

LOGIC AND THE AUTONOMY OF ETHICS¹

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In every system of morality I have hitherto met with, I have always remark'd that the author proceeds for some time in the ordinary way of reasoning, and establishes the being of a God or makes observations concerning human affairs; when of a sudden I am surpriz'd to find, that instead of the usual copulations of propositions *is* and *is not*, I meet with no proposition that is not connected with an *ought* or *ought not*. This change is imperceptible, but is, however, of the last consequence. For as this *ought* or *ought not* expresses some new relation or affirmation, 'tis necessary that it should be observ'd and explain'd; and at the same time a reason should be given for what seems altogether inconceivable, how this new relation can be a deduction from others which are entirely different from it.

David Hume, *Treatise*, III.i.3.

1. Introduction

This 'observation', summed up in the slogan 'No Ought From Is', is perhaps the most influential thing Hume ever wrote. According to the young A. N. Prior this passage (together with a complementary chapter of Reid's) contains 'almost all that can be said, from a purely logical point of view on the issue between naturalism and anti-naturalism' (Prior (1949) *Logic and the Basis of Ethics* - henceforward - *LBE*, page x). This is an exaggeration, as his own slim volume shows. Its one hundred plus pages are largely devoted to an exposition and defence of Hume's dictum, and they surely add *something* to the debate.² Nevertheless, the opinion of so gifted a logician as Prior is not to be sneezed at even when he changes his mind. For Prior's contribution to meta-ethical theory falls into two parts, *LBE* and his (1960) article, 'The Autonomy of Ethics' (TAE), republished in an anthology of his essays (1976). In the first he upholds the autonomy of ethics; the (Humean) thesis that moral conclusions cannot be logically derived from non-moral premises. In the second, he recants.

In this paper, I defend Prior's earlier *logical* thesis (albeit in a modified form) against his later self. But it is important to distinguish *this* version of autonomy from two others with which it is commonly confused. Is there a logical gap between fact and value, Is and Ought? Many have supposed that this is what the debate between naturalists and anti-naturalists is all about. *But this is a mistake*. For there are, in fact, THREE forms of autonomy: ontological, semantic and logical; *and naturalism is only incompatible with*

¹ I have read and rewritten this paper a number of times since I first composed it in 1983. I have had useful comments from many people at (and after) conferences and seminars, particularly John Fox, Robert Farrell, Ross Brady, Richard Sylvan (ne Routley), Jack Smart, Pavel Tichy, Frank Jackson, Alan Musgrave, Bill Lycan, Jack Copeland, Graham Priest and above all Lloyd Humberstone.

² Readers who know of *LBE* only through the admiring references of Foot (1978), p.100 and Midgley (1978), p.156n, will be astonished to discover that Prior was a defender of the autonomy of ethics and the naturalistic fallacy. Evidently he was misread or misremembered by these eminent authors.

the first. Ontological autonomy is the thesis that moral judgements, to be true, must answer to a realm of *sui generis* non-natural properties. *Semantic* autonomy insists on a realm of *sui generis* non-natural *predicates* which do *not mean the same* as any natural counterparts. *Logical* autonomy maintains that moral conclusions *cannot be derived* from non-moral premises. Appropriately qualified, I believe in all three, with the proviso that there is no such realm of moral properties as ontological autonomists suppose. But it is important to see how they are related. I define *naturalism* (for the purposes of this paper) as the doctrine that though there are moral truths, there are no peculiar or irreducibly moral facts or properties. A complete ontological inventory of the world could be given that made no mention of goodness, badness or ought-to-be-ness - at least, under those descriptions. Naturalism, thus defined, is best understood as the reverse of *ontological* autonomy. As such, it is quite compatible with *logical* and even *semantic* autonomy. Taking logical autonomy first, it may be that no moral conclusion can be derived from non-moral premises. But naturalistic definitions of the moral words and synthetic identities between moral properties and others, may properly be called moral, and hence included as premises in an inference to a moral conclusion. That conclusion will not be concerned with *sui generis* moral facts. And it may even mean the same as some natural equivalent. Nevertheless, it does no violence to logical autonomy. Semantic autonomy, too, is compatible with naturalism, despite G.E. Moore. In *Principia Ethica*, Moore tried to derive ontological autonomy (an unanalysable property of goodness) from semantic autonomy (the indefinability of 'good'). The project only works with the aid of a naive and dubious Platonism. The prospect of a synthetic identity between goodness and some natural counterpart preserves the possibility of naturalism.³

Thus logical autonomy does not entail semantic autonomy, and neither entails ontological autonomy. Ontological autonomy however *does* entail the other two, *given some fairly plausible assumptions*, and *semantic* autonomy apparently entails the logical kind. If moral talk *does* address a realm of independent properties, and is more or less in order (that is, does not embody some naturalistic confusion), then the moral words will be without natural equivalents. And if this is the case, and logic is *conservative*⁴ - that is, you don't get out of a valid inference what you haven't put in - a moral conclusion must get its morality from some semantically (and perhaps ontologically) moral member of the set of premises. Thus if ethics is logically autonomous, naturalism may not be false. But since ontological autonomy (plus some plausible assumptions) entails logical autonomy, if ethics is *not* logically autonomous, naturalism is probably true! As a foe of naturalism therefore, I must vindicate logical autonomy. This is the main purpose of my paper. The young Prior must be right, the middle-aged Prior wrong.

I argue that logical autonomy (from now on, unless otherwise stated, *the* autonomy of ethics) is merely an instance of the more general thesis that logic is conservative. As Hume and the early Prior construe it, this is not a tenable doctrine. So I *redefine* conservativeness producing a thesis which is not only tenable but demonstrably true. This

³ This possibility has been mooted by a number of philosophers lately. See Durrant (1970), Harman (1977), Putnam (1981), Brink (1984) and Lycan (1986).

⁴ I use the words 'conservative' and 'conservativeness' to refer to the so far ill-defined thesis that logical deduction introduces nothing really new. This is to be distinguished from the common logician's use of the term to refer to certain kinds of *extensions* to logical systems, as well as the notion of conservativeness defined by Field (1980).

in turn yields an interpretation of autonomy which is demonstrable but unexciting. Deontic logic seems to supply counterexamples to my autonomy thesis. I reply with a critique of deontic logic. I go on to discuss the *importance* of autonomy which is not so much intrinsic as due to philosophic errors. (Autonomy is denied by some and mistakenly confined to ethics by others.) Finally I touch on definitions, a topic deferred from §5.

2. Hume's Afterthought

Why *does* Prior think that ethics is autonomous? His argument is simple, and depends upon the rather shaky principle that logic preserves, but does not extend, truth and content. You can't get out of a valid inference what you haven't put in (*LBE*, Chapter II).

Suppose that you are trying to prove some moral proposition, for instance:

(i) I ought to do X.

Suppose too, that you are a naturalist, specifically a *theological naturalist*.⁵ The premise from which you wish to derive this is:

(ii) God commands that I do X.

The one does not follow from the other. To make the inference valid you must add in an extra premise:

(iii) If God commands that I do X, then I ought to do X.

And this is, or seems to be, a moral principle. Thus from statements about God, duties cannot be derived, unless duties are incorporated in the premises. The same goes for any other form of naturalism. Moral conclusions require moral premises, otherwise whence the moral content?

