same persisting chunk of ice, or bronze or stone or gold, need not, and very likely will not, be the very same exact amount of ice or bronze or stone or gold through time, the observed constancies of bodies, Aristotle's discrete substances, tend to prevail, in our experience and thought, over this often unseen change and ever-present flux of stuff. While we may, in an informal sense of 'refer', refer demonstratively to the ice in your G&T as *this ice*, the ice may nevertheless, *pace* Heraclitus, be melting or forming, hence changing in amount, even in the course of uttering the phrase 'this ice'. What this is not, therefore, is reference in the full-fledged, 'object-involving' sense.²⁰ In his relatively neglected work *Timeus*, Plato (following Heraclitus) writes that where we

experience something perpetually changing—fire, for example—in every case we should speak of it, not as 'this', but always as 'what is of such and such a quality', nor of water as 'this', but always as 'what is of such and such a quality' ... they slip away and do not wait to be described as 'this' or 'that' or by any phrase that exhibits them as having permanent being'.²¹

Returning once more to the G&T, to successfully apply an 'object model' to the melting ice, it would seem necessary to invoke a mereological conception of temporal stages or parts, such that the melting of the ice could be understood in terms of changes which would include, *inter alia*, the progressive disappearance of a series of maximal ice-objects. In other words, to bridge the 'gap' between the purely formal category of object and the category of stuff would seem to require some fairly elaborate strategy for the reduction of the continuous to the discrete—the replacement of a steady transformation with a series of discrete time-slices. And indeed, it seems to me, as a purely and explicitly reductive strategy, there could be no objection to such a proposal. But it would not and could not acknowledge

the fact that the ice which was added to the G&T will not have ceased to be until all of it has ceased to be—and not merely as soon as the initial amount of ice in the drink is ever so slightly diminished. And as such, it could constitute no genuine analysis. In failing to thus address the actual formal characteristics of concepts such as that of ice, this kind of strategy cannot but be counted as an instance of ‘revisionary’ metaphysics—and so, unhelpful in the project here at issue, which is simply one of understanding, rather than replacing, the actual category here involved. One way or another, then, application of the discrete-object model involves the imposition of what I have dubbed an alien logic on NCNs like ‘gold’ and ‘ice’, and thereby upon the category of stuff.

Not only is there a substantial gap between the present application of the object-model, and its unproblematic application to such things as dogs and trees and planets, in effect to the category of body or individual substance, it is here quite simply the wrong model. Its semantic presuppositions are in direct conflict with the actual semantics of NCNs. Not perhaps surprisingly, the application of this model goes hand in hand with a tendency to make light of the distinctive grammar of the so-called MNs, in effect already noted in Chappell’s approach. Indeed it is sometimes proposed to make significant ‘adjustments’ in their quantificational syntax, in order to reflect what is alleged to be their ‘true’ semantics.²² In such cases, the nature of the designata is somehow in effect decided without much regard for prior scrutiny of the semantic status of the designators. A broadening of vision beyond the realm of body is indeed called for—but it is not one which simply re-imposes the category appropriate to body, that of concrete objects, at a higher level. The notion of an amount of stuff—the three ounces of ice, as we may suppose, which was added to your G&T, or the beer now in a certain jug, or the wax of a candle (burning or not)—is not that of something which retains a built-in, fixed identity through time. And given the very commonplace character of the kinds of changes I have here discussed, one is inclined to wonder why, apart from his focus on the relative stability of gold, Chappell would suppose the contrary.²³

1.3 *Unity, identity, and the semantic turn.* Chappell writes that ‘only what is itself one to

begin with can be one and the same with anything ... no identity without unity'.²⁴ Evidently, out of context, the initial assertion that 'only what is itself one to begin with can be one and the same with anything' could be read as the merest truism. But that this is not what Chappell intends is clear from the subsequent assertion 'no identity without unity'—the purport of his initial statement is just that only what is one to begin with can be the same (or indeed not the same) with anything whatever. And here there is a positive reason, of sorts, for the view that such non-count expressions as 'the ice in your G&T', 'the gold in this lump', and so forth, denote a single 'discrete and identifiable object' each: they can enter into statements of identity. The existence of a true statement of identity (or equally, no doubt, of non-identity) it is supposed, is a sufficient reason for believing in the existence of a corresponding entity (object, individual, thing), or in the case of non-identity, of corresponding entities—in other words, Quine in reverse gear. Expressing what appears to be an equivalent view, Helen Cartwright considers the identity statement

The gold of which my ring is made is the same gold as the gold of which Aunt Suzie's ring was made,

and asserts flatly that, given the truth of this statement, 'there is one thing which that gold is or constitutes'.²⁵

But these beliefs seem clearly to be false. Suppose, for instance, that we are given a true statement of identity of the form

The ___ here = the ___ there.

May we, purely and simply on the basis of a statement of this general form, infer that exactly one entity is thereby designated? Or, conversely, suppose that we are given a true statement of non-identity of the form

The ___ here ≠ the ___ there.

May we, on the basis of a statement of this form, infer that the ___ here is one ___ and the ___ there is another? The answer to both questions, it would seem, is plainly in the negative. Suppose the resulting sentence to be

[1] The sheep at p1, t1 = the sheep at p2, t2.

The mere existence of the identity-sign does not oblige one to read this sentence as singular, though if the occurrences of ‘sheep’ here are read as singular, then trivially, indeed, exactly one entity is thereby designated. But if the occurrences of ‘sheep’ are read as plural, then equally trivially, this will not be the case. To insist that the only legitimate substituends in the above formulae are semantically singular terms—where a singular term is just defined as one which designates a single entity—would be to simply beg the question. And if the question is not thus baldly begged, then the assumption that the formula require a single entity seems evidently false.

Nothing stands in the way of grammatically well-formed identity-statements having the plural structure of the (non-singular) reading of [1], or again of

[2] Smith and Jones = Brown and Black,

in which (given that Smith is not identical with Jones, etc.) the names of exactly two distinct entities flank either side of the the identity-sign.²⁶ In short, the mere existence of a grammatically well-formed true statement of identity having the structure

The ___ at p1, t1 = the ___ at p2, t2

is clearly insufficient to establish that there is some one thing that ‘we can pick out and follow’ between p1, t1 and p2, t2. Only if it were already established that the terms which filled the blanks were singular, would such a claim be (trivially) justified. Identities involving non-count and plural nouns have much in common, and this is so because while NCNs are not plural, they are, at the same time, like plurals in being non-singular. This is a simple consequence of the semantic status of these nouns, as I hope now to show.

1.4 *A proposed semantical solution to the so-called ‘problem of mass nouns’.* While the contrasts between CNs and NCNs are commonly marked, at least in English, by the syntax of the terms, they are at the same time, and in fact primarily, semantic contrasts between expressions—contrasts of meaning which entail, in certain sentential contexts, contrasts of truth-conditions.²⁷ I shall designate these meaning-contrasts contrasts of *semantic value*. To the speaker of a language, and barring ambiguities, the semantic value of an expression or its

occurrences is a more or less intuitively obvious feature of its meaning (a feature which indeed is commonly, although not always, signalled by the syntax of the expression itself). To take the very simplest type of case, the plurality of ‘dogs’ is syntactically marked by its ending with an ‘s’; whereas the plurality of an occurrence of ‘sheep’ has no such distinctive feature. I characterize such straightforward cases as that of ‘dogs’, in which the semantic value of an expression is displayed in the distinctive syntax of that self-same expression, as cases in which semantic value is directly marked by syntax.²⁸

Now the most fundamental feature of CNs or their occurrences, I suggest, is precisely that they are semantically either singular (‘thing’, ‘apple’, ‘piece of clothing’) or plural (‘things’, ‘apples’, ‘clothes’). Or rather, it is typically but not always the case that CNs or their occurrences have two distinct semantic values, both singular and plural, whether these values are syntactically distinguished or not. And with the syntax of a CN in English, it is also typically the case that the mere presence or absence of the plural ending is sufficient to establish its semantic value. Not uncommonly, this direct mark is the only indicator of semantic value in a sentence containing such a noun: the syntactic contrast of

The dog will bark

and

The dogs will bark

may serve as representative of this. But whether reflected in the syntax of a noun or not, the contrast of singular and plural is fundamentally semantic. Thus, for example, though the difference is not reflected in its syntax, ‘sheep’ is sometimes singular and sometimes plural—and that, in the semantic sense. While in

The sheep is grazing

‘sheep’ is manifestly singular, in

The sheep are grazing

it is no less plainly plural. The contrast in the semantics of singular and plural nouns shows up as a contrast of truth-conditions, in contexts such as those of the two sentential contrasts just remarked. In the case of the ‘dog’ / ‘dogs’ sentences, for example, and assuming an

appropriate context of utterance, then (as Russell in effect observes) the truth of the former sentence, unlike that of the latter, is contingent upon the existence of exactly one such dog.²⁹

