SORITES

σωρίτη

An International Electronic Quarterly of Analytical Philosophy
Indexed and Abstracted in ***THE PHILOSOPHER'S INDEX***
ISSN 1135-1349
Legal Deposit Registration: M 14867-1995

Regular-Mail Address:
c/o Prof. Lorenzo Peña
CSIC–Institute of Philosophy
Pinar 25, E-28006, Madrid, Spain
Fax +341 564 52 52; Voice Tph +341 411 70 60, ext 18

MAIN INTERNET ACCESS:
ftp://ftp.csic.es/pub/sorites
<sorites@fresno.csic.es> (Editorial e-mail inbox, esp. for submissions)
<sorites@pinar2.csic.es> (Inquiries and subscription-requests)

Issue #06 — August 1996

SORITES (ΣΩΡΙΤΗΣ)

ISSN 1135-1349

Issue #06. August 1996.

MAIN INTERNET ACCESS:

ftp://ftp.csic.es/pub/sorites

<sorites@fresno.csic.es> (Editorial e-mail inbox, esp. for submissions)
<sorites@pinar2.csic.es> (Inquiries and subscription-requests)

Other InterNet access:

(1) By anonymous ftp: open ftp.csic.es, then go to directory /pub/sorites
(2) By Gopher open gopher.csic.es; then select item 3 ('FTP del CTI/'); then select item 6 ('pub/'); then select item 16 ('sorites/')

Other URL's for access through the Web
(with Lynx or other WWW browsers)
ftp://ftp.vc.ehu.es/cidirg/rev/sorites
gopher://gopher.csic.es:70/0ftp%3aolmo.csic.es%40/pub/sorites/
gopher://scdx01.sc.ehu.es:70/11/09%7c%20SORITES/

Please send your Regular-Mail contributions to the Submissions Editor's address:

Prof. Manuel Liz
Facultad de Filosofia
Universidad de La Laguna
Tenerife, Canary Islands
Spain
** ** **
Voice Tph Nr. +3422-603166
Fax Nr. +3422-603102

SORITES

ISSN 1135-1349

SORITES

ISSN 1135-1349

Issue #06. August 1996

TABLE OF CONTENTS

SORITES (Σ ΩPITHΣ), ISSN 1135-1349
Issue #06. August 1996. P. 3
Abstracts of the Papers

ABSTRACTS OF THE PAPERS

DOING WITHOUT CONCEPTS:

AN INTERPRETATION OF C. I. LEWIS' ACTION-ORIENTED FOUNDATIONALISM

Robert S. Stufflebeam

C. I. Lewis' action-oriented notion of cognition is consistent with a minimally representational picture of mind. I aim to show why. Toward this end, I explore some of the tensions between Lewis' theory of knowledge and his theory of mind. At face value, the former renders the latter implausible. Among other problems, no agent could act if she were required to entertain the myriad beliefs that Lewis claims figures in the guidance of action. But rather than abandon Lewis' story, I attempt to rehabilitate it. Rehabilitation is possible, I argue, because (i) Lewis isn't claiming that his epistemology describes *actual* justificatory practices, but rather what an agent *could* do; (ii) the social character of concepts [and meaning] considerably reduces the need for appealing to *internal* concepts when explaining why an agent does what she does; and (iii) among his paradigm cases of cognitive behavior are paradigm cases of nonreflective action. Here's the rub: not only do such actions account for most of our behavior [as Lewis himself notes], nonreflective actions, though cognitive, don't require conceptualization.

♣ ♣ ♣ ♣ ♣ ♣ ♣

QUANTUM OBJECTS ARE VAGUE OBJECTS

Steven French & Décio Krause

Is there vagueness in the world? This is the central question that we are concerned with. Focusing on identity statements around which much of the recent debate has centred, we argue that 'vague identity' arises in quantum mechanics in one of two ways. First, quantum particles may be described as individuals, with 'entangled' states understood in terms of non-supervenient relations. In this case, the vagueness is ontic but exists at the level of these relations which act as a kind of 'veil'. Secondly, the particles can be regarded as non-individuals, where this is understood as a lack of self-identity and given formal expression in terms of quasi-set theory. Here we have ontic vagueness at perhaps the most basic metaphysical level. Our conclusion is that there is genuine vagueness 'in the world' but how it is understood depends on the metaphysical package adopted.

SORITES (Σ ΩPITHΣ), ISSN 1135-1349
Issue #06. August 1996. Pp. 4-20.
«Doing Without Concepts:
An Interpretation of C. I. Lewis' Action-Oriented

DOING WITHOUT CONCEPTS:

AN INTERPRETATION OF C. I. LEWIS' ACTION-ORIENTED FOUNDATIONALISM

Robert S. Stufflebeam

Concepts play a vital role in the action-oriented foundationalism of C. I. Lewis. As well they should: without concepts to mediate the mind's interpretation of the sensuously given, experience itself would not be possible; neither would knowledge. Thus explains why he belabors the explication of conceptualization in both *Mind and the World Order* [MWO] and *An Analysis of Knowledge and Valuation* [AKV].[1] For Lewis, all experience is indirect or «thick,» since concepts are *always* brought to bear upon the sensuously given. This suggests that conceptualization causally figures in the production of all [cognitive] behavior, a view today championed by proponents of folk psychology; indeed, it's championed by almost everyone currently engaged in explaining the mind. After all, conceptualization is explicit representation *par excellence*, and there can be «no intentional causation without explicit representation.»[2] Or so we have been conditioned to believe. Still, the dearth of present-day foundationalists notwithstanding,[3] Lewis, clearly, is not alone in privileging concepts when explaining why an agent does what she does.

Herein lies the problem: his action-oriented theory of knowledge is consistent with a minimally representational picture of mind; so too is his notion of concepts as social entities. As such, Lewis' picture of mind is far from being a species of the cognitivist orthodoxy that now dominates

---

[1] C. I. Lewis, *Mind and the World Order: Outline of a Theory of Knowledge* (Mineola, NY: Dover Publications, 1929). All subsequent references to this work will be labeled 'MWO'. All reverences to his other major work — *An Analysis of Knowledge and Valuation* (La Salle, IL: Open Court, 1946) — will be labeled 'AKV'. All of my Lewis material comes from these two sources.

[2] Jerry A. Fodor, *Psychosemantics: The Problem of Meaning in the Philosophy of Mind* (Cambridge, MA: MIT Press, 1987), p. 25.

[3] Most commentators on Lewis have serious reservations about his strong foundationalism. For a recent example, see Susan Haack, «Foundationalism Undermined,» *Evidence and Inquiry: Towards Reconstruction in Epistemology* (Cambridge, MA: Blackwell, 1995).

the philosophy of mind [and cognitive science].[4] Indeed, his account is much less dependent on internal intensional entities than his claims about «thick experience» might lead one to believe. Since many cognitive scientists [including me] don't buy the cognitivist story, given the minimally representational picture of mind emerging from such fields as dynamic systems theory,[5] situated action,[6] and connectionism,[7] all the more reason to give Lewis' theory a second look. Moreover, since Lewis contends that most of our behavior *isn't* mediated by conceptual interpretation — which is another view [the above] opponents of cognitivism take seriously — the time is right to reconsider Lewis' views on mind and knowledge. I aim to do just that.

My purpose for this paper is to resolve the apparent contradiction between Lewis' claim, on the one hand, that all experience is thick, and on the other, his claim that most of our behavior *isn't* mediated by conceptual interpretation. This is the major tension between Lewis' theories of knowledge and mind respectively. In short, I aim to resolve it. Toward that end, I begin by sketching-out his foundationalism. I then focus on what Lewis takes to be the nature of experience. Therein lies the major tension. Again, he claims that all experience is indirect or «thick» — since concepts [or interpretation] are *always* brought to bear upon the sensuously given. But he *also* identifies a sort of experience that *doesn't* require conceptualization — stimulus-driven experience — the result of which are «unconsidered» responses (MWO, p. 403). At face value, Lewis' epistemology renders his theory of mind implausible: no agent

---

4 'Cognitivism' is the view that all mental phenomena fundamentally involve *thinking*, which itself requires the manipulation of internal symbolic representations. For a nice introduction to the debate between cognitivists and their opponents, see *Speaking Minds: Interviews with Twenty Eminent Cognitive Scientists*, Peter Baumgartner and Sabine Payr (Eds.) (Cambridge, MA: MIT Press, 1995).

5 For instance, see Timothy van Gelder, «What might cognition be if not computation?» *Journal of Philosophy, 92* (7) (1995): 345-381.

6 'Situated action' names a research program [especially in artificial life] that views agents as closely coupled with their environment. This arrangement minimizes [if not eliminates] the role of representation [explicit, symbolic, or otherwise] in the production of behavior. For a proponent's view, see Rodney Brooks, «Intelligence Without Representation,» *Artificial Intelligence*, 47 (1991): 139-159; cf. David Kirsh, «Today the Earwig, Tomorrow Man?» *Artificial Intelligence*, 47 (1991): 161-184.

7 For an antirepresentationalist gloss on connectionism, especially on parallel distributed processing [PDP], see my «Representations, explanations, and PDP: Is representation-talk really necessary?» *Informatica, 19* (4) (1995): 599-613.

could act if she were required to entertain the myriad beliefs that Lewis claims figures in the guidance of action. But rather than abandon Lewis' philosophy, I attempt to rehabilitate it. Rehabilitation is possible, I argue, for the following reasons. First, Lewis isn't claiming that his epistemology describes *actual* justificatory practices; rather, it describes what an agent *could* do. This renders his theory of mind more plausible. Second, the social character of concepts [and meaning] minimizes the need for *internal* concepts as causes for why an agent does what she does. And third, among his paradigm cases of cognitive behavior are paradigm cases of nonreflective action. Here's the rub: not only do such actions account for most of our behavior [as Lewis himself notes], nonreflective actions, though cognitive, don't require conceptualization.

Here come the qualifications. First, although I must summarize a great deal of material, I endeavor not to overlook any essential part of Lewis' views about empirical knowledge. So be warned: while my analysis is not exhaustive, an even-handed approach requires that I provide quite a bit of detail.

Second, most of my labor is directed toward explicating Lewis' theory [or rather, *theories*]. My analysis and conclusions, while controversial, pale in comparison to the controversial nature of antirepresentationalism. As such, this is not the place to evaluate Lewis' views from the standpoint of recent cognitive science. And though I am familiar with the controversies in cognitive science regarding representation[s],[8] explicating them *and* doing justice to Lewis would entail making this paper far too technical and intolerably long.

Last, I assume that the story Lewis tells in AKV is an extension and refinement of the story he tells in MWO. To be sure, inconsistencies between the two accounts can be found. But bear this in mind: my aim is to rehabilitate Lewis, not to bury him.

1. THE BIG PICTURE

---

[8] For more on the general nature of the controversy, see my «Representations,» in William Bechtel and George Graham (Eds.), *A companion to cognitive science* (Oxford: Basil Blackwell, forthcoming). For an antirepresentational defense of computation, see my «Representations, explanations, and PDP: Is representation-talk really necessary?» *Informatica, 19* (4) (1995): 599-613.; also see «Computation matters: An analog view of vision,» *Proceedings of the 18th Annual Conference of the Cognitive Science Society* (1996): 851. For a brief response to Andy Clark and Chris Thronton's defense of representationalism, see my «Why computation need not be traded only for internal representation,» *Behavioral and Brain Sciences* (in press).

> «[W]ithout concepts, there is no knowledge.» (MWO, p. 121)

> «The primary and pervasive significance of knowledge lies in its guidance of action: knowing is for the sake of doing.» (AKV, p. 3)

The action-dependent nature of knowledge is one of the hallmarks of Lewis' epistemology. This is both a boon and a bane. The boon is that it makes Lewis' philosophy relevant to current cognitive science, much of which is concerned with modeling minds [and cognitive processing] in an action-dependent way. The bane is that in cashing-out all that is involved when a knowing agent to acts, minds would be too occupied with conceptualizing ever to do anything: concepts simply get in the way. First things first.

1.1 Lewis' Methodology

Before sketching-out Lewis' theory of knowledge, it will be worthwhile to say just a bit about his methodology.

First, Lewis considers his theory to be *reflective* rather than *speculative*. Reflective philosophizing — an activity not limited to philosophers alone (see MWO, p. 2) — involves reflecting on and clarifying what is already given in commonsense. In short, it is the business of philosophy «to investigate what we already know» (MWO, p. 2). Notwithstanding his references to Socrates (see MWO, p. 19), he doesn't have Platonic *anamneis* in mind. Rather, he means that «it is the business of philosophy to analyze and interpret our common experience, and by reflection, to bring to clear and cogent expression those principles which are implicit because they are brought to experience by the mind itself» (MWO, p. 36). Above all, the reflective method is empirical, analytic [i.e., critical], and pragmatic.

Second, although Lewis is willing to defer to the special sciences regarding «certain questions of phenomenal fact» (MWO, p. 4), he maintains that epistemology «is a subject too fundamental to rest upon distinctions drawn from the particular sciences» (MWO, p. 56):

> It is not the business of philosophy, as it is in the natural sciences, to add to the sum total of phenomena with which men are acquainted. Philosophy is concerned with what is already familiar. (MWO, pp. 2-3)

> The delineation of the fundamental concepts 'mind' and 'mental' is a truly philosophic enterprise. (MWO, p. 6)

Such passages strongly suggest that Lewis accepts a strict demarcation between the realms of philosophy and science. As such, he is clearly not a naturalist in the Quineian sense. Neither does he think that philosophers can contribute much to empirical model building [even when the special sciences haven't yet determined what the facts are]. Of course, there is no reason why Lewis should have been less dichotomous. Still, given that much philosophy today is offered in close partnership with the special sciences, the sharp division between philosophy and science that Lewis defends is worth noting.

The task now is to sketch-out his theory. I'll save most of my analysis of it for later [Section 3].

1.2 Lewis' theory of knowledge: Part I ['Action']

As noted above, Lewis claims that «knowing is for the sake of doing.» Only «active beings» can have knowledge, for knowledge is necessary if a creature is to *evaluate* which course of action will best achieve its ends. After all, «[f]or a being which did not assign comparative values, deliberate action would be pointless» (AKV, p. 3). Thus, knowledge involves two general species of activity: *action* [which is the output of comparative evaluation] and *evaluation* [which is the process by which a purposive action is selected and justified].

The sort of 'acts' [or behavior] that depend on knowledge are all and only those acts that involve the anticipation of consequences — actions that may be called 'deliberate', 'intentional', or 'purposive'. Such acts arise only in creatures capable of exercising «explicit foresight» — going beyond what is immediately present to the senses and anticipating possible experiences (AKV, p. 5). «To know,» Lewis says, «is to apprehend the future as qualified by values which action may realize» (AKV, p. 4). But while all knowledge-dependent action depends on evaluation, not all actions are knowledge-dependent. On this, Lewis is quite explicit:

> *[M]uch of our own behavior for which we are taken to be responsible is hardly such as is instigated by explicit foresight and assignment of values*. Deliberate action shades off, in one direction, into that which represents instinctive tendencies and automatic responses, and in another, into that which has become habitual and is no longer attended by any definite prevision or assignment of consequences. Somewhere here a line must be drawn — or more than one. Our own deliberately judged conduct belongs on one side, and those processes called actions or doings of inanimate objects and unconscious organisms plainly belong to the other. But between these two there remains an indeterminate middle ground — e.g., what we do habitually and without consideration — often covered by the broad term 'behavior'. (AKV, p. 5; my emphasis)

Thus, Lewis' theory isn't intended to capture the process by which *every* action is selected, but rather capture only those acts that are deliberate or purposive — the sort of acts requiring «explicit prevision of consequences and evaluation of these» (AKV, pp. 6-7). For now, I shall leave it an open question as to which of the following labels best describes most of our behavior: 'knowledge-mediated' or 'unconsidered responses'?

1.3 Lewis' theory of knowledge: Part II ['Evaluation']

Appropriately enough, Lewis directs most of his energy toward explicating the 'evaluation' component of empirical knowledge, which breaks down into 'transcen-dence' and 'justification'. *Justification*, in turn, breaks down into 'verification' and 'conceptualization'. *Conceptualization* breaks down into 'interpretation' and 'the given'. There endeth the reduction. This description suggests that evaluation is rather convoluted. It is. Still, the basics are straightforward; identifying them will serve to summarize his theory.

All knowledge, empirical or otherwise, «has an eventual empirical significance.» What this means is that everything that is knowable or thinkable must ultimately refer to meanings that are «sense-representable» (AKV, p. 171). Why this is so, and how it works, will become clearer presently. What I wish to emphasize here is that Lewis is wholly wedded to there being two general types of statements: *analytic statements* and *nonanalytic statements* [or synthetic statements]. The former «assert some relation of meanings amongst themselves.» The latter «require relation of a meaning to what is found on particular occasions of experience.» «It is the latter class alone,» Lewis says, «which may express empirical knowledge» (AKV, p. 171).

For a synthetic statement to count as an expression of knowledge, it must go beyond — «transcend» — the mere reporting of what is immediately given in experience (MWO, p. 132). Not all synthetic statements have this feature, but all judgments do. Here's why: Judgments *make a*

prediction about future possible experience, so they are *subject to error*. Such isn't the case with EXPRESSIVE STATEMENTS (AKV, p. 184) — direct reports of the «momentarily given» (MWO, p. 275). These statements express only the content of one's subjective experience. They make no prediction. They are not subject to any possible error. For example, 'The thing in front of me seems furry' and 'I see what seems to be a white object' are reports of the content of my immediate experience. Because mere reports of one's «apprehensions of the given» make no prediction, don't need to be verified, and are immune from error, they are not judgments (AKV, p. 183). As such, Lewis denies the possibility of direct knowledge by perception alone: «there is no knowledge by acquaintance; … knowledge always *transcends* the immediately given» (MWO, p. 118).

What Lewis is trying to capture by 'EXPRESSIVE STATEMENTS' is the awareness one has about the content of one's immediate experience. Reports of such content don't count as expressions of knowledge because empirical knowledge is never certain, only probable. Since one is always certain about the content of one's experience, these reports cannot be expressions of knowledge. The difficulty here is in grasping the distinction between *apprehensions of the given* versus *reports* of apprehensions. Without language, however, it is impossible to talk about the former, much less express the latter (see AKV, p. 183). As such, there is no way of talking about the content of one's experience without employing concepts. Therein lies the problem, for concepts are *not* supposed to figure in direct experience. What is, rather, is only one's awareness of what is immediately given:

> *[T]here is such a thing as experience, the content of which we do not invent and cannot have as we will but merely find.* … [The] given is an element in perception but not the whole of perceptual cognition. Subtract, in what we say that we see, or hear, or otherwise learn from direct experience, all that conceivably could be mistaken; the remainder is the given content of the experience inducing this belief. If there were no such hard kernel in experience — e.g., what we *see* when we think we see a deer but there is no deer — then the word 'experience' would have nothing to refer to. (AKV, pp. 182-183; my emphasis)

In the next section, I shall say quite a bit about the contributions made to experience by the given and conceptualization. For now, again, the main point is: *knowledge requires judgments, judgments require conceptualization, and conceptualization involves prediction* — going beyond what is immediately given to the senses. Ultimately, all empirical knowledge will reduce to the given and its interpretation. At this stage, the given is all there is. Thus, direct reports — EXPRESSIVE STATEMENTS — constitute elements «in» knowledge rather than expressions «of» knowledge.

To be an expression «of» knowledge, the empirical statement must be a judgement. There are two sorts of judgments. The more general [and common] of the two are NONTERMINATING JUDGMENTS — «statements of objective fact.» Judgments of the other sort are called TERMINATING JUDGMENTS — «predicative and verifiable statements» (AKV, p. 185). Because TERMINATING JUDGMENTS are composed of EXPRESSIVE STATEMENTS, since I have already explained what EXPRESSIVE STATEMENTS are, let me turn now to TERMINATING JUDGMENTS.