Cudworth was perhaps the first to grasp this point. (*BM*, 122 and *LBE*, pp.17-18) But Hume's *Treatise* III.i.3 remains the *locus classicus*. Hume complains that books on morality start off with proofs of the being of God, or observations concerning human affairs, and then suddenly, in the course of what purport to be 'deductions', introduce new terms such as 'ought' and 'good'. Propositions including these words are allegedly derived from what has gone before. But Hume protests 'that a reason should be given for what seems altogether inconceivable, how this new relation can be a deduction from others which are entirely different from it'. Hume, like Prior, is appealing to the conservative character of deduction. He is making a strictly logical point. A valid inference preserves, but does not extend, the truth. The conclusions are contained within the premises. So if 'ought' does *not* appear among the premises of an alleged inference, but *does* figure in the

⁵ Prior develops his argument in the course of an examination of Cudworth (*LBE*, Chapter II). Cudworth was the explicit opponent of 'divers modern theologers' and 'pretended philosophers', positivists about morality, who tried to derive duties from the Will of God or the dictates of the Sovereign. (Raphael ed. (1969) *The British Moralists*, (henceforward *BM*), p. 119.) Hobbes is the main target, but he also seems to have had Descartes in mind. (See Descartes (1911), vol. 2, pp.249-50.)

conclusion (if, that is, it expresses a *new* relation or affirmation), then the inference must be invalid. We are not dealing with a genuine consequence.⁶

Note that this passage is an *addition* to Hume's other reasonings. It is, as Mackie (1980), p.61, observes, 'plainly an afterthought'. As such, it is largely independent of his rather dubious arguments for the moral sense and the supremacy of the passions. This is important because Hume has often been construed as some sort of proto-emotivist. Nor are such interpretations entirely groundless, given his radical sentimentalism. But many philosophers, (notably Hare and Nowell-Smith)⁷ have read their own noncognitivism back into Hume, and gone on to contend that the *point* of this famous passage is to distinguish between two logical or semantic categories: propositions on the one hand, and value judgements - variously understood as exclamations or orders - on the other. It is this alleged difference in logical kind that breaks the inferential bridge between Is and Ought. Indeed, this was so common an analysis in the fifties and early sixties, that in Hudson's (1969) anthology *The Is/Ought Question*, it is chummily referred to as the BGI or Brief Guide Interpretation (The Guide being a guide to philosophy). Hare, Nowell-Smith and their cohorts are aided and abetted by Hudson himself who should have known better. In the introduction and elsewhere, he endorses the non-cognitivist reading - largely because he is a noncognitivist. But he adds an argument: the ethical bits of the *Treatise* were directed against rational intuitionists such as Cudworth, Clarke and Balguy. These *were* Hume's intended targets, but it does not follow that their *descriptivism* (or cognitivism) was what he was getting at. After all, he was arguably a descriptivist himself, as was Hutcheson (on whose work Hume's is based). Still less does Hudson's argument suggest that *in this particular passage* Hume is relying on a distinction between different semantic categories. The autonomy of ethics was introduced into British philosophy by the rationalist Cudworth, and Hume's 'observation' was accepted with alacrity by the staunchly descriptivist Reid (*BM*, 930). It is quite compatible with intuitionism, as Prior is careful to stress (*LBE*, pp.33-35). Thus the case for Hume's non-cognitivism rests on his *sentimentalism*, not on his observations concerning Is and Ought. Cognitivists too are entitled to autonomy. They need not be perturbed by Hume's afterthought.

The idea that inference only reveals what is inherent in the premises, and that the premises somehow contain the conclusion, is an old one. It goes back to the Megarian and Stoic logicians, some of whom seem to have tied themselves in dreadful knots by taking it too literally.⁸ It has its adherents in our own day (See Hare (1952), p.32 and Geach (1976), p.21.). But venerable and vigorous as the doctrine is, it remains at the level of metaphor. And in logic, at least, we should hope for the literal truth.

⁶ This interpretation is confirmed by Hume's frequent calls on conservativeness to prove a sceptical point. 'When a man says *I have found in all past instances such sensible properties combined with such secret powers*: and when he says, *Similar sensible qualities will always be combined with similar secret powers*, he is not guilty of a tautology nor are these propositions in any respect the same ... you must confess the inference is not intuitive; [as it would be if the two sentences were simply synonymous] neither is it demonstrative' (*Enquiries*, 32). The content of the second proposition is novel, therefore it cannot be a demonstrative consequence of the first. Indeed, it is a recurrent tactic in Hume to dress up instances of the conservativeness of deduction as philosophic profundities.

⁷ See Hare (1952), pp.29 and 44-45, Hare (1963), pp.108, 116, 186 and 187, and Nowell-Smith (1954), pp.36-37.

⁸ Bochenski (1961) 20.13 and 22.15. The problem was $A \vDash A$. How could A be 'contained within' *itself*?

Can anything more literal be made of it? If we confine ourselves to syllogistic, yes. The conclusion of a valid syllogism does not contain *terms* that do not appear in the premises. So a proposition involving 'ought' cannot be syllogistically deduced from ought-free premises (TAE, pp.91-92). The logic book that (according to Prior⁹) we know Hume knew, was the *Port Royal Logic or L'Art de Penser* of Arnauld and Nicole. The formal part of this is largely concerned with syllogistic¹⁰, and when Hume speaks of deduction it is probably syllogistic he has in mind. If so, his 'observation' is sound. And if syllogistic were all there was to logic, it would be as decisive and subversive as he evidently believed. But there *is* more to logic than syllogistic. And in the context of modern logic - *classical* logic that is - it is rather more difficult to make sense of the dogma that logic is conservative. (So too, with medieval or Stoic logic.) To begin with, contradictory premises imply any and every proposition. 'The moon is made of green cheese' is hardly contained within 'It is raining and not raining'. *All* propositions entail tautologies - but do they '*contain*' them? Finally - and these facts are exploited by Prior is his attack on autonomy - A entails $A \vee B$ and $\sim A$ entails $\sim(A \& B)$, both for arbitrary B. Logic it seems, is not conservative after all¹¹, and morality not autonomous. And since the *logical* autonomy of ethics is entailed by the other two (§1), if logical autonomy is false, naturalism is true. Or so it seems.

3. Prior Sells the Pass

Prior laments Russell's treachery to the truth in 'selling the pass' to category theorists. Alas, Russell is not alone in iniquity. Prior 'sold the pass' to the enemies of autonomy and now naturalism 'sprawls across the face of [moral] philosophy like a monstrous tumour'.¹² Ethics, it seems, is no longer autonomous. Genuinely moral conclusions can be derived from non-moral premises (TAE). Prior endeavours to prove this by means of examples which (slightly simplified) I reproduce below:

- (A) 1. Tea-drinking is common in England.
Therefore:
2. Either tea-drinking is common in England or all New Zealanders ought to be shot.
- (B) 1. There is no man over 20ft high.
Therefore:
2. There is no man over 20ft high who ought to sit in an ordinary chair.
- (C) 1. Undertakers are church officers.

⁹ Prior (1976), p.9. Prior does not say how we know Hume knew this.

¹⁰ Kneale and Kneale (1962), pp.319-320.

¹¹ The thought that logic *ought* to be conservative, but that the classical kind is not, motivates many deviants. Relevant logics meet a variable sharing requirement; if A entails B they must share some propositional variables. 'Conceptivist' theories, developed from Parry's theory of analytic implication, impose the even stricter requirement that when A entails B 'the concepts of B (construed, e.g. in terms of the variables of B in the case of sentential logic) are included in those of A' (Routley, Meyer et al (1982), p.3). Such deviant logicians must sacrifice plausible classical principles to their conservative intuitions.

¹² Prior (1976) p.26. Fans will recognise the rhetoric of 'Entities'.

