

SIMON J. EVNINE

EPISTEMIC UNITIES

ABSTRACT. I bring together social ontology and social epistemology by considering social entities (“epistemic unities”) that are constituted by the holding of epistemic relations between their members. In particular, I focus on the relation of taking someone as an expert. Among the types of structures examined are ones with a single expert and one or more non-experts who may or may not know of each other’s situation; and ones with more than one expert, including cases in which the relation between the experts is hierarchical and cases in which it is symmetrical. These structures model a variety of social situations which can thus be given a unified treatment. Among the cases I discuss are persons, which I argue are multiple-expert unities of persons at times. Taking a person as a social unity like this offers a clear sense in which some groups can also be person-like.

1. INTRODUCTION

Social epistemology is becoming increasingly prominent in philosophy. Typically, it focuses either on the problems of group belief, distributed knowledge, and so on;¹ or on how the promotion of non-social epistemic goals, the pursuit of true and/or justified belief by individuals, for example, are aided or hindered by various social processes and institutions.² This paper takes a new direction by discussing the intersection of social epistemology and social ontology. It argues that among the kinds of entities that should be recognized in a social ontology is a distinctive group of what I call “epistemic unities”. Broadly speaking, the notion of a social epistemic unity is of a group bound together by the obtaining of epistemic relations between its members. So, for example, if mutual-knowledge analyses of convention are on the right lines, groups constituted by common conventions would be epistemic unities. However, I shall be concerned only with one type of epistemic relation: one entity’s taking another as an expert. I shall argue that a number of apparently disparate types of groups can be gathered together under this umbrella.

A subsidiary theme will also emerge. It is sometimes debated, often in a rather speculative way, whether there can be group persons.³ I shall argue that a person is an epistemic unity. Thus, ordinary persons are groups of a certain kind, and other groups in the relevant category will, in at least one



intelligible sense, be person-like. This may be an etiolated sense but it has at least the virtue of being relatively precise.

2. THE FRAMEWORK

I begin by introducing a framework (to be called “The Framework”) for the following discussions of different epistemic unities. The Framework has four elements. The first is the epistemic principle of unity. This is a principle that specifies the exact nature of the epistemic relation between the parts that is alleged to be necessary for the existence of the social unity that comprises them. The basic schema for this epistemic principle of unity is

$$(EPU) \quad P_a(M \mid P_b(M) = r) = r.^4$$

The actual cases we shall discuss are specifications of this basic form (or of forms closely related to it), and as we shall see, apparently slight differences in the exact form of the epistemic principle of unity are associated with widely different types of epistemic unities. The schema itself requires some explanation. P_b is a function that represents the degrees of belief of an entity b . $P_a(\mid)$ is a function that represents the conditional degrees of belief of an entity a .⁵ (EPU) thus says that a believes, or should believe, something, conditionally on something, to degree r . What are those somethings? The first something is any proposition M ; the second is the hypothesis that b believes M to degree r . Thus, (EPU) is a principle that says that a believes (or should believe) any proposition to a certain degree, on the assumption that b believes it to that degree.⁶

In (EPU), P_b represents what Gaifman (1985) calls an expert probability. If a satisfies this principle with respect to b , then b is an expert for a in the following sense: learning exactly which degree of belief b has in a proposition will be enough for a to accord the same degree of belief to it, assuming that a does not learn anything else which would give her sufficient evidence to accord some other degree of belief in that proposition.⁷ But of course, and this will be important later on, we may satisfy (EPU) and yet have no idea of what b 's degrees of belief actually are. What comes after the “ \mid ” in $P_a(\mid)$ does not represent knowledge, or even belief, about b 's degrees of belief, but mere hypothesis. Any hypothesis about b 's degree of belief in a proposition M , other than those to which we accord zero probability (i.e., that we take to be impossible), must generate an instance of (EPU).

Simply satisfying (EPU) places no demands on a 's unconditional degrees of belief. However, if a comes to learn that b 's degree of belief in

a proposition D is in fact s , then, if a satisfies (EPU), in virtue of the definition of expert probability, and the fact that a rational agent updates her beliefs by conditionalization, a must have an unconditional degree of belief of s in D . Thus, although the principal role of (EPU) is to describe (or require) a certain relation between a and b that holds in virtue of their degrees of belief, it could be said to have a subsidiary function – if taken together with knowledge of b 's degrees of beliefs – as a principle of reasoning or belief change for a .

The second element of the Framework is what I shall call the ground of the epistemic principle of unity. What is the reason for an entity a 's conforming its beliefs to those of an entity b ? I suggest that grounds fall into two categories, epistemic and non-epistemic. Epistemic grounds will involve situations in which a has some reason to think that b 's beliefs are superior, qua beliefs, to its own. By “qua beliefs” I mean in terms of truth, accuracy, reliability or other obviously epistemic ideals that are appropriate for beliefs. Non-epistemic grounds, by contrast, will involve situations in which (EPU) holds for reasons quite independent of considerations of such epistemic ideals as truth or reliability. We will encounter several kinds of non-epistemic grounds in the following.

The third element of the Framework concerns the parts of the epistemic unity. We will be dealing with cases in which an alleged entity, the epistemic unity in question, is made up of a number of parts, related by some version of (EPU). The nature of these parts is given by the subscribing to the degree of belief functions in (EPU). The only restriction on what can be a part of an epistemic unity is that it must be something that has degrees of belief, since that is what it takes to satisfy (EPU). Typically, therefore, the parts will be people and epistemic unities will be social in the most obvious sense: they will be groups of people. This need not always be so, however, and we shall look at some exceptions below.

The fourth element is the epistemic unity itself. This will not be manifest in a specification of (EPU). Sometimes we will find a ready acknowledgement of an entity that is the intended unity, or somehow similar to it. In such cases we will be arguing, in effect, that this already acknowledged entity is such that satisfaction of an (EPU)-like principle is a necessary condition for its existence. In other cases, there will be no previous recognition of the epistemic unity, so we may stipulate that if it exists, it must satisfy the appropriate epistemic principle. The argument will implicitly be over whether such an entity exists.

Having described the Framework in relentlessly abstract terms, let us now go on to consider some flesh and blood applications of it.