From the standpoint of ontology, the contrast of singular and plural is of no particular significance; or so it would appear—while ‘dog’ is singular, and ‘dogs’ is plural, both ‘dog’ and ‘dogs’ are merely true of *dogs*. Dogs, that is, are all *there is* which corresponds to either ‘dog’ or ‘dogs’; although to complex nouns like ‘pack of dogs’ there corresponds, of course, a different and more complex type of object. But from the distinct standpoint of semantics—the standpoint from which correlations between words and world loom large—the contrast between singular and plural is of genuine significance. It is a matter of the meaning of ‘singular’, that nouns or their occurrences which are singular are true of objects one by one; and it is a matter of the meaning of ‘plural’, that nouns which are plural are or may be true of several things at once. Thus ‘dog’ is true individually of this dog, that dog and so on, while ‘dogs’ is true collectively or plurally of these dogs, those dogs, and so on. Very roughly: while occurrences of ‘dog’ are correlated one to one with dogs, the correlation between ‘dogs’ and dogs is standardly one to many.³⁰

The point is perhaps a delicate one; I take the application of the concept of multiplicity to call for the presence of more than one object (it seems to be a necessary feature of the concept of ‘the many’ that they should number more than one) whereas the general meaning or semantic character of the plural is simply *at least one*. This is especially evident in quantified, non-referential contexts; a plural noun, for example ‘dogs’, combines with the quantifiers ‘no’, ‘any’, and ‘some’—‘There are no dogs here’, ‘Are there any dogs here?’, ‘There are some dogs here’, ‘There are dogs here’—and in all these cases it means, in effect, ‘at least one’ (to state the obvious, it would, for instance, be false to deny ‘There are dogs here’, if there were just one dog in the vicinity). It is for this reason that the idea of a ‘standard’ one-many correlation which I here intend is that of a referential correlation, whereas the contrast of singular and plural evidently extends beyond referential uses of nouns, and includes uses in quantificational contexts in which it would be incorrect to make a connection between the plural and ‘the many’ or with multiplicity. But then even in

referential contexts, it seems wise to speak only of a standard correlation between plural reference and multiplicity; for it is arguable that the use of a plural referential expression does not actually demand a number of objects greater than one. The sign on an enclosure at the zoo might read ‘The snakes in this enclosure are dangerous’, and this could be true even if there were only one; and a successful demonstrative reference—‘Those snakes are dangerous’—might be made while believing, incorrectly, that a certain tangled ball-like mass was composed of several snakes. There would seem to be a kind of implicature in the use of the plural, both in definitely referential and perhaps also in positively existential contexts, to indicate a belief on the part of the speaker that there is more than one object of the type in question; and no doubt the speaker is standardly correct. The contrast between unity and multiplicity, ‘the one and the many’ may then be said to be implicit in the syntax of the typical or standard English CN; but the manner in which this is so is not entirely straightforward or direct. Furthermore, the typical or standard English CN by no means exhausts the class of English CNs; semantic value and semantic difference are not always directly marked in syntax. Where something is a so-called zero-plural noun—like ‘fish’, ‘deer’, and ‘swine’ along with ‘sheep’, syntactically invariant between its singular and plural occurrences—the contrast of singular and plural is not reflected in the character of an occurrence of the noun itself.³¹ Here, semantic value may be indicated by the character of the quantifier expression, if any, with which the noun is associated—‘All fish must swim’ versus ‘Each fish must swim’—or again by that of the verb; ‘The deer run’ versus ‘The deer runs’. Yet again, semantic value may not be marked syntactically in any way at all; utterances of one and the same sentence type might have either singular or plural truth-conditions, as with ‘The sheep slept’ or ‘The scissors are in the kitchen’, and a broader context will be called for to achieve a disambiguation.³² Depending on the expression in question, and on the context in which it occurs, then, there are all manner of syntactic tests or indicators of semantic value; and sometimes none. However, a general posit which informs this work, and which it is in part my purpose to substantiate, is that where they do exist, syntactic features commonly just are the markers of semantic features, and in particular, that the many wrinkles

notwithstanding, the syntax of common nouns, along quite crucially with that of their associated quantifiers, is a not-so-far-from perfect guide to their semantics.³³ Surface syntax is not as such theoretically important—languages differ, some are highly inflected, others not, etc.—but it can be very useful. We get along without syntactically marked singular / plural distinctions with lots of words; but marked distinctions preclude the need to disambiguate where the context is insufficiently rich to do the job. (Alternatively, one might say that syntax really *is* important, just insofar as it marks important semantic phenomena).

Given, then, some account of the syntax and semantics of ‘singular’ and ‘plural’ such as the one I have briefly gestured at above, our basic question concerning NCNs may be put as a request for a parallel account.³⁴ And so far as such nouns are concerned, their most fundamental feature consists precisely in the fact that they are non-count. But just what is the meaning of ‘non-count’, at least insofar as this bears on the class of concrete nouns? The question seems open to a relatively simple and straightforward answer. Since the basic feature of CNs, or their occurrences, is that they are semantically either singular or plural, to be non-count (‘stuff’, ‘water’, ‘clothing’) is therefore to be neither singular nor plural. NCNs are then semantically non-singular, simply in virtue of being non-count; and it is this which underlies their often noted kinship with the plural (plural nouns themselves, self-evidently, are non-singular). The relationships between the semantics of CNs and NCNs may thus be briefly represented in the following tableau (in which, in effect, the equation ‘Non-singular + non-plural = non-count’ is affirmed):

Table I: three great semantic categories³⁵

	1. Singular (‘one’)	2. Non-singular (‘not-one’)
3. Plural (‘many’)	X X X	‘things’ ‘apples’ ‘clothes’
4. Non-plural (‘not-many’)	‘thing’ ‘apple’ ‘piece of clothing’	‘stuff’ ‘water’ ‘clothing’

The inclusion of a contrast between ‘clothes’ and ‘clothing’, alongside that of ‘apples’ and ‘water’, serves to emphasize the point that these contrasts are first and foremost logico-semantic or quasi-semantic, as opposed to metaphysical or ontic contrasts (it being assumed that the ‘clothes’ / ‘clothing’ contrast itself is essentially a semantic one).³⁶ The contrast ‘lies in the terms’, as Quine puts it, in that while there are units of clothing, furniture, etc. (individual pieces of clothing, furniture, etc.)—indeed while collective nouns like ‘clothing’ and ‘furniture’ might be said to be ontologically equivalent to cognate CNs—such NCNs are no less semantically non-count than non-collective nouns like ‘water’ and ‘mashed potato’. Thus although there is a straightforward sense to talk of the smallest number of clothes, namely, a single item of clothing, there is no determinate sense to talk of the smallest amount of clothing—is one woollen winter coat the same amount of clothing as a single nylon stocking?

Quine also tells us that ‘the quest of a simplest, clearest overall pattern of canonical

notation is not to be distinguished from a quest of ultimate categories, a limning of the most general traits of reality'.³⁷ But it is difficult to see how this is to be squared with his former quoted comment; for while—as Table I suggests, and as elaborated further in the sequel—an appropriate logic and semantics for NCNs must be contrasted with that for CNs, it seems clear that this itself entails no corresponding contrast in ontology. It is perhaps arguable that so far as categories of semantics are concerned, NCNs do represent an ultimate level of sorts; yet given the ontological equivalence of words like 'clothing' and 'furniture' with words like 'clothes' and 'pieces of furniture', it is difficult to see how NCNs as such could represent one among the most general traits of reality. Quine's view must surely be regarded with some scepticism: the semantic categories of *unity*, of *multiplicity* and *quantity*, as they might be called, call for no matching taxonomy of being.

It will be evident there is a difference between the implications of this proposed semantical taxonomy and part of that grammatical taxonomy which is embodied in the average dictionary. The words 'is' and 'this', as they occur in the sentences

Some clothing is made from petroleum by-products
and

This clothing belongs mostly to you,
would tend to be classified by traditional grammars as singular. However it is an implication of the above proposals that their primary and most general classification should be as semantically non-plural, whether singular or non-singular. This is not, of course, to deny that occurrences of 'is', in the appropriate (and most theoretically familiar, 'paradigmatic') contexts, might be correctly classed as singular, since on my account, the singular is just a species of non-plural. But to designate these occurrences as 'singular' as such—if this means something more than just 'non-plural', as it surely ought to—cannot, it seems to me, be right. The appellation has semantic import; to call a verb or noun phrase 'singular' imputes a value of just one; whereas if I am right, this imputation must, with NCNs, lead to incoherence. The traditional taxonomy is not however carved in stone, and is hardly a consequence of sustained reflective thought, or of any systematic theory of grammar, but merely of such

superficial observations as that verbs like ‘is’ are commonly enough conjoined with CN phrases which are (self-evidently) singular. ‘Syntax’, as Leech observes in this connection, ‘is much less rich in dimensions of contrast than is semantics’.³⁸ It is then worth emphasizing the distinction between the intrinsic syntax of a word—the ‘objective facts’ concerning its syntactic features, which may very well embody or reflect its (actual) semantic powers—and the efforts of grammarians to incorporate these features in taxonomy, the corresponding theory of its syntax (which may sometimes get it, along with its semantic implications, wrong). I perceive no tension, then, between the accounts I offer of the actual syntax and semantics of NCNs. It is crucial that the grammar of a term—in this case a NCN—not be judged merely on the basis of occurrences with verbs, but also with articles, quantifier-expressions, and so on.³⁹

But now the fundamental obstacle which we will face, in setting out to understand and explicate the semantic categories of Table I, consists in what I find to be the deeply puzzling and even mysterious influence of a related albeit loosely interconnected set of views or attitudes and doctrines—largely, it would seem, spontaneous—acceptance of which creates serious difficulties for the successful explication of these categories, and some of which I take to be straightforwardly incompatible with a satisfactory explication of the categories. I have alluded to these attitudes and doctrines in the Preface; and have already noted at least one of them at work in the thought of Vere Chappell. The more central of these views or doctrines will display themselves as we proceed throughout this work; but they may perhaps be summed up as representing the strange hegemony of the notion of *the unit*, or what I also describe, in the title of Chapter Two, as being ‘in thrall to the idea of The One’.