Therefore:

2. If church officers ought to be reverent, undertakers ought to be reverent.

(TAE, pp. 90-93)

All three inferences are impeccable. (A) is simply an instance of \vee -Introduction, i.e.: $A \vDash A \vee B$. (B) is a quantified variant of the principle $\sim A \vDash \sim(A \& B)$, viz: $\sim(\exists x)(Fx) \vDash \sim(\exists x)(Fx \& Gx)$. (C) (which I have simplified) is an instance of the following inference schema: $(x)(Fx \supset Gx) \vDash (x)(Gx \supset Hx) \supset (y)(Fy \supset Hy)$. Further, all three meet the rather strict conditions that Prior imposes on himself. In each conclusion moral terms occur *essentially* (TAE, p.89). They are not replaceable by any grammatically equivalent expression without a change in truth-value. Prior also eschews inferences whose conclusions belong to deontic logic. He doesn't want to cheat by deriving moral analyticities which are true anyway. And he insists on inferences whose conclusions can be derived from different premises, one at least of which is clearly moral.

At first sight Prior seems to have overturned autonomy. In which case he has overturned the conservativeness of logic - since the autonomy of ethics is merely moral manifestation of the more general doctrine.

But surely there is *something* wrong - something *odd* - about these inferences! You can't help feeling that Prior has taken himself (and his audience) in with a logical conjuring trick. We can reinforce this thought by means of a parallel between the autonomy of *ethics* and the autonomy of *hedgehogery* - the thesis that conclusions concerning hedgehogs cannot be logically derived from hedgehog-free premises. If you are a believer in the autonomy of hedgehogery you will feel yourself less confuted, than confounded, baffled and bamboozled by the following counterexamples.

- (A') 1. Tea-drinking is common in England.
Therefore
2. Either tea-drinking is common in England or all New Zealanders are hedgehogs.
- (B') 1. There is no man over 20ft high.
Therefore
2. There is no man over 20ft high who is a hedgehog.
- (C') 1. Undertakers are church officers.
Therefore,
2. If church officers are hedgehogs, undertakers are hedgehogs.

These inferences are undoubtedly valid, but you will probably insist vaguely that the conclusions are not *really* about hedgehogs - you can't get *genuinely* hedgehog-conclusions from hedgehog-free premises. Indeed, the ease with which we can substitute hedgehogs for obligations in these inferences, suggest that the conclusions are essentially

concerned with neither. Even if you are unable to devise a cast-iron monster-barrer, you are liable to hope that these inferences can be somehow explained away.

Prior admits that there is something odd about all three inferences, but denies they are odd in the same way, and that their oddities are of a profound significance (TAE, p.92). Still, in pointing out their several peculiarities, Prior comes precious close to the deep defect shared by all three. In (A) and (B), says Prior, the moral terms are contingently vacuous. An expression E is *contingently* vacuous in the conclusion of a valid inference if the inference would remain valid if E were replaced by any expression whatsoever of the same grammatical type.

Thus the 'oughts' which occur in the conclusions of (A) and (B) though not vacuous *tout court*, are vacuous *given the premises*. If the premises are true, we can replace these expressions at will with grammatically suitable substituends, without prejudice to the truth-values of the conclusions which contain them.

Now why doesn't Prior consider the two 'oughts' in (C)2 to be contingently vacuous? Because if you replace *one* of them with a grammatically equivalent expression, the inference is no longer valid (TAE, p.94). It will be valid ('of course') if *both* 'oughts' are (uniformly) replaced by a grammatically appropriate expression (as my facetious (C') shows). But Prior seems to think this a trivial type of contingent vacuity. Why? Because it does not imply that the duties inferred are automatically discharged. They are discharged in the case of (A) and (B), in both of which there is but one contingently vacuous 'ought'. (For example, given that tea-drinking is common in England, it not only follows that either tea-drinking is common in England or that all New Zealanders *ought* to be shot, but that either tea-drinking is common in England or that all New Zealanders *are* shot.) But this is not what is important about contingent vacuity. The significant feature of these inferences is that the blanks which the 'oughts' happen to fill, can be filled in anyhow - by 'is', 'ought not', 'not ought', or whatever (subject to grammatical propriety). The moral content of these conclusions is accidental, given the premises. Besides, Prior's definition of contingent vacuity in terms of *piecemeal* rather than *uniform* replacement of repeated expressions is anomalous. He surely adapted the idea of contingent vacuity from the Quinean concept of a vacuous occurrence. According to Quine (1936) ((1976), p.80), an expression appears vacuously in a sentence if it can be *uniformly* replaced without prejudice to the sentence's truth-value. Thus the propositional variables in a tautology or a contradiction are vacuous. Which variables fill the blanks is immaterial to the truth of the one or the falsehood of the other. But if we demand that expressions be replaceable *piecemeal* before they count as vacuous, the bulk of these variables would not be vacuous after all. We would have shifted from an illuminating concept to a useless one. Since uniform substitution is, and ought to be, used in the Quinean definition of vacuous occurrence, why switch to piecemeal substitution when it comes to *contingent* vacuity?

My hunch is that Prior was mesmerised by his moral subject matter. He forgot (if he ever fully realised) that logical autonomy is *commonplace* and not confined to ethics. Suppose that, instead of ethics, he had been dealing with the autonomy of hedgehogery. When he

hit on the notion of contingent vacuity, he would surely have defined it by uniform, not piecemeal substitution. With (C')², he would not have argued that being-a-hedgehog-if-church-officers-are-hedgehogs is a conditional way of being a hedgehog. Whereas he does argue, in effect, that having-a-duty-to-be-reverent-if-church-officers-are-reverent is a conditional way of having a duty (TAE, pp.94-95). The parallel suggests that this is no more a conditional kind of duty than the other is a conditional kind of hedgehog.

In (A), (B) and (C) then, the 'oughts' which appear in the conclusions are contingently vacuous in our amended sense - if they are *uniformly* replaced in the conclusion by grammatically appropriate expressions - the inferences in which they are embedded remain valid. But must this *always* be the case when 'moral' conclusions are derived from non-moral premises? And where does this leave autonomy and its parent, the conservativeness of logic?

4. The Problem Re-Stated

Shorter (1961) notes that Prior's counterexamples to autonomy (based on the failure of conservativeness) are subject to a 'certain futility'. They are 'quite useless for anyone who wants to decide what concrete action he ought to perform'. But will counterexamples to autonomy *always* be futile? Perhaps not, since Prior's counterexamples seem to be futile for different reasons. In much the same spirit, Frank Jackson (1974) elaborates a definition of semantico-logical autonomy immune to the standard counterexamples. MacIntyre (1981) pp.54-55, points out the flaw in this strategy. If the redefined autonomy of ethics is not derived from some general logical principle, what reason do we have to believe it true, besides the, perhaps temporary, drying up of counterexamples? In Lakatosian terms Jackson (and in effect Shorter) construct an *exception-barring definition* which marks out a (hopefully) *safe domain* for the modified conjecture¹³. The modified conjecture is thereby cut loose from the original 'proof' and runs the double risk of overstatement and understatement. It is devoid of epistemic support. To rescue autonomy we must save conservativeness.

Before I defend a redefined conservativeness, there is one point that should be noted. If logical autonomy is refuted *through the failure of conservativeness*, this may be no threat to ontological or semantic autonomy. For ontological and semantic autonomy entailed the logical sort, *only on the assumption that logic was conservative*. Indeed, the logical autonomy of ethics simply *is* this assumption in its ethical incarnation. (Which is why the conclusion follows when the assumption is added in.) Because you get nothing new out of logic, moral judgements, with their novel and autonomous content, could not be derived from non-moral premises. But if logic is not conservative this does not apply. Prior's arguments may be no threat to non-naturalism after all. In fact, as Humberstone (1982) realises, they pose a problem for *any* philosophical project of dividing up propositions into distinct categories closed under logical consequence from consistent subsets. Since logical autonomy *can* be vindicated, however, this is by the by.