TERMINATING JUDGMENTS, obviously enough, are judgments, so they can express knowledge. Such isn't the case, recall, with EXPRESSIVE STATEMENTS. But like EXPRESSIVE STATEMENTS, TERMINATING JUDGMENTS are formulated in *expressive language*. Expressive language is used to convey the content of one's immediate presentation or subjective experience. Examples include '…seems like…', '…looks like…', etc. Expressive language is *not* used to make any assertion about objective reality. To do that, one uses *objective language*. The principal difference between TERMINATING JUDGMENTS and NONTERMINATING ones lies in the fact that the latter are formulated in objective language. I shall have more to say about this presently.

Here's the rub: TERMINATING JUDGMENTS make a prediction; EXPRESSIVE STATEMENTS do not. For example, the expressive statement 'I see what seems to be a white cat' «neither asserts any objective reality of what appears nor denies any. It is confined to description of the content of presentation itself» (AKV, p. 179). Though direct awareness or perception of the given need not involve conceptual interpretation, *the expression* of such awareness clearly does. Such statements involve not merely the «conceptual interpretation» of the given, they imply «much which is not given» (MWO, p. 275). Therein lies the cognitive significance of direct perception and EXPRESSIVE STATEMENTS: they function as «cues» for predictions; and predictions are expressed in judgments.

There are three «elements» to any cognitive situation that engenders a judgement [and judgments precede knowledge]. First, there is the presentation of the given, followed by its interpretation. This is how experience is made. While perception — *experience* — is sufficient to serve as a cue for prediction, let's suppose **Stage 1** in the production of empirical knowledge ends with an EXPRESSIVE STATEMENT. The second and third elements — respectively, an *envisaged action* and an *expected consequence* — are the two aspects of the prediction [which is implied by the interpretation]. Thus, **Stage 2** in the production of empirical knowledge ends with a judgement. Cognitive judgments all have the following form: 'Given *S*, if I act in manner *A*, then *E*', where 'S' is the sensory cue, 'A' is some possible mode of action, and 'E' represents an eventuality of experience. For TERMINATING JUDGMENTS, both the action and the empirical eventuality should be formulated in expressive language; e.g., 'Given that there appears to be a cat on my desk, if I pull its tail, then I should aurally experience what would seem to be a meow sensation'.[9] For NONTERMINATING JUDGMENTS, both the action and the empirical eventuality must be formulated in objective language; e.g., 'Given that there appears to be a cat on my desk, if I pull its tail, then it should produce a meow'. **Stage 3** in the production of empirical knowledge lies in testing the prediction — i.e., performing the requisite action needed to verify [or falsify] the prediction. TERMINATING JUDGMENTS «admit of decisive and complete verification or falsification.» NONTERMINATING JUDGMENTS admit of only «partial» verification or falsification (AKV, p. 181). Thus, only if after pulling the cat's tail, I hear what sounds like a meow, does 'There appears to be a cat on my desk' count as an instance of knowledge: this statement, having been verified [let us suppose], is what the above TERMINATING JUDGMENT expresses. And only if after pulling the cat's tail, I hear what sounds like a meow, does 'There is a cat on my desk' count as an instance of empirical knowledge: this statement, having been partially verified [let us suppose], is what the above NONTERMINATING JUDGMENT expresses [all things being equal].

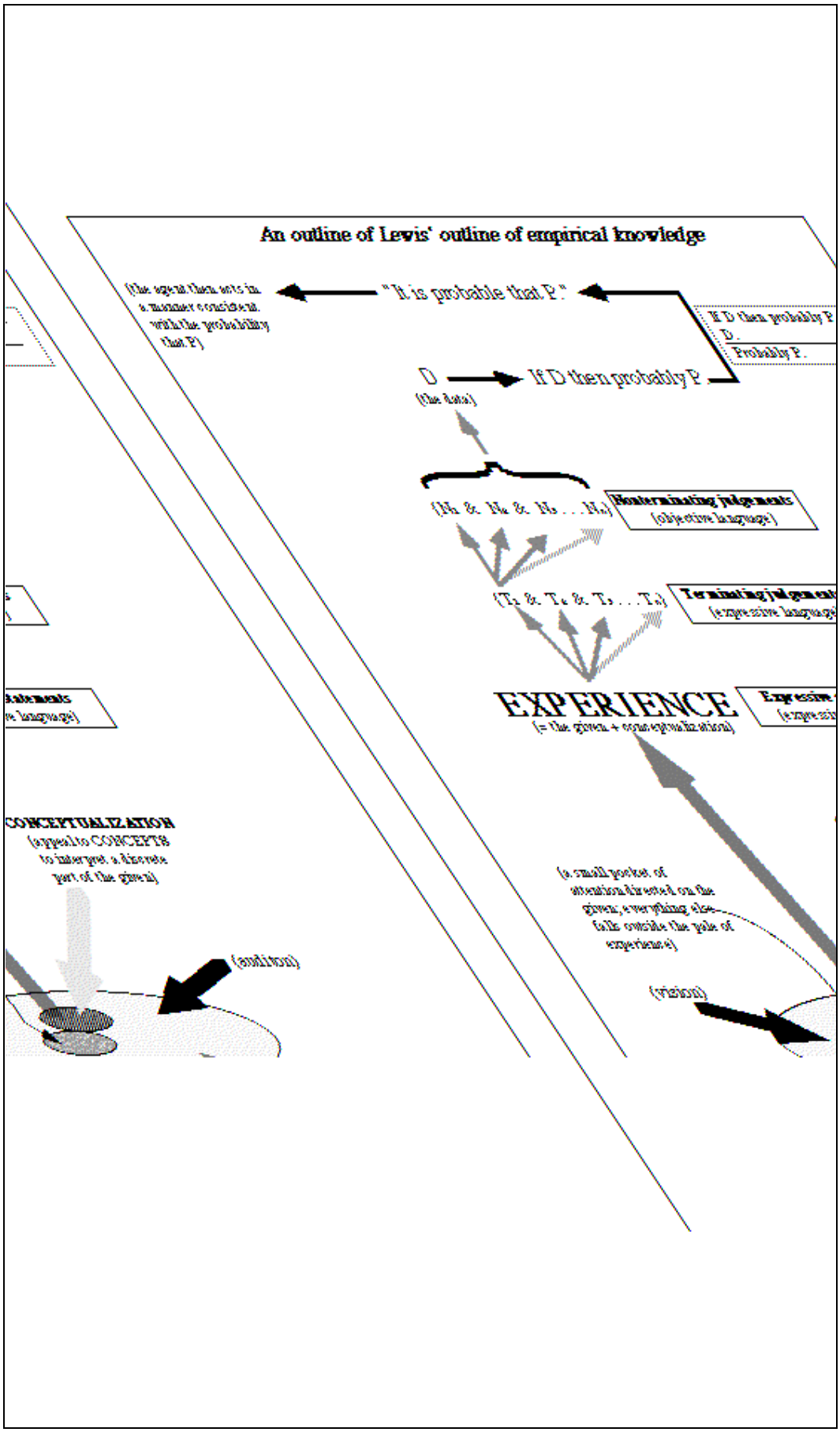
Believe it or not, the above sketch of the evaluation of NONTERMINATING JUDGMENTS was grossly oversimplified. Let me add a few wrinkles.

First, «an objective and nonterminating judgement must be translatable into judgments of the terminating kind. Only so could confirmation of it in experience comeabout» (AKV, p. 181). Thus, the verification of NONTERMINATING JUDGMENTS must ultimately hinge upon the verification of some TERMINATING JUDGMENTS, which in turn

---

[9] Lewis fails to give any examples of possible modes of action formulated in expressive language. Frankly, I don't see how it is possible. I'll return to this point a bit later.

ultimately reduces to experience, which in turn reduces to the given and its interpretation. So, let ‘P’ stand for what is expressed [or inferred] by a verified NONTERMINATING JUDGMENT. An expression of empirical knowledge of this sort is probable only; its probability depends on its «grounds,» which are some given data of sense — ‘D’. The data are certain. Thus, *D* probilifies *P* [together with «principles of probability or rules of induction» (AKV, p. 321)]. «Such,» says Lewis, «is the general character of my cognition at each successive instant» (AKV, p. 321). I shall have more to say about this below [in Section 3]. I’ve summarized the bottom-up version of his story in **Figure 1**.


An outline of Lewis' outline of empirical knowledge
"It is probable that P."
If D then probably P
D
Probably P.
D
If D then probably P
Terminating judgments
(objective language)
EXPERIENCE
CONCEPTUALIZATION

Second, with every interpretation of any external object, the mind «implicitly predicts» *a host* of further experiences. Hence, no *one* action will ever verify any judgment about objective reality (MWO, p. 277). Indeed, «[f]or the object presented to be real, there must be more to it than *could* be given in any single experience» (MWO, p. 135). This is so because external objects, for Lewis, are conjunctions of a vast set of possible experiences: That is an X = [(If I should do A_1, then E_1 will result) & (if I should do A_2, then E_2 will result) & (if I should do A_3, then E_3 will result) & … (if I should do A_n, then E_n will result)]. Lewis hangs his existential hat upon such conjunctions of possible verifications:

> The whole content of our knowledge of reality is the truth of such 'If-then' propositions, in which the hypothesis is something we conceive could be made true by our mode of acting and the consequent presents a content of experience which, though not actual now and perhaps not to become actual, is a possible experience connected with the present. (MWO, p. 142)

And knowing the «empirical eventualities» of a given presentation constitutes the a priori element to empirical knowledge (MWO, p. 294).[10]

In all this talk of TERMINATING JUDGMENTS, NONTERMINATING JUDGMENTS, evaluation, verification, and the like, it is easy to loose site of what motivates this paper: resolving some of the tensions between Lewis' theory of knowledge and his theory of mind. Detailing his epistemology was therefore crucial. It's take-home message is: *All*

---

[10] «If there is to be any knowledge at all, *some* knowledge must be a priori» (MWO, p. 196). For instance, consider the empirical statement 'This penny is round', for example: «[W]hat is implicit in the concept ['penny'] sets the criteria by which further experience will verify (or falsify) the present judgement.» Such criteria are a priori; as such, they «are incapable of being overturned by the eventualities of experience» (MWO, p. 284).

knowledge ultimately reduces to the content of direct experience.[11] Cashing-out the nature of experience [and his too active conception of the mind] is the task to which I now turn.

2. EXPERIENCE = THE GIVEN + CONCEPTUALIZATION

> «Experience does not categorize itself. The criteria of interpretation are of the mind; they are imposed upon the given by our active attitude.» (MWO, p. 14)

Experience does not spring fully formed from sense presentations alone. Rather, experience is constructed by the mind via interpretation of the data of sense. Thus, experience comprises «two elements»: *THE GIVEN* and THE CONCEPTUAL INTERPRETATION put upon the given (MWO, p. 48). Although each element can be disassociated *conceptually*, in experience they are inseparable. All experience is a continuous train of the sensuously given, which the mind then actively interprets.

Both the given and the interpretation are each necessary, and neither by itself is sufficient to engender cognitive experience [and hence knowledge]. If there were no given, then knowledge would be «contentless and arbitrary; there would be nothing which it must be true to» (MWO, p. 39). Should one's theory deny this, Lewis says, one has placed it «beyond the pale of plausibility» (MWO, p. 48). And if there were no interpretation, then thought would be «rendered superfluous, the possibility of error becomes inexplicable, and the distinction of true and false [would be] in danger of becoming meaningless» (MWO, p. 39). Knowledge, recall, arises only where error is possible. So, if knowledge were based on the given alone, then all content must be veridical. But since we are creatures prone to illusion, hallucination, etc., content *isn't* always veridical. Thus, knowledge can't be based on the given alone (MWO, p. 43). Moreover, where error occurs, it arises «directly» from the conceptual interpretation put upon the given (MWO, p. 158). Since the possibility of error is one of the defining features of judgments, and judgments are necessary for knowledge, all knowledge involves *conceptualization* — the taking of some attitude that «serves practical action and relates it to what is not given.» Interpretation serves as a «*conceptual go-cart*» to get one over the interval between the presentations of the given, and the end projected by one's purpose (MWO, p. 119).

Since it is 'concepts' that are doing the work when the mind interprets or categorizes the given, at last we come to the nature of concepts.

2.1 Concepts

Lewis appeals to two senses of 'concept', one is public, objective, and external; the other is private, subjective, and internal. The former he calls the 'pure concept'. It is «that meaning which must be common to two minds when they understand each other by the use of a substantive or its equivalent» (MWO, p. 70). Let's call the latter the 'private concept'. Its meaning is idiosyncratic and subjective. Both types of concepts can undergo evolution or a «succession of different meanings» (MWO, p. 68).

Lewis, however, is not primarily interested in private concepts. Instead, and for the following reasons, he focuses on pure concepts.

---

[11] «[A]ll empirical knowledge is vested, ultimately, in the awareness of what is given and the prediction of certain passages of further experience as something which will be given or could be given. It is such predictions of possible direct experience which we have called terminating judgments; and the central importance of these for all empirical knowledge will be obvious» (AKV, p. 202).

First, pure concepts figure in communication as well as in the transmission of knowledge; private concepts do not. The reason, of course, is that the individuation of pure concepts depend on «common,» «sharable,» and «expressible» meanings — the sort of meanings that are necessary for communication (MWO, p. 80):

> [I]t is obvious that common meanings do transcend such individual differences of perception as imagery. We use language to convey thought. If language really conveys anything, then there must be something which is identical in your mind and in mine when we understand each other. (MWO, p. 73; cf. AKV, p. 143)

The individuation of private concepts, however, depend on *idiosyncratic meanings*. Such meanings are «direct,» «nonsharable,» and purely individualistic (MWO, p. 81); i.e., they are relations between one's given and one's unique learning history, feelings, sensations, or imagery.[12]

Second, and relatedly, there are objective standards for the ascription of pure concepts; there aren't such standards for the ascription of private ones. As it would happen, these standards are also the «only practical and applicable criteria of common knowledge»: (1) we should share common definitions of the terms we use; and (2) «we should apply these terms identically to what is presented» (MWO, p. 76; also see p. 84). «Congruity of behavior,» Lewis says, «is the ultimate practical test of common understanding.» «Speech,» he continues, «is only that part of behavior which is most significant of meanings and the most useful for securing human cooperation» (MWO, p. 90). Therefore, it shouldn't be surprising that we share pure concepts. Aside from the fact that we are «confronted by a common reality,» we are «creatures fundamentally alike, having in the large the same needs and interests and powers of discrimination and relation» (MWO, p. 91; also see p. 110).

Third, although knowledge is relative to minds, pure concepts extend knowledge outside of minds:

> Relativity is not incompatible with, but *requires*, an independent character in what is thus relative. And second, though what is thus relative cannot be known apart from such relation, still the other term or terms of the relation being given, all such relative knowledge is true knowledge of that independent character, together with the other term or terms of this relationship, determines this content of our relative knowledge. *The concept, or conceptual interpretation, transcends this relativity* precisely because what the concept comprises is this relational pattern in which the independent nature of

---

[12] Still, our private concepts aren't entirely idiosyncratic: «[O]ur categories are almost as much a social product as is language. … The 'human mind' is a coincidence of individual minds which partly, no doubt, must be native, but partly is itself created by the social process» (MWO, p. 21; also see p. 25).

> what is apprehended is exhibited in experience. (MWO, pp. 172-173; final emphasis is mine)

Such is the story Lewis tells in MWO. The story he tells in AKV is slightly different. So, before I begin my analysis, let me conclude this section with a brief comment or two about 'meaning'.

2.1.1 Meanings. In AKV, Lewis says «[m]eanings are not … creatures of language.» Rather, they are «antecedent,» and sometimes even «independent» of language (AKV, p. 131). He makes a distinction between two general types of meaning [or intension]: *linguistic meaning* and *sense meaning*. The former, which roughly corresponds to the 'pure concept', includes «the pattern of definitive and analytic relationships of the word or expression in question to other words and expressions.» The latter, which corresponds [more or less] to the 'private concept', is the «criterion in mind» by which the application of a word or expression is determined (AKV, p. 131):

> What we indicate by this phrase *sense meaning* is intension as a criterion of mind, by reference to which one is able to apply or refuse to apply the expression in question in the case of presented, or imagined, things or situations. (AKV, p. 133)

It is worth noting that linguistic meaning and sense meaning are «supplementary, not alternative.» They are separable only by «abstraction» (AKV, p. 133).

Still, of the two, sense meaning is more important. Here's why. «[C]onditions for determining applicability … do not always exist ready-made.» Rather, such conditions need «to be sought out or created» (AKV, p. 136). The making — and application — of the requisite connections is the mind's contribution to experience. Hence, although we use language to convey thought, and pure concepts and linguistic meanings often constrain private ones, it is the private ones that ultimately must do the work when an agent cognizes. For example, though you and I may correctly use the term 'cat', and my cat-labeling behavior is sufficient for you to ascribe to me the concept 'CAT', in the end, there must be something about my cats-presentations that permits me to pick-out cats when the need arises. But while our expressions may be the same — «Lo, a cat» — the subjective, private, and idiosyncratic conditions for determining the applicability of 'cat' need not. While the given remains [more or less] constant across each presentation, its interpretation, its «character as sign, its classification, and its relation to other things and to action are differently taken» by different people (MWO, p. 50). Thus, sense meanings arise from an interpretation of the the given via some activity of the mind. Such meanings aren't only alterable, they are relative to one's interest, action, or will (MWO, p. 51).

Contrary to appearances, I don't think Lewis is being inconsistent when he privileges *pure concepts* in MWO and *sense meanings* in AKV. My reasons for thinking this are offered below [Section 3.3]. And having belabored the explication of Lewis' theory — which, at times, required quite a bit of interpretation — my analysis can therefore be much more concise.

3. RESOLVING THE TENSIONS

My aim for this section is to identify a few of the tensions that have emerged from the preceding analysis. The task then will be to resolve them. I'll do so, for the most part, by turning Lewis upon

himself. Still, given the nature of some of his commitments, [13]there are limits as to how far his theory can be rehabilitated.

3.1 Is Lewis' theory of mind plausible?

Lewis is an epistemologist, not a philosopher of mind. Epistemologists are concerned primarily with issues of justification. Philosophers of mind are concerned primarily with how minds work. Since 'the mind' and 'cognition' are among the notions shared by both disciplines, given that epistemology is a normative discipline, it is hardly surprising that Lewis' theory makes claims about how minds ought to work. After all,

> [k]nowledge is not descriptive but a normative category: it claims correctness; mental states are classified as genuine knowing only on assumption of such correctness. *Epistemology is not psychological description of such mental states*, but is critique of their cognitive claim; the assessment of their veracity and validity, and the eliciting of those criteria by which such claim may be attested. (AKV, pp. 10-11; my emphasis)

The problem isn't merely that Lewis *does* describe psychological states, some of his descriptions of cognitive [or mental] activity are wildly implausible. For example,

> I see something in the distance moving toward me, and believe it is my dog. This object moves closer and closer; I have more and more corroborating evidence; my belief becomes stronger and stronger. … I *know* this is my dog. … There has been here a series of cognitive apprehensions, differing from one another in degree, all the way from doubt to practical certainty. But even from the start there has been something entirely certain; namely, some visually apprehended content of sense. I could not well express these visually given data with any accuracy, but such relatively inexpressible content of experience was indubitable fact. From moment to moment, these visual data were increasingly clear and detailed; and increasingly adequate grounds for the judgment, «This is my dog.» Correspondingly, there was a growing conviction, from initial doubt to finally complete — or nearly complete — assurance. **I have made successive inferences** (so it would appear if I should analyze my successive apprehensions from the

[13] What I have in mind here are his commitments to foundationalism, the given [or sense-data], and intentional entities. Such commitments aren't held in very high regard today.

> point of view of their cognitive validity)[14] **based on these successively given and successively more adequate data**. The validity of the inference, in each case, is attested by certain rules, called the principles of probability or rules of induction. The data are empirical and certain, and the principles assure that the conclusion validly follows. If *D*, then probably *P*; so application of the principles tells me. And 'D' is given. Therefore, probably *P*. **Such is the general character of my cognition at each successive instant**. (AKV, pp. 320-321; my emphasis in bold)

At each perceiving instant, do agents *really* make the sort of inferences that Lewis describes? Of course not. Do they make such inferences even for rather ordinary empirical beliefs such as 'That's my dog'? Again, the answer is no. As such, the above passage[15] is at odds with his *reflective methodology* [which is supposed to be an extension of commonsense]; it also stands in tension to the business of epistemology [which isn't to provide «psychological descriptions» of mental states]. Thus, if Lewis is claiming that cognizers actually go through the various stages of interpretation, prediction, test, and the like, then it is *his* theory that, as it were, goes beyond the pale of plausibility.