3. EXPERT COMMUNITIES

My first example is of what I shall call Expert Communities. As mentioned, in (EPU) the embedded degree of belief function is what Gaifman calls an expert probability. It is natural, therefore, to look to the ordinary notion of an expert for examples of epistemic unities. The first thought that confronts us in turning to the ordinary notion of expert is that normally we take people to be experts in particular areas. Someone may be an expert, relative to us, on the physics and chemistry of glass, or on Renaissance Italian theater. Ordinary experts are not, *per se*, expert in everything. We should, therefore, think of refining the Framework by introducing, as a qualification of the epistemic principle of unity, an explicit restriction to subject matter where appropriate.

This creates a problem, since we should now say what it is for a belief or proposition to be about a given subject matter. Lewis (1998) has a suggestion about how to understand this notion. For any subject matter, there is an equivalence class of possible worlds that are exactly alike with respect to that subject matter. A belief or proposition is about that subject matter if its truth-value is the same at all of the worlds in that class. There are at least two problems with this suggestion for our present purposes – it will be too narrow in some ways, and too wide in others. First, one of Lewis's examples of a subject matter is the 17th century. The proposition "The 17th century was less bloody than the 16th century" may differ in truth-value at worlds that are exactly similar with respect to the 17th century because some of those worlds differ with respect to the 16th century. Yet if someone were an expert on the 17th century, such a proposition would naturally be taken to fall within her purview. Secondly, as Lewis himself notes, all necessary propositions, such as those of logic and mathematics, will be true in all possible worlds, and hence *a fortiori* in all worlds of any equivalence class whatsoever. In other words, on Lewis's account, they are about all subject matters. But we would not want to say that an expert about the 17th century should be taken as authoritative about mathematics. Nor can we solve this problem by simply stipulating that if a proposition is true (false) at all possible worlds, it does not count as being about any subject matter, for there are experts about logic and mathematics. Indeed, there are experts about geometry who are not expert about calculus. This suggests that Lewis's approach will probably not be adaptable to our present needs. I have no other suggestion to offer in its place, but I hope that the notion of being an expert about a particular subject matter has sufficient intuitive clarity for us to be able to proceed without an analysis of it.

Take some person, Norma, whom I consider to be an expert on, say, glass. How does our Framework apply here? First, we can easily formulate an epistemic principle of unity by specifying (EPU) appropriately:

$$(\text{Expert}_{\text{Norma, Glass}}) P_I(M | P_{\text{Norma}}(M) = r) = r.$$

We should also add, by way of qualification, our subject matter restriction:

where M is a proposition about glass.

The second element, the ground of the epistemic principle of unity, is simply Norma's acknowledged (by me) expertise on glass. She has studied glass, read books on it, performed experiments, etc. That is why I am happy to conform my opinions on glass to hers. The third element of the Framework concerns the parts of the alleged unity, given by the subscribing to the degree of belief functions in the schema. Here, the parts are Norma and myself. The only element of the Framework that is controversial is the resulting unity itself. There is no name for, and no obvious acknowledgement of the existence of, a social unity comprising Norma and me that exists only if we satisfy $(\text{Expert}_{\text{Norma, Glass}})$.

There are two basic responses. We might say, on the one hand, that there is no such social entity and the fact that the other elements of the Framework are in place may be interesting but doesn't point to anything further. After all, in general, satisfaction of an (EPU)-like principle by two entities cannot be sufficient for the existence of an epistemic unity, since such a principle might be satisfied purely by accident by two entities that have no contact or association with each other. On the other hand, we might say that the fact that all the other elements are in place is an indication that there is such a unity, so long as certain other conditions are met. These other conditions, which I will call "material" conditions, might include things like knowledge of the expert by the non-expert, and/or other forms of contact and association. That the alleged unity has no name or recognition need be no obstacle. We have just recognized it, and we can give it a name: the $\text{Expert}_{\text{Norma, Glass}}$ Community. In the case as described so far, it may seem as if there is little point, though perhaps equally little harm, in postulating the existence of the epistemic unity comprising Norma and myself. In other cases, as we shall see, the postulation of the epistemic unity will be more substantial. This becomes clear immediately if we consider another issue raised by the present example.

The entity, if there is one, associated with $(\text{Expert}_{\text{Norma, Glass}})$ is dyadic, in the sense that it comprises just two people, Norma and myself.⁸ This reflects the fact that the schema (EPU) involves two degree of belief functions. Talk of epistemic unities, however, is likely to seem more significant

where those unities have, or could have, more than two parts to them (i.e., comprise more than two people). Let us imagine that there is a set of people S all of the members of which, $s_1, s_2 \dots s_n$, take Norma to be an expert on glass. Now consider the schema

$$(\forall\text{-Expert}_{\text{Norma, Glass}}) \quad \forall_{s_i \in S} P_{s_i}(M \mid P_{\text{Norma}}(M) = r) = r$$

for all M about glass. Is this principle associated with a number of overlapping dyadic unities, overlapping in the person of Norma? Or can we give any sense to a unity that comprises all of the members of S along with Norma?⁹

A first way in which we might discern a unity here, over and above the various dyadic unities, is if the members of S are bound together by some non-epistemic, material conditions of the sort just mentioned above. They may form a club, or meet regularly together, or put out a magazine, etc.

A more robust notion of epistemic unity emerges if we require something like mutual knowledge among the members of S of each one's satisfaction of $(\forall\text{-Expert}_{\text{Norma, Glass}})$. This would allow other members of the unity to become conduits of the expert's knowledge if they have had the opportunity to learn what the expert thinks on something. For example, if I, who take Norma to be an expert on glass, ask you a question about glass, knowing that you have heard Norma's opinion on the matter, then you may stand in vicariously for Norma, if I know that you also satisfy $(\forall\text{-Expert}_{\text{Norma, Glass}})$. If I do not know this, however, your having found out Norma's opinion will not in any way guarantee (from my perspective) the opinion you express to me in response to my question.¹⁰ Thus, the sense in which we are co-members of a single epistemic unity is somewhat stronger than on the previous suggestion.

To sum up, then, we have noted three types of epistemic unities that might be associated with (EPU)-like schemata. (EPU) proper and its various specifications will be associated with two-member unities. In the case of its version $(\text{Expert}_{\text{Norma, Glass}})$, whether or not we should take there to be such an epistemic unity seems fairly inconsequential. Even in this simplest of cases, however, we must note that mere satisfaction of the principle cannot be sufficient for the existence of an epistemic unity, since the principle might be satisfied purely by accident. Some further material conditions, involving contact between expert and non-expert, would seem to be required if we are take there to be an epistemic unity. I shall call these two-membered epistemic unities.