¹³ See Lakatos (1976), particularly pp.26-29. Jackson is an exception-barrer rather than a monster-barrer since he does not deny that the conclusions of Prior's inferences are genuinely ethical (Jackson (1974), p.93). They are ethical all right, but not the type to which No-Ought-from-Is (properly interpreted) applies. In effect, I *do* deny this, which makes me a monster-barrer - though since I offer a *theory* of monstrosity, my monster-barring is, I hope, of a sophisticated kind.

5. The Conservativeness of Logic

In what follows I hope to show that classical consequence *is* importantly conservative, and thus that ethics is autonomous. But logical autonomy emerges as rather less world-shattering than some have imagined.

My discussion applies in the first instance to the classical propositional and (first-order) predicate calculi, but my conclusions hold for weaker systems - intuitionist and relevant logics, for instance.

For the moment, I follow Tarski in 'The Concept of Logical Consequence', and disregard complications introduced into inferences by definitions. I shall suppose that the predicates I talk about are *primitive*: that those that occur in the conclusions are not definable by others which appear in the premises. Definitions will be dealt with later (§11).

I start by combining Quine's occurrent vacuity with the Tarskian concept of logical consequence (as modified by Benson Mates). In 'Truth by Convention' Quine develops the notion of a vacuous occurrence. An expression occurs vacuously if it can be uniformly replaced by an expression of the same grammatical type, without prejudice to the truth-value of the resulting sentence (Quine (1936) ((1976), p.80). We can relativise this notion to inferences.

Consequence is defined as follows:

A sentence X , is a consequence of a set of sentences K , if there is no interpretation under which all the sentences of K are true, and X is false. (Mates (1972), pp.63-64)

The following reformulation may help in the ensuing discussion. Taking ' \vDash ' to symbolise consequence:

$K \vDash X$ iff under any interpretation of $K \cup \{X\}$, such that K is true, X is true too.

Having reminded ourselves of the concepts of consequence and vacuous occurrence, we can now combine the two. I define *inference-relative vacuity* as follows:

An expression (predicate, propositional variable) ϕ occurs vacuously in the conclusion of a valid inference $K \vDash X$, iff under any interpretation of $K \cup \{X\}$ such that both K and X come out true, we can uniformly substitute for ϕ any expression of the same grammatical type, without prejudice to the truth of the resulting X' .

Alternatively (and equivalently):

An expression ϕ occurs vacuously in the conclusion of a valid inference $K \vDash X$, iff we can uniformly substitute for any ϕ any other expression φ of

the same grammatical type, yielding a new sentence X' , such that $K \vDash X'$ is also a valid inference.

It is easy to give examples of such inference-relative vacuities. B , in $A \vDash A \vee B$, is one such. And *every* expression in the conclusion of an inference from contradictory premises, will be vacuous in this sense. Since every proposition is a consequence of contradictory premises K , $K \vDash X'$ will be as valid as $K \vDash X$, no matter what expressions ϕ in X are replaced by ϕ to produce X' .

We are now in a position to define and prove the conservativeness of logic. The idea on which we had a weak and metaphorical grasp, was that there can be nothing in a validly drawn conclusion that does not come from the premises. They somehow contain its substance. The unmetaphorical elucidation of this thesis is surprisingly literal-minded. It can be stated thus:

A predicate¹⁴ or propositional variable cannot occur non-vacuously in the conclusion of a valid inference unless it appears among the premises.

The talk of containment applies quite literally to certain *components* of the conclusion. They are idle - or at least *replaceable* - unless they are also components of the premises, and hence contained within them. There are *bits* of validly drawn conclusions that must have come from the premises if they are to escape inference-relative vacuity.

Proof:

We assume for *reductio* that a predicate *can* occur non-vacuously in the conclusion of a valid inference, without appearing among the premises. Let the predicate be F , and the inference $K \vDash X$.

We assume conjointly:

- (1) That $K \vDash X$ is valid.¹⁵
- (2) That F occurs non-vacuously in X .
- (3) That F does not appear in K .

(Without loss of generality we can disregard inferences in which K is inconsistent, or X logically true. If K is inconsistent, then every predicate in X appears vacuously. The same holds if X is logically true.)

Consider an interpretation θ of $K \cup \{X\}$ such that K (and hence X) is true. From (2) it is not possible to substitute for F , any other predicate G , without risking a change in the truth-value of X . That is, the substitution of *some* G for F , results in a new inference $K \vDash X'$ which is not valid. But by the same token a change in the *interpretation* of F to the denotation of the unknown G , will likewise result in a change in the truth-value of X .

¹⁴ If we are dealing with predicate calculus plus identity, we must except the $=$ sign. Otherwise conservativeness applies to identity too.

¹⁵ Strictly speaking it is redundant to specify the $K \vDash X$ is valid (otherwise it would not really be the case that $K \vDash X$!). However, it makes for clarity and licenses me later on to use the symbolism for *putative* consequences.

From (3) F does not appear in K . Thus the interpretation of K cannot constrain the interpretation of F . So there is an interpretation θ' of $K \cup \{X\}$ identical with θ except that F has the same denotation as G . Under θ' , K will be true but X false. Therefore $K \vDash X$ is invalid.

From the negation of one of our conjuncts we deduce the negation of the conjunction. It is not the case that a predicate can occur non-vacuously in the conclusion of a valid inference, without appearing among the premises.

The argument works equally well if F is a propositional variable. Logic - that is, first order propositional and predicate logic - is conservative.

6. Objection: Deontic Logic, Sentential Operators and Autonomy-Defying 'Oughts'

However, the conservativeness of first-order logic may not be enough to guarantee the autonomy of ethics. For usually, in modern deontic logics¹⁶, 'O' (which stands for 'Ought') is not taken to be a predicate at all, but a sentential operator like the 'L' and the 'M' of modal logic.

In standard deontic systems we can infer $\vdash \sim A \rightarrow \vdash \sim PA$ (If $\sim A$ is a theorem, so is: It is not permissible that A). They are based upon the rule (O)¹⁷: $\vdash A \rightarrow \vdash OA$, (where A is a theorem, infer theorem OA). Do these inferences overturn logical autonomy? Not in a straightforward way. The relation between $\sim A$ and $\sim PA$, or between A and OA is not the kind of consequence we have been considering. They are connected by rules of proof rather than rules of inference; rules leading from theorems to more theorems, not from arbitrary assumptions to further propositions which cannot but be true given those assumptions. Nevertheless, these principles do pose a problem. *Given the semantics*, there are propositions in which O and P occur essentially, and which are true under any permissible interpretations (deontico-logically true, you might say). Thus they are the consequences of any set of premises whatever, including the empty set, or sets of premises which are otherwise O and P -free. (This reflects the fact that O and P are non-schematic within these systems; that they enjoy the status of logical words.) Yet within such propositions (theorems) the O -s and the P -s *are* essential - they cannot be switched for any other operators without prejudice to the truth of those propositions or to the validity of the inferences at the end of which they may appear. Thus deontic logics *do* threaten autonomy, since (a) they treat 'ought' and its relations as *sentential operators*; things which cannot be accommodated within a predicate logic (there just isn't the vocabulary), and (b) they determine consequence-relations which license transitions from Ought-free premises to conclusions in which O (and P) appear non-vacuously. Nor can we dismiss such propositions as without practical import. Von Wright's pioneering (1951) system includes the following theorem (in fact an axiom): $PA \vee P\sim A$. This rules out tragic dilemmas from which there is no escape without wrong-doing. The effects on conduct will be subtle but real.¹⁸

¹⁶ Hilpinen ed. (1981a) and (1981b) together comprise an excellent introduction to the topic of deontic logic. See in particular the survey article by Hilpinen and Follesdal (1970), reprinted in the former.

¹⁷ So called by Hilpinen (1981a), xi.

¹⁸ This criticism is based on comments on an earlier draft by Routley (1983) and Brady (1983).

7. The Defects of Deontic Logic

I have four responses to this objection.