How might this tension be resolved? The answer, I think, is implicit in his qualification above. Namely, if epistemology isn't in the business of *explaining* actual mental processes [which would be a causal story], but it is rather in the business of *prescribing* justificatory practice, then his psychological descriptions are not meant to be accounts of actual cognitive processing. Lewis seems to agree. Following the above passage Lewis writes: «Both verbal and mental economy, and the necessity of decision, require us to think and act in terms of what approximates to complete assurance, omitting the strictly called-for qualification» (AKV, p. 321). Moreover, this very issue arose early in AKV: «The question is not so much … whether the behavior was deliberately initiated through explicit appraisal and decision as *whether it could have been* and would have been if question of consequences and their desirability had been raised» (AKV, p. 8; my emphasis). As such, what really matters for Lewis is whether an agent *could* produce and justify empirical beliefs in the probabilistic

---

[14] This qualification is crucial. I shall return to it in a moment.

[15] For a similar passage, see AKV, pp. 172-174.

manner he defends. The issue isn't whether they do so actually and continuously. His views on the mind, therefore, have been rendered all the more plausible.

3.2 Is all experience thick?

If Lewis' descriptions of psychological processing do not imply that minds are continuously cognizing, and if his theory is meant to prescribe how empirical statements could be justified [when queried or when the need otherwise arises], then there is no reason for him to maintain that conscious minds are constantly interpreting an ever-changing given.

While all knowledge-dependent action depends on evaluation, not all actions are knowledge-dependent. As noted earlier, Lewis' theory isn't meant to capture the process by which *every* action is selected. Instead, it is meant capture only those acts that are deliberate or purposive — the sort of acts requiring «*explicit prevision of consequences and evaluation of these*» (AKV, pp. 6-7; my emphasis). Note the emphasis upon 'explicit prevision', for «much of our own behavior,» as Lewis recognizes, are *unconsidered* responses — actions for which we are responsible, yet which are «hardly … instigated by explicit foresight and assignment of values» (AKV, p. 5). Thus, there is no need to claim that minds are continuously interpreting [and hence forming judgments about] the given.

Moreover, «esthetic apprehension» in particular, and 'direct perception' in general, do not involve conceptualization.[16] Rather, they occur when one apprehends the given, but makes no judgments about it. Though such 'experience' functions as cues [and ultimately the «grounds»] for empirical judgments, 'direct apprehension' per se, though sufficient to trigger habitual, unconsidered behavior, doesn't always involve interpretation. As such, not all experience is thick. And given our reliance upon habits and unconsidered responses, it doesn't need to be.

3.3 Concepts and meaning revisited

I left 'meaning' [Section 2.3] having identified another tension in Lewis' philosophy;

viz., he privileges *pure concepts* in MWO, though he privileges *sense meanings* in AKV. Thus, which type of concept is doing the work when

---

[16] «There is such a thing as direct appreciation of the given, and such immediate apprehension of the quality of what is presented must figure in all empirical cognition» (MWO, p. 402). «[T]here is such a thing as experience, the content of which we do not invent and cannot have as we will but merely find» (AKV, p. 182).

one conceptualizes, 'pure concepts' or 'private ones'? They both are: each fulfills a different, though essential, function. Still, it's pure concepts that are doing most of the work.

Pure concepts, recall, figure in communication as well as in the transmission of knowledge. They do so because the individuation of pure concepts depends on «common,» «sharable,» and «expressible» meanings — the sort of meanings that are necessary for communication (MWO, p. 80). The individuation of private concepts depends on *idiosyncratic meanings*, meanings that «direct,» «nonsharable,» and purely individualistic (MWO, p. 81). And while there are objective standards for the ascription of pure concepts [above all, «congruity of behavior»], there aren't such standards for the ascription of private ones. Thus, since «speech is that part of behavior which is most significant of meanings and the most useful for securing human cooperation» (MWO, p. 90), and linguistic meaning and sense meaning are «supplementary» rather than «alternative» (AKV, p. 133), pure concepts [and hence 'linguistic meaning'] are doing most of the work in Lewis' system. They even do *some* of the work when an agent cognizes. The remainder, as noted above, depends on 'private concepts'.

Here's the rub: If what matters most in questions of knowledge is the *justification* of empirical statements — but not their actual causal history — then given the role of pure concepts in language-mediated thought, communication, and knowledge [common or otherwise], then there are reasons for de-emphasizing internal, subjective intensions in favor of external, objective ones. In fact, simplicity and commonsense dictate that we do so.

4. CONCLUSION

My purpose has been to explore and resolve some of the tensions between Lewis' theory of knowledge and his theory of mind. Doing so required that I sketch-out his foundationalist epistemology. Particular attention was directed toward the role of conceptualization [or interpretation] in the production of experience, action, and knowledge. I have shown that if Lewis isn't claiming that his epistemology describes *actual* psycho-epistemic processes, but rather what an agent *could* do to justify her empirical beliefs, then his theory of mind is rendered all the more plausible. Moreover, the social character of concepts [and meaning] considerably reduces the need for appealing to *internal* concepts when explaining why an agent does what she does. And finally, among his paradigm cases of cognitive behavior include paradigm cases of nonreflective action; not only do such actions account for most of our behavior [as Lewis himself notes], they don't require conceptualization.

Insofar as knowledge is wedded to language, *concepts*, albeit public ones, will remain a feature of any plausible epistemic story. Nevertheless [and possibly quite despite himself] Lewis has shown something about cognition that isn't often raised in polite philosophical circles. Namely, though concepts are important, we can *do* quite a bit without out them.[17]

Robert S. Stufflebeam

Washington University

Department of Philosophy, Campus Box 1073

One Brookings Dr., St. Louis, MO 63130-4899

Dept: (314) 935-6670

Fax: (314) 935-7349

e-mail: rob@twinearth.wustl.edu

[17] I am indebted to Robert Barrett and the anonymous reviewer for their comments and suggestions.

SORITES (Σ ΩPITHΣ), ISSN 1135-1349
Issue #06. August 1996. Pp. 21-33.
Quantum Objects are Vague Objects

Quantum Objects are Vague Objects

Steven French & Décio Krause

Introduction

Is vagueness a feature of the world or merely of our representations of the world? Of course, one might respond to this question by asserting that insofar as our knowledge of the world is mediated by our representations of it, any attribution of vagueness must attach to the latter. However, this is to trivialize the issue: even granted the point that all knowledge is representational, the question can be re-posed by asking whether vague features of our representations are ultimately eliminable or not. It is the answer to this question which distinguishes those who believe that vagueness is essentially epistemic from those who believe that it is, equally essentially, ontic. The eliminability of vague features according to the epistemic view can be expressed in terms of the supervenience of 'vaguely described facts' on 'precisely describable facts':

> If two possible situations are alike as precisely described in terms of physical measurements, for example, then they are alike as vaguely described with words like 'thin'. It may therefore be concluded that the facts themselves are not vague, for all the facts supervene on precisely describable facts. (Williamson 1994, p. 248; see also pp. 201-204)

It is the putative vagueness of certain identity statements in particular that has been the central focus of claims that there is vagueness 'in' the world (Parfit 1984, pp. 238-241; Kripke 1972, p. 345 n. 18). Thus, it may be vague as to who is identical to whom after a brain-swap, to give a much discussed example. Such claims have been dealt a forceful blow by the famous Evans-Salmon argument which runs as follows: suppose for reductio that it is indeterminate whether $a = b$. Then b definitely possesses the property that it is indeterminate whether it is identical with a, but a definitely does not possess this property since it is surely not indeterminate whether $a=a$. Therefore, by Leibniz's Law, it cannot be the case that $a=b$ and so the identity cannot be indeterminate (Evans 1978; Salmon 1982).

However, the claims for ontic vagueness have been reasserted in precisely this context by drawing on the famous indistinguishability of particles in quantum mechanics (Lowe 1994). Such particles are indistinguishable in a much stronger sense than mere possession of all intrinsic, or state independent, properties in common, as in classical mechanics, and this is expressed by the Indistinguishability Postulate of quantum statistics which asserts that permutations of particles of the same kind are not observable, unlike the case in classical statistics. The claim then is that given this latter indistinguishably, there is simply no fact of the matter as to whether two particles, two electrons say, are identical or not. The vagueness here is truly ontic (Lowe ibid.).

The force of such claims hinges on how we understand the Indistinguishability Postulate (French and Krause 1995; French, Krause and Maidens forthcoming). One possibility is to regard it in terms of a restriction on the sets of states the particles can occupy (French 1989a). Thus the particles are 'assigned' (perhaps at the moment of creation!) to bosonic or fermionic states and once in such states the dynamics, as represented by Schrödinger's equation, ensures that they remain there. On this interpretation the particles are distinct, albeit indistinguishable, individuals, like their classical counterparts, the difference being that unlike the latter they are constrained as to the kinds of states they can occupy.

Where does vagueness arise on this account? Consider an electron *a*, say, captured by an atom to form a negative ion which then emits electron *b* (Lowe op. cit.). Quantum mechanics, as standardly understood, ascribes 'entangled' states to the systems *a* plus atom and atom plus *b* such that it is not possible to say whether *a=b* or not. The central issue in the philosophy of quantum mechanics is precisely how to understand such states. Teller understands them in terms of a failure of 'supervenience' in the sense that they represent relational properties which do not supervene on the non-relational properties of the particles (if they did there would be a violation of Bell's Theorem; Teller 1986, 1989; French 1989b). The indeterminacy of identity arises, therefore, because of this 'veil' of non-supervenient relations: there simply is no way of piercing the veil to determine which particle is which (French and Krause op. cit.; French, Krause and Maidens forthcoming).

What about the Evans-Salmon argument in this case? An essential step in the argument is the move from the determinacy of the self-identity of *a*, say, to the claim that *a* definitely lacks the property that it is indeterminate whether it is identical with *a* (which is possessed by *b*). However, the latter property cannot be determinately distinct from the property of being indeterminate whether the object is identical with *b*, since the two properties differ only by a permutation of *a* and *b* and it is indeterminate whether *a=b* by assumption (Lowe op. cit.). Hence the

possession by either *a* or *b* of an identity involving property such as these cannot serve to determinately differentiate the two. Recasting the Evans-Salmon argument in terms identity-free properties (Noonan 1995) then 'forces' the defender of ontic vagueness to accept that vague objects must be strongly indistinguishable in the sense that any identity-free property determinately possessed by either must be determinately possessed by both, but that is precisely what quantum mechanics tells us is the case!

This has obvious implications for the epistemic view. If facts are plausibly taken to involve properties, then the supervenience of vaguely described facts on precisely described facts must be understood in terms of the supervenience of the relevant properties. But as we have just seen, this is denied in the quantum context. Inasmuch as the 'facts' involving entangled states do not supervene on any facts involving the intrinsic properties of the particles or hidden variables (this being ruled out by Bell's Theorem) there is genuine ontic vagueness here.

This latter point needs further emphasis. Of course, our grasp (such as it is) of the quantum domain is mediated via a representation, namely quantum theory itself, but if this is counted as enough to rule out the vagueness involved as 'truly' ontic, then the epistemic complement is utterly trivialised. Indeed, the force of Bell's Theorem lies in its generality and it is this which renders the vagueness ontic in the sense that it is not dependent upon a *particular* representation. Quantum particles are therefore vague irrespective of whether or how they are represented, if the issue of representation is understood in this non-trivial sense.

Returning to the Indistinguishability Postulate, it can be understood alternatively as leading to a kind of non-individuality for quantum particles. The argument goes roughly as follows: In both classical and quantum mechanics particles of the same kind are regarded as indistinguishable in the sense of possessing all 'intrinsic' properties in common. Yet in classical statistical mechanics a particle permutation is counted as observable, whereas in the quantum theory it is not. Since the former result is typically accounted for by appealing to the particles' individuality which goes beyond or 'transcends' their intrinsic properties (Post 1963), the latter is taken to suggest that the particles have lost this individuality and that they are, indeed, 'non-individuals' in some sense (Schrödinger 1952, 1957; Born 1943; Weyl 1949; Post 1963).

Explicating this sense is, of course, metaphysically problematic. A possible ontological 'attractor' for one's spiraling ruminations as to how an entity could be a 'non-individual' is the notion of 'identity'. Inextricably linked with individuality through the history of philosophy, it is precisely a failure of (self-)identity that is attributed to quantum particles by Schrödinger and Hesse, for example, the latter remarking that '[w]e are unable to identify individual electrons, hence it is meaningless

to speak of the self-identity of electrons …' (1970, p. 50). Denying identity is a formally tractable way of representing this notion of non-individuality and indeed interesting formal systems can be constructed for doing so. Before we outline these, however, two further points need to be emphasised.

The first is that the above metaphysical package which denies 'transcendental' individuality is typically taken to derive support from the manner in which it meshes with the ontology of quantum field theory, where particle labels are simply not assigned right form the word go (Redhead and Teller 1991, 1992; Teller 1995). There are problems with such claims but insofar as the 'quanta' of this view are non-individual objects, they too can be represented by these non-standard formal frameworks (French and Krause forthcoming). Secondly, here again we have vagueness of an ultimately ontic form — the quanta themselves are vague not in the respect that their intrinsic properties are somehow 'blurred' or 'fuzzy' but in that as non-individuals, their very identity is vague. It is to the formal representation of this kind of vagueness that we now turn.

Vague Predicates, Opaque Predicates and their Extensions

Following Terricabras and Trillas (1989), we may characterize a predicate of a (say) first-order logic as *vague* on the following grounds. Standard ('Fregean') predicates are such that their denotation provides a bipartition in the domain *D* into two disjoint subsets, the *extension* of *D*, denoted *Ext(P)* and its complement relative to *D*. The objects of the domain which belong to *Ext(P)* are said to have the property ascribed by *P*, while those that belong to the complement of *P* don't have the property. Vague predicates are those predicates which do not provide such a bipartion in the domain. That is, there remain in *D* some objects which neither belong to *Ext(P)* nor to its complement. For such objects, it is asserted that it is vague whether they have the considered property or not.

Vagueness in this sense is characterized as a feature of certain linguistic expressions, such as the property ascribed by the predicate *P* in the above example, and not as concerning the objects of the domain, which are supposed to be well-defined. In other words, in considering a vague predicate like 'to be a profound thinker', it may be vague if Ms. X, a philosopher, is a profound thinker or not, but it is generally agreeded that she is a well known person, since we *know* who we are talking about. This way of interpreting vagueness bears a realist view of science, at least according to Putnam, who said that 'On the metaphysical realist view there are vague conceptions, vague ways of talking, but not vague *objects*' (Putnam 1983). But in the real sciences there is vagueness in a truly ontic sense and our discussion above pulls the rug out from under claims such

as Putnam's.[1] Let us describe the underlying intuitions concerning semantics in this case.

The predicates to be considered here, which we refer to as *opaque*, resemble the above case but are distinct in the following sense: the 'vagueness' lies in the objects of the domain, and not in the predicate itself. To exemplify this idea, let us consider the property 'to have spin up in the direction *x*', which can be meaningfully ascribed to a certain collection of (say) electrons. Note that the predicate is well-defined, since physicists know perfectly well the requirements an electron must satisfy on order to have spin up in the *x*-direction (such details are not important here). So, by making use of an adequate intrumental apparatus, they can find a certain number, say *n* of electrons which satisfy the property, and the same number is obtained if the experiment is repeated. However there is no way to assert either *which* are the electrons of the collection that have such a property or if the *n* electrons of the first measurement *are the same* as those of the second experiment. This, of course, is not a distinctive feature of the *x*-direction or of the electrons, but constitutes one of the fundamental pressupositions of quantum mechanics.

The underlying idea is that, roughly speaking, the electrons are absolutely indistinguishable in the 'strong' sense indicated above, so we cannot pick out one of them from the collection in order to verify if it has spin up in the *x*-direction or not. Electrons, like the other elementary particles, have no names, have no identity, and cannot be distinguished from one another.[2] In other words, the 'vagueness' now concerns the *objects* of the domain.

The reason we call these predicates *opaque* is that the part of the domain to which they should be related (by the usual semantical techniques) is seen to be concealed by a kind of veil, which prevents us from seeing its elements clearly. So, in order to provide an adequate semantical analysis of a logic involving opaque predicates in this sense, there is the necessity of not only characterizing the predicates as opaque, but also of explaining what kind of entity is to be considered as the domain. A standard *set* (as in standard semantics), does not serve for the purposes, since a set is, according to Cantor's well known 'definition' «… a gathering into a whole of objects which are quite *distinct* in our intuition or our thought» (cf. Bourbaki 1993, p. 25, our emphasis). In other words,

---

[1] Indeed we have suggested that one way to maintain a form of realism in the quantum context is to take this vagueness seriously (French, Krause and Maidens forthcoming).

[2] It should be recalled that it is consistent with the formalism of quantum mechanics to treat elementary particles as 'individuals' subjected to certain restrictions in their possible states (French and Redhead 1988).

in considering the domain as a *set* as described by the theories of sets, we cannot approach the idea of *opacity* in the sense just mentioned. The question then is: what is to be considered as the extension of an opaque predicate?

Before considering a possible answer to this question, let us comment in brief on standard set theories. It is important to note that although no axiomatic system *defines* its primitive concepts, in the sense observed by Skolem, and this is so in particular with respect to the concept of *set*.. Thus, standard set theories like Zermelo-Fraenkel, von Neumann-Bernays-Gödel, Kelley-Morse or others, do not modify Cantor's intuition as expressed in his 'definition'. This point is clear in Zermelo's paper from 1908, in which he introduces the first axiomatic set theory. Zermelo acknowledges that Cantor's definition may be restricted, but even so applies the axiomatic method to a «historically existing 'theory of sets' ' (Zermelo 1908), that is, in preserving Cantor's intuitions.[3] All other set theories derive from Zermelo's, and so they also maintain the idea of collections of *distinguishable objects*, and this is so also with regard to intensional set theories, which emphasise the manner in which the mathematical objects are given to us (cf. Feferman 1985), but do not question the underlying ontology.

Concerning the question mentioned above, it is important to note that we are not trying to provide a mathematical trick by means of which opacity in our sense could be semantically characterized. What we are trying to explain here is a much more profound insight intrinsically related with the very nature of *quanta*, to use a word which does not compromise us with the intuitive idea of 'particle' or an object with individuality.[4] Following Schrödinger's suggestion of regarding them as entities to which the concept of identity cannot be applied (cf. Schrödinger op. cit.; see da Costa and Krause 1994), we have developed logico-mathematical systems in which this intuition can be formally developed (da Costa and Krause 1994; da Costa and Krause forthcoming a, b; Krause 1992; Krause forthcoming; French and Krause op. cit.; Dalla Chiara, Giuntini and Krause forthcoming.).

We should acknowledge that the idea that the ontology of quantum mechanics does not reduce to that of sets was anticipated by Dalla Chiara and Toraldo di Francia in several works (Dalla Chiara and Toraldo di Francia 1993, 1995, forthcoming; Dalla Chiara 1987, 1987a.). As they

---

[3] Wang has also noted that in Cantor's writings there are implicit axioms for sets, such as those concerning extensionality, power-set, sub-sets and others, which were not explicated by Cantor since, according to Wang, they were 'too obvious' (see Wang 1991).

[4] As did Paul Teller in his 1995.

have shown, in order to obtain a adequate semantical analysis for the languages of microphysics, a more suitable (meta)mathematical apparatus should be erected, and they have proposed a theory of *quasets* for this purpose. Having noted that standard sets are not adequate for expressing the extensions of opaque predicates, we may ask: could we use quasets as extensions of opaque predicates? In order to answer this question, let us first of all mention in brief the nature of these mathematical entities.