1.5 *Non-singular identities and definite non-count descriptions.* It is a consequence of the non-singularity of NCNs that the various formal roles which these nouns play, including those involved in quantification, denoting, inferential relationships, and statements of identity, are all semantically non-singular. Here I make some preliminary observations only on the matter of denoting. Now to say that definite non-count descriptions are non-singular is

to say, among other things, that they do not denote in accordance with Russell's Theory of Descriptions—that their denoting mechanism is other than the one identified by Russell. For Russell's theory is explicitly a theory of semantically singular descriptions—of '*the* in the singular' as Russell infelicitously puts it—where such a description is one commonly having the form of 'the F' and, crucially, purporting to denote a single F, or denoting at most a single F. And according to Russell, it is a necessary condition of a definite description's counting as singular, that if the description (or sentence containing it) is to denote, the contained general term or concept 'F' should itself apply, contextually or otherwise, uniquely. This seems to me to be correct; and it seems, furthermore, that the nature of NCNs is such that they are simply incapable of having unique application.

I shall now briefly illustrate the central Russellian point. Consider then a sentence whose semantic value is, on account of ambiguity, unclear. For example,

[1] The sheep in Russell's meadow slept

may be read as either singular or plural, but such a sentence can be disambiguated in context by its truth-conditions. Thus if 'the sheep in Russell's meadow' is singular—if, that is, it purports to denote a single sheep—then the sentence must be construed as

[2] The one (or single) sheep in Russell's meadow slept,

which in turn entails

[3] There is exactly one sheep in Russell's meadow.

It follows that if the description 'the sheep in Russell's meadow' purports to designate a single sheep, then the contained predicate 'sheep in Russell's meadow' itself must be supposed to be true of just one thing—that is, to apply uniquely. If on the other hand 'the sheep in Russell's meadow' is non-singular, no such implication will obtain.

Given, then, this bonding of the singularity of a description with the uniqueness of application of its contained predicate, it follows that non-count descriptions cannot be construed as singular. Returning in this connection to the consideration of Chappell, it seems clear that if, by parity of reasoning with the above,

[1'] The ice in your G&T comes from a glacier

were semantically singular, denoting a single object, individual or thing—a Chappell-style ‘parcel’ of ice, perhaps—then it could not but mean

[2'] The one (or single) parcel of ice in your G&T comes from a glacier.

And this in turn could not but entail

[3'] There is exactly one parcel of ice in your G&T.

However, since whatever stuff is some of the ice in your G&T must also be ice in your G&T, [3'], hence [2'], could not generally be true. The fact that ‘the ice in your G&T’ can denote, consistently with its contained predicate ‘ice in your G&T’ having what may be called—to coin a metaphysically neutral, purely semantic concept—*multiple applicability*, implies that ‘the ice in your G&T’ cannot possibly mean ‘the one parcel of ice in your G&T’. It cannot, in short, be semantically singular; there can be no such single thing or object as the parcel of ice in your G&T. As I had urged in considering Chappell, the ice is no single unit; *a fortiori*, it is no constituent unit in the extension of ‘ice’. Insofar as the semantics of the term are concerned, there are no constituent units in the extension of ‘ice’ (there are, truistically, constituent units in the extension of ‘piece of ice’). I return to Russell and his critics in more detail in the sequel.

Turning briefly now to statements of persistence and identity, it is hardly surprising, in light of Table I, that close parallels to the behaviour of a definite non-count description and its denotation come into view, when we consider statements involving grammatically plural descriptions. Questions of persistence and extinction concerning what ‘the ice’ denotes may be fruitfully compared with similar questions concerning what, for instance, ‘my parents’ denotes. Thus consider the question of the persistence of my parents (referred to in just such a plural or collective mode). There is an initial situation in which my parents are alive; and there is a subsequent situation in which, sadly, they are not. Now the statement ‘My parents are alive’ counts as true, only if both are alive, while ‘My parents are not alive’ is most naturally counted as true only if neither are. Here then, we have a pair of contraries. Each of the statements also has, of course, its contradictory; hence the need to distinguish between internal and external negation, and to recognize two forms, or two senses, in which

a statement may be denied.

The force of the distinction is particularly striking in the case of sentences which are (as the ones I have considered are) either explicitly or implicitly quantified. In contrast with ‘My parents are not alive’, it is plausible to construe ‘It is not the case that my parents are alive’ as asserting only that at least one of them is not. It is possible, therefore, to regard non-singular denials as ambiguous. If one but not the other of my parents is alive, then it is possible to affirm both ‘It is not the case that my parents are alive’ and ‘It is not the case that my parents are not alive’—though it is no doubt simplest and best to say just ‘One of them is and one of them isn’t’. It follows that the question of a (single) criterion for the persistence-conditions of my parents, thus collectively or plurally referred to or denoted, is simply a non-question; there is no such (single) object, no such unit; and there can be no such one criterion. Similarly, when the ice in your G&T has partially melted at $t_1 + \delta t$, it is possible to affirm both ‘It is not the case that the ice you added still exists’ and ‘It is not the case that the ice you added no longer exists’; though much as with the plural case, it is surely simplest and best to say ‘Some of it does and some of it doesn’t’. Hence, presumably, the existence of a certain spontaneous tendency to be somewhat equivocal on the question of whether the ice is or is not the same ice over time. Here too, the notion of a criterion of identity or persistence fails to gain a purchase, for the simple reason that there can be no one individual to which such conditions are applicable. Again, in the case of a denial of a plural identity-statement having the form of

[4] The Fs here are the same as the Fs there

—said, perhaps, while pointing to two photographs—to say that these Fs are not the same as those Fs is perhaps most naturally understood as an internal negation, an affirmation of the contrary, to the effect that no one of these Fs is identical with any one of those Fs, and vice versa. But again, the negation may also be construed as an external negation, such that if it is not the case that these Fs are the same as those Fs, we may infer only that either not every one of these Fs is identical with some one of those Fs, or not every one of those Fs is identical with some one of these Fs. If, furthermore, in such a case, the divergence is

relatively small, there can be nothing in natural English to prevent one's affirming a statement of the form

[5] These Fs are roughly the same as those Fs,

or again, to prevent one's saying that [4] is roughly or approximately true—that it is an identity in a 'loose and popular' sense of the term.⁴⁰

1.6 *Syntax, semantics, metaphysics: bridging the apparent gaps.* Although I have been concerned to stress the essentially semantic nature of the overall CN / NCN distinction itself, it is evident that there are ontic category-differences within the semantic category of NCNs. Thus, contrast the two groups of NCNs (a) 'furniture', 'footwear' and 'clothing' and (b) 'rubble', 'gravel', 'sand' and 'snow', with what might be called the 'pure' NCNs of group (c) 'ice', 'mashed potato', 'wine' and 'water'. The collective nouns of group (a) may be said to be object-involving, in the sense that they are semantically 'atomic'—there are units of furniture, clothing, etc., not divisible into smaller units of furniture, clothing, etc. It is part of the meaning of such an NCN that like a typical CN, it ranges over discrete pieces, in a quite specific sense of 'piece'—units or elements of what the noun denotes; indeed the very identity of some furniture is not to be distinguished from that of some pieces of furniture. For this reason, the identity of the denotata of group (a) nouns is independent of the identity of the materials of which those denotata are composed; some furniture can survive some loss of constituent materials—wood, cloth, stuffing etc.—and remain the same (arguably, indeed, it is conceivable that all of the materials of some furniture be replaced over time while the furniture retains its identity).⁴¹ But the same can hardly be said of the nouns in groups (b) and (c). At any rate, it is here, in the context of semantical distinctions between varieties of NCNs, that the 'nesting' of issues of ontology within the overall semantic framework of this argument becomes apparent.