(i) Despite the current fad, I am not at all sure that 'ought', particularly the moral 'ought', *should* be treated as a sentential operator. Nor is this the opinion of all deontic logicians. In von Wright's (1951) article (which started the post-war boom in deontic logics) 'ought' attaches to 'names of (categories or types of) action, and not [to] propositions at all' (von Wright (1981), p.6). Later on, (1981) von Wright distinguishes between *two* types of 'ought': an operator on predicates which stand for action-kinds, and a predicate of individual actions (it is *names* of actions not the propositions describing them to which the 'ought' adheres). Geach (1982) takes 'ought' to be a predicable-forming operator on predicables - which explains why 'is a hedgehog' can be substituted for 'ought to be reverent' without linguistic strain. I myself am inclined to follow Reid (*BM*, 873) and take the 'ought' of 'ought-to-do' as a relation between an agent and an act, act-type or range of potential actions. Formally, this idea is not so very far from Geach. Again it explains the ease with which 'ought to be reverent' and 'is a hedgehog' can be switched. (For grammatical purposes relational predicates are on a par with others.) The 'ought' of 'ought-to-be' (Sein-sollen) perhaps represents a property of states-of-affairs. (Indeed, I am prepared to go bat for the Moorean suggestion that it is equivalent to the predicative 'good'¹⁹.) If variables are allowed to range over possible as well as actual states of affairs, 'ought-to-be' might well be accommodated *within* the predicate calculus, rendering the deontic sentential operator redundant. Fans of sentential operators who find this ontologically suspect are reminded that their own semantics when blown up into a metaphysic commits them to possible worlds. At all events, we need not suppose that 'ought' is a sentential operator simply on the say-so of deontic logicians - still less, of a dominant clique.

(ii) Deontic logic is a dubious enterprise; its leading principles are false, bordering on the nonsensical. The principle (O) not only obliges us to keep tautologies going but, by iterating deontic modalities, to keep these obligations going too. (If OA is a theorem, so is OOA!) The kindest thing to be said about this is that it is an 'absurdity' which logicians have been induced to 'swallow' for the sake of 'formal elegance and simplicity' (von Wright (1981), p.8). Routley and Plumwood (1984) describe it, with typical truculence, as 'modal rubbish'. The theorem $OA \supset \sim O \sim A$, (or $OA \supset PA$), an axiom, (D), in the Standard System, is open to question. In some moralities contradictory obligations can arise - you ought to do what you ought not to do - or at least there may be no innocent or permissible escape from a tragic situation²⁰. This violates (also) von Wright's Principle of Permission. Even the *minimal* deontic logic (on which most of the others are based) has the bizarre consequence $OA \ \& \ O\sim A \ \vDash_D \ OB$, for arbitrary B. (I call this (S1) or the Principle of Strong Deontic Spread.) Deontic contradictions are not debarred, as with the Standard System, but they do trivialise obligation. Even its weaker variant (S2): $O(A \ \& \ \sim A) \ \vDash_D \ OB$, included in the ultra-minimal logics of Schotch and Jennings (1981) and

¹⁹ See Moore (1903) *Principia Ethica*, p. 115.

²⁰ There is a classic discussion of tragic situations in Williams (1973), pp.166-183. He seems to have invented the phrase, at least in this connection.

Chellas (1980), is not beyond dispute. There may be moralities in which contradictions should sometimes be realised. (There are certainly some in which *ought-implies-can* is false, and the agent labours under impossible obligations.) Nevertheless, not everything is obligatory. Such moralities need not succumb to deontic collapse. All these 'consistency principles' - (D), (S1), (S2) - are objectionable, since there are non-trivial moral systems which defy them.²¹

This diatribe against deontic logic has provoked the following response: To be sure, the Bad Old Standard System has its faults. But logicians and philosophers have laboured to put these right. Indeed, Hilpinen (1981b) largely consists of uneasy tinkering as logicians strive to eliminate the grosser defects. Perhaps some amended logic escapes my critique? The systems of Chellas (1980) and Schotch and Jennings (1981) are alleged to be the best bets.

Chellas defines a deontic logic D in which neither (O), (D) nor Strong Deontic Spread are retained (Chellas (1980), pp.272-276). The latter fails because K^{22} : $(OA \ \& \ OB) \supset O(A \ \& \ B)$ and hence $(OA \ \& \ O \sim A) \supset O(A \ \& \ \sim A)$ are not theorems, even though $O(A \ \& \ \sim A) \supset OB$ is (so that (S2), Weak Deontic Spread, remains in force). The semantics specifies that OA holds in a world α iff there is a collection of worlds constituting a 'standard of obligation' for α at which A is true. But there are possible worlds with *no* standard of obligation (so that A may be a theorem but OA false at α) and 'where standards do exist they may support conflicting obligations' (hence OA and $O\sim A$ may both be true at α). This is very like the system of Schotch and Jennings (1981)²³, so they can conveniently be taken together.

My first complaint is that they do not escape the absurdity of obligatory tautologies. True, tautologies are not obligatory *tout court* - it is not a logical truth that $A \vee \sim A$ ought to be. But if anything *else* is obligatory, the tautologies are too. Since deontic logic is of little interest unless there are such things as duties it seems we are obliged to keep the tautologies going after all! But the objection to obligatory tautologies is not that they are necessary but that they are nonsense. For Chellas, amoralism is the only alternative to deontic absurdity²⁴.

My next complaint is due to Routley and Plumwood (1984) page 4. If $(OA \ \& \ O \sim A) \vDash_D OB$ is absurd so is $O(A \ \& \ \sim A) \vDash_D OB$. If contradictory obligations don't entail deontic triviality why should an obligatory contradiction? Why shouldn't the possible worlds be so bad that only an impossible world is deontically acceptable? There *are* reasons of

²¹ This critique of deontic logics draws heavily on Routley and Plumwood (1984) which furnishes numerous examples of moral dilemmas ($OA \ \& \ O\sim A$) and impossible 'oughts'. Since some were supplied by me, however, this is not an entirely independent confirmation of my views. There is also in Routley and Plumwood a proposal for reform. Deontic axioms should be engrafted onto a relevant propositional base. This is different from the idea suggested below (§8) but the two approaches are not irreconcilable. See Note 29. Incidentally, the consequence sign is subscripted \vDash_D to indicate that it is not classical consequence that is being discussed here. Neither of these inferences is valid in first-order logic.

²² The theorem is so labelled by Schotch and Jennings, and following them, Routley and Plumwood.

²³ It would be a cheap shot to complain that Schotch and Jennings (unlike Chellas) retain the absurd (O). But since they proclaim themselves able and willing to dispense with it, I won't hold it against them.

²⁴ I am indebted to R. Sylvan for this point.

course; some technical, some philosophic. To reject $O(A \ \& \ \sim A) \vDash_D OB$, it would be necessary to reject the rule of inference $\vdash A \supset B \rightarrow \vdash OA \supset OB$, or 'go paraconsistent' and abandon the classical principle $(A \ \& \ \sim A) \supset B$. The former would leave deontic logic in ruins whilst the latter is anathema to most logicians. The more philosophical point is the dogma defended by both Chellas and Schotch and Jennings: $\sim O\perp$ - the impossible is not obligatory. None of these reasons weigh with me, but before explaining why, I had better deal with Routley and Plumwood. Since they deny (S2), the invalidity of (S1) follows. (S1) is deontically valid in virtue of (S2) and a substitution instance of (K): $(OA \ \& \ O\sim A) \supset O(A \ \& \ \sim A)$. Thus they can afford to accept (K). And indeed they do. In an amended form it constitutes an axiom in their system (Routley and Plumwood (1984), p.14). Their arguments on its behalf boil down to the following three: (1) Their deontic logic won't work without (K); (2) the case *against* (K) relies on false modal assumptions; and (3) (K) is intuitive. As to (1), I am no more concerned for the fate of their deontic logic than anyone else's. (2) There are other arguments against (K) untainted by 'modal rubbish'. Where obligations conflict, it just seems to be *false* that there is, or must be, a unified obligation to realise a contradiction (an instance, you will remember, of the more general principle). This is not a structural law of every ethic. Ditto with the more general principle. If I ought to do A and I ought to do B, these need not resolve themselves into *one* duty - to do A and B. As for (3), their own intuitions are contaminated not by *modal* but by *semantic* rubbish. O is a sentential operator interpreted in terms of acceptable 'worlds' (though *impossible* worlds are available to them). And we have already seen reason to doubt such a reading (i).