Roughly speaking, a quaset is a collection of objects which have a well-defined cardinal, but there is no way to tell (with certainty) which are the elements that belong to the quaset. A suitable distinction between two primitive predicates [and { (which is not the negation of the former), meaning 'certainly belongs to' and 'certainly does not belong to' respectively, is provided by the axiomatics, and so the theory allows situations in which z [y entails $\sim(z \{ y)$, but not the converse. Consequently, it may be the case that it is false that z certainly does not belong to y, but this does not entail that z (certainly) belongs to y. The elements z to which it may be said that 'it is false that they certainly do not belong to y' are 'potential members' of y. Furthermore, since the cardinal of the quaset is fixed, there is a kind of 'epistemic' indeterminacy with respect to its elements in the sense that we don't know exactly which objects belong to a quaset.

We could use quasets as the extensions of opaque predicates, but this does not constitute a 'legitimate' solution for the problem we have proposed. In fact, it should be noted that a theory of identity continues to hold in the underlying logic of quaset theory (which should be regarded as being the first-order predicate calculus with identity), and so the elements of a quaset are still *distinct objects*, to use Cantor's words, despite the epistemic indeterminacy that exists in regarding their elements. In other words, they remain *individuals*.[5]

Let us emphasise this point. Quaset theory is a beautiful theory founded on original insights. But in regarding its use for providing mathematical constructs which can conveniently be used as the extensions of opaque predicates, it provides no advantages to other set theories, since none of them achieve any better solution than Weyl's way of treating aggregates of individuals. In his 1949 work, Weyl simply takes a *set S* (whose cardinal is *n*, for example), together with an equivalence relation *R* on *S* and considers the equivalence classes of the quotient set *S/R*. Then, by 'forgetting' the 'nature' of the elements of *S* and paying attention

[5] This is of course another source of philosophical controversy, but let us regard an 'individual' as an entity for which there exists a reasonable theory of identity which applies to it, and this is the case with the elements of a quaset, as we have remarked.

exclusively to the cardinality $n(i)$ (i=1, …, k) of the equivalence classes, he obtains the 'ordered decomposition' $n(1) + \ldots + n(k)=n$ which, as Weyl emphasises, is precisely what is considered in quantum mechanics (these numbers resemble the occupation numbers of quantum field theory). However, this is a trick, since the elements of a *set* still remain as individuals in our sense, and to 'forget' their individuality may provide a mathematical way of justifying the intuitions here, but of course it does not solve the philosophical problem regarding indistinguishability. With quasets something similar occurs, since it was by modifying the meaning of the membership relation that we arrived at the 'epistemic' indeterminacy of their elements, which despite this can still be regarded as individuals. A more adequate way of providing extensions of opaque predicates is, according to us, by using *quasi-sets*.

In quasi-set theory,[6] the presence of two sorts of atoms (*Urelemente*), termed *m*-atoms and *M*-atoms is allowed, but the concept of identity (on the standard grounds) is restricted to the *M*-atoms only. Concerning the *m*-atoms, there is a weaker 'relation of indistinguishability', which is postulated to have the properties of an equivalence relation, and this relation is used among the *m*-atoms instead of identity. Since the latter (that is, the predicate of equality) cannot be applied to the *m*-atoms, there is a precise sense in saying that they can be indistinguishable without being identical. So, contrary to the case of quasets, the lack of sense in applying the concept of identity to the *m*-atoms produces in quasi-set theory a kind of 'ontic' indeterminacy. That is, the *m*-atoms have their individuality intrinsically undermined.

Although we shall not provide all the technical details here (but see Krause forthcoming), we may justify the claim that there is a certain quantity of elements in a quasi-set whose elements are all indistinguishable from one another. The theory encompasses a primitive concept of *quasi-cardinal*, which reduces to the concept of cardinal in the standard sense when there are no *m*-atoms involved (this is due to the fact that when we restrict the axioms to exclude *m*-atoms, they turn out to be exactly the axioms of Zermelo-Fraenkel with *Urelemente,* and in this 'copy' of Zermelo-Fraenkel we can define the standard concepts of set theory). Furthermore, the concept of subquasi-set is like the classical one and the quasi-cardinal of the power quasi-set of a certain quasi-set x (that is, the collection of its subquasi-sets) is greater that the quasi-cardinal of x (let us suppose that it is $2^{qc(x)}$). So the theory *is compatible with* the existence of 'singleton' subquasi-sets of x, although we cannot prove that these 'singletons' are distinct from each other as in the usual extensional

---

[6] We will make reference to the quasi-set theory presented in Krause forthcoming.

contexts, since this would entail a distinction between their elements, which is precisely what the theory tries to avoid. These 'singletons' are merely *indistinguishable* in the sense that they have the same quantity (ascribed by their quasi-cardinal) of elements of the 'same sort' (that is, they belong to the same equivalence class of indistinguishable objects). The concept of indistinguishability between quasi-sets is captured by the *weak* axiom of extensionality, used instead of the standard axiom of extensionality, and which precisely asserts that quasi-sets with the same quantity of elements of the same sort share the primitive relation of indistinguishability.

This departure from classical set theories with regard to extensionality is necessary in this context, as also remarked by Dalla Chiara and Toraldo di Francia, who proposed an *intensional* semantics for the languages of microphysics (see their papers mentioned above). Quasi-sets of indistinguishable objects of course cannot be extensionaly comparable on standard grounds, but this is not sufficient: we must go further in departing from the classical ontology pressuposed by classical set theories, and the possibility of considering the lack of identity for certain elements seems to enable us to consider a completely new situation concerning collections of objects.

Collections of absolutely indistinguishable *m*-atoms were termed *veiled sets* in Krause and French forthcoming, and such entities are 'natural' objects to be used as the extensions of opaque predicates. In this latter paper, we presented a logic encompassing such predicates, whose semantics is founded in quasi-set theories. In this way, we think we have approached in a more adequate manner the semantics of certain entities, namely the opaque predicates, which are inherent to quantum mechanics. In a certain sense, Bohr was completely right when he said that we cannot approach this subject without the help of a cluster of completely new concepts, including at the logical level, we might add.

Conclusion

We have suggested here that quantum objects are vague objects and, further, that how that vagueness is understood depends on the metaphysical package adopted with regard to their individuality. If quantum objects are taken to be individuals, as Lowe considers them, then the vagueness arises because of the existence of relations which do not supervene on monadic properties of the relata; it is because of such relations that we cannot tell which particle is which in an entangled state. How one represents such relations, both metaphysically and formally, is an interesting question and one possibility, with regard to the latter at least, is to employ *quaset* theory; we leave this as a suggestion for future elaboration.

The alternative package characterises quanta as non-individuals, where this is understood in terms of a lack of identity. The appropriate formal framework is then that of *quasi-set* theory, which provides a semantics for 'opaque' predicates as indicated above. There are still some interesting questions to be addressed here, such as how it is that one can refer to objects for which one cannot even say that identity holds. On this point we take our lead from Barcan Marcus who, in discussion with Kripke and Quine, distinguished 'object-reference' from 'thing-reference', where the former is given in terms of quantification, and the latter is bound up with identity (Barcan Marcus 1993, p. 25).[7] We may thus 'refer' to objects for which identity cannot be said to hold, although how we do this in the quantum context is again an issue which requires further discussion (see French and Krause forthcoming).

References

Barcan Marcus, R., *Modalities: philosophical essays*, Oxford University Press.

Bourbaki, N., *Elements of the history of mathematics*, Springer-Verlag, 1993.

Born, M., *Experiment and Theory in Physics*, Cambridge Univ. Press, 1943.

da Costa, N. C. A. and Krause, D., «Schrödinger Logics», *Studia Logica* **53**, 1994, 533-550.

da Costa, N. C. A. and Krause, D. (preprint a), «Set-theoretical Models for Quantum Systems». Abstract in the *Volume of Abstracts* of the Xth International Congress of Logic, Methodology and Philosophy of Science, Florence, August 19-25, 1995, p. 470.

da Costa, N. C. A. and Krause, D., «An intensional Schrödinger Logic», preprint b.

Dalla Chiara, M. L. «An Approach to Intensional Semantics», *Synthese* **73**, 1987, 479-496.

Dalla Chiara, M. L. «Some Foundational Problems in Mathematics Suggested by Physics», *Synthese* **62**, 1987, 303-315.

Dalla Chiara, M. L. and Toraldo di Francia, G., «Individuals, Kinds and Names in Physics», in Corsi, G. et al. (eds.), *Bridging the Gap: Philosophy, Mathematics, Physics*, Dordrecht, Kluwer Ac. Press, 1993, 261-283.

[7] And also with other restrictiosn such as spatio-temporal location.

Dalla Chiara M. L. and Toraldo di Francia, G., «Identity Questions from Quantum Theory», in Gavroglu et. al. (eds.), *Physics, Philosophy and the Scientific Community*, Dordrecht, Kluwer, 1995, 39-46.

Dalla Chiara, M. L. and Toraldo di Francia, G., «Quine on Physical Objects», preprint.

Dalla Chiara, M. L., Giuntini, R. and Krause, D., «Quasiset Theories for Microobjects: A Comparision», forthcoming in E. Castellani (ed.), *Quantum Objects*.

Evans, G., «Can There be Vague Objects?»; *Analysis* **38**, (1978) p. 208.

Feferman, S., «Intensionality in Mathematics», *J. Phil. Logic* **14**, 1985, 41-55.

French, S., «Identity and Individuality in Classical and Quantum Physics», *Australasian Journal of Philosophy* **67**, 1989, 432-446.

French, S., «Individuality, Supervenience and Bell's Theorem», *Philosophical Studies* **55**, (1989) pp. 1-22.

French, S. and Redhead, M., «Quantum Physics and the Identity of Indiscernibles», *British Journal for the Philosophy of Science* **39**, 1988, 233-246.

French, S. and Krause, D., «Vague Identity and Quantum Non-individuality», *Analysis* **55**, 1995, 20-26.

French, S. and Krause, D., «The Logic of Quanta», forthcoming in T.L. Cao (ed.), *Proceedings of the Boston Colloquium for the Philosophy of Science*, Cambridge University Press.

Hesse, M., *Models and Analogies in Science*, Univ. of Notre Dame Press, 1970.

Krause, D., «On a Quasi-Set Theory», *Notre Dame Journal of Formal Logic* **33**, 1992, 402-411.

Krause, D., «Axioms for Collections of Indistinguishable Objects», preprint.

Krause, D. and French, S., «A Formal Framework for Quantum Non-Individuality», *Synthese* **102**, 1995, 195-214.

Krause, D. and French, S., «Opaque Predicates and their Logic», preprint.

Kripke, S., *Naming and Necessity*, Blackwell, 1980.

Lowe, E.J., «Vague Identity and Quantum Indeterminacy», *Analysis* **54**, (1994) pp. 110-114

Noonan, H. W., «E.J. Lowe on Vague Identity and Quantum Indeterminacy»; *Analysis* **55.1**, (1995) pp. 14-19.

Parfit, D.A., *Reasons and Persons*, Oxford University Press, 1984.

Post, H., «Individuality and Physics», *The Listener* **70**, 1963, 534-537; reprinted in *Vedanta for East and West* **32**, 1973, 14-22.

Putnam, H., «Vagueness and Alternative Logic», *Erkenntnis* **19**, 1983, 297-314.

Redhead, M. and Teller, P., «Particles, Particle Labels, and Quanta: The Tollof Unacknowledged Metaphysics», *Foundations of Physics* **21**, (1991) pp. 43-62.

Redhead, M. and Teller, P., «Particle Labels and the Theory of Indistinguishable Particles in Quantum Mechanics», *British Journal for the Philosophy of Science* **43**, (1992) pp. 201-218.

Salmon, N. (1982), *Reference and Essence*, Blackwell, Oxford.

Schrödinger, E, *Science and humanism*, Cambridge Un. Press, Cambridge, 1952.

Schrödinger, E., *Science theory and man*, Allen and Unwin, London, 1957.

Teller, P. «Relational Holism and Quantum Mechanics», *British Journal for*

the Philosophy of Science **37**, (1986) pp. 71-81.

Teller, P. «Relational Holism», in J. Cushing and E. McMullin (eds.),

Philosophical Consequences of Quantum Theory; Univ. of Notre Dame Press, (1989) pp. 208-223

Teller, P., *An interpretive Introduction to Quantum Field Theory*, Princeton, Princeton Un. Press, 1995.

Terricabras, J.-M. and Trillas, E., «Some remarks on vague predicates», *Theoria — Segunda Época* **10**, 1989, 1-12.

Wang, H. «The Concept of Set», in Benacerraf, P. and Putnam, H. (eds.), *Philosophy of Mathematics: Selected Readings*, Cambridge University Press, 2nd ed., 1991, pp. 530-570.

Weyl, H., *Philosophy of Mathematics and Natural Science*, New York, Atheneum, 1963.

Williamson, T., *Vagueness*, Routledge, 1994.

Zermelo, E., «Untersuchungen über die Grundlagen der Mengenlehre, I», *Math. Ann.* **65**, 1908, 261-281.

Steven French

Department of Philosophy

University of Leeds

Leeds LS2 9JT, UK

Email: s.r.d.french@leeds.ac.uk

Décio Krause

Visiting Scholar at the University of Leeds,

supported by CNPq (Brazil). Permanent address:

Department of Mathematics, Federal University of Paraná,

81531-990 Curitiba, PR, Brazil

email: dkrause@gauss.mat.ufpr.br

SORITES (Σ ΩPITHΣ), ISSN 1135-1349
Issue #06. August 1996. Pp. 34-60.
Critical Notice of Individuation and Identity in Early Modern Philosophy

CRITICAL NOTICE OF

INDIVIDUATION AND IDENTITY IN EARLY MODERN PHILOSOPHY

John D. Kronen

This book is, in a way, part of a series of books, under the general editorship of Jorge J.E. Gracia and published by SUNY press, on the history of the problem of individuation in western philosophy.[1] Gracia has spent much of his career researching this, and has produced a notable book on it which gives his own original, but historically informed, solution to the problem[2] (or, rather, cluster of problems, as Gracia would insist).

The first book in the series was wholly written by Gracia, the second was edited by him and was also graced with two substantial articles by him as well as with a long introduction and appendix. In this work, as it deals with a period that is not his speciality, Gracia is not so prominent, and it is Kenneth Barber, a scholar of the modern period and of Hume in particular, who is the chief editor and the author of the book's interesting introduction. In it Barber notes that certain problems central to particular paradigms become peripheral when other paradigms take their place. He gives as an example of this phemonemon the fact that a problem central to logical positivism, namely, «whether two persons can experience the same sense datum,» is no longer much discussed in this post-positivist age.[3]

---

1 The other two deal, respectively, with individuation in the earler and later middle ages.

2 *Individuality; An Essay on the Foundations of Metaphysics*, (State University of New York Press: Albany, 1988).

3 *Individuation and Indentity in Early Modern Philosophy; Descartes to Kant*, ed. Kenneth Barber and Jorge J.E. Gracia, (State University of New York Press; Albany, 1994), p. 1.

Barber argues that the problem of individuation, which so concerned the medievals, was not as much discussed in the modern period due to another paradigm shift. According to Barber this shift was from a «weak model» of the relationship between epistemology and ontology, characteristic of the middle ages, to a «strong model» of their relationship, characteristic of the modern period.[4]

Barber believes that the medievals were not concerned with whether or not their metaphysical entities pass muster on the epistemic front: «The existents, beginning with God, are given as are the categories available for their analysis. The task of the epistemologist is to support not to challenge the schema…»[5] All this changed with the moderns who, following the strong model, allowed entries on their list of entities only *after* they passed «a test for knowability.» Barber goes on to take Descartes' philosophy as representative of both the strong model of the relationship between epistemology and ontology and of the spirit of modern philosophy: «In the opening paragraphs of the *Meditations* Descartes announces that he will suspend belief in the existence of anything not known with certainty. Ontological claims concerning the existence of material objects, of God, and even of the self, must be subjected to a most rigorous epistemological scrutiny before one…is entitled to accept those claims.»[6]

This way of characterizing the distinction between modern and medieval philosophy seems wrong to me. It is not that the medievals did not look to see whether or not entries on their lists of entities passed tests of knowability, its just that they used different tests. As Plantinga has noted, Aquinas held that one is rationally justified in claiming to know something (as opposed to merely claiming to believe it) *iff* the knowledge of it is 1) self evident, or 2) evident to the senses, or 3) follows, by deductively valid arguments, from something self-evident or evident to the senses.[7] What distinguishes the modern philosophers from the medieval philosophers, is not their rejection of foundationalism (with respect to philosophy), but rather their rejection of the traditional categories of what

---

4 Ibidem, pp. 4-5.

5 Ibidem, p. 5.

6 Ibidem.

7 «Religious Belief without Evidence,» in *Philosophy of Religion*, ed. Louis Pojman, (Wadsworth Publishing: Belmont, 1994), pp. 491-492.

is properly basic. Thus, they rejected (2) and in its place proposed what is incorrigible for the senses.[8]

Of course, one might hold that the moderns were more *critical* than the medievals, that they did not accept in so dogmatic a manner as the medievals that our senses can be trusted or that we know that (for example) «everything that comes to be must have a cause.» In this sense, then, I think that the moderns *were* concerned with epistemology in a way the medievals were not; or, perhaps, I would simply say that they questioned certain sources of knowledge the medievals did not. And for this reason, also, I think that their ontological concerns did shift in the way Barber notes that they did. After all, if I accept as my basic epistemic criteria those of Hume, I cannot very easily appeal to form and matter respectively as the principles of the individuation and identity of empirical objects since I have no impressions of either of these entities.

I agree with Barber, therefore, that the problems of individuation and identity shifted for the moderns and that this shift was rooted in epistemological concerns. But I don't agree that this is a matter of the moderns' having a strong notion of the relationship between epistemology and ontology and the medievals' having a weak one. It is rather that the moderns, for various reasons, did not accept (or did not accept without argument) the same *criteria* for knowledge as the medievals did. And since they did not, they ended up not only proposing different solutions to some of the problems of the medievals, but also being concerned with *different* problems than the medievals were. One of the problems that the moderns were concerned with that the medievals were less so is the problem, not of what individuates a given thing, but of how we can *know* that a given thing is an individual distinct from other things. Thus many (but not all) of the articles in this book are concerned primarily, and even exclusively, with this problem, and not the ontological one. The first bach of articles in the book deal with Descartes and the Cartestians, the second with Locke and the empiricists, and the third with Leibniz and his philosophical heirs, Wolf and Kant. Sandwiched in between the Cartesians and the empiricists is an article on Spinoza.

I: The Cartestians

The first article on the Cartesians, by Thomas Lennon, gives an excellent overview of the problems facing a Cartesian account of the principle of individuation for finite substances. The article shows that when the Cartesians followed the principles of their master they had a devil of a time defending the proposition that there are any individual minds or souls at all, and that they tended to drift into the Spinozistic

---

8 Ibidem

position that individual minds are so many modes (or bundles of modes) of a single universal mind.

Lennon gives two basic reasons for the pervasiveness of this problem among the Cartesians. The first, also emphasized by Emily Grosholz in her article on Descartes, is that Descartes' desire for a unified grand philosophy of everything lead him to deny the distinctions the medievals drew between various kinds of bodies.[9] Descartes, in short, saw the whole physical universe as consisting of only one sort of essence, that of the *res exstensa*. This alone would not have caused individuation to be a difficulty for Cartesianism, however, had not Descartes also confused primary with secondary substance; had he not, that is, *equated* the essences of things with the universal attribute that he held constituted that essence.[10] This, along with the reduction of the universal essence of all finite things to two kinds only (viz. extended and thinking) lead, inexorably, to seeing all individual instances of such kinds as but modes or parts of the universal substances *extension* and *thought*. I think that Lennon's account of the origin of the problems facing a Cartesian account of individual substances is fine as far as it goes, but I think he fails to understand the reasons *behind* Descartes' confusion of the primary substance of the Aristotelians with their secondary substance. Lennon thinks this confusion was a mere corollary of Descartes' mechanistic reductionism. The truth is that it was more a corollary of his obsession with epistemic problems. Gracia has shown, in his book on individuation, that those philosophers who tend not to clearly grasp the difference between ontological and epistemic problems conceive of the principle of individuation as that which *distinguishes* a thing from other things in the same class as it.[11] The reason for this is that the chief problem of individuation from the epistemologist's point of view is precisely how we can distinguish one thing from another. So it is only natural that the epistemologist turned ontologist should think that the principle of individuation in things is just what makes them really distinct from other, otherwise similar, things.