Epistemic unities with more than two parts must be associated with the schema $(\forall\text{-EPU})$:

$$(\forall\text{-EPU}) \quad \forall_{s_i \in S} (P_{s_i}(M \mid P_b(M) = r) = r).$$

One type of epistemic unity would involve the satisfaction of the schema by the members of some set of people, along with satisfaction of various material conditions. A further type would also require knowledge by all members that it was satisfied by all members of the set. I shall call epistemic unities of these two types (plain) multi-membered, and multi-membered with mutual knowledge, respectively.¹¹

4. PAPAL INFALLIBILITY

Let us now consider another case which is similar to that of the Expert Community but differs in a couple of minor respects and possibly in one major respect. The doctrine of Papal Infallibility requires the Catholic faithful to believe whatever the Pope says when he “proclaims by a definitive act a doctrine pertaining to faith or morals” (Catechism, 1994, p. 891). Consider, then, the following schema:

$$(\forall\text{-Papal Infallibility}) \quad \forall_{si \in S} P_{si}(M \mid P_{\text{The Pope}}(M) = r) = r,$$

where S is the set of the Catholic faithful. Here we have a specification of (\forall -EPU), providing an epistemic principle of unity. As in the example of ($\text{Expert}_{\text{Norma, Glass}}$), we also require a restriction in terms of subject matter:

where M is a proposition about faith or morals.

In this case, there is also a further restriction concerning the way a belief would have to be expressed to provide an instantiation of the schema:

where M is expressed by the Pope by a definitive act.

I shall ignore this restriction in what follows, but just note that the presence of such a restriction may, as in the present case, impart a certain institutionality to the resulting unity, since the relevant type of speech act may be one that can only occur in a given institutional setting.

The third element of the Framework is straightforward. The unity comprises the members of the set S , those who take the Pope as infallible, plus the Pope himself. The resulting unity, the fourth element of the Framework, might be taken to be nothing other than the Catholic Church itself, thus providing us with a case where the intended epistemic unity is actually independently acknowledged. What would need to be established, then, is that the Catholic Church is indeed an entity for the existence of which satisfaction of (\forall -Papal Infallibility) is a necessary condition. There are,

indeed, some problems about identifying the epistemic unity associated with (\forall -Papal Infallibility) with the Catholic Church. Given a normal understanding of what this Church is, accepting papal infallibility is probably not necessary for being a part of it. Nonetheless, the Catechism does hold that the various individual communities (i.e., churches) are “fully Catholic through their communion with . . . the Church of Rome. For with this church . . . the faithful everywhere, must necessarily be in accord” (Catechism, 1994, p. 834). This “being in accord” is not, it is true, glossed in specifically epistemic terms (it is not glossed at all), nor is it connected with the doctrine of Papal Infallibility. Nonetheless, it seems not too much of a stretch to put these things together to construe the Catholic Church as an epistemic unity.

Would this multi-membered unity be a plain unity, or one with mutual knowledge? The highly hierarchical nature of the Church, insofar as this hierarchy is involved in the transmission and interpretation of the infallible pronouncements of the Pope, suggests that we are dealing neither with a plain unity, in which each person, epistemically speaking, stands in direct relation to the expert, nor with the egalitarian, structureless unity with mutual knowledge. This shows that there are further options, besides the two we have identified, of various structures that might distinguish different types of epistemic unities. I shall not investigate further in the present example since it would require more knowledge than I can muster about the structure of the Catholic Church.

Returning to (\forall -Papal Infallibility), what are we to say about the second element of the Framework, the ground of the epistemic principle of unity? One might, it seems to me, take these grounds to be either epistemic or non-epistemic. It might be thought, by the faithful, that when the Pope proclaims by a definitive act on a matter pertaining to faith or morals, he is inspired and hence guaranteed to hit the truth. He is an expert in something like the ordinary sense. Thus, although the reasons the faithful have for taking the Pope as an expert are quite different from the reasons I have for taking Norma as an expert on glass (the reasons involve divine inspiration and not just having gone to school and read a lot of books), (Papal Infallibility) is still grounded epistemically: it is because they believe that the Pope will be right, under the appropriate circumstances, that the faithful accept Papal Infallibility.

However, there is another, perhaps somewhat nebulous, way of taking the ground of the epistemic principle of unity in this case. One might think that it should be accepted on faith. This could just mean that faith requires one to see the Pope as expert in the way just described. But it might also be that faith requires one to conform to (\forall -Papal Infallibility) with no re-

gard to issues of reliability, truth-conduciveness, or any other epistemic virtue. In that case, the ground for accepting the epistemic principle of unity would itself be non-epistemic. One would conform one's opinion to the Pope's not because one has reasons for thinking he is more likely to be right, but simply because faith requires one so to do. A case in which there are non-epistemic grounds for an epistemic principle of unity will, however, be more convincingly portrayed in the following section.

5. GROUP PRESSURE¹²

Consider a would-be conformist in a given society. Here is a person who wants to believe what is believed by the group of which she is a member. Alternatively, we may imagine a group exerting pressure on an individual to conform. Let us start with a simple specification of (EPU):

$$\text{(Conformity)} \quad P_a(M \mid P_{\text{the group}}(M) = r) = r.$$

With regard to the parts of the unity, they are the individual a and the group. Here we have an exception to the generalization that the parts of an epistemic unity will be persons. (Conformity) assumes that one can attribute beliefs to a group. This is a somewhat contentious point, but I will simply go along with it for the sake of developing the example.¹³ We may note that theorists of group belief distinguish between collective and distributive attributions of group belief. Distributively, a group believes that p just in case all (or most) of its individual members believe that p . Collectively, the belief pertains directly to the group and may even be at odds with the individual beliefs of its members. The degree of belief function in (Conformity) might be taken in either of these ways, yielding principles with slightly different interpretations, as will become clear.

With respect to the ground of the unity, we have already described the case as one in which the ground is provided by a 's desire to conform to the group, either an autonomous desire of a 's if a is a conformist, or perhaps a desire encouraged by the group, which may exert pressure on individuals to conform through social and penal sanctions. In either case, the ground is non-epistemic; it has nothing to do with a 's views as to the reliability of the group's opinions, and everything to do with a desire not to stand out, or to avoid the sanctions associated with not conforming. It can hardly be denied that there are realities corresponding to these descriptions.