Recent writing on deontic logic indicates widespread dissatisfaction with the standard system. The clunk of discarded theorems is heard in the land, and my tendency is to applaud each clunk. However, different theorists discard different theorems. What we are left with is a collection of competing logics, each including some dubious theorems whilst excluding others. For it is difficult to drop all the dubious principles at once whilst retaining a workable and interesting deontic logic. If (S2) goes (as it should) we would be forced to cripple deontic logic by abandoning its main rule of inference $\vdash A \supset B \rightarrow \vdash OA \supset OB$, or go paraconsistent and build on a relevant basis. The relevantist rejection of $(A \ \& \ \sim A) \vDash B$ seems sensible enough to me, but if we give up (K) (as we should) their deontic logic is in ruins too.

And this is as it should be. For really there is no such thing as deontic logic; no principles of inference peculiar to, and pervasive of, all moral or normative reasoning. There is the base logic holding in virtue of 'and', 'not', 'if-then' etc. (which may be less than classical). These words may be modified in their operation by the grammatical type to which 'ought' and its relations belong. But that is all. 'Ought' is *not* a logical word, and all the various 'deontic logics' can do, is codify the structural principles common to *groups* of moralities. In so far as they exceed the common or topic-neutral logic, they are devoid of normative force.

Schotch and Jennings however (p.149) have an *argument* to the effect that 'ought' is a logical word - and hence that there is such a thing as deontic logic. It runs as follows. 'Ought' must be so interpreted as to render the following valid: It ought to be the case that

$\alpha \vDash$ It is logically possible that α . Since it is a logical truth that the impossible is not obligatory, there is at least one logical law peculiar to *Ought*, and it counts as a logical word. But there is a counterexample even to this; a mainstream moral system with impossible obligations. Luther held that 'God foreknows all things, not contingently, but necessarily'. (Skinner (1978), p.6) Whence, given the truism that necessarily what God knows is true, and an uncontroversial modal axiom, every human act is necessary. But some such acts are forbidden by Divine Law and hence ought not to be done. Thus there are some propositions α , describing human acts, such that $O\alpha \ \& \ \sim M\alpha$.²⁵ I do not claim that Luther's views are sensible let alone true. But it is absurd to suppose that they embody a contradiction or that logic alone can rule them out of court. Rather, it is Luther's opinions that rule out the alleged logic. It does not delineate the structure of every ethic.

8. Operator Logic and Universal Conservativeness

(iii) My next reply is best understood by way of a detour. Critics²⁶ of my conservativeness proof have complained that it breaks down for first order *theories*. Consider a first order theory T, consisting of the following postulate: $(x)(F'x \supset Fx)$ and its consequences. This falsifies a crucial step in my argument, the claim that if F appears in the conclusion of $K \vDash X$ but not in the premises, the interpretation of K cannot constrain the interpretation of F in X . For if F appears in K , the interpretation of F must be such as to verify $(x)(F'x \supset Fx)$ - an important constraint. Hence in the first order theory T, F may appear non-vacuously in the conclusion of an inference but not in the premises. What my critics suggest is that we *constrict* the range of interpretations, excluding those which do not conform with the postulates of T. Consequence is relativised to theory. By tightening up the semantics, we loosen up the consequence-relation - allowing in inferences which violate conservativeness.

The answer to this should be obvious. To be sure, T-consequence (consequence based on models which conform to the postulates of T) is not conservative. But so what? I was talking about *logical* consequence, a topic-neutral relation. In effect, the postulates play the role of extra premises added into the inference. If $K \vDash_T X$ (ie. X is a T-consequence of K) then $T \cup K \vDash X$, (X is a *logical* consequence of K plus the postulates of T). And if we are interested in T and what can be derived from it, it is much more perspicuous to present its postulates explicitly as *premises* rather than determinants of a consequence relation whose status as logical is distinctly shaky.

Much the same applies to the consequence relation defined by deontic logic.²⁷ We restrict the range of models by demanding that they conform to the axioms, and relax the consequence relation, allowing in counterexamples to autonomy. But their status as

²⁵ For fuller details of Luther's opinions, see Skinner (1978), Chapter 1, and Kenny (1979), pp.72-75.

²⁶ Routley (1983) and Brady (1983).

²⁷ The notion of deontic consequence employed in this essay is distinct from (and narrower than) the concept of deontic consequence defined by Hintikka (1970), p.78, whereby Q is a deontic consequence of P iff $O(P \supset Q)$ is a theorem. For, as Hintikka himself shows (p.79), a wff can be a consequence of another in his sense without being a deontic consequence in mine. That is, it may *not* be the case that under any interpretation of P conforming with the axioms of the system that makes P true, Q is true too, even though $O(P \supset Q)$ is a theorem.

truths, let alone *logical* truths, is dubious in the extreme. They do not provide a framework within which all moral reasoning must be conducted. At best they delineate the structure of *some* moralities, and as such, should be regarded as postulates of a theory, rather than axioms of a logic. Instead of determining a consequence relation, it would be more perspicuous to add them in as extra premises whenever necessary. That way, they are more obviously up for grabs. But here we run into a problem. The postulates of the first order theory T could either determine a consequence-relation such that $K \vDash_T X$, or appear as premises yielding $T \cup K \vDash X$. This is not the case with the axioms of deontic logic. For they add on to the base logic (whether classical or other) not only new theses, but a new *vocabulary* of sentential operators. Propositional logic is officially blind to the internal structure of propositions within the scope of a deontic operator. Thus the addition of deontic axioms (or axiom schemata) as premises, does not enable propositional consequence to duplicate the deontic variety. The validity of $K \vDash_D X$, does not ensure that $D \cup K \vDash X$, is propositionally valid.

The solution is an *operator logic* of the kind developed by S.T. Kuhn (1981). Sentential operators are treated *schematically* like the propositional variables and predicate letters of first order logic. The semantics is 'designed to ensure that the logical truths are those only whose truth hinges on the logical expressions' (Kuhn (1981), p.495). These are listed as the Boolean '&', ' \neg ' and ' \vee '.²⁸ The only *theorems*, therefore, are propositional calculus tautologies and substitution instances thereof. What we tend to think of as modal and deontic *logics* can be expressed as *theories* within the operator logic.

Operator logic exactly meets my needs. It has better claims to be regarded as a *logic* than the various theories that can be expressed within it, as Kuhn convincingly argues. It is more basic and more general (being topic-neutral). It captures Kuhn's (and my) intuition that "we don't use, say, 'ethical reasoning' to determine our moral obligations but rather we apply our ordinary everyday reasoning to moral matters" (p.494). This is, interestingly, an intuition shared by the young Prior. "The 'logic of ethics' is not a special kind of logic, nor a special branch of logic, but an application of it" (*LBE*, page ix). There is no special logic of the moral concepts, and if there is, deontic logic isn't it. Operator logic makes no controversial assumptions whereas the very multiplicity of deontic and modal systems tells against their status as *logics*, canons of rationality to which we must adhere. 'Ought', then can, *if you like*, be regarded as a sentential operator, but this does not commit us to any dubious deontic principles. A believer in such principles is at liberty to add them in (a little modified perhaps) as extra premises. He may get the same results (in terms of conclusions) but only from premises in which an 'ought' explicitly figures. By insisting on a strict and topic-neutral notion of consequence, we ensure that deontic principles are subjected to debate, not taken for granted on the dubious warrant of possible worlds.