In the later middle ages, when epistemological and ontological problems were carefully and systematically distinguished, the principle of individuation was not so conceived. According to Suarez, for example, it is perfectly possible to have a class consisting of only one member (indeed, he thought the class of things that are God *necessarily* has only one member), which member is hence not distinguished from any other

---

9 *I&I*, pp. 14-15.

10 Ibidem.

11 Gracia, *Individuality*, pp. 144-150.

member of the class.[12] For Suarez, the principle of individuation is the principle that makes a thing *incommunicable* to another thing of *the same sort*.[13] So Bob, for example, cannot be divided into other complete men; he can only be divided into his soul and body, or into his various physical parts (head, hands, feet, etc.). Bob is thus an individual, and would be an individual even if he were the only human being in existence. «Humanity,» on the other hand, *is* communicable to a potentially infinite number of individuals (Bob, Bill, Sally, etc.) each of which are complete human beings. So «humanity,» for Suarez, is a universal and it would be distinct from any actual instance of it, even if that instance were the only such instance. To put all this in more contemporary parlance, for Suarez individuals are *members* of classes, while universals are the mind-dependent properties *in virtue of which* individuals are grouped into classes. No universals do or can actually exist; they are simply the way the mind conceives of the essences of things in abstraction from those things.[14] However, this does not mean that all our categories are arbitrary. The category of all things that are human, for example, is not arbitrary because there is a real (i.e. mind independent) *similarity* between all the individual things we place in the category of «human being.»

Now, if Lennon is to be believed, Descartes did not conceive of individuals in the way in which Suarez did at all. For Descartes, apparently, that is in individual which is distinct from other members of its class; Descartes, sure to his epistemic concerns, conceived of the principle of individuation as that which distinguishes a thing. One can find the root of this shift from the ontic to the epistemic in the way Descartes laid down the conditions for the real distinction between thing and thing. Suarez had said, in effect, that for an entity x to be distinct from an entity y, it is sufficient (I say sufficient but not necessary because of God) that x be able to *exist* apart from y and y apart from x.[15] Descartes, in laying down this distinction, echoed Suarez nearly word for word, the important difference being that x must be able to be *conceived* apart from y and vice versa.[16] From this it will follow for Descartes that x can exist apart from y (or, as he put it, that God could conserve them in separation from each

---

12 Cf. *Suarez on Individuation; Metaphyscal Disputation V*, trans. by Jorge Gracia, (Marquette University Press: Milwaukee, 1982), I, 7, p. 34.

13 Ibidem, II, 8, p. 45.

14 Ibidem, II, 16, p. 52.

15 See *Metaphysical Disputations*, VII, sect. 2.

16 *Principles of Philosophy*, I, 60.

other). Descartes also gave conceptual re-readings of Suarez's modal and conceptual distinctions.

Applying his epistemically grounded distinctions to bodies, Descartes argued, notoriously, that the essence of all material things is the same, namely extension, and so, not only is there only one material substance for Descartes, but this substance just *is* the universal essence *res extensa*. This conclusion did not worry Descartes (or the Cartesians) much; what was more problematic for them was the seemingly equally valid conclusion that, as the essence of all minds is the same (viz. to think), there is only one created thinking substance, of which all individual minds are but modes. Such a conclusion was problematic for the Cartesians since it seemed to them to contradict the theological doctrine of the immortality of the soul (indeed it raised the ghost of the medieval heresy of the «common intellect.»)

Perhaps for this reason, not only Descartes, but his more Orthodox follows, Arnauld and Malebranche, though they all resolutely held to a plurality of finite intellectual substances, nowhere discussed *how* such substances *could be* individual on Cartesian grounds.[17] It was only the more radical (but perhaps also more consistent) Cartesians, Desgabets and Regis, who drew the conclusion that individual minds, no less than bodies, are modes of the one created thinking substance.[18] In Desgabets the implications of this conclusion for the immortality of the soul are not clearly or explicitly drawn (indeed, Desgabets, fallaciously, seemed to draw the conclusion that souls are immortal);[19] Regis, ever the *enfant terrible* of Cartesianism, however, did draw the appropriate conclusion: «as extension, which is the essential attribute of body is never corrupted, and it is only the modes making it this or that body that perish, we are forced also to recognize that thought, which is the essential attribute of mind, cannot be corrupted. And it is only the modes determining it to be this or that soul, for example to be the soul of Peter, Paul, John, etc., which are destroyed.»[20]

Regis knew such a conclusion would get him in trouble with the theologians, and he tried unsuccessfully to avoid such trouble by having recourse to a fideistic argument for the immortality of the soul.[21] As I

---

17 *I&I*, pp. 16-17.

18 Ibidem, pp. 22, 25.

19 Ibidem, pp. 23-24.

20 Ibidem, p. 28.

21 Ibidem, pp. 28-29.

said, this attempt to avoid trouble was unsuccessful; at that time both Catholics and Protestants saw the philosophical arguments for the immortality of the soul as important underpinnings of both religion and public morality.[22] Be that as it may, Regis is important for us today for having the courage to draw many of the inferences that seem implicit in Descartes' philosophy, which Descartes himself, whether for religious or political reasons, refused to draw.[23]

Two articles conclude the book's treatment of Cartesianism proper. The first, «Descartes and the Individuation of Physical Objects,» by Emily Grosholz, supports Lennon's more general pronouncements. Grosholz concludes her article by asserting that «because Descartes understands the unification [of mathematics and physics] in too emphatic a way…the integrity and individuality of his physical objects are finally unconvincing.»[24]

The second, «Malebranche an the Individuation of Perceptual Objects,» by Daisie Radner, gives a clear and informed solution to the problem of how we can perceive particular bodies according to Malebranche's general principles. This *was* a real problem for

---

[22] The so called natural theology, which included knowledge of the immortality of the soul, was used by 17th century scholastics, both Protestant and Catholic, to underpin the need for revelation and to combat atheism and public immorality. Thus the Lutheran Chemnitz wrote: «The reasons why God imparted the natural knowledge of Himself to the minds of all men are: (1) For the sake of external discipline, which Gopd wished to be exercised by all men, even the unregenerate; (2) That God might be sought after…; (3) That He might render men inexcusable.» (Quoted by Schmid, *The Doctrinal Theology of the Evangelical Lutheran Church*, trans. by Charles Hay and Henry Jacobs, (Augusbrug: Minneapolis, 1961), p. 110). Those who denied divine providence or the immortality of the soul were typically styled «Epicurs» by 16th and early 17th century thinkers. This was, no doubt, due to the great popularity of Cicero's *De deorum natura* among the Renaissance humanists and Protestant scholastics (particularly the Lutherans, to whom Melanchthon bequethed his love of the ancient Roman). Later the favorite term of abuse for those who denied divine providence or immortality was «Spinozist» (See Lewis White Beck, *Early German Philosophy*, pp. 352-360).

[23] Another example of Regis' boldness is his assertion that on the Cartesian system body and soul form only an accidental unity. This seems more in harmonly with Descartes' own principles than Descartes' insistence that body and soul, though distinct substances, come together to form one substance. On the disagreement between Regis and Descartes see *Descartes: Philosophical Letters*, trans. by Anthony Kenny, (University of Minniesota Press: Minneaplois, 1970), Letter to Regis, Jan. 1642, pp. 126-130.

[24] *I&I*, p. 56.

Malebranche because he thought that both our acts of perceiving bodies and our acts of contemplating their nature take as their *immediate* object the universal essence of intelligible extension, which is in the mind of God.[25] Radner's article should be profitable to anyone interested in Malebranche's rather bizarre, but brilliant, epistemology.

II: Spinoza

Sandwiched between the section of the book dealing with the Cartesians and the section dealing with the empiricists is an article by Don Garrett on «Spinoza's Theory of Metaphysical Individuation.» Garrett notes that this theory is often accused of being 1) incoherent, 2) unclear and 3) incomplete.[26] It is accused of being incoherent because it locates the principle of individuation in the a certain «proportion» or «ratio» of motion and rest; but motion and rest, being accidents of individual things, seem to presuppose individual beings and so cannot constitute such beings. It is accused of being unclear because it does not lay out any very clear account of what is meant by the phrase «ratio» of motion and rest. Finally, it is accused of being incomplete since it would seem to apply only to bodies.

Garret does a good job of responding to these objections to Spinoza's theory, but I don't think he has shown it to be tennable because he has not shown that Spinoza's account of extension as a simple, infinite mode of God is tennable. Be that as it may, Garret does convincingly argue that Spinoza's theory is coherent because by motion and rest Spinoza did not mean to refer so much to the physical *places* of bodies as to the *forces* that keep them in place or cause them to move.[27] Although one might argue that force, like motion itself, is a property *of* bodies, it is certainly not as clear that this is the case as that motion and rest are, and many prominant philosophers from Plato to Whithead have located the very being of bodies in their power. So it would seem that if Spinoza did mean by motion an rest the inner principles of such, his theory cannot easily be accused of making the principle of individuation reside in a mere accident of bodies.

Garret further convincingly argues against the charge that Spinoza's theory is unclear by giving very good reasons for holding that by «ratio of motion to rest» Spinoza meant to refer to *fixed patterns* of

---

25 Ibidem, pp. 60-61.

26 Ibidem, p. 73.

27 Ibidem, pp. 79-82.

communicated motion and rest among the parts of a thing.[28] Finally, Garret argues against the charge that Spinoza's theory is incomplete by showing that 1) for Spinoza the only beings which need a principle of individuation are finite modes[29] (i.e. modes of infinite modes) and 2) that Spinoza's theory applies to the only finite modes we are aware of[30] (viz. extention and thought.) The reason why the only beings that need a principle of individuation are finite modes for Spinoza is that there is only one possible substance (namely God) and only one possible instance of each of his infinite modes (of course, I have argued above that one might question the ontological assumptions unlerlying such a view, but granted Spinoza's Cartesian presuppositions, the defense Garrett gives of him makes sense). The reason why Spinoza's theory is complete for both extension and thought, the only modes we know of, is that thought is essentially thought *of* or *about* a certain extension, so if one accepts Spinoza's mind-matter parallelism his theory of individuation will work for both spirits and their bodies.

As I have said, this is a persuasive defense of Spinoza, but its persuasive force will ultimately depend on accepting that every body is but a mode of the infinite mode of extension. I find this hard to swallow. Perhaps I am simply too biased in favor of atomism, but it does not seem to me that the parts making me up are modes of me--rather they are partial substances. Furthermore, I cannot understand how infinite extension can be a *simple* property or mode of an *incompound* being. If anything seems evident to me it is Leibniz's assertian that everything characterized by extension is compound. Of course, one cannot so quickly dispatch with Spinoza since he gives arguments in the *Ethics* for his view that extension is one simple, infinite attribute of God[31] and, therefore, any final judgment concerning his theory of inidividuation would have to carefully examine the cogency of these arguments.

III: The Empiricists

The first essay on the empiricists, by Martha Brandt Bolton, is on Locke's theories of individuation and identity. Bolton begins her essay with a history lesson. She notes that Locke was familiar with certain Protestant scholastic textbooks in use in his time at Oxford, and she asserts that a friend of Locke's had pleaded with him to treat certain of

---

28 Ibidem, pp. 82-87.

29 Ibidem, p. 88.

30 Ibidem, p. 89.

31 *Ethics,* I, prop. XV, note.

the «metaphysical subjects of the schoolmen.»[32] Bolton claims that the part of the new edition of the *Essays* which treats of individuation and (especially) identity, is Locke's answer to his friend's request. Nevertheless, Bolton believes that the background of Locke's treatment of these problems is significantly different from that of even those scholastics who were his contemporaries. Attributing a quasi-Platonic realism to all scholastics, Bolton holds that, whereas for the scholastics it is universal essences which are primitive and individual instances of those essences which need to be accounted for, for Locke the notion of an individual substance is primitive and «what needs explanation is generality, species or kinds.»[33] She goes on further to quote a passage from Locke supporting her nominalistic interpretation of his ontology, in which Locke says that «*General and Universal* belong not to the real existence of Things; but *are the Inventions and Creatures of the Understanding*…»[34]

Bolton's contrast here between Locke and the later scholastics is confused. Specifically, Bolton confuses the ontology of earlier scholasticism, which was more realistic and Platonic, with that of later scholasticism, which was nominalistic and Aristotelian.[35] Indeed, I know that one of the scholastic authors Bolton says Locke was familiar with, Christof Scheibler, was an ardent supporter of the nominalistic notion that everything is necessarily singular and individual and hence that everything is individual by its own entity.[36] Scheibler would further have agreed with Locke that there are no universals *in re* and that universals are creatures of the understanding, or *ens rationis*, as Scheibler would have called them.

---

32 *I&I*, p. 103.

33 Ibidem.

34 Ibidem, p. 104.

35 On this shift see Gracia, «Epilogue: Individuation in Scholasticism,» in *Individuation in Scholasticism in the Later Middle Ages and Counter Reformation*, ed. Gracia, (SUNY Press: Albany 1994).

36 Schiebler is unambiguous on this point: «Whatever exists (*est in re*) is singular.» He goes on to argue that it is logically necessary that every existent be singular: «Whatever exists has a certain and determinate entity. But every such entity necessarily has jointed to it the negation of division. Therefore, it has singular and individual being. The minor is clear since no being, that is no determinate entity, can be divided from itself. Therefore, no entity can be divided into many which are of the same sort as itself. Oherwise, the whole entity would be in each one as in the other and consequently it would be divided from itself…which is manifestly contradictory (*repugnantiam*).» *Opus metaphysicum*, Book I, cap. VI.

Where Scheibler and the other later Scholastics *did* differ from Locke, was in their view that the entity which makes everything individual *also* makes it distinct from other things[37] and in there view that every entity which is truly and substantially one must be unified by a substantial form.[38] The first of these views would have made it difficult for Scheibler to understand why Locke, having in effect accepted the nominalist view that everything is individual and is so in virtue of its very being, felt the need to give a theory of what distinguishes one individual of a certain sort from another. The second of these views would have made him reject Locke's own notion of what unifies and identifies composite substances over time.

With respect to the question why Locke, accepting the nominalist view that everything is an individual by its entity, felt the need to give a theory accounting for the distinction of one sort of entity from another, I can only theorize that he, like Leibniz, must have held the strong notion of the principle of the identity of indescernibles. According to this principel, for any x and any y, y is really distinct from x iff x has some quality or qualities y lacks and vice versa. Furthermore, this strong view will not accept just *any* property as being a quality in the relevant sense. For example, properties like «being identical with x» will not work. And for Leibniz, neither will relations like «being to the left of» or «being to the right of» or «being above» or «being the father of.»[39] Locke, however, gives a theory of what distinguishes different substances of the same sort which seems to evoke exactly the kind of «extrinsic denominations» Leibniz so thoroughly rejected. Locke argues that what individuates any finite being is its position in space. This follows from the principle that for Locke no two things of the same sort can occupy the same space.[40] Since Locke believed that the place of a thing was relational (that is, to say x is in place p is just to say it has a certain relation to other things, y and z, which relation could be had by some other entity e), his view of what distinguishes one thing from another is accidental; that is, it is certain spatial relations a thing has to other things which distinguishes it from those things. The strengths and weakness of this view are likely to

---

37 Cf. *Opus metaphysicum*, book I, cap. VIII.

38 Ibidem, book I, cap. XXII, Article 2, 2.

39 *I&I*, p. 109.

40 On this see Gracia, *Individuality*, pp. 150-155.

be about the same as those of any accidental view of individuation.[41] More interesting and original is Locke's theory of identity.

Locke's theory of what identifies a thing over time was a result of his acceptance of late scholasticism's notion that it is the complete entity of any thing that individuates and identifies it,[42] coupled with his rejection of its view that matter and form constitute the entity of material substances. In place of matter and form Locke posited a dualism of corporeal body and spiritual substance, with corporeal body being understood atomistically. This left Locke with the problem, pointed out to him by traditionalists who attacked this doctrine, of how to account for the unity of compound material substances such as trees, granted that they 1) are made up of an aggregate of atoms and 2) lack any substantial form to give substantial unity to such atoms.[43] It further left him with the problem of how to account for the identity of such substances over time granted that the atoms that make them up continually change.

In originating a solution to these problems Locke first of all insisted, in line with the late scholastics, that the principles individuating and identifying a thing over time are dependent upon the ontological constitution of that thing.[44] Thus, in accordance with this both Suarez and Scheibler say that what individuates an angel is a pure form, since angels are made up of only form, while what individuates a cat, for example, is its matter and form, since that is what makes it up.[45] However, even in the cat what is essential for identity at is the form, since the matter of the cat will change over time while its form will not. Indeed, for the schoolmen, as Bolton points out, the cat's body can be the same body over time even

---

41 On the prevalence of this view in later Scholasticism see Ignancio Angelelli, «The Scholastic Background of Modern Philosophy,» in *Individuation in Scholasticism: The Later Middle Ages and Counter-Reformation*, pp. 535-540.

42 *I&I*, pp. 105-107.

43 Ibidem, pp. 112-114.

44 Cf. *Suarez on Individuation*, sect. VI. Bolton is wrong to think that Scheibler locates the individuation of *all* entities in matter *cum* form. This is true of *material* substances, but not of spiritual substances or of accidents. For Schiebler, as for Suarez, everything is individuated by its entity (*Opus metaphysicum*, Book I, cap. VI, art. 1-6). Scheibler even follows Suarez in holding that accidents are individuated by their own accidental entity, *not* by the subjects they inhere in (as the Thomist tradition holds).

45 *I&I*, p. 105.

if the matter changes since what makes a body *the body of a certain sort of thing* is exactly the form which actualizes it.[46]

In place of the late scholastic hylomorphic theory, Locke supported a dualistic atomism. For Locke the most basic ontological distinction to be made in the realm of finite substances is between simple and compound entities. A simple entity is any entity which cannot survive the change of its constituent parts (whether those parts are one or many); a compound entity is any entity which can survive the change of its constituent parts.[47] This leads to the rather odd notion that an aggregate, such as a pile of rocks, is a simple entity since it cannot survive the change of its parts. It should also be noted that Locke's distinction between simple and compound entities cuts across the distinction between material and spiritual entities; Locke thinks there can be instances of both simple material entities (such as atoms) and simple spiritual entities (such as angels), as will as instances of compound material entities (such as animals) and compound spiritual entities (such as persons).[48]

Locke noted that the reason that compound entities can survive the change of the parts which constitute them at any given time is that the essence of such entities is to be made of parts of a *certain sort structured in a certain way*. Thus animals, according to Locke, are compound entities since any given individual animal can, and does, survive the loss of particular atoms and molecules making it up, just so long as new atoms and molecules come to replace the old ones the animal looses. Thus a given animal (a) remains the same individual for Locke trough a certain time period $t—t^n$, just so long as (a) continues to exist uninterruptedly as the *same sort of thing* from $t—t^n$.[49]

Now, in addition to holding to the above mentioned differences between simple and compound things, Locke also, notoriously, held that persons, like animals, are compound entities. This is because persons can survive the loss of the physical parts that make them up. For Locke, personal identity is not dependent upon the continued survival of any part or set of parts that constitutes a person at any given time. What it does depend upon is the continence of a certain *mental structure*, involving, among other things, the memory of past mental acts.[50]

---

46 Ibidem, pp. 114-115.

47 Ibidem, pp. 114-116.

48 Ibidem, p. 115.

49 Ibidem, p. 116.

50 Ibidem, p. 120.

In some ways Locke's theory on this point echoes the tradition. For the tradition also held that persons could survive the loss of any of the parts constituting their *bodies* at any particular time. But, according to the tradition, this is possible because one part constituting the person, viz. her *soul*, does remain numerically the same over time. Locke denies *this*; he conceives of the *logical* possibility that distinct immaterial substances could share in the same personal identity. In this respect Locke's view adumbrates Hume's; it differs from Hume's however, in that Locke helds that for any mental act (m) existing at any time (t) there is some simple substance (s) (whether spiritual or material) which *performs* (m).[51] In short, though Locke thought that personal identity can pass from one substance to another, he did not allow that mental acts or other psychical properties could exist independently of a sustaining substance. Though a person (p) could be constituted over time by distinct substances, it is nevertheless a necessary truth for Locke that (p), at any time (t), performs any mental act (m) *in virtue of* some simple substance (s), that partially constitutes (p) at (t).