What about the unity that is associated with (Conformity)? In general, in the kind of situation I have outlined, the unity is nothing other than the group itself, since we typically take groups to persist through changes in

membership (especially the addition of new members). However, an exact accounting of the matter seems to require distinguishing the distributive from the collective understandings of the group's beliefs. In the case where we interpret the belief function distributively, the typical situation would be of someone who wants to believe what the individuals in a given group believe. (Of course, (Conformity) may still be satisfied by one who already believes what most in the group believe. It would represent the goal of the non-accidentality – and hence, presumably, the maintenance – of that state of affairs.) In that case, the unity will be the group as augmented by (or as including) the person satisfying (Conformity).

If we take the embedded degree of belief function collectively, (Conformity) may represent the goal of a given person who is clearly a member of a group to conform her beliefs to those held by the group collectively, even if few or none of the individuals hold those beliefs. In other words, the potential gap between the collective beliefs of a group and the individual beliefs of the members of the group allows for an interesting interpretation of (Conformity) as representing the goal of a member of a group to close this gap by coming to believe individually what the group believes collectively. Now consider the schema:

$$(\forall\text{-Conformity}) \quad \forall_{a \in \text{the group}} P_a(M \mid P_{\text{the group}}(M) = r) = r.$$

The unity associated with a principle like this, of course, is the group again, but the group in epistemic harmony with all its members.¹⁴ That is to say, a group in which there is no gap between the group belief and the beliefs of the individuals that make up the group (or alternatively, no dissension among the group members).

This completes the discussion of the less problematic cases. I now turn to several versions of our basic schema that, for a variety of reasons, are much more complicated and controversial.

6. (REFLECTION) AND PERSONAL IDENTITY

Bas van Fraassen (1984) introduced the following principle into the philosophical literature:

$$(\text{Reflection}) \quad P_{a,t}(M \mid P_{b,t+x}(M) = r) = r,$$

where t is a time and x is some positive number. He argued that, where $a = b$, the principle is a requirement on rational belief.¹⁵ In this section I would like to explore the idea that the satisfaction of (Reflection) is a

necessary condition on the identity of the person *a* at *t* and *b* at *t* + *x*, or in other words, the idea that a person is a kind of epistemic unity. This is a strong claim and requires more defense than I can give it here, where my goal is simply to show how the Framework I am developing applies. But briefly, and to put it starkly, the thesis implies that if you do not satisfy (Reflection) with respect to some future person, that person is not you. Thus a full defense of the thesis will have to deal with various cases in which one does not (and should not) satisfy the principle with respect to some future person who otherwise one would normally take to be oneself in a way that makes it plausible to say that you are not that future person.¹⁶

There are a number of interesting points about (Reflection) that can be brought out by considering the Framework. The third and fourth elements can be dealt with fairly easily. As with (Conformity), we here have a case where the parts of the unity are not people. But unlike (Conformity), the parts are persons at times or, perhaps equivalently, temporal parts of persons. It is the unity itself that is the (continuant) person. Of course, any view that countenances temporal parts of persons as entities will see a person as in some sense a collective, or social entity, made up of a multitude of such parts. What is distinctive in my claim is that the collective entity that is the continuant person is epistemic, in the sense being explored in this paper. Some may hold that what it takes for two temporal person parts to be parts of the same continuant can be exhaustively specified either with no epistemic concepts at all, or with epistemic concepts different from those involved in (EPU)-like schemata. That is what I am disputing.

Before I come to the technical difficulties engendered by getting the exact form of the (Reflection) schema right, let us take up the second element of the Framework, the ground of the principle of epistemic unity. What needs to be said here is independent of the issues we will finally have to deal with. Why, then, should one conform to (Reflection)? Why should one at a given time take one's future selves to be experts? The ground of the principle of epistemic unity is epistemic: it lies in the idea of what I call "normal epistemic change". This is change in epistemic state that occurs because either (a) we gain further information; (b) we gain further skill in interpreting our information; or (c) we have time to apply our various skills more thoroughly to our information. All these forms of change are, in the general course of events, ways of improving our epistemic state. If all epistemic change were normal, then our future selves would always be reasonably thought to be more expert than our present selves. Of course, not all our epistemic change is normal, in the sense defined. Some of this change – such as mis-estimation of one's abilities when drunk – may be taken to be obviously abnormal; but some of it,

such as natural memory loss, is quite clearly normal in the ordinary sense though not in the defined sense. Thus, to make good on my claim about (Reflection), all sorts of qualifications and idealizations are necessary. I shall, however, simply ignore all these problems for present purposes.¹⁷ The claim, then, that epistemic change over a person's life is normal, in the defined sense, provides the ground for conforming to (Reflection). It gives the reason why one is justified in taking one's future selves as experts relative to one's current self.

This is perhaps the moment to dwell on an interesting way in which (Reflection) differs from the other (EPU)-like schemata at which we have been looking. In general, we have little reason to think anything at all about what our future beliefs will be, unless we assume they will be the same as our current beliefs.¹⁸ (Cases in which we do have some reason to believe that our future degree of belief in a proposition is likely to be different from our current degree of belief in it are, in the nature of things, somewhat abnormal and likely to be associated with the apparent counter-examples to (Reflection) mentioned above.) But if we have no opinion about what our future beliefs will be, or if we assume they will be the same as our current beliefs, then adherence to (Reflection)-like principles will leave us with a whole lot of conditional degrees of belief, conditional on all the different hypotheses about what our future degrees of belief might be, but, for the most part, will have no effect on our current unconditional degrees of belief. It is like being a member of an Expert Community in which the beliefs of the expert are, by and large, inaccessible to us. In a normal Expert Community, to the extent that the beliefs of the expert are accessible, there will be a convergence of unconditional beliefs of the members of the community towards the beliefs of the expert. But with (Reflection), owing to the relative inaccessibility of our future beliefs, there will be no corresponding convergence on our future beliefs. We will simply get to them at our own speed. Thus, as a principle of reasoning, or belief change, (Reflection) is likely to be either pointless or wrong (depending on whether we have no view about our future beliefs, or views about them that make the situation abnormal in some way.) However, important as all this is, it does not impugn the significance of (Reflection) as a regulative principle of unity for a person.