Is operator logic conservative with respect to sentential operators? Can my proof be extended to these more elaborate models? Yes. Since only tautologies are theorems, only

²⁸ Kuhn stresses that this list is provisional and that he might be persuaded to accept a weaker, non-classical logic with a non-Boolean negation. Thus it would be perfectly possible to mount a deontico-logical *theory* on a relevant operator logic. (See note 22) Obviously a *weaker* operator logic would pose no additional threat to conservativeness.

tautologous consequences are valid - i.e. if $K \vDash X$ is valid in operator logic, it is a substitution-instance of a valid propositional consequence. Now suppose some sentential operator O appears non-vacuously in the conclusion of a valid inference $K \vDash X$. It will be a component of a non-vacuous subsentence A of X , whose internal structure is irrelevant to the validity of the inference. That is, if A were uniformly replaced throughout $K \vDash X$ by a propositional variable A' , the new inference would also be valid. Since consequence is conservative with respect to propositional variables, we know that if A' appears non-vacuously in the conclusion, it appears in the premises. The same goes for A . And since O is a component of A , O appears in the premises too. Operator logic is indeed conservative.

Thus even if 'ought' is to be regarded as a sentential operator, this is no threat to autonomy. For there is a topic-neutral logic, shorn of dubious deontic principles, which can accommodate sentential operators. In that logic, no (non-logical) sentential operator can occur non-vacuously in the conclusion of a valid inference unless it appears in the premises.

(iv) I.L. Humberstone (1985) has noted that an even more general result along these lines is available. Let us return for a moment to the predicate calculus. We specify that σ is a substitution of one predicate letter (say G) for another (say F) so that σA is the result of uniformly substituting G for F throughout the sentence A .

Then:

* $A_1, \dots, A_n \vDash B$ implies $\sigma A_1, \dots, \sigma A_n \vDash \sigma B$

We demonstrate this as follows. Any interpretation which verifies $\sigma A_1, \dots, \sigma A_n$, but falsifies σB , can be converted into an interpretation of A_1, \dots, A_n, B , under which A_1, \dots, A_n are true and B false. We simply assign F in A_1, \dots, A_n, B the same extension as G in $\sigma A_1, \dots, \sigma A_n, \sigma B$. *Ex hypothesi* (since $A_1, \dots, A_n \vDash B$) there is no such interpretation. Hence * $A_1, \dots, A_n \vDash B$ implies $\sigma A_1, \dots, \sigma A_n \vDash \sigma B$

From *, we can (again) show that the predicate calculus is conservative with respect to (schematic) predicates. Suppose F does not appear in the A_1, \dots, A_n , but does appear in B . Then $A_i = \sigma A_i$ for each i . Thus $A_1 \dots A_n \vDash \sigma B$. That is, if F appears in the conclusion of a valid inference, but not among the premises, we can uniformly substitute any other predicate without prejudice to the validity of the resulting inference. In short, F suffers from inference-relative vacuity.

Humberstone generalises * to cover a wide range of logics governed by what he calls compositional semantics.²⁹ The generalised claim ** applies not only to predicates and

²⁹ A semantics S is *compositional* iff for any formulae A and B which are syntactically congruent in the sense of having 'formation trees' identical save in respect of which expressions occupy their terminal nodes, if $I, I' \in S$ are interpretations making corresponding assignments to those expressions, then I assigns to A the same truth-value that I' assigns to B . Here talk of 'corresponding assignments' means that the assignment by I to the atomic constituent of A

propositional variables, but to any expressions which are S-schematic; schematically treated by the semantics S in question. This notion is defined as follows. Reading $\text{Ass}_I(e)$ as the assignment of e under I, an atomic expression e is S-schematic when, for any interpretation $I \in S$ and any atomic expression f of the same syntactic category as e, there exists an interpretation $I' \in S$ such that:

1. $\text{Ass}_{I'}(e) = \text{Ass}_I(f)$ and
2. For all atomic expressions e' apart from e, $\text{Ass}_{I'}(e') = \text{Ass}_I(e')$.

Given a semantics S, we can define a logic (= consequence relation) \vDash_S . $A_1, \dots, A_n \vDash_S B$, is to mean that for all $I \in S$, $I \vDash A_1$, (where $I \vDash A_1$ means that A_1 is true under I) and ... and $I \vDash A_n$, implies that $I \vDash B$.

We can now state **

** Suppose S is a compositional semantics, e is an S-schematic expression and f is any (not necessarily S-schematic) expression of the same syntactic category as e. If σ is a substitution function mapping a formula A to the result of uniformly replacing occurrences of e in A by f, then $A_1, \dots, A_n \vDash_S B$ implies $\sigma A_1, \dots, \sigma A_n \vDash_S \sigma B$

I omit the proof which (in Humberstone's opinion) is straightforward.

From ** we can derive the corollary that the logic defined by \vDash_S is conservative with respect to (schematic) e-type expressions. They cannot appear non-vacuously in the conclusions of valid inferences unless they appear in the premises.

Now Kuhn's operator logic (like the predicate calculus) is governed by a compositional semantics. Sentential operators of the 'modal' sort are (as has been stressed) schematic (both in Kuhn's sense and Humberstone's). Hence operator logic is conservative with respect to such operators, including 'ought' (if that's the way it should read).

But we can go further than this. *Whatever* the syntactic category of 'ought', so long as the logic governing it is subject to a compositional semantics, 'ought' cannot appear non-vacuously in a conclusion unless it appears in the premises - *provided* (and this is an important proviso) that it is S-schematic for the semantics in question. Since it seems likely that any such semantics would be compositional, the burden of my argument rests on this claim: that 'ought' *should* be treated as schematic; that there are no logical principles peculiar to, and pervasive of, the moral terms. And for this I have argued already (i) - (iii).

9. The Autonomy of Ethics Restored

Returning from the austere realm of logic to the lush pastures of ethics, we can vindicate Prior and Hume. They were right to rest the autonomy of ethics on the conservativeness

occurring at an arbitrary node, is the same as the assignment made by I' to the expression occupying that node in B's formation tree. Humberstone (1986).

of logic. As redefined, this does debar the types of inferences to which they were opposed. Prior (*LBE*, chapters II-III) supports a wide range of philosophers - including Cudworth, Hume and Reid - against those who wish to derive obligations from God's commands, the dictates of the sovereign, or what will produce the maximum of pleasure (Hobbes, Locke, Clarke, Paley and Bentham). None of these latter would have been happy to replace the 'goods' and 'oughts' which occur in their conclusions with random grammatical equivalents. Had they known of the notion of inference-relative vacuity they would have striven to avoid it. So if they *do* propound deductive arguments which defy logical autonomy (and of this I am a little doubtful) then either the inferences are invalid or the moral words can be replaced - for instance by their opposites.

But the logical autonomy of morals is a less impressive trait than some have supposed. It is too widely shared. Other forms of discourse - hedgehog-talk for instance - are similarly autonomous. No conclusions which non-vacuously contain the predicate 'is a hedgehog', can be validly derived from premises which don't. The conservativeness of logic ensures this as well. Moral talk is no more (or less) autonomous than the other. Autonomy is a trait too common to confer distinction.

10. The Significance of Autonomy

If ethics is not unique in its autonomy, why has so much been made of it?