Bolton lays all of this out with great clarity and further shows that Locke's argument against its *actually* being the case that any person is constituted by different substances over time, takes as its foundational principle God's benevolence, not His justice.[52] In the course of clarifying Locke's views Bolton shows that it is free of the internal inconsistencies it has been accused of harboring from Butler and Reid on until the present. Nevertheless, in my opinion, Locke's theory involves some absurd notions, such as the notion that «different substances may be the agents of acts that are correctly ascribed to a single person.»[53]

The next article on the empiricist tradition in *Individuation and Identity*, by Daniel Flage, is on Berkeley's view of the individuation and identity of physical objects. Flage makes it clear that Berkeley shared Locke's disinction between simple and compound objects, as well as Locke's insistence that the principle of individuation and identity be different for such different sorts of things.[54] Berkeley differed from Locke, however, concerning the specific classes of objects to be placed under these two heads. Simple objects for Berkely consist of souls and their

---

51 Ibidem, pp. 121-122.

52 Ibidem, p. 120.

53 Ibidem, pp. 135-136.

54 Ibidem, pp. 134,137.

simple ideas;[55] complex objects, on the other hand, consist of the complex notions that souls construct out of their simple ideas. The classes of simple objects are similar in that they are maximally individual; every simple object is individuated necessarily in virte of its very being.[56] They differ in that ideas have only momentary existence while souls perdure over time. Furthermore, Berkeley seems to disagree with Locke's notion that a single person could be consistued over time by different substance. Whether or not the concept of «person» is identical with the concept of «soul» for Berkely is unclear; what is clear is that no person could be consititued by different substance over time. Thus for any person (p) it is necessary the case the there is only one spiritual substance (s) whose mental acts or ideas constiute (p).[57]

The individuation and identity of complex objects is much looser than that of simple objects according to Berkely. Flage well describes Berkley's notion that complex objects are constructs that minds make out of their simple impressions. A tree, for example, is a mental construct, made out of the simple impressions of the colors of the three, its textures, etc. These constructs, however, are not *arbitrary*. Real objects are constituted by minds according to certain pscyological laws or principles which bear on real similarities among the simple ideas comprising such objects.[58] This notion allows Berekely to account for the fact that a botonist, for example, has a clearer and more detailed idea of a rose than the average person does. This is because the botonist is more attentive than the average person to the real similaries that obtain among the ideas which make up the rose.[59]

As for the identity over time of physical objects, Berkely accounted for it in terms of similaries of consturcted ideas. That is, the tree I see out of my window today, can be properly identified with the tree I saw out of it yesterday, because 1) the simple impressions making up the three are similar to those making up the tree I saw yesterday, 2) they are related to each other in a way similar to the way the simplie ideas making up the tree I saw yesterday were, and, finally 3) they are related to constructs

---

55 Ibidem, pp. 135-136.

56 Ibidem, p. 135.

57 Ibidem, p. 135.

58 Ibidem, pp. 138-140.

59 Ibidem, p. 149.

spacially near them in a similar way to the way the tree I saw yetsterday was related to the spacial constructs around *it*.[60]

Flage finally takes up the question of whether or not two persons can have the same ideas according to Berkely. He thought that if the question concerns the ideas of two finite spirits, that the answer rests on how rigorous one wants to be about the concept of «sameness» invovled. In the most rigorous sense of the word, my idea of the white wall in front of me is distinct from that of my neighbor. However, in a looser sense they are the same in that they are qualitatively similar.[61] If the question concerns the ideas of any finite spirit and God, however, then a case can be made for the view that Berkely thought that the set of ideas that any finite spirit has at any time is a sub-set of the ideas God has simultaneously[62] (although, God, of course, has a more perfect, detailed, and clearer knowledge of any ideas which he shares at any given time with a finite spirit).

The final article in this collection on the empiricists is by Fred Wilson. It deals with Hume's account of the identity of physical objects over time as well as of the self. Wilson's article is one of the longest and most detailed in the collection; it is also one of the most philosophically interesting since Wilson takes as his goal the project of *defending* Hume's views of physical objects and of the self against the charge that they are inconsistent. Wilson does a good job of this, but I am not sure he quite succeeds in his assinged task. I am quite sure, however, that he comes nowhere near to making Hume's view of the nature and identity of phyiscal objects or of the self tenable.

Wilson's account of Hume's own views is rooted in an account of the scholastic tradition as well as of Locke's spin on that tradition. As Wilson sees it, Locke hanged on to the traditional ontology concerning substance and causal power. What Locke gives up is the epistemic doctrine that we can know anything about the *specific* nature of physical or spiritual substances or of *the way in which* the causal powers of a substance flow from it.[63] This means that the emphasis in Locke shifts from substances and their powers to the empirically accessible properties of substances, and to the regular links between events that we are able to observe. Locke's philosophy, then, represents an uneasy half-way house between the tradtion and Hume.

---

60 Ibidem, pp. 145-146.

61 Ibidem, pp. 148-146.

62 Ibidem, p. 150.

63 Ibidem, pp. 158-159.

According to Wilson, Hume gave up the traditional ontology Locke clung to. For Hume, the empiricist account of knowledge leaves no room for the concepts of substance or causal power.[64] Hume reconstructed the concepts of physical objects and selves, arguing that both are constructions arising out of simple impressions. To say of a given entity that it is the same physical object as an entity one observed yesterday, is to say that it is a *member of a set of perceptions* linked together by the mind accourding to relations of similarity and spacio-temporal continuity. This is all very similar to Berkely's account of the nature of physical objects and their identity over time. What is famously different in Hume is his account of the self. Hume gave up, as Berkely did not, the traditional notion of the self as a simple substance that perdures uncahnged in its essence over time. For Hume the self, no less than physical objects, consists of a number of really disinct individual impressions and ideas (it is, in Hume's own famous phrase, a «bundle of impressions»).

Hume's account of the self made him uneasy. In particular, he did not seem to think that account could explain the origin of our ordinary notion of the self.[65] Wilson argues that Hume's philosophy does indeed provide the materials for a consistent notion of the self which is capable of explaining the origin of our common sense notion of it. The argument Wilson gives for this is quite complex and I shall not summarize it in detail here. I shall note, however, that Wilson shows that Hume does include amoung the entities that constitue the self *kinds* of impressions which he does not include among the entities that constitue material objects. These kinds of impressions include impressions that impressions are occuring (Hume's odd verson of self-conciousnes) as well as feelings[66] (e.g. pride, anger, hope, love). This is all well and good, and it shows that Hume's account of the mind is more sophsticated than is commonly thought, but I am still not sure it does away with all internal inconsistencies in Hume. In particular, I am not sure that Hume can account for the origin of our ideas of the self or of causal powers without invoking habits (as he indeed *does* and as Wilson himself notes that he does), and it does not seem that «habits» are the sorts of mental entities one can have an impression of[67] (which must be possible if Hume's use

---

64 Ibidem, pp. 159-160.

65 Ibidem, pp. 180-181.

66 Ibidem, pp. 184-185.

67 Wilson tries to square Hume's use of the category of «habit» with his epistemology by interpreting habits as patterns of ideas caused by convention. For a different view of the matter see R.P. Wolff, «Hume's Theory of Mental Activity,» in *Hume; A collection of Critical Essays*, ed. by V.C. Chappell

of the idea of «habit» is to square with his account of the nature of all ideas as decayed impressions).[68] Furthermore, I am not at all clear what it means to say that there are impressions that impressions are going one. I think one can percieve that an impression is going on, but such a perception seems to require at least the *indirect awarness* of the very subject of impressions which Hume banished from his ontology.

IV: Leibniz and the German Tradition

The last section of *I&I* deals with the German tradition of modern philosophy. The philosophers treated in this section are distinguished from their British and French counterparts in part due to the greater influence of scholasticism on their thought. This was due to the fact hat the universities in 17th century Germany, like those in 17th Century Spain, were far more beholden to the State and the Church than was true in Britian, or even in France.[69] The reasons for this are many, but the religious diversity that came about in Germany as a result of the Reformation is probably the cheif. Germany was divided between the Lutheran, Reformed and Catholic traditions. This led to a kind of tolerance, but it also led to a great concern with theological doctrine and with apologetics. For these purposes the theologians of the German universities found the ontological categories of the Aristotelian/scholastic tradition most servicable and they thus kept it alive even as it was dying in France and Britain.[70]

There is no doubt that Leibniz was weaned on the tradtion of Lutheran scholasticicism.[71] This is apparent from the number of thinkers of that tradition Leibniz referes to in his philosophical and theological works, as well as from the number of notions he professly took from the scholastics. For though Leibniz, like all of his most famous contemporaries, criticized the scholastics, he did not do so without at the

---

(University of Notre Dame Press: Notre Dame, London, 1968) pp. 99-128.

68 On this see Lewis White Beck, *Early German Philosophy*, (Harvard Universiy Press: Cambridge, 1969), pp. 5-12.

69 See the above mentioned article of Angelelli.

70 These include his own notion of individuality, the idea that all real beings are either substances or accidents, that God is pure act and creatures are a mixture of act and potency, that evil is not a positive reality but a privation, etc. Among the 17th century Protestant scholastics whom Leibniz refers to in the *Theodicy* are Calixtus, Calov, Chemnitz, Grotius, Keckerman, Museaus, Pufendorf, Gerhard and Sherzer.

71 Cf. *Discourse on Metaphysics*, X-XI.

same time protesting both the great worth of many of their central ideas and the honorableness of their character.[72] The influence of scholasticism shows in the work Laurence McCullough examines in *I&I*, the youthful *Disputatio metaphysica de principio individui*. Written under the direction of one of the most famous of Lutheran scholastics, Scherzer, McCullough notes that the influence of scholasticism can be found in the exclusively ontological concern of the work.[73] Leibniz is *not* concerned with how *we* can distinguish individuals, but with the feature or features that *make* things to be individual.

In harmony with other recent work on Leibniz, McCullough argues, I think correctly, that Leibniz came down squarely on the side of the late scholastic nominalist tradition in his treatment of the principle of individuation.[74] For Leibniz all real beings are individual in virtue of their *complete entity*. There are no universals existing *in res*, for universals are but constructions of reason.[75] McCullough further argues that Leibniz never abandoned his early nominalistic views and that even his later monadism is informed by his early nominalsim.[76] This may come as a surprise to some who have been accustomned to seeing Leibniz through the lens of Russel's classic work. The cheif reason for doubting the later Leibniz was a nominalist is that Leibniz apparently thought that the essence of each thing is unique; this might lead one to suppose each monad is literally an existing univesral species. Furthermore, Leibniz sometimes speaks as if the essence of a monad is literally the sum of all of its predicates, which predicates themselves might be thought to be universals.[77] Thus one might suppose that for Leibniz monads are bundles of universals.

I think both of these reasons for supposing Leibniz abandoned his early nominalism are based upon minunderstandings of his doctrine. For in the first place, the fact that Leibniz thought every monad unique in its specific essence does not in itself show he thought of them as existing

---

72 *I&I*, pp. 202-204.

73 For a detailed discussion of Leibniz's nominalism see Benson Mates, *The Philosophy of Leibniz*, (Oxford University Press: New York, 1986), chap. X.

74 *I&I*, pp. 205-206.

75 Ibidem, pp. 211-212.

76 This is the way he spoke, in his correspondence with Arnauld, of the complete concepts of the various possible Adams God might have created.

77 *Discourse on Metaphysics*, IX, trans. by George R. Montgomery, (Open Court: LaSalle, 1980).

universals. According to the scholastic tradition Leibniz was familiar with, it is quite possible for there to be individuals who are the sole possible instances of their specific essences. This was the common view the scholastics took with respect to the divine essence, and it was also, famously, the view the entire school of St. Thomas took with respect to the angels. Leinbiz was aware of this, and in *The Discourse on Metaphysics* makes explicit reference to the doctrine of St. Thomas in explaning his own theory of individuation:

From this [i.e. the predicate-in-notion principle], several notable paradoxes follow. One of these is that it is not true that two substances resemble each other entirely and are different in number alone (*solo numero*), and that what St. Thomas asserts in this connection about angels or intelligences, namely, that in these cases every individual is an *infima species* is true of all substances…[78]

With respect to the second point, namely, that Leibniz's notion that every substance is constituted by a complete concept which includes all of its predicates, it should be noted that Leibniz was often guilty of failing to distinguish mention from use.[79] Thus he would say that the individual *consists* of its complete concept; nevertheless, when he was careful, he was clear that the complete notion of the individual is merely the *way in which* the individual is known to God. The individual itself is not a concatenation of predicates; it is rather a certain limited actuality, consisting of a primate active force, or form, and a primitive passive force, or prime matter.[80] Further, these forces are but conceptually distinct aspects of one simple being. The active force is the degree of clarity of a substance's perceptions, while the passive force is its degree of

---

78 Cf. Mates. pp. 50,210.

79 *Monodology*, p. 42.

80 This squares with Leibniz's assertion that a perfect or *a priori* definition shows the possibility of a thing through its «generation or cause.» Of course, this would seem to make any *a priori* definition of God impossible, since He has no cause. But the scholastics felt that a *quasi* definition of God could be given showing how His attributes all follow from his very essence as *actus purus*. And this is the case even though in God Himself essence and attributes are identical: «We understand, however, by the «Divine Essence» that which is *first* conceived in God, through which God is adequately distinguished from all other things, and which, according to our mode of conceiving, is the root and principle of all the other perfections of God which are attributed to Him as properties.» (J.G. Baier, *Compendium theologiae positivae*, (1685) Pars Prima, c. I, «De Deo,» 5, a). A similar maneuver on the part of Suarez and other metaphysicians of the period allowed them to make metaphysics an Aristotelian science, even though its object, Being, is not really distinct from its «passions.»

imperfection. God, in knowing the essences of substances, knows their exact degree of perfection and imperfection; He knows, as it were the inner *law of their being*. Hence, far from knowing them as but an aggregate of predicates, He knows them *a priori* and thus He knows *how* all their accidents are a result of the degree of perfection of their essence.[81]

Sandwiched between the essay on Leibniz and the concluding essay on Kant, there is one by Jorge Gracia on Christian Wolf. This is fitting, for though Wolf is not much read today, he had great influnece not only in Lutheran Germany but also in Catholic Universities of Spaiin, Italy and the new world. Indeed, Wolf's conception of the nature of metaphysics was determinative of the way in which 19th and early 20th Century neo-scholastics treated metaphysics. Not until the so called «existentialist Thomism» of Maritain and Gilson, did Wolf's influence on neo-scholasticism wain.[82] But in addition to influencing later scholastics, it is very clear that Wolf had a great influence on Kant, who always spoke of the older philosopher with respect.

Gracia's essay on Wolf is one of the clearest and best argued in the collection. In part this is because Gracia's own extensive reasearch into the topic of individuation has caused him to have a very clear notion of all of the various problems it contains. Indeed, I am afraid he has a clearer notion of the topic than the subject of his essay did. For, as Gracia notes, in spite of his great attempt to be clear, Wolf is very unclear about many central issues of his view of individuation. His unclarity has lead Gracia to construct what he takes to be Wolf's notion of individuation; but though Gracia mounts an impressive case for the conclustion that Wolf espoused a bundle theory of the nature of the individual, I remain unconvinced.

According to Gracia, Wolf took the *essences* of individuals (or that which makes them to be beings of a certain *sort*) to be bundles of their generic and specific features, while their *thisness* (or that which makes them to be particular instances of beings of a certain sort) he took to be bundles of accidents (i.e. non-necessary features).[83] Gracia's case for this conclusion is based, essentially, on the following points. In the first place,

---

81 This is shown in the order of 19th century scholastic treatises which follow the general Wolffian order of the disciplines, beginning with Ontology, proceeding to Cosmology, then Rational Psychology and ending with Rational Theology. As Maritain never tired of pointing out, this order of the disciplines is not that which St. Thomas espoused in his *Commentary on the De trinitate of Boethius*).

82 *I&I*, pp.230-236.

83 Ibidem, p. 227.

Wolf refered to universals as what individuals «have in common».[84] This, Gracia notes, is a favorite expression of medieval realists, such as Scotus, who took a bundle view of the nature of the specific essences of things. In the second place, Wolf refered to individuals as being «completely determined» in their being, and further went on to suggest that what is determined in them is exaclty their generic and specific properties. Indeed, Gracia points to one text in the Logic where Wolf refers to the specific essence of things as «bundles» of their essential features.[85] Finally, Gracia notes that Wolf spoke of the thisness of a thing determining its specific essence in a way analogous to the way the specific difference itself determines the thing's generic essence.[86] Though Gracia notes that Wolf nowhere asserted that the «thisness» of a thing is constituted by the set of its non-necessary accidents, he thinks that it is the most likely interpretation of Wolf's thought in light of 1) the inherent weakness of views, such as that of Scotus, which take «thisness» to be a primative, and in light of 2) the fact that Wolf retains the traditional scholastic distinction between necessary accidents (called atributes by Wolf) and non-necessary accidents (called modes by Wolf).[87] This is all very convincing and would convince me were it not for the following fact: If Wolf *did* expound a bundle view of the nature of individuals, then he expounded a view of such which is *logically incompatible* with fundamental tenets of the monodism that he took over from Leibniz. Let me explain.

One of the foundational principles of Leibniz's philosophy is the view that no accidental unity, i.e. no union of really disinct substances, features or essences, can constitute a single substance rigorously speaking. It is for this reason that Leibniz held that there are no composite substances since the only substantial being composites have is the substantial being of their parts; in truth, composites have no more substantial unity than the East India Company.[88] It is also for this reason that Leibniz held that all true substances are simple, lacking parts entirely.[89] Finally, it is for this reason that Leibniz held that the form and

---

84 Ibidem, p. 231.

85 Ibidem, pp.231-234.

86 Ibdem, pp. 232-234.

87 See Leibniz's letter to Arnauld dated April 30, 1687 (pp. 180-199 in Montgomery).

88 Monodology

89 Monodology

matter «constituing» such substances are not really disinct principles but are simply conceptually distinct aspects of a single limited actuality.[90]

Now Wolf entirely agreed with the main outlines of Leinbiz's view. In his *Ontologia*. he said that all composites are, rigorously speaking, but accidental unities, being constituted by relational modes.[91] He wrote that the ultimate constituents of composites are simple substances, which are substances in the full and rigorous sence.[92] These substances lack parts, are not in space, are neither generated nor corrupted, etc. Furthermore, the features characteristic of such substances are primitive passive force (or their passive faculties), primitive active force (or their active faculties) and conatus, or the continual striving for further perfection.[93] Though Wolf did not say so, it seems reasonable to suppose that he agreed with Leibniz in holding that these features of simple substances are only conceptually, not really, distinct.

Having layed out the chief tenets of the monadism characteristic of both Leibniz and Wolf, it should be clear that Wolf could not have, consistent with that monadism, espoused a boundle view of essence. For if the essences of things consist of bundles of their generic, specific and accidental features, then they simply cannot have the true and rigorous unity that both Leibniz and Wolf ascribed to what is really real, viz., the monads. Since this is so, it seems one should not ascribe a bundle view to Wolf unless the texts are *absolutely clear* that he held such a view; but even Gracia admits they are not absolutely clear. For these reasons I cannot agree with Gracia that Wolf held a bundle view of the nature of individual substances.

But, if Wolf did not hold such a view, how does one explain his repeated insistence that the essence of things consists in the concatination of their essential and primary features (what Wolf called «essentials»)? And, if he did not hold a bundle view, how can one interpret his theory that what makes things individual is that they are «completely determinate?» A full answer to these questions would constitue a paper in itself, but let me sketch a possible line of thought in answer to them here.