The nouns of group (b), though not thus atomic, are object-involving in the related sense that they may be said to be semantically particulate: it's part of their meaning that what these words denote consists of discrete grains, pieces, flakes, bits, etc. etc.—the difference

now being that the identity of some sand (gravel, snow, rubble, etc.) is not dependent on that of any particular constituent items—grains, pieces, flakes or bits; the stuff may, for example, be further crushed or pulverized and yet remain the same. Finally, and in contrast with both groups (a) and (b), no such object-involving concepts enter into the meanings of the group (c) terms. Whereas, for instance, to say that there is furniture or clothing in some region is to say or imply that there are constituent pieces or units of furniture or clothing in that region, to say that there is wine or mashed potato in some region is not to say that there are objects characterizable as ‘pieces’ or ‘units’ of wine or mashed potato in that region. In the nature of the case, there is here no comparable notion of a constituent piece or unit. There are, plainly, aggregate units containing or composed of wine and mashed potato, as well as aggregate units composed of apples, clothes, clothing, sand, snow and footwear—there are mounds of mashed potato, glassfuls, bottles, and drops of wine, boxes of apples, heaps of sand, piles of snow, piles of clothes, bales of clothing, heaps of footwear, and so forth—but it is one thing to compose or constitute a range of objects, and quite another to consist of objects. Insofar as there is a manifestly ontological distinction associated with the category of NCNs, it is evidently to the non-atomic, and perhaps especially to the sub-class of ‘pure’ NCNs, that we must look.

But regardless of the ontically distinct sub-categories of NCNs, there is a single semantic or quasi-semantic contrast between at least the concrete CNs and NCNs. The overall count / non-count contrast may be said to concretely embody two quite fundamentally distinct modalities for the determination and specification of amount or quantity. CNs embody one such modality—trivially, that of counting through the use of natural number-related words—‘one horse’, ‘so many things’, ‘too few clothes’, ‘a dozen eggs’, ‘a single professor’, etc. And in this intuitive sense, counting is applicable to the denotata of CNs exclusively. NCNs, by contrast, involve a form of what is naturally called *measurement*—‘so much cotton’, ‘too much stuff’, ‘so little water’, ‘five tons of clothing’, etc.. And while the denotata of NCNs may be only measured and not also counted, measurement as such may be applied to the denotata of both NCNs and CNs alike—we may for instance speak equally of

75 ccs of water or of poppy seeds, of 5.5 kilos of either clothing or of apples.

1.7 *Counting and measuring*. Intuitively, and collapsing the contrast of unity and multiplicity into a single category, counting may be described as the determination of ‘discrete’ or ‘discontinuous’ quantity, and measuring the determination of ‘continuous’ quantity. Thus in contrast with counting, any real number can in principle be assigned to the measure of an amount of something. The concept of weight, for instance, is such that it is intelligible to assign a weight of n kilos, where ‘ n ’ represents an integer, or of $n \times \pi$ kilos, to a quantity of snow, rice, apples, clothing, underwear, water, etc. This metaphysically neutral way of grounding the count / non-count contrast should not, it seems to me, be particularly contentious. However, between discrete and continuous quantity, discrete quantity seems clearly privileged. There is exactly one non-relative way of determining the quantity (i.e. number) of, say, eggs in a carton or clothes on a clothes-line, which is precisely to count them.⁴² But there is no such unique way of determining, say, ‘the’ quantity or amount of clothing or cotton in a warehouse; this might be done, for example, by volume, or by weight, or indeed by counting the number of bales; and these different measures cannot be expected to be correlated in any uniquely determinate way.⁴³ In absolute terms, talk of amounts in relation to the denotata of NCNs (collective or otherwise) is simply ill-defined. And relative to some particular dimension such as weight or volume, there is no semantic rationale for specifying minimum amounts.⁴⁴

As such, the contrast of discrete and continuous quantity is plainly non-ontological—it is not a matter of whether something consists of discrete ‘bits’ (visible or otherwise) or not. We may count planets, eggs or horses to determine their number; we may weigh apples, snow or clothing to determine their amount. And again, the non-ontic nature of the contrast is perhaps especially striking in the juxtaposition of such words as the CNs ‘clothes’, etc., and their cognate collective NCNs ‘clothing’, etc.. Though ‘clothing’ represents continuous quantity and ‘clothes’ discrete quantity, to say that there is clothing here or there is to say no more than that there are clothes here or there.

I have described the CN / NCN contrast, as it is indirectly reflected in the contrast of counting and measuring, as semantic or quasi-semantic. But it is also, in part, epistemological. In general, measurement is an attempt to determine the magnitude of something (for example, its length, mass, weight, duration or volume) in terms of some particular, humanly contrived even if naturally grounded unit of measurement (feet, years, meters, grams or ccs.). And it is typically an attempt to determine this magnitude, by comparison of the amount or quantity to be measured with a standard embodied in a measuring instrument (a meter rule, a one kilo weight). And even if the quantity to be measured is continuous, the measure of its magnitude cannot fail to be in terms of units (which are, perforce, discrete). The magnitude will be represented, then, by a certain number of the units, as determined by the application of the instrument, plus perhaps some fraction of a single unit.

It is hardly news to point out that it follows from this that some magnitudes—the irrational ones, π , $\sqrt{2}$, e , etc.—are quite incapable of precise measurement. No matter how acute the senses, no matter how far measurement is taken—how finely a scale is calibrated into units—it cannot in principle arrive at a match between the calibrations and the quantity.⁴⁵ And putting the impossibly unrealistic posit of perfect sensory acuity to one side, suppose an otherwise ideal case in which we have a rational magnitude, and an actual, exact, point-to-point equality between the magnitude of the quantity to be measured and some calibration of a perfectly accurate measuring instrument—an exact correspondence between some fraction of a unit of the standard of length and the length to be measured, for example. Even in this case, there would still be an insurmountable problem of knowing or determining that an exact correspondence exists, since an apparently exact correspondence is always compatible with an actual non-correspondence or inexact correspondence, with the possibility of further and more precise measurement bringing this non-correspondence to light.

Now all of this, of course, is of no practical significance whatsoever. For any practical purpose we are expressly content with approximate measurements, measurements to a certain degree of accuracy—depending on the purpose at hand, to the nearest kilo, gram, or

milligram, meter, centimeter or millimeter, etc. etc. We may well be aware, and nevertheless not care, that our measurements do not precisely correspond to the magnitude of what is measured—two ‘one-kilo’ bags of flour, for instance, may be known to differ slightly in weight, and still be said—with no intention to mislead—to contain a kilo of flour each; and herein lies a certain ‘truth’ of pragmatism. Two round pegs may be said to have the same diameter, just in case both fit snugly into the same round hole, although this is compatible with careful measurement revealing differences in their diameters. Because of the reasons for measuring, practical purposes demand only limited accuracy and precision. A distinction is required, however, between the pragmatic judgements of plain folk, householders and engineers, and those of the pure physical theorists, whose motivation is independent of day-to-day concerns—their interest being purely and simply in how things are, and so, in approaching as closely as possible to the actual dimensions of the quantities in question. For the purposes of pure enquiry within science, approximations are often something we are not happy to rest content with, even if, for a variety of quasi-Platonic reasons, they are nevertheless inevitable. Theoretical objectives may require as precise and accurate a measure as possible; but it is no more than a truism that the possibilities are always limited by the circumstances of measurement, the instruments and the observers who use them.

There is, then, a sense in which magnitude-involving concepts are intrinsically theoretical concepts; viewed from the standpoint of pure enquiry, there is inevitably a gap between our judgment of a magnitude and the magnitude itself. Judgements may be more or less accurate; the question of the actual, objective magnitude of some quantity is incapable of a rationally determined and theoretically exact answer. Where objects, individuals or things can be counted, an exact determination of their number must be theoretically possible—*pace* Cantor, this is a fundamental constraint on the meaning of ‘objects, individuals or things’—and in this sense comparisons of number can always be exact; but comparisons of magnitude cannot be. The concept of measuring a continuous magnitude intrinsically involves approximation, whereas the concept of counting a number of discrete objects, insofar as they are genuinely discrete, does not, but is, at least in principle, absolute.

Magnitudes may well be judged the same (same weight, volume, length, etc.) for all practical purposes; judgements may be ‘pragmatically true’, and even the notion of exactitude itself may be used pragmatically or epistemologically. But the question of whether magnitudes are strictly and objectively identical is, though capable of a definite negative answer (non-identity can be observed), quite incapable of a definite affirmative answer. In a nutshell, observation cannot be a sufficient basis for the re-identification of an (exact) amount of stuff—nor, a fortiori, for tracing it—and the possibility of non-count reference is not a mark of the existence of a corresponding determinate referent.