Now let us turn to the exact form of the schema and, correlatively, to the exact nature of the epistemic unity that, I claim, a person is. Obviously, "a" and "b" in (Reflection) are intended as variables and not names, and a person is not simply a two-membered unity.¹⁹ The schema associated with multi-membered unities would be:

$$(\forall\text{-Reflection}) \quad \forall_a (P_{a,t}(M \mid P_{b,t+x}(M) = r) = r),$$

but here we are still left with the unquantified variable “ b ”. Presumably what is required is:

$$(\forall\forall\text{-Reflection}) \quad \forall_a \forall_b (P_{a,t}(M \mid P_{b,t+x}(M) = r) = r).$$

As we also saw, the scope of the universal quantifier in schemata of the form (\forall -EPU) needed to be restricted to some relevant sub-domain. The same will need to be done for both quantifiers in schemata of the form ($\forall\forall$ -EPU). Suppose, then, we have some set S of temporal parts of persons, perhaps such that they satisfy various other material conditions (they could be all and only those temporal person parts involving a given body, for example). This set S could provide the sub-domain over which the quantifiers in our schema range.

When we moved from simple two-membered unities to multi-membered unities, by quantifying over the subscript to the conditional degree of belief function, we saw the possibility of imposing various further constraints such as mutual knowledge among the members of the sub-domain of their satisfaction of the principle. These options will also carry over to the present case, but a much more important further complication is added by quantifying over the subscript to the embedded degree of belief function. We have arrived at what we could call “multiple-expert unities”.

In the case of a person, every temporal part other than the first will play the role of expert and every part other than the last will play the role of a non-expert. There is no contradiction in one thing’s being both an expert and a non-expert since the notion of expertise we have been using is a relative one. In fact, as we shall see, the general problem of multiple-expert unities is independent of whether experts and non-experts overlap or not. The real problem to be faced is this. As we noted above, (EPU)-like schemata, although they are employed here primarily to describe (or require) certain relations among entities, also play a subsidiary role in reasoning and belief change. Now take three temporal person parts, s_1 , s_2 and s_3 (occurring in that order) that belong to the same continuant person. If a person is a multiple-expert unity for which ($\forall\forall$ -Reflection) holds, then the following three instances of it will obtain:

- (i) $P_{s_1}(M \mid P_{s_2}(M) = r) = r$;
- (ii) $P_{s_1}(M \mid P_{s_3}(M) = r) = r$;
- (iii) $P_{s_2}(M \mid P_{s_3}(M) = r) = r$.

If s_2 and s_3 disagree in the degree of belief they have in some proposition O , and s_1 knows what each of them thinks, then (i) and (ii) together will require s_1 to have two different degrees of belief in O . But this is a problem

since it is, at the very least, irrational (if not downright impossible) simultaneously to have two different degrees of belief in the same proposition.²⁰ (It may be thought that (iii) would rule out this eventuality. But this would only be so if s_2 knew what s_3 's degree of belief in O was going to be. In that case, given (iii), s_2 and s_3 could not disagree in their unconditional degree of belief in O . But even if s_1 knows about s_3 's degree of belief in O , that is no guarantee that s_2 will know of it.)

So, how are we to deal with the possibility of conflicting experts in a multiple-expert unity? Lehrer and Wagner (1981) have written on how to reach consensus in a group of experts that may disagree among themselves over how much credence to accord some proposition.²¹ Their method involves weighted averaging, in which the weights are a function of the individual weights each expert gives to the opinions of the others. Whatever one thinks of their method of reaching a consensus, it is not what we need in the present case. (EPU)-like schemata are ones which, in the terminology of Lehrer and Wagner, accord a value of 1 to a given expert (and hence 0 to any competing experts). This goes hand in hand with the fact that, following Gaifman, the operational meaning given to the notion of expert was that knowledge of the expert's degrees of belief is sufficient to make those one's own (assuming that nothing else is learned that is sufficient for a different degree of belief). This is not at all what it takes to be an expert in Lehrer and Wagner's sense, and in fact represents only a very special case in their system. What we need in the present context to defuse conflicts of expert opinion is a method for picking one expert and ignoring the others. This can be done with an ordering of experts and a rule to apply to this ordering. In the present case, there is already at hand a temporal ordering of experts. Our rule can simply be always to discount earlier experts in favor of the latest one. The rationale for this rule is, of course, just the ground for the application of ($\forall\forall$ -Reflection) in the first place, namely the superiority of later opinion over earlier opinion (under the assumption that epistemic change is normal in the defined sense).

If the basic structure of a plain multi-member unity is a set of non-experts and an expert, the structure required for a multiple-expert unity is something like a set of non-experts and an ordering of experts, together with a rule for deciding between conflicting experts. (This rule is only significant where we have knowledge of the experts' unconditional degrees of belief. Since this is not something that happens frequently in the case of a person, the rule does not seem an intuitive part of our analysis of a person as a multiple-expert epistemic unity.)

Having spent this effort on untangling the structure of a multiple-expert epistemic unity, can we put it to work in other cases? A possible example

is what I will call a “tradition”. Suppose an individual, O , is (taken to be) privy to some source of revelation. O passes on the content of this revelation to a group of disciples, who in turn pass it on to another, and so on through the generations. To simplify, let us take each generation as a single group believer (or, equivalently, we may suppose that all members of a generation share their beliefs and hence are epistemically interchangeable, or that there is only one person per generation). So we have an ordering $O, G_1, G_2 \dots G_n$ of the various stages of this transmission. Because transmission is a process whereby the content of what is transmitted is subject to degradation (witness the children’s game Telephone), each generation considers previous generations closer to the original and hence as expert in our defined sense. Generations may conflict, of course, but here, unlike the case of (Reflection), the earlier generation is to be preferred in such cases. Here then, again, we have a set of non-experts (each of G_i s), a set of experts ($O, G_1 - G_{n-1}$), an ordering of the experts (reverse temporal), and a selection rule for deciding conflicts. The whole tradition constitutes a multiple-expert epistemic unity. Similar non-temporally ordered examples might include cases in which there is a hierarchy of rank or degree of initiation.²²

7. (CONCURRENT REFLECTION)

The above discussion of (Reflection) requires something of an addendum which will also serve another function, namely to offer a case in which an (EPU)-like principle must be satisfied on non-epistemic grounds. As originally presented by van Fraassen (1984), (Reflection) covered cases in which $x \geq 0$, that is, in which one is required to take one’s future and present selves as expert. I considered previously only the case in which one takes one’s future selves to be expert. In this section, we must say something about the principle, dubbed “Concurrent Reflection”, in which $x = 0$. (We may re-christen the case where $x > 0$ as “Future Reflection”.²³)

$$\text{(Concurrent Reflection)} \quad P_{a,t}(M \mid P_{a,t}(M) = r) = r.$$

As we shall see, the way in which (Concurrent Reflection) is associated with an epistemic unity is somewhat different from the other cases we have looked at.