One reason is that truisms can acquire importance by being denied. And some moralists have implicitly denied autonomy. They have attempted to derive significantly moral conclusions from non-moral premises - and this cannot be done. If moralists have been engaged on an impossible endeavour, its impossibility is, perhaps, worth pointing out.

A second relates to the prevalence of logical positivism in the middle decades of this century. As a consequence, many philosophers rightly held that ethics was autonomous, but wrongly believed that other forms of discourse were not. The influence of Moore, and the status of Hume as the patron saint of positivism, established moral autonomy in the philosophic mind. Verificationism disestablished all the rest.

The verificationist typically believes that a non-basic proposition is analytically linked to its verification-conditions. From the existence of certain sensations and the potential for others it *follows* (where 'follows' is construed as close to, or identical with, logical consequence) that I have a hedgehog before me. Thus I *can* derive hedgehog-conclusions from hedgehog-free premises, solely concerned with (say) sense-data. Hedgehog talk is non-autonomous. And the same goes for empirical discourse generally.³⁰

Now verificationism of this type is, or ought to have been, completely, exploded (though even today there are philosophers who cling to the smithereens). But if it were correct, ethics would be alone in its autonomy. And this would be something worth making a fuss over.

³⁰ This is, of course, a crude caricature, devoid of decent epicycles. But it will do for now.

Hare seems to believe something of the sort. There are frankly verificationist passages in his (1952), p.81, and (1963), p.2, and even in his latest work (1981), pp.2-3. Moral and descriptive judgements are explicitly contrasted in (1963). Unlike the latter, moral judgements are not analytically linked to any evidential base. No matter what facts you are presented with, you can, without logical or linguistic impropriety, decline to draw a moral conclusion. Moral judgements, therefore, stand out from the empirical ruck. There is a temptation to explain this unique distinction by their special (perhaps non-cognitive) character. Since they are logically unlike other propositions, they must be semantically distinct - perhaps not propositions at all.

We can undercut this argument by denying the verificationism on which it rests. But at least one philosopher has tried another tack.

Phillippa Foot accepts (a rather loose) verificationism, but defends naturalism by denying autonomy. She suggests that moral judgements are on a par with empirical propositions (Foot (1958) ((1978), pp.96-100)). In language which betrays the authoritarianism inherent in verificationism, she insists that it is 'laid down' (by whom?) that some things do, and some things do not count in favour of a moral conclusion (p.99). A man can 'no more decide for himself what is evidence for rightness and wrongness than he can decide what is evidence for monetary inflation or a tumour on the brain'. There are 'logical connexions' between empirical propositions and the observations which sustain them. You cannot assert the latter and deny the former without linguistic impropriety, or even self-contradiction. The same goes for ethics. There are factual propositions from which moral judgements follow. The facts cannot be asserted and the values denied without inducing logical incomprehension in innocent bystanders.

What is wrong with Foot's position is the verificationism that she shares with her opponents. Verificationism underlies the belief (on which she and Hare are agreed) that *if* there is an inferential cleavage between facts and values, this marks a difference in logical kind. It is this that forces her to deny autonomy. If we grant the conditional we can only avoid noncognitivism by denying the cleavage. But the conditional only looks plausible if the logical gap is unique. If logical gaps abound, we need not resort to non-cognitivism to explain why *this* one yawns before us. And it is verificationism that abolished most gaps. Without it, ethics is not alone in its autonomy. Thus the *unimportance* of the Is/Ought gap is itself important. Many philosophers, notably Hare, are inclined to take the rift as a datum and to invoke what Geach (1977), p.7, describes as dubious semiotic theories' to account for it. Others, such as Foot, have opposed autonomy in order to avoid the dubious semiotics. Both factions are dependent on the same mistake. The existence of the gap supplies no backing whatsoever for non-cognitive meta-ethics. It would do so only if verificationism were correct, and ethics unique in its autonomy. This, it is not.

11. Autonomy and Definitions

What about definitions, a topic I deferred at the outset of §5? An obvious objection to logical autonomy is that definitions license us to non-vacuously derive conclusions with substantial moral content. 'I ought to do X', follows from 'I am obliged to do X', the

reason being that they mean the same.³¹ Strictly speaking, the inference is invalid. But then, when proposing it, I was not speaking strictly. The suggested argument is an enthymeme, albeit with an obvious missing premise: - 'I ought to do X = I am obliged to do X'. Once a definition is inserted, the 'ought' is no longer new but becomes part of a premise and thus no threat to conservativeness. Any expressions which are thereby introduced, can reappear in the conclusion, but must be contained in at least one premise. Though definitions do not endanger conservativeness, and hence logical autonomy, they surely reduce it to triviality. A definition is either a report of linguistic usage or a stipulation as to how words should be used. As such, it is *insubstantial*, unlike a statement of non-linguistic fact or a moral principle. It does not state how the world is, or should be, but how *words* are, or should be. Yet insubstantial as definitions are, by adding one in to a set on non-moral premises, it seems possible to derive a conclusion with substantial moral content. It is thus surprising to find Prior touting autonomy as a more compendious refutation of the fallacy Moore refutes. (*LBE*, p.24) It seems too weak to refute its way out of a paper bag.

And this is correct. Logical autonomy is, in itself, rather trivial. Its *falsehood* might be momentous, opening the way for the triumph of naturalism, but its *truth* is of rather less consequence. It is compatible not only with the naturalism defined in §1, but with *semantic* naturalism - the doctrine that moral words *mean the same* as some natural paraphrase. It is thus impossible to derive *semantic* autonomy - the claim that moral words *lack* such natural equivalents - from *logical* autonomy (as Prior tried to do, *LBE*, page 24). In other words, Hume might be *right* about No-Ought-from-Is and Moore *wrong* about the natural indefinability of 'good'³² The two doctrines are distinct, and Hume's is the weaker thesis. Nevertheless I claim that Moore *is* right, and that 'good' *is* indefinable: it has no natural synonyms. The Open Question Argument proves the point. Thus semantic autonomy is true and semantic naturalism false.

If this raw assertion is right, we can make short work of naturalistic definitions. Construed as *propositions*, descriptions of linguistic fact, they are all of them false. When they enter as premises into an argument for a moral conclusion, the inference can be *valid* but never *sound*. Construed as *stipulations*, the conclusions they deliver are not genuinely moral. For a stipulative definition merely expresses the author's resolution to use some words in place of others - in this case what *looks* like a moral word in place of others. But since this 'moral' word has no content *besides* that of those others, it is not synonymous with its genuinely ethical look-alike. Hence the conclusion in which it appears does not express a moral judgement.

Though weak in itself, logical autonomy becomes rather more powerful when combined with semantic autonomy. But, even together, they are by no means decisive in the fight against naturalism. Neither semantic, nor logical autonomy, nor both combined entail ontological autonomy. It remains possible that moral and natural properties are identical

³¹ At least to me. Some philosophers make fine distinctions between 'ought' and 'obliged', but I assume the reader subscribes to this crass synonymy.

³² I reject Geach's claim (1956) that Moore's predicative 'good' is indefinable because there is no such thing. I hope to argue the point in a future paper. [Since done: see my 'Geach on "Good"' (1990) *Philosophical Quarterly*, 40, pp. 1-20.]

even though the *concepts* are distinct. Or maybe moral judgements are true in virtue of some complex of natural facts (e.g. facts about human institutions), even though they are not equivalent to *statements* of those facts (a possibility mooted by Anscombe (1958) and rather less perspicuously by Searle (1964)). But these are topics for another paper. The proofs of logical autonomy and, perhaps more importantly, conservativeness, together with the critique of deontic logic³³, will do for today.

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³³ I had finished this paper when I came across an excellent article by Sayre-McCord (1986) defending my thesis of §7ii that there is no uncontroversial deontic logic which depicts the structure of all defensible moralities.

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