Finally, there is one further significant analytical difference between counting and measuring which deserves to be remarked. Plural predications involving numerical adjectives—‘There are five dogs in the house’—can be recast in the language of first-order predicate calculus with identity using only singular expressions; and in just this sense, ‘assertions of number’ are eliminable, reducible to talk of non-identical individuals. But plainly no such elimination or reduction is possible with regards to assertions of amount; ‘There are two pounds of coffee in the cupboard’ cannot be similarly rewritten, since the semantics of ‘coffee’ specify no underlying class of atomic ‘coffee-elements’ in terms of which the amount of coffee could be reformulated. In this lies the basis of the purity of counting as compared with measuring. It does not however suggest that unlike those of number, particular assertions of amount are ultimate. If, for instance, there are three bags of coffee in the cupboard, then to say that the weight of the coffee in the cupboard is two pounds is to say that the sum of the weights of the coffee in bag A, the coffee in bag B and the coffee in bag C is two pounds, and to this extent, the addition of weights of stuff is akin to the addition of numbers of things; larger weights may be thought of as resulting from the addition of smaller ones. The semantic difference then resolves simply into the absence of a conceptually foundational level of individuals, units or ‘atoms’ constituting the theoretically ultimate bearers of such properties of weight or mass, true units of weight or mass on which the measuring process as a whole might be (‘absolutely’) grounded.

1.8 *Postmortem on 'mass nouns'*. As Jespersen and many more recent writers have remarked, the intuitive contrast between the idea of *stuff* and that of *body*—the contrast between the idea, say, of honey, butter, gold or water and that of apple, table, car or cat—would seem to be that whereas honey, butter, etc. are more or less amorphous, and can adapt themselves to a variety of shapes and forms, an apple or a cat already has a wholly determinate built-in principle of form or structure which demarcates or distinguishes the thing in question from whatever else might happen to exist. Parallel to this, the intuitive conception of the nature of the contrast between MNs and CNs is essentially that the former lacks the 'form-specifying' or 'reference-dividing' power of the latter.

Taking the contrast between, say, a jug and the water it contains, it seems plain not only that the jug (much like a planet, apple, tree or rabbit) has built-in structure or integrity, but also that this structure or integrity is something which its contents lack—hence, in this sort of case, the usefulness of a container. On the one hand, then, such things as planets, apples, rabbits, trees and jugs are organised or structured, integrated wholes. These things are 'carved' by either art or nature 'at the joints': they are objective units of the kinds which they instantiate. By contrast, stuff as such, honey, butter, water, is simply not endowed with 'joints'. If and when it is 'divided', it is divided arbitrarily or adventitiously, in virtue of whatever objects it may constitute, or equally, in virtue of the things in which it happens to occur.⁴⁶ In consequence, to 'divide' the water from a jug into distinct portions, for instance to pour it into several distinct glasses, is not to threaten its identity. But if the jug itself ends up in distinct pieces, there is at least a question as to whether we still have a jug or not. If it has not been utterly destroyed, the jug will at the very least have been broken. No such fate is visited upon the scattered or divided water, which is nothing over and above its scattered or collected 'parts', and so cannot, unlike the jug, be counted as a full-blooded substantial unit of the kind which it supposedly exemplifies.

In short, what NCNs denote has, in contrast with individual substances, a characteristic 'formlessness' or 'form-indifference', a feature also characterizable as one of actual or potential 'scatter'. There is not, in general, any particular shape, size, physical state

or distribution in space, which stuff of a kind must possess. And the presence or absence of ‘form’, it seems clear, is intimately related to the presence or absence of divided reference: the absence of divided reference for the case of NCNs, might be regarded as the semantic counterpart of form-indifference for the category of stuff. Likewise, it seems plain that the property of cumulative reference is tantamount to the absence of divided reference. It is then not perhaps unreasonable to suppose that there must be something, in the case of ‘honey’, ‘gold’ or ‘water’, which plays a metaphysical role analogous to that of the discrete unit in the case of ‘apple’, ‘jug’ or ‘table’—the individual apple, jug or table—but which differs from an apple or a table in this one key respect of being ‘form-indifferent’; and just this is the so-called *parcel* of honey, gold, etc.—the honey in the pot, the gold in Chappell’s ring, and so on.

Now this is a gripping, but at the same time exceptionally misleading, picture. It is a picture which derives its power entirely from its focus on individual bodies, or on CNs in the singular. And when plural nouns are brought into the picture, this way of marking a philosophically significant contrast between two groups of nouns, CNs and some sub-set of NCNs, simply evaporates. For instance, although Quine speaks (albeit somewhat perversely) of learning ‘how much counts as *an* apple, and how much as *another*’, as a way of distinguishing talk of apples from talk of water, the fact is that there is also no learning ‘how much counts as some apples, and how much as more apples’—there is no such distinction to learn.⁴⁷ While the singular ‘apple’ applies to just one apple at a time, ‘apples’ sets no limits on what count as apples. It is not the meaning content of the plural noun which sets whatever limits there may be; it is contingencies of context, such as the scope of acts of demonstration, ‘*these* apples’, etc., which demarcate the subject-matter of a discourse. Much like ‘water’, ‘apples’ provides no criteria of distinctness or boundaries for what it collectively applies to—it does not, *qua* plural, carve what it applies to ‘at the joints’. To play the role of designating full-fledged objects each of which is apples, ‘apples’, much like ‘water’, needs an individuating adjunct (‘heap of ___’, ‘bag of ___’ or the like).

Thus if water may be characterized as ‘form-indifferent’, then apples too, collectively, may be so characterized. Much as the water in a glass might be spilled or dispersed and

survive, so too might the apples in a bag.⁴⁸ And so far as Quine's 'cumulative reference' is concerned, while any sum of parts each of which is an apple will not be another apple, any sum of parts which are apples will simply be more apples. The appropriate contrast and comparison between non-singular terms for undifferentiated materials like 'gold', 'water' and 'oil' on the one hand, and terms for discrete bodies on the other, is one for which the latter terms are equally non-singular—and not only terms like 'tables', 'cars' and 'apples', but also terms like 'furniture', 'clothing' and 'traffic'. That is, what distinguishes 'gold', 'water' and 'oil' from 'tables', 'cars' and 'apples' is also in effect what distinguishes 'gold', 'water' and 'oil' from 'furniture', 'clothing' and 'traffic'—the former group alone are not semantically atomic.

In that sense in which the semantics of 'furniture', 'clothing' and 'traffic' determine that the existence of furniture, clothing and traffic is the existence of discrete bodies—tables, shirts, cars, etc.—the semantics of 'gold' and 'oil' determine that the existence of gold and oil is not. The only natural units, other than those bodies which are physical aggregates of furniture or clothing—bales of clothing, piles of furniture, etc., are individual pieces of furniture or clothing—chairs, tables, shirts and trousers—and in the case of gold or honey, the only natural units are those bodies which are physical aggregates of gold or honey, rings and lumps and chunks of gold, pots and spoonfuls of honey—things which may be dissolved or dispersed while their constituent materials themselves persist—there being here no comparable atomic units.⁴⁹ The existence of clothing consists in that of individual pieces of clothing—pieces of clothing are clothing; and other than piles of clothing, bales of clothing and so forth, there are no 'higher-order aggregates' of clothing—there is clothing, pure and simple. Likewise, other than lumps and chunks of gold, there is gold, pure and simple. Thus—and for the very same reason in each of these cases—we may say that there are salt and gold in the sea, sand and gravel on the beaches, clothing and furniture in the shops, and dogs and cats on the streets; and in none of these cases are we obliged to posit 'higher-order aggregates' consisting of these several kinds of stuff or things.

What the no-RD criterion then actually reflects is the purely semantic contrast

between CNs in the singular, and non-singular nouns altogether generally, whether NCNs or plural CNs. And this contrast itself is wholly orthogonal to any contrast of metaphysical interest. The only metaphysically significant contrast in this domain is that between CNs and atomic NCNs on the one hand, and the non-atomic NCNs on the other—only here does a category of being which is distinct from a range of discrete objects come into view. The tendency to think that the supposed category of nouns which do not ‘divide their reference’ constitutes an ontologically distinctive category of nouns is thus based on a confusion, in effect a misplaced comparison. There is no such ontologically distinctive category; and insofar as there is one or more ontologically distinctive groups of nouns which satisfy the no-RD criterion, it is not because they satisfy this criterion that they are ontologically distinctive.

In short, the centrally erroneous idea is the idea that what the distinction between, say, cats and gold consists in is the existence of form-indifferent objects, ‘parcels of matter’, on the part of gold, as compared with well-formed individual animals, on the part of cats. This, it is supposed, is what the contrast between an ‘homogeneous substance’ such as gold and a range of discrete objects such as cats amounts to. But this is a kind of categorial mistake; it is not what the distinction between cats and gold amounts to. The distinction between cats and gold is akin to that between footwear or clothing and gold—it is the distinction between atomically-based non-singular concepts and non-atomically based non-singular concepts—it is simply the presence or absence of ‘semantic atoms’.

Thus to insist that the existence of a substance such as gold is to be understood in terms of parcels of gold is almost exactly parallel to insisting that the existence of clothing is to be understood in terms of parcels of clothing—or, what comes to much the same thing, of sets of clothing (since each individual item of clothing itself counts as clothing), or again, that the existence of cats is to be understood as that of sets of cats. But this, I mean to urge, is an ill-advised, indeed mistaken application of the notion of a set; and furthermore, to advocate such a view this is, in effect, to entirely change the subject—for the key difference between the atomic and non-atomic remains, albeit once removed, within the contrast of a

parcel and a set. Or in other words, to advocate such a view is to actually over-ride the basic contrast between the atomic and the non-atomic, by taking *both* to the artificial level of a higher-order aggregate.⁵⁰ However, precisely this misconception is the basis for a further—and if anything more influential—theory of MNs.