With respect to the question of how to interpret those passages wherein Wolf does seem to equate the essences of things with the bundle

---

90 Wolf, *Philosophia prima sive ontologia*, ed. by Joannes Ecole, (Georg Olms Hidesheim: Amsterdam, 1962), Part II, sect. II, cap. I, # 686.

91 Ibidem.

92 Ibidem, # 721-22.

93 Aquinas, *De ente et essentia*, II,9.

of their essential features, it should be noted that both the scholastics and Leibniz often confused mention and use in their more careless moments, predicating of the essence of a thing its definition. Thus Aquinas often said that the essence of man is «rational animal.» When he was more careful, however, he was clear that, since there are no actually existing universals, «rational animal» merely *expresses* the essence of man in logical terms, it does not *constitute* it. What constitues it is prime matter and a rational soul.[94] In a similar way, it may be that when Wolf said that the essence of a thing is all of its necessary and prime featues, he should be interpreted as predicating of the essence its definition. Some support for this can be found in a passage where Wolf compared his notion of essence with that of the tradition. He noted that in this regard Suarez said that the essence of a thing is «that which is expressed in the defintion,» and went on to say that his own view, which holds that the essence of a thing is its prime, necessary attributes, «agrees» with Suarez's view.[95] Since this consturction of Wolf is plausible based upon the tradition he allied himself with, and since there are texts to support it, and since it better harmonizes with Wolf's monadism than the bundle view, I submit that it is a better interpretation of his doctrine of essence than Gracia's is.

With respect to the question of what Wolf means when he says that the individual is that which is «fully determined,» I must confess that I find this an example of the a confusion between the epistemic and the ontic which Gracia thinks runs throughout Wolf (indeed, I agree in general with Gracia's view that Wolf's philosophy is vitiated by this very confusion; I just don't think the extent of the disease is a bad as Gracia thinks it is). What Wolf may have had in mind is that universals, being constructions of the mind, are never as rich as the individuals they confusedly represent. No matter how far you determine them, they are never as determinate as individuals, and can hence always apply to an infinite number of them. Individuals, however, being *complete* beings, not characterized by the abstractness of concepts, will always be fully determinate.[96] Thus Wolf focused on this determinateness of individuls as the feature or property disinguishing them from universals. All of this is perfectly consistent with holding that universls are merely concepts of the mind and that they do not actually make up the essence of individual substances. Where Wolf was confused was in thinking that determinatenes

---

94 Wolf, *Ontologia*, Pars I, sect. II, cap. III, # 169.

95 On this see Leibniz's letter to Arnauld, May, 1686, (pp. 106-107 in Montgomery)

96 On the scholastic background of Kant's thought see Ermano Bencivenga, *Kant's Copernican Revolution*, (Oxford University Press: New York, Oxford, 1987), chapter 2.

is the very *feature* making individuals individual; it seems rather to be a property by which we can distinguish individuals from our abstract concepts of them. It is precicely here, I think, that Gracia is correct that Wolf's concern with epistmology led him to confuse a feature of individuals with their very «thisness.»

The final article in the book, by Michael Radner, concerns Kant's theory of the individuation of phenomena and things in themselves. This article is valuable for the light it sheds on the continuing influence of German scholasticism on Kant's thought. Too often Kant is approached only via Hume and Descartes; but while it is true that the views of these great foriegn philosophers greatly influenced Kant, he responded to the challenges they posed from within his own peculiar tradition, a tradition heavily influenced by scholasticism.[97]

Radner's article highlights the influence of the tradition by arguing for both the importance of the concept of substance in Kant's philosophy and for the largely traditional definition Kant gave of that substance. With regard to the first point Radner emphasizes that Kant conceives of phenomenal «things» as substances[98] and he seems even to argue that Kant conceives of things-in-themselves as substances. I say Radner *seems* to argue that Kant regarded things-in-themselves as substances because at the beginning of his article he points to passages the upshot of which is that things-in-themselves are substances. Some of these passages cash out the real nature of substance in very Wolfian terms: «As objects of the pure understanding every substance must have innter determinations and powers which pertain to its inner causality;» and, «Causality leads to the concept of action, this in turn to the concept of force, and thereby to the concept of substance.»[99] In this regard Radner further points out that the Kantian notion of substance is in itself so tradtional that Kant «refers readers of the *Critique* to the 'ontological manuals' for the tast of adding the 'derivitive and supplementary' pure concepts of the understanding.»[100]

More convincing, however, than the implicit and explicit ties of Kant's notion of substance to the Wolfian tradtion (and via that tradition to the older German scholasticism) is one of Kant's arguments for the ideality of space which Radner draws attention to. According to this argument space cannot be real because it is neither an accident nor a substance. This assumes that, in Radners words, all the slots that real

---

97 *I&I*, pp. 246-247.

98 Ibidem, p. 248.

99 Ibidem, p. 248.

100 Ibidem.

things could be in are taken up by substances and accidents.[101] But if that is the case then it seems things in themselves must be substances characterized by accidental determinations.

Though Radner gives a number of arguments, then, for supposing that Kant regarded things-in-themselves as substances, he ultimately is afraid to positively assert this. And there are good reasons for this hesitation. In the first place as Radner himself points out Kant's notion of substance is not wholly the same as Wolf's since for Kant the notion is taylored for possible experience, and since we have no experience of things in themselves, it does not seem that the notion of substance can be applied to things-in-themselves.[102] Furthermore, in some places Kant asserts that no *a priori* knowledge can give knowledge of the thing-in-itself;[103] but the concept of substance is *a priori*. I am afraid, in light of all this, that Radner's article, thought it sheds some light on features of Kant's philosophy often overlooked by Anglo-American commentators, exposes as well a deep tension in that philosophy which I cannot see how Kant ever overcame.

After addressing the importance of the concept of substance in Kant's philosophy, Radner goes on to show how Kant accounted for the individuation of phemonenal and noumenal substances.[104] Phenomenal substances for Kant are individuated by their position in space. This makes emminent sense because space is, according to Kant, the *a priori* form of all external intuitions. It also makes sense because the position of things in space is one of the most important (if not *the* most important) means we use to disinguish things. Since phemonal entities are creatures of our cognitive faculties it is fitting that their individuation should take its principle from an epistemic rather than an ontic structure.

As for things-in-themselves, Radner shows again Kant's debt to the older tradition. According to Kant the thing-in-itself is individuated by the totality of its inner determinations.[105] Though this is in complete accord with Wolf as far as it goes, Radner argues that it is not present in Kant's philosophy only because Kant was influenced by Wolf; rather it is present because Kant really thought that is was entailed by principles innate in the

---

101 Ibidem.

102 Cf. *Prologomena to any Future Metaphysics*, trans. by Carus and Ellington, (Hackett: Indaianapolis, 1977), p. 26.

103 *I&I*, pp. 260-261.

104 Ibidem, pp. 262-263.

105 Ibidem.

human mind. In short, there is a Wolfian element that is logically entailed by first principles of Kant's philosophy.

John D. Kronen

St. Thomas University

Department of Philosophy

2115 Summit Ave.

St. Paul MN 55105-1096

USA

SORITES (Σ ΩPITHΣ), ISSN 1135-1349
Issue #06. August 1996. Pp. 61-68.
Book Reviews

GÖDEL, Kurt: *Ensayos inéditos.* (Ed. Francisco Rodríguez Consuegra, Prólogo de W. V. Quine). Barcelona: Mondadori, 1994, 240pp. + 8 Fotos.

GÖDEL, Kurt: *Unpublished Philosophical Essays*. (With a historico-philosophical introduction by Francisco A. Rodríguez-Consuegra (Ed.) and Foreword by W. V. Quine). Basel; Boston; Berlin: Birkhäuser, 1995, 235pp. + 8 Fotos.

The publication of essays by Gödel edited by Francisco A. Rodríguez-Consuegra comprises three very distinct sections. The first section containts a succint introduction by W. V. Quine (1994, 9-10 / 1995, 7-8) and the acknowledgements of the editor (1994, 11-14 / 1995, 9). In the second section (part I) one finds the introduction in which the editor writes on '*Kurt Gödel and the philosophy of mathematics*' (1994, 21-126 / 1995, 15-106). The third section (part II) is the most comprehensive one (1994, 127-240 / 1995, 107-235) consisting of the following five parts: 1. the character and origin of the manuscripts (1994, 129-144 (+ 4) / 1995, 109-123 (+ 4)); 2. the text '*Some basic theorems on the foundations of mathematics and their philosophical implications*' (1994, 129-147 / 1995, 149-169), '*Gödel's footnotes*' (1994, 171-178 / 1995, 149-157) and the '*Appendix*' (1994, 179-187 (+ 3) / 1995, 159-167 (+ 3)); 3. the text '*Is mathematics syntax of language?*, II' (1994, 191-207 / 1995, 171-189) and '*Gödel's footnotes*' (1994, 209-228 / 1995, 191-211); 4. the text '*Is mathematics syntax of language?*, VI' (1994, (+ 1) 231-236 / 1995, (+ 1) 213-218) and '*Editorial footnotes of comparison with version* V' (1994, 237-240 / 1995, 219-222); 5. and *Index* of themes and authors (1995, 223-235).

W. v. O. Quine presents the main objectives of Gödel's proposals: the theorem of incompleteness which shows that it is not possible to construct any formal method which it would be possible to prove all mathematical truths. He underlines the effort made in locating the manuscripts on philosophy of mathematics in state and their processing by Rodriguez-Consuegra. In the acknowledgements, the editor cites innumerable persons to whom he is indebted. In the introduction the reader finds a survey of the topics addressed in the texts.

F. Rodríguez-Consuegra analyzes the motives and intuitions that led Gödel to the results of the completeness theorem for basic logic and his incompleteness theorem for arithmetic. Gödel's mathematical realism is considered to be a philosophical consequence of these results. It is a heuristic principle that leads to them and a philosophical hypothesis which is verified by them. He them turns to an analysis of the ontological, semantic and epistemological components of mathematical realism. The autor believes that Gödel defended the analytical character apriori, but not in a tautological sense of the mathematical propositions founded on an obscure notion of meaning. He distinguishes four forms of understanding the term «analytical» with regard to mathematical statements, i. e., (i) logico-syntactical analytical; (ii) logico-semantical analytical; (iii) epistemological analytical; and (iv) theoretical analytical. G. Frege opts for (i) and (iii), that is, for what can be proven, what is logically true and known *a priori*, directly and intuitively. L. Wittgenstein is associated with (i) even if it is not stated whether this is the early or late Wittgenstein. R. Carnap is considered to accept (i) and (ii), that is what is true is considerd according to synonym and meaning. W. v. O. Quine accepts (iv) and thus what is not empirical, not observable without theory, that is, what receives the objective status of a theory or of language. Finally, K. Gödel accepts elements of (ii), (iii) and (iv). Gödel's and Quine's critique against Carnap is interpreted in a similar way. Whith regard to these critical remarks we will deal with some specific points in the published book.

In the article titled '*Some basic theorems on the foundations of mathematics and their philosophical implications*' the key intuitions and motivations of Gödel's metamathematical results are addressed. It is on them that his *realist* position is based. In a neutral way, we could understand realism to be the postulation of a model that applies, in a speculative way, the relation between a singular term and an individual object, which can be demonstrated empirically in generic terms. In this sense general terms are postulated to be universals, which in turn cannot be empirically demonstrated. In this connection Gödel formulates his convention that mathematical objects exist and that their reality is analogous to that of physical objects.

In this article the author argues by reference to the impossibility of developing a reductionist program founded on mathematics and to the shortcomings of a mechanist and algorithmic vision of the human mind. This position is, above all, based on its platonicfoundation which is defined in the sense that «…mathematics describes a non-sensual reality, which exists independently both of the acts and the dispositions of the human mind and is only perceived, and probably perceivad very incompletely, by the human mind.» (1994, 169 / 1995, 147.)

Another important topic revolves around the thesis that the nature of philosophy of logic and mathematics is *analytic* even if tautological.

Thus the propositions and mathematical axioms refer to the mathematical objects that are analyti but not tautological, that is, their truth depends on the meanings of the concepts that they include but not on their definitions. This thesis is buttressed by a specific epistemological conception. The intuition of the objects and mathematical axioms can lead to real knowledge. According to the author, mathematical intuition contributes to guaranteeing the truth of mathematical axioms. The axioms and the mathematical objects are necessary to systematize mathematics and to thus make it possible to explain propositions. Gödel declares the thesis to be refutable according to which mathematical intuition can be replaced by conventions. The argument goes as follows: if we accept, in a given case, that certain syntactical conventions can replace mathematical intuition, we are obliged to prove the consistency of such conventions, enabling us to deduce any proposition from them. A similar proof of consistency is based on the mathematical intuition by virtue of which it remains without validity. (see: 1994, 231-236 / 1995, 213-218).

In '*Is mathematics syntax of language?*, II' the autor presents H. Hahn's and R. Carnap's position as a combination of nominalism and conventionalism. Nominalism is supposed to deal with the universe of discourse in moderation. Regarding this positions, Gödel attacks the thesis according to which mathematics is reduced to a formal syntax of language, by virtue of which is nature would be tautological and void of meaning. Here the reader is confronted with a purely polemical text.

The third chapter presents the context and the arguments according to which mathematics is similar to physics, both in terms of goals and methods. The analogy with physics is based on sensual perception. We were able to show above that one of the realist conclusions was that objects and mathematical axioms alloved us to systematize mathematics and to thereby explain the propositions. Such propositions can also be understood as «sense data» whose generalizations require transcendent assumptions. In this way, one can understand that the effectivity of the propositions is relevant. Its relevance is equally based on the parallelism that is created with the physical objects.

In '*Is mathematics syntax of language?*, VI' Gödel declares the thesis that mathematical facts and objects do not exist to be refutable. To this end he develops the following five arguments: (a) if it is maintained that mathematics and logics do not have empirical consequences, then the same holds in a similar way for laws of nature, given the fact that to infer such consequences from them already requires mathematics and logic with an objective content not expressed in terms of laws. (b) Mathematical axioms are just as refutable as laws of nature: it suffices to derive an inconsistency from them. Consequently, they have content and their objects existence. (c) The vacuity of mathematics could not be maintained even if we were to admit that it could be based on symbolic conventions.

Consequently, we would have to show that such conventions do not add anything to the theory in which they are formulated. (d) If mathematics were to be constructed on the base of syntactic rules this would not make it more conventional since if we admit that the definition of meaning of a concept consists in its rules of use, then different rules would introduce distinct concepts, and such liberty in the selection of concepts does not obtain only in mathematics. (e) Empirical perception and mathematical intuition are forms of experience whose difference only consists in the fact that the former relates concept and object and the latter only concepts. Both, however, have the same function of unifying the multiplicity of independent impressions. Gödel state that the thesis that conventionalism in mathematics would be compatible with empiricism is refutable. The counter-argument goes as follows: if the consistency of conventions were based on empirical induction, then mathematics could not be conceived *a priori*, however, to prove this consistency by means of mathematical intuitions is incompatible with empiricism.

Jesús Padilla-Gálvez

Johannes Kepler Universität

CIRERA DUOCASTELLA Ramón, *Carnap i el Cercle de Viena. Empirisme i sintaxis lógica*. Barcelona: Anthropos 1990, p. 406.

CIRERA Ramón, *Carnap and the Vienna Circle (Empiricism and Logical Syntax)*. Rodopi: Amsterdam, 1994, p. 398 + xvi.

Ramón Cirera Duocastella's book (1990) is the author's doctoral thesis and was first published in Catalan as «*Carnap i el Cercle de Viena. Empirisme i sintaxis lógica*». Later he overworked it, and it appeared in 1994 with a number of minor alterations as «*Carnap and the Vienna Circle (Empiricism and Logical Syntax).*» The autor believes that the standar history and philosophy of science textbooks used for teaching in Spain should be rewritten to avoid historical imprecisions and since the doctrines discussed in the Circle are more interesting that what is referred to as official history. The author proceeds to describe tha arguments which he tries to refute and which we will now summarized: 1) the effort made to present the Circle not as a group of individual thinkers (chapter 1). 2) The author insist that verificationism had little importance for Carnap's wirk and that it was not at all present in Neurath's work. 3) The integration of the Circle's work in its historical context. The author first focuses on the turbulent life of the protagonists in the socio-political world of Vienna in the thirties. The book criticizes the distorting image of present-day historiography, first pointing to the discrepant influences of Schlick through L. Wittgenstein (chapter 2), of Neurath from a socio-political perspective (chapter 3) and of Popper by way of his methodological approach.

The author clearly develops his arguments in chapters four through six, analyzing how Carnap breaks with the epistemological stance of Aufbau before reaching the central argument of *Logische Syntax der Sprache* in 1934. He cites the most relevant arguments on epistemological neutrality. The author also presents the ideas which buttressed the construction of models of physicalism, conventionalism, etc.

Jesus Padilla-Gálvez

Johannes Kepler Universität

CIRERA, Ramón, / IBARRA, Andoni / MORMANN, Thomas: *El programa de Carnap. Ciencia, lenguaje, filosofía*. Barcelona: Textos del bronce, 1996.

The authors under review here understand that Carnap's work can be interpreted from different angles. Either, they seek to reconstruct the place which the author himself ascribes to it or they view it taking into account its philosophical descendence. The former approach is taken, among others, by R.Cirera Duocastella, Reiner Hegselmann und Thomas Uebel who go to great pains to explain that Carnap's project is interesting, that one should adhere more to history and understand why Carnap was influstered by his critics. The second approach does not have anything to do with the proposal sketched by Carnap himself. It is one taken by most of the authors of the volume published this year. Generally speaking it is argued that Carnap is the most important representative of the so-called received view and that this approach was overcome by the approaches which preceded it. For somewhat sinister reasons this gives the impression that it is interesting to unearth the dead from time to time to make sure that they are still lifeless. Some were to engage themselves in the dialogue with the deaf from which we would like to draw some conclusions.

Another group of works mentioned at the beginning of this review are related to a survey of Carnap's thought as something at bit obsolete and worthy of being placed in the annals of the history of philosophy. In his artcle, Carlos Ulises Moulines suggests a computational interpretation of Aufbau. For him the epistemological notion of the ideal observer becomes formally elucidated, i.e., that the observer capable of proving any statement of empirical science. His second article, Las raices epistemologicas del Aufbau de Carnap, seeks to show the influences of Neokantianism on empiricism, logical constructionism and scientific naturalism in Carnap's work.

In 'Teoría de los signos en Carnap' Javier Echeverría argues that *Aufbau* reveals the only semiotic idea which Carnap himself did not develop. The later development of Carnapian philosophy shows a gradual disinterest in semiology (p. 99 ff.). In his early work, he makes certain corrections of Frege's theory with respect to extensionality and intersubjectivity (p. 107). The author believes that Carnap's theory of signs vanished from the philosophical scene and that it could be recovered through reinterpretation.

Reiner Hegselmann gives an account of the ideological position of the Vienna Circle in his article titled 'The Scientific Conception of the World'. The exploration of similarities and differences between R. Carnap

and other authors allows analogies and distinctions to be drawn which is why this is a very common method for delimiting an argument. All of the following approaches are based on this position. Through the distinction between R. Carnap and L. Wittgenstein suggested by J. M. Terricabras in his 'The Logic of Tractatus and the logical Construction of Carnap' different approaches are thus revealed. To this end he analyzes the thesis of extensionality (p. 152 ff) and the conceptions of method and the objective of philosophy (p. 160 ff).

The article by Thomas Uebel is titled 'Physicalism in Wittgestein and Carnap'. The author tries to show that the controversy between Wittgenstein and Carnap over the priority of physicalism could in large measure be resolved by pursuing Hector Neri Castaneda's idea that, with regard to the problem of private language, Wittgenstein's analysis was not the only one that it evolved within the context of analytical philosophy in the thirties and fourties. He believes that the ideas of Carnap and Wittgenstein were quite different from those of physicalism. Whereas Wittgenstein rejects a phenomenon-based language while maintaining an interest phenomenology, Carnap retains a primitive protocol language for epistemological reasons. According to the author, J.Hintikka's idea that Wittgenstein had reasons right in becoming angry over Carnap's physicalism because it incorporated his idea of 1929 is wrong. Carnap was considerably less radical than Wittgenstein in his physicalism. Moreover, what Carnap elaborates was not what spurred on Wittgenstein (*in pace* McGuinnes). His doctrines on physicalism were not identical because in the early thirties, their respective physicalism were based on different versions of private language.