There is clearly something odd about violating (Concurrent Reflection). A violation of (Concurrent Reflection) would have the following form:

$$\text{(VCR)} \quad P_{a,t}(M \mid P_{a,t}(M) = r) = s,$$

where $r \neq s$. Although we do sort of understand what people mean when they say things like: “I’m a very optimistic person, so given that I think there’s a good chance of sun, I think that there’s only a fair chance of sun”, there is definitely something fishy going on here. If someone were to accord a belief of degree r to a proposition M , and knew that she did so, then by conditionalization from (VCR), she would also have to accord a degree of belief of s to M . Since P_a is a function, of course, it can have only one value for a given argument, but that value could be a pair of numbers rather than a single number. In that case, it could not be a probability function but might, if the value could be given a meaningful interpretation, still be a degree of belief function. One way it could be interpreted is as a representation of two different degrees of belief in a person who compartmentalizes her beliefs in such a way that she can, at the extreme, accommodate even contradictory beliefs.²⁴ But having two different degrees of belief in the same proposition, under ideal conditions, evidently should not happen. So, if we impose the following idealizations, (VCR) is impossible: that we have definite degrees of belief; that we can know about them; and that we do not have different degrees of belief in the same proposition at the same time.²⁵ Thus, we can see the epistemic unity associated with (Concurrent Reflection) as the unity a person has at a time in case she does not compartmentalize her beliefs, i.e., in case she accords to them only a single degree. It is thus a somewhat degenerate case of an epistemic unity, which is perhaps what one would expect given (Concurrent Reflection).

None of this provides us with what I have called an epistemic reason for conforming to the principle. It might be thought that one could give an argument for conforming to it that would be analogous to the kinds of arguments we could give for the principles underlying Expert Communities. We take ourselves to be experts owing to having found ourselves generally reliable in our beliefs.²⁶ But as we have just seen, the necessity of conforming to (Concurrent Reflection) would make itself felt even if we thought we were generally unreliable. To be more precise, the idealizations we just stipulated might apply even if we took ourselves to be unreliable; and (VCR) would still be impossible under these idealizations. (Concurrent Reflection) simply doesn’t seem to spring from anything to do with objective assessments of our reliability. We conform to it because to violate it is to divide our minds, or at the very least, to countenance such bizarre and self-defeating utterances as the optimist’s confession above, and other variants of Moore’s Paradox.²⁷ It therefore seems to me that we have an example of an epistemic principle which must be satisfied but for which we cannot give a good epistemic ground.

8. (SOLIDARITY) AND THE PERFECT COUPLE

Christensen (1991, p. 245) formulates a version of (EPU) which he emphatically does not endorse:²⁸

$$\text{(Solidarity)} \quad P_a(M | P_{a's} \text{ }_{SO}(M) = r) = r.$$

“SO” stands for “significant other”. Hence, (Solidarity) instructs one to conform one’s beliefs to those of one’s significant other.

Since the reference of the subscript to the embedded function is uniquely determined by that of the subscript to the conditional function, this principle is associated with two-member unities, each consisting of a person and his/her significant other. The unity in question cannot be the couple, though, since ordinary couples are not such that a necessary condition of their existence is conformity to (Solidarity). Let us, therefore, adopt a new name for the type of entity, if there is one, that does depend for its existence on the satisfaction of (Solidarity). Let us call such an entity a Perfect Couple.

Two main issues will occupy us in the following discussion of the Perfect Couple, one formal, one substantive. The substantive issue concerns the second element of the Framework: what might be the grounds for such a principle of epistemic unity? Clearly, there is no general reason to think of one’s significant other *per se* as expert in the ordinary sense with respect to oneself. Hence, the grounds cannot be epistemic.

Consider the following. Robert Adams writes, about friendship and marriage-like relationships:

It is a truism that shared interests make a friendship more perfect. When we speak of sharing interests, we mean being interested in the same things for their own sake; we do not mean just being interested in the friend’s interests for the sake of the friendship. Thus, if my wife loves tennis and I have never cared about it, I might play tennis with her and even “cultivate an interest” in tennis, for the sake of our relationship; but as long as that is my sole motive in the matter, we do not yet share an interest in tennis. That occurs only when I too am interested in tennis for its own sake. (Adams 1986, p. 189)

Here we have an argument for a value-based equivalent of (Solidarity). If V is a degree of value function, we might suggest that the members of a Perfect Couple satisfy the following:

$$\text{(V-Solidarity)} \quad V_a(M | V_{a's} \text{ }_{SO}(M) = r) = r.$$

What might be thought to place (V-Solidarity) as a requirement on a Perfect Couple is not the thought that the significant other’s values are bound to be superior to one’s own, and hence that one will do well to conform

to them, but rather that the nature of the relationship requires a certain recognition of the values of the other partner, a recognition that goes beyond “cultivating an interest” and amounts to, in some sense, making them one’s own. By analogy, then, could one not consider taking the beliefs of another as an ideal for oneself for reasons independent of their likelihood of truth? Might not the nature of the relationship in a Perfect Couple require shared beliefs just as it might require shared values?

Supposing such an entity as a Perfect Couple a possibility, would a relationship conforming to (Solidarity) and/or (V-Solidarity) be desirable? Would it be good to be a member of a Perfect Couple? Although ordinary couples clearly do not have as a necessary condition on their existence conformity to either (Solidarity) or (V-Solidarity), our question here, in effect, is whether Perfect Couplehood is a worthy ideal for ordinary couples. Both (Solidarity) and (V-Solidarity) can be described and contextualized in stark ways that make them seem obviously unappealing – perhaps even insane. (V-Solidarity), however, also pretty obviously has something to recommend it. (Solidarity) seems less attractive, but even of this I think we can hear some echoes if we listen hard. When one disagrees with one’s significant other, one is, for example, constrained to give his or her beliefs a hearing beyond that which we owe to strangers with whom we disagree. This is not because we think we are more likely to learn something true than we are with a stranger (indeed, the opposite may even be the case) but because the nature of the relationship demands it. We thus recognize a non-epistemic reason, based in the nature of the relationship, for taking up an epistemic attitude to a significant other. But that clearly falls a long way short of (Solidarity).