Insofar as words like ‘water’ do not in and of themselves draw boundaries or possess a built-in principle for dividing their reference, or again do not involve ‘criteria of distinctness’, it might perhaps be said that they do not individuate. Now I have no objection to this conception of individuation and its absence, but it does not in itself distinguish NCNs from CNs, since plural nouns as such—‘apples’, ‘apples here’, ‘apples in that basket’, and so on—also incorporate no ‘criteria of distinctness’ for individual objects; these nouns do not, *qua plural*, carve what they apply to at the joints (or anywhere else). In this sense, individuation and divided reference concern a semantical or metaphysical power of terms which—unlike either NCNs or CNs in the plural, unsupplemented by ‘individuating adjuncts’—are singular. And in this, there is evidently the potential for much terminological unclarity, confusion, or at the very least ambiguity, for it is also by no means uncommon to suppose that something which goes by the name of ‘individuation’ or ‘divided reference’ occurs *whenever* there is concrete reference, regardless of the semantic status of that reference. In other words, it is not uncommon to suppose that ‘individuation’ takes place in non-count and plural reference too. In this sense, ‘individuation’ accompanies the use of any substantive, or at least any referential use of such a term. The unclarity and ambiguity surrounding this issue extends, unfortunately, to the use of the expression ‘singular’ itself (see, in this connection, note 7 in Chapter Four on the uses of ‘singular’ and ‘non-singular’, which are sometimes conceived purely in terms of referentiality or the lack of it). Just how ‘individuation’ and its cognates are to be best construed or disambiguated, and how the semantics of non-singular nouns and non-singular reference are to be understood, may not be matters which are best considered independently. But very roughly, we might distinguish between conceptions of individuation understood as ontological, linked to singularity, on the one hand, and as linguistic or intentional, as linked to reference on the other.

NOTES

¹ 'Stuff and things', 63-4, my italics.

² It is striking that while Chappell acknowledges that we do not *speak* of 'one gold', etc., he then proceeds to insist that whatever it is we actually speak of, it must nevertheless *be* one. Perhaps I may be forgiven for confessing to the conviction that most accounts of the semantics of NCNs—Chappell's is not unusual in this respect—tend to be somewhat peremptory if not entirely *ad hoc*. There is a tendency to simply assume that because such nouns are not syntactically (or for that matter semantically) plural, that they must thereby be automatically counted as singular; and such accounts then concern themselves exclusively with working out the implications of this initial and unquestioned assumption, given one or two obvious points about the relative 'homogeneity' of stuff. The idea of a singular common noun which is incapable of pluralising is a peculiar one, whereas no such problem arises for a noun which is already plural. I myself have offered, in the dim and distant past, a rudimentary 'deviant' account of non-count semantics which has them come out as straightforward plurals; see my 'Some Questions of Ontology', *Philosophical Review* 81 (1972), 3-42.

³ 'Stuff and things', 66. The terminology according to which stuff is said to occur as discrete 'parcels', 'portions' or 'masses' is peculiarly inappropriate and even paradoxical. For instance, in the literal sense of the term, a parcel is a human artifact, a device used by us to keep its contents all together 'in one piece'. Given that the function of a parcel, as the term 'parcel' is used in non-technical language, is to contain its contents—to maintain their unity or integrity, when they would otherwise tend to become dispersed—and that fluids in general require containers to maintain any such integrity, there is some irony in the use of the term 'parcel' in application to a putative object which simply is, for example, a certain amount of water. Similarly, portions and masses of matter, properly so-called, are at any rate discrete bodies—and unlike their technical namesakes, subject to disintegration through dispersal. The metaphors suggest the introduction of constraints on contents which, left to themselves, tend to separate or become diffused—constraints which in these contexts simply do not exist. In brief, these technical / metaphorical uses of the terms themselves point up precisely why they are deeply inappropriate. A miniature thought experiment may serve to dramatize the intuitive unreality or artificiality of the parcel conception. Thus contrast the contingent discreteness of the gold in Chappell's lump with the imagined condition of an extremely simple but no doubt possible world consisting of nothing but a continuous, homogeneous atomless fluid, extending indefinitely and without limit in all directions. Such a universe might be conceptually divided up into a grid of countless overlapping and non-overlapping regions each containing some of the fluid—hence, on the 'parcel / portion of matter' posit, actually containing a countless multitude of distinct parcels or portions of that fluid. But the idea that the best way to capture the *modus essendi* of the contents of such an undifferentiated, homogeneous world would be *via* the imposition of a mereological grid corresponding to an indefinitely large list of distinct and discrete references or definite descriptions is not, to say the least, intuitively compelling.

⁴ In this connection, Helen Cartwright's comments on Chappell, in 'Chappell on Stuff and Things', *Nous* 6 (1972), 369-376, are very apt.

⁵ Essentially this same thought is expressed by Tyler Burge when he writes that on 'our favoured account, the terms "stuff" and "thing" will be construed as having roughly disjoint extensions each of which is included in that of "physical object"'. T. Burge, 'Mass terms, Count Nouns and Change', in *Mass Terms: Some Philosophical Problems*, 199-218, p. 217. The thought would seem to be that the difference between a body possessing cohesive unity and a physical object lacking any such unity is a difference more or degree than of kind. See here also P. Hacker, 'Substance: things and stuffs', *Aristotelian Society Supplementary* 78 (2004), 41-63.

⁶ So far as the formal category of *object* is concerned, Wittgenstein writes that the object-concept is a formal concept, or what he also calls a 'pseudo-concept'; he writes

the variable name 'x' is the proper sign of the pseudo-concept *object*. Wherever the word 'object' ('thing', 'entity', etc.) is rightly used, it is expressed in logical symbolism by the variable name. For example in the proposition 'there are two objects which ...' by '(Ex,y) ...'. Whenever it is used otherwise, i.e. as a proper concept word, there arise senseless pseudo-propositions. So one cannot, e.g., say 'There are objects' as one says 'There are books' ... The same holds of the words 'Complex', 'Fact', 'Function', 'Number', etc. They all signify formal concepts and are represented in logical symbolism by variables ... L. Wittgenstein, *Tractatus Logico-Philosophicus* (London: Routledge, 1951), 4.1272.

⁷ Among the more recent sympathizers with this general view, I would particularly mention the group of speculative metaphysicians which includes, among others, Trenton Merricks, John Hawthorne, Ted Sider, Michael Rea, Dean Zimmerman and Peter van Inwagen.

⁸ This includes a variety of sub-principles, among which may be mentioned what Chappell calls 'dissectivity' and 'homogeneity'. Most parcels of stuff, he writes, 'can be divided into two or more parcels of that same (kind of) stuff ... (and) are *homogeneous* ... they are that (kind of) stuff uniformly, or throughout ... we can say that parcels of stuff are *indifferent to form*.' 'Stuff and things' p.72-3, italics in original. Notice that such talk of the homogeneity, uniformity or dissectivity of gold or water involves no contra-empirical commitment to the infinite divisibility of stuff of such kinds. The concept of homogeneity or dissectivity in this context simply reflects the fact that it is an *a priori* truth—in fact, a truth of meaning—that whatever can be said to be *some of* some water also counts as water. It is entirely inappropriate to attempt to build into the semantics of words like 'water' aspects of empirical atomic and molecular theory, as Quine, among others, does when he rejects a certain analysis of concrete NCNs on the grounds that, as he infelicitously puts it, 'there are parts of water too small to count as water'. *Word and Object*, 91.

⁹ What might be seen as an explicit identification on Chappell's part of the supposed ontically significant class of MNs with the class of concrete NCNs—he writes that 'mass nouns are distinguished grammatically from count nouns by not having plural forms and by not taking either the indefinite article or numerical adjectives'—is open to the perfectly obvious objection that, among concrete NCNs, there is a class of words already highlighted ('furniture', 'clothing', 'footwear' and

‘traffic’) which, while being grammatically non-count, nonetheless denote commonplace objects of various kinds, although they do this in a semantically non-count or collective ‘mode’. A preoccupation with what are genuine ontic contrasts, appropriately characterized or not, seems to divert the attention of both Chappell and Jespersen from the considerable ontic diversity of concrete NCNs, leading them either to postulate an ontic contrast where none in fact exists, or to offer no criteria for isolating just those nouns which are thought to possess this ontically distinct significance.

¹⁰Quine, 1960; Chappell, 1971; Hacker, 1979; L. Talmy, ‘The relation of grammar to cognition’, reprinted in *Topics in cognitive linguistics*, B. Rudzka-Ostyn, ed. (Amsterdam: John Benjamins, 1988); R. Jackendoff, ‘Parts and boundaries’, *Cognition* 41, 1991: 9-45; R. Langacker, ‘Nouns and verbs’, reprinted in his *Concept, image and the symbol* (Berlin: Mouton de Gruyter, 1991); G. Kleiber, ‘Massif / comtable et partie / tout’, *Verbum* 3, 1997: 321-337.