Thomas Mormann takes it upon himself to analyze language in Neurath and Carnap. He uses an inconsistent and vapid account of analytical philosophy as a framework for examining both philosophers. Accordingly, the former views language as a universal means which suggests that he followed the same line of argumentation as Heidegger and Hintikka (p. 216). The second considered language as a calculus which is whyhis thought bore resemblance with the project of Husserl and van Heijenoort. With his point (i) uniformity of logical empiricism and (ii) that which impliesan «antiphilosophy» as opposed to the western tradition is called into question.

Dirk Koppelber deals with empiricism and pragmatism in Carnap and Quine. The author focuses on a study that elaborates on the distinction between analytcal and synthetic statements and the distinction between internal and external questions. By means of such distinctions, the author delimits Quine's position *vis-a-vis* Carnap's ideas. According to Carnap both resolve central difficulties which are encountered in all of the conceptions of classical empiricism. They permit an epistemologically satisfactory explanation of the xistence of logical and mathematical truths,

while also furnishing a theoretical clarification of the interrelation between philosophy and science. By contrast, Quine believes that it is not possible to obtain anysatisfactory form of empiricism by means of the two distinctions.

Andres Rivadulla analyzes Bayesian probability, frequential probability and the Carnapian theory of statistical inference. The author gives a number of reasons why the viability of Carnap's attempt to convert theoretical statistics into part of inductive logics can be called into question. The first is the obscurity of the concept of induction, the second the equivocity in the use of the concept of estimation. Third, the limited applicability of the explicatum c^* of probability, restricted to a very simple artifial language, and finally the opacity of the interpretation of logical concept of probability as a degree of confirmation. According to the author, identifying Carnap with logical probability with a degree of confirmation means transforming the theory of probability into an inductive logic. This is hardly able to offer a logical foundation of theoretical statistics, but it does constitute a serious attempt to logically reconstruct existing statistical methods.

The book closes with a bibliography of works on Carnap, which is aleatorical and lacks all criteria of selection. There are too many works published in Castilian which are not listed for obscure reasons. The works in German are not listed according to their importance and reference is only made to books of certain authors which were published or complete in the years these volumes appeared, while essential works in English and Italian are completely missing. There also remain some overly superficial works. Bibliographical references could have also been made to Austrian philosophy published in Graz and other related works.

Jesús Padilla-Gálvez

Johannes Kepler Universität

BOOKS RECEIVED

Books marked with an asterisk (*) are still available for review. Books marked with a rhombus (#) are still being reviewed. Books marked with a dagger (+) are reviewed in this issue.

CIRERA DUOCASTELLA, Ramón: *Carnap i el Cercle de Vienna. Empirisme i sintaxis logica.* Barcelona: Anthropos, 1990. (+)

CIRERA, Ramón: *Carnap and the Vienna Circle. Empiricism and logical Syntax.* (Translated by Dick Edelstein). Amsterdam - Atlanta: Rodopi, 1994. (+)

CIRERA, Ramón, / IBARRA, Andoni / MORMANN Thomas: *El programa de Carnap. Ciencia, lenguaje, filosofía*. Barcelona: Textos del bronce, 1996. (+)

GÖDEL, Kurt: *Ensayos inéditos.* (Ed. Francisco Rodriguez Consuegra, foreword by W. V. Quine). Barcelona: Mondadori, 1994. (+)

GÖDEL, Kurt: *Unpublished Philosophical Essays*. (With a historico-philosophical introduction by Francisco A. Rodriguez-Consuegra (ed.) and a foreword by W. V. Quine). Basel-Boston-Berlin: Birkhäuser, 1995. (+)

LEONARGI, Paolo and SANTAMBROGIO, Marco: *On Quine. New Essays*. Cambridge: Cambridge University Press, 1995. (*)

PRIEST, Graham: *Beyond the limits of thought*. Cambridge: Cambridge University Press, 1995. (#)

SACHS-HOMBACH, Klaus (ed.): *Bilder im Geiste. Zur kognitiven und erkenntnistheoretischen Funktion piktorialer Repräsentationen*. Amsterdam - Atlanta, GA.: Rodopi, 1995. (*)

SMITH, Barry and WOODRUFF SMITH, David: *The Cambridge Companion to Husserl*. Cambridge: Cambridge University Press, 1995. (*)

SORITES

An Electronic Quarterly of Analytical Philosophy

ISSN 1135-1349

NOTES TO POTENTIAL CONTRIBUTORS

All submitted manuscripts will be refereed either by members of the Board of Advisors or by other specialists; as far as possible, each manuscript will be refereed by philosophers not unsympathetic to the paper's philosophical outlook or orientation.

No manuscript may be submitted if it is being considered for publication elsewhere.

Once accepted, papers may not be printed or displayed elsewhere or incorporated into a book, an anthology or any other publication of any sort, unless and until **SORITES** has accorded the author(s) permission to that effect — which in normal cases will be done routinely, provided **SORITES** is duly acknowledged as the primary source. By submitting a paper, the author agrees to the points, terms and conditions contained in the Copyright Notice included in each issue of **SORITES**.

All submitted papers must be written in English. The author's local variety of English (including the spelling) will be respected — be it Indian, Filipino, Australian, American, Western-African, British, Southern-African, Eastern-African, Jamaican, etc. All editorial material will be written in BBC English, which is the journal's «official» dialect.

There is no settled length limit for papers, but we expect our contributors to stand by usual editorial limitations. The editors may reject unreasonably long contributions.

We expect any submitted paper to be accompanied by a short abstract.

We welcome submissions of in-depth articles as well as discussion notes.

Ours is a journal granting a broad freedom of style to its contributors. Many ways of listing bibliographical items and referring to them seem to us acceptable, such as '[Moore, 1940]', or '[M:5]' or '[OQR]'. What alone we demand is clarity. (Thus, for instance, do not refer to '[SWT]' in the body of the article if no item in the bibliography collected at the end has a clear '[SWT]' in front of it, with the items sorted in the alphabetic order of the referring acronyms.) We prefer our contributors to refer to 'Alvin Goldman' rather than 'Goldman, A.', which is obviously ambiguous. We dislike implied anachronisms like [Hegel, 1989]' or '[Plato, 1861]' — but you are entitled to ignore our advice.

How to submit?

(1) We will be thankful to all contributors who submit their papers in the form of [I.B.M.-PC] WordPerfect 5.1 files. There are several convertors which can be used to turn docs from other word processor formats into WP5.1 format. (Notice that with WP5.1 you can write not only almost all diacritically marked characters of any language which uses the Latin script, but moreover all of Greek and virtually all symbols of mathematical logic and set theory.)

(2.1) In case a contributor can neither use WP5.1 nor have their doc converted into WP5.1 format, they can send us their file in its original format (be it a different version of WordPerfect or another sort of word-processor, such as MS-Word, MS-Word for Windows, WordStar, AmiPro, XyWrite, DisplayWrite, .rtf, etc). We'll try (and hopefully

in most cases we'll manage) to convert those files from other formats into WordPerfect 5.1.[1]

(2.2) When WP5.1 format is not available and we have been unable to use the original file, a good ideal is for the author to have their doc converted to a .html file (there are lots of HTML editors and document-to-HTML converters from a great many formats — PC-Write, [La]TeX, MS-Word and Windows-Word etc). We expect HTML files to bear the extension '.htm'.[2]

(2.3) Another solution is to use [stripped and extended] ASCII format, which means: text files (not binary ones) written using any printable ASCII characters of Code-page 437 (USA or default), i.e. any character except ASCII_00 through ASCII_31; with CRs (carriage returns) only between paragraphs — not as end-lines. Such files will here be called 'ASCII files'. We expect them to bear the extension '.ASC'.

(2.4) Another alternative (which is in itself worse, but which nevertheless may be more practical in certain cases) is to use the DOS text format, with no character outside the range from ASCII_32 through ASCII_126, no hyphenation, a CR at the end of each line and two CRs separating paragraphs. Such files will be here called 'text files'; we expect them to bear a '.txt' extension.

(3) In cases (2.2) and (2.4) the contributor can include their paper into an e_mail message sent to our editorial inbox (<sorites@fresno.csic.es>)

(4) Before sending us their file the contributor is advised to compress it — except in case they are sending us a text file through procedure (3) above. Compression reduces disk-storage and shortens transmission time. We can extract and expand files archived or compressed with Diet, ARJ (both warmly recommended), Tar, Arc, Zip (or PKZip), GZip, Compress (i.e. .Z files), LHA, Zoo, RaR, and some versions of the MAC archivers PackIT and StuffIT.

(5) The most expedient way for contributors to send us their submitted paper is through anonymous FTP. At your host's prompt, you enter 'ftp ftp.csic.es'; when you are prompted for your username, you answer 'ftp' or 'anonymous'; when you are next prompted for your password, you answer with your e_mail address; once connected, you enter 'cd pub/sorites/incoming', then 'binary', and then 'put xxx' — where xxx is the file containing your submitted paper and a covering letter. (If the file is an archive, the extension must reveal the archiving utility employed: '.gz', '.Arj', '.RAR', etc. (DIETed files needn't bear any special denomination or mark; they will always be automatically recognized by our reading software.)

(6) Whenever a paper is submitted, its author must send us a covering letter as an e_mail message addressed to one of our editorial inboxes.

(7) If a contributor cannot upload their file through anonymous FTP, they can avail themselves of one of the following alternatives.

(7.1) If the file is a '.htm' or a '.txt' file (i.e. in cases (2.2) and (2.4)), simply include it into an e_mail message.

---

[1] Unfortunately we cannot yet handle TeX or LaTeX files. The convertors we've tried have proved useless.

[2] At our home site, **ftp.csic.es**, there is — hanging from our main directory **/pub/sorites** — a subdirectory, **WWW**, which, among other files, contains one called 'HTML.howto', wherein the interested reader can find some useful information on HTML editors and convertors.

(7.2) In other cases, an 8-to-7 bits converter has to be used, upon which the result can also be included into an e_mail message. 8-to-7 bits convertors «translate» any file (even a binary file) into a text file with short lines which can be e-mailed. There are several useful 8-to-7 convertors, the most popular one being UUenCODE, which is a public domain software available for many different operative systems (Unix, OS/2, DOS etc). Perhaps the most advisable at this stage is PGP ['Pretty Good Privacy'], which also allows authentication (signing). Another good such convertor, very easy to use, is Mike Albert's ASCIIZE. We can also decode back into their binary original formats files encoded into an e-mailable ASCII format by other 8-to-7 bits convertors, such as: Mime, TxtBin, PopMail, NuPop, or University of Minnesota's BINHEX, which is available both for PC and for Macintosh computers. Whatever the 8-to-7 bits encoder used, large files had better be previously archived with Arj, Diet or any other compressor, the thus obtained archive becoming the input for an 8-to-7 bits convertor.[3]

(7.3) An alternative possibility for contributors whose submitted papers are WordPerfect 5.1 or WordPerfect 6 docs is for them to use a quite different 8-to-7 bits convertor, namely the one provided by the utility Convert.Exe included into the WordPerfect 5.1 package. (WordPerfect corporation also sells other enhanced versions of the convertor. WordPerfect 6.0 has incorporated a powerful conversion utility.) A separate e_mail message is mandatory in this case informing us of the procedure. The result of such a conversion is a 'kermit-format' file.[4]

(8) You can also submit your manuscript in an electronic form mailing a diskette to the Submissions Editor (Prof. Prof. Manuel Liz, Facultad de Filosofia, Universidad de La Laguna, Tenerife, Canary Islands, Spain). Diskettes will not be returned.

(9) Such submitted papers as are neither WordPerfect 5.1 files nor files in HTML format require some preparation.

(9.1) Ours is not a logic journal, but of course one of the glories of analytical philosophy is its rigour, which it partly owes to auxiliary use of symbolic notation in order to avoid

---

[3] For the time being, and as a service to our readers and contributors, we have a directory called 'soft' hanging from our home directory /pub/sorites at the node ftp.csic.es. The directory contains some of the non-commercial software we are referring to, such as archivers or 8-to-7 encoders (or 7-to-8 decoders).

[4] In the case of WordPerfect 5.1, the procedure is as follows. Suppose you have a file called 'dilemmas.wp5' in your directory c:\articles, and you want to submit it to **SORITES**. At your DOS prompt you change to your directory c:\articles. We assume your WordPerfect files are in directory c:\WP51. At the DOS prompt you give the command '\wp51\convert'; when prompted you reply 'dilemmas.wp5' as your input file whatever you want as the output file — suppose your answer is 'dilemmas.ker'; when prompted for a kind of conversion you choose 1, then 6. Then you launch you communications program, log into your local host, upload your file c:\articles\dilemmas.ker using any available transmission protocol (such as Kermit, e.g.). And, last, you enter your e_mail service, start an e_mail to to <sorites@fresno.csic.es> and include your just uploaded dilemmas.ker file into the body of the message. (What command serves to that effect depends on the e_mail software available; consult your local host administrators.)

With WordPerfect 6 the conversion to kermit format is simple and straightforward: you only have to save your paper as a 'kermit (7 bits transfer)' file.

ambiguities, make matters of scope clear or render arguments perspicuous. ASCII translations of symbolic notation are problematic, especially in cases of nonclassical logics, which may use sundry negations, disjunctions, conjunctions, conditionals, implications and also different universal and particular quantifiers (e.g. existentially and nonexistentially committed quantifiers, a familiar dichotomy in Meinongian circles). While using WordPerfect 5.1 you can represent a huge variety of such nuances, it is impossible to express them within the narrow framework of text or even ASCII files (i.e. even when the 224 printable [extended] ASCII characters can be used). Still, for some limited purposes, a translation of sorts can be attempted. You are free to choose your representation, but the following translation is — for the time being — a reasonable one: '(x)' for universal quantifier, '(Ex)' for existential quantifier; '&' for conjunction; 'V' for disjunction; '->' for implication (if needed — something stronger than the mere 'if … then'); 'C' for conditional; '=>' for an alternative (still stronger?) implication; '_pos_' for a possibility operator; '_nec_' for a necessity operator.

(9.2) In ASCII or text files all notes must be end-notes, not foot-notes. Reference to them within the paper's body may be given in the form '\n/', where n is the note's number (the note itself beginning with '\n/', too, of course). No headings, footings, or page-breaks. In such files, bold or italic bust be replaced by underscores as follows: the italized phrase '*for that reason*' must be represented as '_for that reason_' (NOT: '_for_that_reason_'). A dash is represented by a sequence of a blanc space, two hyphens, and another blanc space.[5]

[5] Those devices are temporary only. Later on we'll strongly advise and encourage those of our contributors who can use neither WordPerfect format nor one of the other word-processor formats our convertors can handle automatically to resort to HTML, with certain conventions in order to represent Greek characters as well as logical and set-theoretic symbols.

SORITES

An Electronic Quarterly of Analytical Philosophy

ISSN 1135-1349

COPYRIGHT NOTICE AND LEGAL DISCLAIMER

Please, read!

---

[1] The reader may find an excellent discussion of copyright-related issues in a FAQ paper (available for anonymous FTP from rtfm.mit.edu [18.70.0.209] /pub/usenet/news.answers/law/Copyright-FAQ). The paper is entitled «Frequently Asked Questions about Copyright (V. 1.1.3)», 1994, by Terry Carroll. We have borrowed a number of considerations from that helpful document.

as a WordPerfect 5.1 document or any unofficial version released by the *colectivo SORITES* as an undivided file) or (2) a collection of files produced by splitting one of the entire-file versions in order to facilitate handling, browsing or downloading — as may happen with the .html version, owing to telecommunication constraints.) In the latter case, the conveyor is bound to distribute the whole collection. (In this context printed copies of this issue of **SORITES** are taken to be equivalent to electronic copies, their distribution being subject to the same conditions.)

(5) This issue of **SORITES** may not be sold for profit or incorporated into any commercial material. No fee may be charged for its circulation. An exception is granted to non-profit organizations, which are hereby authorized to charge a small fee for materials, handling, postage, and general overhead.

(6) Private copying of single papers by any lawful means is allowed only when done in good faith and for a fair use, namely for purpose of teaching, study, criticism or review; but no part of this issue of **SORITES** may be conveyed, whether in writing or through oral teaching or by any other means, to another individual or to a gathering unless the source is clearly and explicitly acknowledged.

(7) In particular, no part of this issue of **SORITES** or of any paper therein included may be conveyed to others by means of reproduction, quotation, copy or paraphrase, without a clear and explicit acknowledgement of the issue of **SORITES** and its date, the author's name and the paper's full title. Whenever the quotation occurs within a publication, it is also mandatory to mention the official pages (as shown within the Copyright box on top of the paper), the ISSN (1135-1349) and the official home site of electronic display, namely **ftp://ftp.csic.es/pub/sorites**.

(8) Any perpetration of, or complicity with, unfair use of copies or partial copies of this issue of **SORITES**, or of papers therein included, especially forgery or plagiarism, is an infringement of the authors' and the electronic publisher's rights, which, besides being in any case a civil tort, may be a crime under current legislation.

(9) This issue of **SORITES** is released «as is», without any express or implied guarantee of any kind. The electronic publisher, «colectivo SORITES», does not necessarily agree with the authors' views or arguments and does not certify the accuracy of any quotations or references contained in the papers. The «colectivo SORITES» cannot be responsible for any real or imaginary damages suffered as a result of downloading, reading, using or quoting any materials included in this issue of **SORITES**. The user assumes, at their own risk, full responsibility for the proper use of this issue of **SORITES**.

(10) Downloading, reading or in any other way using this issue of **SORITES** or any part thereof entails full acceptance of the stated terms and conditions. If, after downloading a file containing this issue of **SORITES** or a part thereof, a user fails to agree to the conditions and terms stated in this notice, they must discontinue using the material and irrecoverably erase or destroy the downloaded file, so as not to occasion any third-part's unfair use thereof.

(11) Although, thanks to a permission kindly granted by the system's administrators, this electronic journal is displayed at the internet node 161.111.10.3, which belongs to the Spanish institution CSIC, the journal is not published or sponsored or endorsed by the CSIC, the only owner and publisher ('editor-productor' in Spanish) being the nonprofit organization «colectivo SORITES».

(12) A specific licence is hereby granted for this issue of **SORITES** — and all future issues of the journal as well — to be freely displayed by any BBS and any Internet node or site, provided all conditions stated above are fully honoured. No previous consent of the Colectivo SORITES is required for such a display. The display may be in the form of FTP, Gopher, http-WWW or any other electronic means.

Madrid. April 10, 1995
(Updated February 27. 1996)
colectivo SORITES

RELEASE NOTICE

This issue of **SORITES** is made available in several formats, but its only official version is that released with filename:

sorite06.wp5

which is the only file within the archives: **sori06wp.zip**, **sori06wp.arj**, **sor#06wp.gz**, etc. A print-file (**sorite06.ps**), also released, and generated from the file **sorite06.wp5** can be found in the archive **sori06ps.zip** and printed with a PostScript printer.

Two whole «doc» versions of this issue of **SORITES** are provided, but they cannot truly or faithfully reflect the official WordPerfect 5.1 version, departing as they do from the authorized WP 5.1 document — in a more or less severe way, depending on the particular case. One of them, **sorite06.html** (or its equivalent, **sorite06.htm**), is an hypertext HTML version chiefly destined to be desplayed at the InterNet Web and viewed with http browsers. The other, **sorite06.txt**, is an empoverished version, with only ASCII symbols <Alt-32> through <Alt-126> being used, and a CR at the end of each line. Those two versions are archived, respectively, as **sor06htm.zip** and **sor06txt.zip**.

Several of those files are made available in UUenCODed (.UUE) and BinHexed (.HQX) translations, in order for them to be attached to e-mail messages.

Although each version, whether official or not, as initially released today (Saturday 31 August 1996) by the colectivo SORITES, is an entire undivided file, it may be splitted in order to facilitate downloading, browsing, transferring or e-mailing. In such cases, the unity of this issue of **SORITES** as a whole is preserved by keeping the ensuing collection intact.