Kleinian psychoanalysis describes our lives, from infancy on, in terms of a pulsing dialectic of individuation and incorporation. I suspect that most couples go through the same dialectic and that (Solidarity) and (V-Solidarity) are too much on the side of incorporation to strike us as unequivocally desirable. Maybe, then, there are no Perfect Couples, and maybe that is a good thing. Nevertheless, if the life of a typical couple is a life lived in the intertwined service of two opposing epistemic ideals, the epistemic counterparts of individuation and incorporation, the Framework introduced here is of some value if it helps us to get a clear view of one of those ideals.

Perhaps, indeed, the Framework could be expanded to allow us to characterize social unities that depend on opposing epistemic principles - dialectical epistemic unities, as we could call them. I cannot undertake a full-scale investigation of dialectical epistemic unities here without derailing the paper. Nor am I sure I know what to say about them. But I will offer

the following sketchy remarks on what strikes me as an interesting line of investigation. First, suppose we think there is something to the idea of (Solidarity) or (V-Solidarity) but are not attracted by them as unequivocal principles governing a Perfect Couple (or equivalently, think that a Perfect Couple, so characterized, is not unequivocally a good ideal for ordinary couples). One might think then to impose them as conditions subject to certain limitations, for example, that they hold for $n\%$ of one's beliefs or values. This seems a bad strategy. Not only does there seem no non-arbitrary way to limit these principles. It also seems (to me, at any rate) that whatever their attractions are, they are precisely owing to the extreme nature of the principles. For these reasons, it seems much more promising to take the dialectical option and consider that a Perfect Couple might be an entity that must negotiate between extreme opposing principles. There is some pressure to total epistemic (or value) incorporation, or merging;²⁹ there is equally some pressure towards total epistemic individuation. Both imperatives are simultaneously in full force on an entity like the Perfect Couple. (This should alleviate the worries of those who fear that a Perfect Couple might turn out to be a boring, namby-pamby sort of thing. What, indeed, could be more difficult or challenging than living under two desirable, but contradictory imperatives!)

A second remark on taking (Solidarity) as part of a dialectical treatment of the Perfect Couple concerns how to formulate the opposing epistemic principle. Reactions against (Solidarity) and (V-Solidarity) are liable to be expressed in terms of how boring it would be to conform to them, how difference and diversity are desirable. How desirable, we should ask, is difference in itself? If it is desirable *per se*, then the opposing principles will not be of epistemic and value autonomy, but rather contrariness – something like:

$$\text{(Anti-Solidarity)} \quad P_a(M \mid P_{a's} \text{ so}(M) = r) = s, \text{ where } r \neq s.^{30}$$

Those who tout the value of difference *per se* might find this the appropriate counter-principle to (Solidarity). A more likely candidate, however, would be a form of autonomy that requires each person to make up his or her own mind (or at least make up his or her mind in ways not dependent on the mind of the significant other), allowing for accidental agreement between partners. So much for dialectical epistemic unities.

The formal issue to be considered is this. On the assumption that significant otherhood is a symmetrical relation, (Solidarity) will apply to both members of a Perfect Couple. It thus determines a two-membered multiple-expert unity in which the relation of taking as an expert is symmetrical. a must take a 's significant other as an expert, and a 's significant

other must take *a* as an expert. Furthermore, there is no natural way of ordering the experts to deal with conflicts of expert opinion.³¹

In an asymmetrical case, where *b* is an expert for *a*, insofar as *a* learns of what *b*'s degrees of belief are, *a* will, via the relevant instances of (EPU), conform her own degrees of belief to them. But *b* will not adopt these instances of (EPU) with respect to *a*, and so finding out about *a*'s degrees of belief will be irrelevant to her. Thus, in such an expert community, one would expect, over time, a conformity of belief towards the beliefs of the expert, insofar as these beliefs are accessible to the non-experts. Now consider the symmetrical situation. Suppose two people are such that each is expert with respect to the other. If they have different beliefs, the first will conform her beliefs to the second (insofar as the second's beliefs are accessible), while the second will conform her beliefs to the first (subject to the same proviso). Clearly this is an unstable situation. To avoid this, if two people are to take each other as expert, they must agree in their beliefs. (This, of course, is what one would expect.) As with (Reflection), the principle associated with (Solidarity) can play no real role as a principle of reasoning or belief change. It can function only as a regulative principle of unity. But owing to its symmetrical nature, unlike (Reflection), it can regulate only an entity of which the members are already like-minded. Part of the issue, then, of whether Perfect Couplehood, characterized as it is in terms of a symmetrical principle of unity, is an ideal for ordinary couples is whether we think of couples as ideally like-minded communities – whether we think, to return philosophy to its pre-Socratic roots, that like should be attracted to like or to unlike.

9. CONCLUSION

This completes my survey of epistemic unities. We have seen that different varieties of (EPU)-like principles are associated with a rich and variegated ontology of epistemic unities: two-membered and multi-membered, with or without mutual knowledge, single- or multiple-expert, symmetrical or non-symmetrical, and so on. This classification is no doubt incomplete, and each of the cases studied may be thought to be controversial in its own way. Nonetheless, the degree of uniformity available in the treatment of such disparate social phenomena suggests that this may be a fruitful line of research.

Let me close by mentioning one type of epistemic community that I have not tried to model with the Framework – a scientific community. (EPU)-like principles represent a kind of deference to authority, whether this is founded on epistemic or other reasons. It has been one of the salient

sources of the success of modern science that scientists do not defer to each other in the forming of their scientific beliefs. A scientist in a field may function as an expert in some other way for other scientists in that field (perhaps in the way modeled by Lehrer and Wagner), but the kind of social structures associated with (EPU) should most certainly be absent from scientific communities.

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NOTES

¹ See, for example, Gilbert (1987, 1994) and Tuomela (1992).

² Goldman (1999) is a good example of this approach.

³ See, for example, the end of chapter 3 of Strawson (1959).

⁴ Undefined where $P_a(P_b(M) = r) = 0$. This proviso will be understood for all versions of (EPU) considered.

⁵ The most usual way of thinking of (conditional) degrees of belief is as (conditional) subjective probabilities, in which case P_b is a probability function and $P_a(\cdot)$ a conditional probability function. I do not actually think that subjective probability is the best way to represent degrees of belief, but that is largely irrelevant for the purposes of this paper. Hence, I will work on the assumption that these functions are (conditional) probability functions in order to connect up better with other authors who do take degrees of belief in this way.