¹¹ *Word and Object*, 91, italics in original. In Quine’s case, the contrast of CNs and what he calls mass terms however is not seen as metaphysical; it ‘lies in the terms and not in the stuff they name ... “shoe” ... and “footwear” range over exactly the same scattered stuff.’ Curiously, however, much of the time Quine speaks as if his so-called mass terms, *unlike* CNs, refer to mereological objects which are radically scattered across space and time.

¹² Similarly, had Chappell loaned me his gold at t_1 , and at $t_1 + \delta t$ I had returned to him just half of the amount he loaned me, he would surely have been entitled to complain that I had not returned to him just the gold which he had originally loaned me, because I had not returned all of it.

¹³ In his first, great work on the foundations of mathematics, Russell very suggestively writes that usage

does not permit us to speak of change except where what changes is an existent throughout.... Thus we should say, in the case of pleasure, that my mind is what changes when the pleasure ceases to exist. On the other hand, if my pleasure is of different magnitudes at different times, we should say that *the pleasure* changes its amount, though we agreed in Part III that *not pleasure, but only particular amounts of pleasure*, are capable of existence. *The Principles of Mathematics*, Second Edition (London: Allen and Unwin, 1937), 470, my italics.

¹⁴ The denotation of a concrete non-count description is what the Mediaevals, Aquinas included, called *designated matter*. My own view is that while it is not inappropriate to employ a notion of identity here, or at any rate to make an identity-statement, the concept of identity-*criteria* is inappropriate. Fundamentally, the issue of identity-*criteria* arises in connection with the question of what it is for something to be the *same F*; the explication of such criteria is taken to be an essential component in an account of the concept or category *F*. But quantitative adjuncts—specifications of the *number* of Fs in a given context, or in the case of a non-count concept *M*, of the *amount* of *M* in a given context—are entirely irrelevant externalities, insofar as the concepts of *F* or *M*, or the categories to which they belong, are concerned. Although the question of whether we have the same number of Fs or the same amount of *M* in a certain situation is evidently a question which involves the notion of identity (the use of the expression ‘identity’) in a certain way,

it has no bearing on the question of the identity-criteria for Fs or M. The question of the identity-criteria for Fs is the question of what it is for something to be the same F; it is necessarily a question concerning the identity-criteria for *an F*. And since there would seem to be no analogous question, in the case of a non-count concept *M*, the issue of identity-criteria in such contexts becomes highly problematic. Quine, it seems to me, is right when he remarks that ‘mass nouns do not primarily take “same” or “an”’. Review of Geach’s *Reference and Generality*, in *Philosophical Review* 73 (1964), 100-104. The issue recurs at 2.4, and also in Chapter Five.

¹⁵ But although they do not formally depend on it, views of the stuff-as-physical-object genre gain, as it seems to me, an important *psychological* foothold, a certain perceived credibility and strength, merely on the basis of the background intellectual grip of the world-of-bodies view. The classical Newtonian conception of reality as a system of discrete bodies cannot fail to encourage a tendency of think of stuff itself as discrete bits and pieces, chunks or hunks, atomic or otherwise. And Quine’s remark about breaking reality down into identifiable and discriminable objects, for one, suggests a certain elision of the world-of-bodies view with that of stuff-as-physical-object.

¹⁶ Aristotle himself makes a distinction, corresponding to the contrast between these two aspects of the existence of an individual, between so-called *substantial* and *qualitative* change: qualitative change presupposes the persistence of the individual in question; substantial change does not, but involves precisely its creation or extinction. And among qualitative or non-substantial changes in a persisting thing, Aristotle, consistently with our pre-philosophical understanding, includes ‘growth and diminution’; he writes that ‘coming-to-be and passing away are distinguished from alteration and from growth or diminution’. *On Generation and Corruption*, trans. C. J. F. Williams (Oxford: Clarendon Aristotle Series, 1982), Book I part 4. Tibbles may cease to be fat (but not to be a cat) and still continue to be. And in ceasing to be fat, Tibbles comes to weigh less, but does not come to be less of a cat. Thus Aristotle also writes that substance ‘does not appear to admit of variation in degree’. Details aside, there is much to be said for Aristotle’s analysis of substance-concepts: the account corresponds well to the pre-philosophical conception. It may no doubt be challenged along Humean lines; but the concept of persistence, as it relates to substances and concrete things in general, is not in my view best analysed in terms of or reduced to the notion of a sum of momentary ‘object stages’. And Chappell seems Aristotelian enough to suppose that the substance-account can be straightforwardly *transferred* from sortal terms and bodies to NCNs and stuff.

¹⁷ Here, then, Aristotle’s contrast between coming into being and passing away, on the one hand, and growth and diminution on the other, just breaks down, or simply fails to apply.

¹⁸ This is not, needless to say, to deny that an amount of ice or other kind of stuff might in suitable circumstances persist as the very same amount through any length of time—only to deny that this is a built-in feature of the notion of amount.

¹⁹ Lucretius, *On the Nature of the Universe*, trans. R. Latham (Harmondsworth, Middlesex: Penguin, 1951).

²⁰ The conclusion would seem to be that there is no determinate (amount of) ice which figures as the content of ‘that ice’; that the expression cannot be used as a device of *de re* reference, a device whose content is its referent. The alternative, presumably, is that it be understood as having a property—that of being ice in that region—as content. Or again, perhaps, it might mean, rigidly but not *de re*, ‘the actual ice in this region’. We may evidently denote the ice in my G&T; and we may precisely specify some time in our denoting expressions—‘the ice in my G&T at 12 noon GMT’—and as realists, it seems reasonable to suppose that the ice thus denoted has indeed an exact, determinate amount. But at the same time we must reject the thought that, in the sense in which ‘refer’ contrast with ‘denote’, this ice can be referred to or identified.

²¹ Plato, *Plato’s Cosmology: The Timeus of Plato*, trans. by F. M. Cornford (London: Routledge & Kegan Paul, 1956), 179. At the same time, as Aristotle in effect argues, Plato is misguided in generalising from the case of stuff to that of everything material, and in particular of concrete individual things or ‘substances’. Aristotle develops an attractive paradigm for concrete things or objects with his category of substance; he introduces the concept precisely to theorize the real and not merely apparent phenomenon of persistence or identity in face of the omnipresence of change. The two phenomena—identity for substances, and flux for stuff—can surely co-exist.

²² Peter Simons is explicit in his advocacy of this kind of strategy; he writes:

The fact that a natural language like English has only one kind of singular and plural means that terms designating classes or masses first have to be *artificially modified* to singular before they can be pluralised. *Parts* (Oxford: Clarendon Press, 1987), 156.

In effect, the nature of the designata of plural and non-count expressions has been decided *prior to* the analysis of the semantic status of the mode of designation.

²³ A nameless colleague has suggested to me that the statement ‘The water I left in this cup has evaporated, and now is part of the atmosphere; eventually most of it will fall as rain or be condensed as dew’ might not only be true, but should in effect be treated, in Chappell-like fashion, as a sort of paradigm for thinking about stuff or substances like water. Now, the statement is surely meaningful; but it would be incorrect to suppose that the semantics of NCNs somehow guaranteed that statements of this sort could or would typically turn out to be true, unless one relied on something very like the truth of an indefensible metaphysical atomism. It is reasonable to suppose, first, that as fluid stuff, the water which was in the cup—unlike, say, the eel which was in the fish tank at the zoo—will have a tendency to mix. And secondly, it is reasonable to suppose that, on evaporating, the water, as vapour, will in fact begin to mix. To be sure, other philosophically interesting sorts of things might also start to happen; there are various natural processes, such as oxygenic photosynthesis and photodissociation, which result in the disappearance of water and the appearance of other substances, oxygen, for instance, as well as processes in which the reverse takes place. Just what happens to the individual water molecules during such processes is hardly a philosophical question, but some awareness of such facts might be sufficient to dissuade a philosophical atomist from insisting on applying their philosophical atomism to the solution of any metaphysical or semantical problems concerning ‘water’ and what it denotes. But let us suppose that the water, *qua* vapour, does mix. Is there any abstract metaphysical principle, other than that of atomism, which implies that the water *must*, in any such process, retain its identity? One might or might not end up with the same amount of water as one began with, as a result of such an evolving

state of affairs, but to suppose that somehow one must (and that one must for reasons of this kind) seems to me completely groundless, hence indefensible.

²⁴ ‘Stuff and things’, 65.

²⁵ ‘Quantities’, *The Philosophical Review* 79 (1970), 27-8.

²⁶ It goes without saying that various forms of non-singular identity-statements are possible and indeed commonplace; they need not involve the use of names, and may or may not involve the use of non-singular demonstratives, for example ‘The men who robbed the bank are the same men as the men who stole the police car’, and again, ‘These girls are the same as those’, said perhaps while pointing to two photographs.