⁶ I do not discuss the case of full belief, as opposed to degree of belief (though I will sometimes just talk of belief *simpliciter* for convenience). Full belief will either fall out as a special case of degree of belief – if we subscribe to what Richard Foley calls the “Lockean Thesis” that full belief just is sufficiently high degree of belief – or can be dealt with by distinct principles analogous to (EPU). See, for the Lockean Thesis, Foley (1993, chapter 4).

⁷ Note that we are dealing with a technical sense of “expert” here. In the colloquial sense of that term, to which I shall advert later, one may take someone as an expert on something and yet have so little interest in the area of their expertise that one forms no beliefs conditional on theirs. (This point was made to me by Beth Preston.) As we shall also see, there is another technical sense of expert that diverges from the one defined here.

⁸ Philip Pettit characterizes a social entity as one that exemplifies a social property essentially; a social property is one the realization of which “requires that a number of individuals evince intentional responses: they display certain attitudes or perform certain actions, at the same time or at different times” (Pettit, 1993, p. 119). According to

this definition, the Expert_{Norma, Glass} Community (and indeed all what I shall call two-membered asymmetric unities) will not count as a social entity, since only the non-expert is required by the relevant (EPU) – like principle to evince any particular attitude.

⁹ This question was pressed on me by Kay Mathiesen and Harvey Siegel.

¹⁰ One of the referees pointed out that someone may reliably report an expert's opinion without endorsing it, and hence without being part of the Expert Community at issue. Of course, that is true. But such a person is still less useful to members of the community than are other members. Other members can serve as conduits for the expert's opinion through their own opinions, and not just through reports of the expert's opinions. Since people's opinions are often evident in their actions we may learn of the expert's opinion by observing or interacting with other members even when they do not report to us directly what the expert's opinion is.

¹¹ The issue of mutual knowledge does not arise with respect to two-membered unities since of the two members, one is the expert whose knowledge of the satisfaction of the principle is, in a sense, irrelevant. The mutual knowledge in multi-membered unities is among the non-experts.

¹² The idea for this section was suggested to me by Raimo Tuomela.

¹³ See, in general, the works cited in note 1.

¹⁴ A referee raises the question of whether we do not face the kind of instability here that I discuss in the (Solidarity) example below – briefly, a situation in which everyone in the group wants only to believe what everyone else does. I do not think the problem arises here for the following reason. Where the group belief function is interpreted distributively, it will only be well-defined if all or most the group agree in their opinions. In an unstable, flux-like situation, there will be no group belief at all. Where the group belief function is interpreted collectively, it does not matter if everyone in the group conditionalizes on the group belief, since that is determined (in some as yet unspecified way) in a way that allows for some independence from the beliefs of the members. (Of course, depending on the mode of its determination, there may also be no collective group belief in a situation of too great instability.)

¹⁵ Van Fraassen considers *only* the case where $a = b$; also, in his version, $x \geq 0$. I separate the cases in which $x = 0$ and $x > 0$, and will consider the former in the next section.

¹⁶ I do attempt a defense of the thesis along these lines in Evnine (unpublished). A shorter treatment is given in Evnine (2002). Van Fraassen (1995) has also supplemented his initial discussion of (Reflection) in a similar way.

¹⁷ See Evnine (unpublished) for a full treatment of all these issues.

¹⁸ Foley (1994) makes this point.

¹⁹ One can, of course, divide a person's life into just two parts. But equally, one can divide it into any number of parts.

²⁰ See the following section for further discussion of this point.

²¹ Lehrer and Wagner, of course, are concerned only with social *reasoning* and not at all with social *ontology*.

²² If we substitute order and response for expert and non-expert belief respectively, we describe a military-style hierarchy. Of course, this is no longer an *epistemic* unity, owing to the substitution of the practical for the epistemic, but the analogy may shed light on what a multiple-expert epistemic unity is like.

²³ The terminology of Future and Concurrent Reflection is due to Talbott (1991).

²⁴ See Evidine (1999) for something on compartmentalization and believing contradictions. One of the referees suggested that we could take the pair of values as expressing a vague degree of belief which could be precisified in either of the two ways. I am less happy with this way of taking it, since the two numbers could be arbitrarily far apart, within the interval $\{0, 1\}$. Talk of precisifying a vague belief here, when no number in the interval between r and s would be admissible, but r and s would, seems odd. Nor would it be right to treat r and s as endpoints of a subinterval within which any number is admissible as a precisification, since this would in some sense eliminate the strangeness of the situation.

²⁵ Some of this, without taking into account the possibility of having two different degrees of belief in the same proposition, is proved in Sobel (1987, pp. 69–71).

²⁶ I *think* this is Keith Lehrer's view on why we should trust ourselves epistemically. See Lehrer (1997, chapter 1).

²⁷ For further reflections on the difficulties of assessing our epistemic performances objectively, and the relation of this to Moore's Paradox, see Evidine (2001).

²⁸ See also Rovane (1998, p. 141) for some discussion of this kind of case.

²⁹ Thanks to Margaret Gilbert for suggesting "merging" as a less alarming-sounding alternative to "incorporation".

³⁰ It has been suggested that (Anti-Solidarity) should be formulated as:

$$P_a(M | P_{a's} SO(M) = r) = 1 - r.$$

This seems both more and less than is necessary for difference *per se*. Less, because if the significant other has a degree of belief of 0.5 in a proposition, (Anti-Solidarity) will require a to have the same degree of belief, and hence will not encourage diversity. More, because where it does require diversity, it imposes a particular pattern on it, thus going beyond the demand for mere diversity as such. Still, perhaps this alternative formulation might be defended as a complement to (Solidarity).

³¹ An asymmetrical variant of (Solidarity) may have been an ideal for a more ancient conception of marriage, in which the wife was duty bound to conform her beliefs to her husband's but not vice versa. The issue of whether here, we have a non-epistemic reason (deference to the male) for an epistemic principle is complicated by the fact that such an ideal of marriage went hand in hand with the devaluation of women's intellectual abilities, thus suggesting that such a couple might have been just a special case (and a spurious case) of an Expert Community as described above.

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Department of Philosophy
 University of Miami
 P.O. Box 248054
 Coral Gables, FL 33124
 U.S.A.
 E-mail: sevnine@miami.edu

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