²⁷ The (or at least, some cognate) grammatical distinction is by no means confined to English. For example, as Julio Viejo has noted (‘Mass Nouns vs. Count nouns’ *LinguistList* 11.2465, December 2000), count / non-count (or what he calls ‘count / mass’) distinctions have recently been reported in the following languages: Danish (specially Jutland dialects), Bijogo (Western Africa), Bantu languages of Africa in general, Welsh, Arabic, Berber, Chinese, Uzbek, Thai, Dutch, Russian and slavic languages, Asturian, Italian dialects, dialectal Spanish, and Wintun. Unfortunately Viejo does not specify the criteria on the basis of which what he represents as a single common pan-linguistic distinction has been identified as such. I must thank Gillian Beer, formerly of Clare Hall, for urging upon me the importance of cross-linguistic data in this connection. Lest this kind of approach appear to be a throwback to ways of doing metaphysics ‘indirectly’, I can say only that the arguments which follow are intended, *inter alia*, to vindicate it. An explicit defense of the importance of conceptual analysis to the pursuit of metaphysics may be found in Frank Jackson’s *From Metaphysics to Ethics* (Oxford: Oxford University Press, 1998). As Jackson writes, ‘our classification of things into categories ... is not done at random.... There are patterns underlying our conceptual competence. They are often hard to find ... but they must be there to be found.... There must, therefore, be a story to be told (extracted). And when it is told (extracted), rationality will have been codified’ (64-67).

²⁸ For clarity and simplicity of exposition, unless the context requires it to be otherwise, I shall in general aim to use examples in which semantic value, hence semantic difference, is thus directly marked in syntax. Discussion of these matters seems clearly facilitated in a language which, like English as against, for instance, Mandarin, is relatively inflected.

²⁹ In emphasizing the difference in semantic value between singular and plural, I am certainly not suggesting that the *concepts* which the singular and plural versions of a noun express should be regarded as distinct. I am suggesting, rather, that there may be more to the meaning of a noun or its occurrences than the concept which it expresses. The root concepts expressed by ‘dog’ and ‘dogs’ are plainly one and the same, and I see no reason to privilege the singular above the plural in this matter; but ‘dog’ and ‘dogs’ do differ in meaning. Adapting a term from Frege, one and the same concept might be said to have both singular and plural ‘modes of presentation’.

³⁰A one-one correlation, in the sense in which I here intend it, is a relationship between one single item (e.g. an occurrence of ‘dog’) and another single item (e.g. a dog); there is no suggestion here that the number of occurrences of ‘dog’ must be the same as the number of dogs. In stating that the correlation between ‘dogs’ and dogs is one to many, I am in effect adopting what I take to be the view of ‘naive common sense’ – that a term such as ‘the dogs’ does not standardly denote a single thing (a ‘group’ perhaps of dogs), but instead denotes, albeit collectively, several (many) things.

³¹Conventional linguistic taxonomy has it that a plural occurrence of a zero-plural noun is an unmarked plural noun.

³²Zero-plural nouns are not the only sort of non-standard CN. For instance, in the nature of the case, the occurrences of plural invariable nouns such as ‘cattle’, ‘clothes’ and ‘groceries’ are always plural. Such nouns can have no syntactic or semantic contrast of singular and plural just because they do not take a singular – ‘many cattle, clothes, or groceries’ is fine, whereas ‘one cattle, clothe or grocery’ is not. At the same time, though there can be no transition from, e.g., ‘all cattle’ to ‘each cattle’, a move from ‘all of the cattle’ to ‘each one of the cattle’ is plainly possible. To take a rather different type of example, it is clear that although the sentence

[a] The trousers in this bag are mine

is syntactically of plural form, and is capable of receiving a semantically plural reading, as in

[b] The pairs of trousers in this bag are mine,

it is also capable of a semantically singular reading, as in

[c] The pair of trousers in this bag is mine.

The point however is surely a minor one; and it is perhaps arguable that what might then be called a ‘merely syntactic’ plural occurrence represents the ghost of a departed semantic plural.

³³ Though I am unclear as to the precise basis of the supposition, it seems intuitively plausible to suppose that semantic value in this sense accrues *primarily* to substantival expressions and quantifiers, and derivatively to the verbs with which they are associated, and to the sentences which contain them. And so far as substantival expressions are themselves concerned, it would seem that their semantic value is not only reflected in, but also crucially *determines*, the capacity of such an expression to accept a quite specific range of quantifier-words.

³⁴Michael Stokes notes that the ‘modern English-speaking school of “ordinary language” philosophers has not attempted a full-scale analysis of “one” and “many”’. M. Stokes, *One and Many in Pre-Socratic Philosophy* (Washington: The Center for Hellenic Studies, 1971), 8. Nor do I attempt such a ‘full-scale analysis’ here.

³⁵ This table first appears, albeit in a slightly different form, in a paper ‘Words without objects’ in the Brazilian journal *Principia*, vol. 2 no. 2 (1998), 147-182.

³⁶The general claim, to be precise, is that as such, the category-contrasts here at issue – those of singular and non-singular, plural and non-plural, are all essentially semantic and not ontological.

³⁷ *Word and Object*, 161.

³⁸ Geoffrey Leech, *Semantics* (Harmondsworth, Middlesex: Penguin, 1974), 186.

³⁹ Notice also that the non-plural syntax of many NCNs—the acceptance of ‘this’, ‘is’ and so on—finds a certain counterweight in the fact that some NCNs (‘snows’, ‘sands’, ‘waters’ and the like) take a syntactically plural form, along with syntactically plural determiners and verbs.

⁴⁰ This point concerning the notion of ‘approximate identity’ is perhaps of no great interest for those non-singular expressions which are plural, since here there are always related ‘exact identities’ at the singular level; but it has a deeper significance for those which are non-count; the matter is pursued in connection with the contrast of measuring and counting.

⁴¹ Compare the notorious Ship of Theseus.

⁴² There are indeterminate forms for the specification of continuous quantity—‘so much stuff’, ‘too much cotton’, ‘so little water’, etc.—which have parallel forms in the specification of discrete quantity—‘so many things’, ‘so few birds’, ‘too many cars’.

⁴³ Since bales may be of indefinitely many different sizes, counting the bales is strictly a measure of the bales alone, and only indirectly and rather inadequately a measure of the clothing; hence this is a case in which counting ‘goes proxy’ for measuring, rather than one of measurement *per se*.

⁴⁴ Evidently, then, there is no very intimate connection between the attribute of lacking minimum amounts and that of infinite or indefinite divisibility. Helen Cartwright’s suggestion that there is an absolute conception of amount for a certain favoured sub-set of NCNs, including e.g. ‘gold’ and ‘water’ but not including e.g. ‘snow’, ‘furniture’ or ‘money’, appears to be grounded in no semantic criterion for distinguishing between the wheat and the chaff.

⁴⁵ As Hempel notes, ‘it is clearly impossible to formulate, by means of observation terms, a sufficient condition for the applicability of such expressions as “having a length of $\sqrt{2}$ cms”.’ ‘Empiricist Criteria of Cognitive Significance: Problems and Changes’ repr. in A. P. Martinich (ed.), *The Philosophy of Language* (New York: Oxford, 1990), p.18.

⁴⁶ I here employ the concept of a ‘joint’ in what I take to be broadly Plato’s original sense—that is, realistically—such that joints are actual divisions in reality, actual divisions of a sort relevant to the distinction between something of a kind and something else of that same kind. The fact that something is capable of being divided, or is divisible, or is potentially divided—this on my account is to be contrasted with actual division, and does not imply the actual presence or existence of any such joint. It is in just this sense that stuff like water may be said to have no joints.

⁴⁷ Strictly or properly speaking, of course, learning to distinguish what counts as an apple from what counts as another is not learning *how much* counts as an apple at all. Counting units is to be distinguished from measuring amounts, and it is typically art or nature which determines what counts as a unit, whereas the amount of stuff in any given case is entirely adventitious, being no reflection on the nature of the kind of stuff itself. And, quite apart from this general point, some apples are several times the size of others.

⁴⁸ The fact that a number of apples may be gathered together in a bag, and are thereby capable of being collectively referred to or identified as *these* or *those*, is adventitious from the standpoint of their character as individual apples; they may cease to be capable of being collectively identified and still continue to exist; and a parallel point can be made about the water in a glass. The examples illustrate the gap between the 'collective' form of non-singular reference and the character of its designata.

⁴⁹ Perhaps it is needless to add that rings and lumps and chunks, though units, are not units of *gold*, any more than piles or truckloads of furniture are units of *furniture*.

⁵⁰ In this sense, the view of Helen Cartwright to be considered in the sequel—which ultimately, in effect, covers over or negates the basic contrast here, by assimilating non-atomic NCNs and regular CNs to parallel categories of aggregates—is the more consistent (if similarly problematic) entifying approach. And what is especially disturbing is precisely that this seems to be the route most commonly followed—the various categories of semantic value (singular, plural, non-count) are all systematically transformed into ontic categories, and all somehow under the thrall of The One.

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