Context: the case for a principled epistemic particularism

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Abstract

The context-sensitivity of many cognitive processes is usually seen as an objective property which we should try to account for and to simulate in computational models. This rests on a mistaken view of inquiry as guided by principles alone. In ethics, exclusive reliance on principles is all but abandoned: the ability to deal with particular cases depends on something more. The same goes for the belief fixation processes involved in communication and other cognitive tasks. The paper defends a mixed model of inquiry, which combines the traditional rationalist reliance on principles with a consideration for appropriateness in the case at hand. The key idea is that how one deals with context is a matter not of fact, but of judgment. The paper concludes with a characterization of some of the areas in which context is easily dealt with, and explains why areas in which it isn't are not systematically shunned by people.
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1. Introduction

By fairly general consent, many cognitive processes are sensitive to context. What this means, by contrast, is a matter for debate. It is easier to recognize a deficiency in context-sensitivity, for example, in computer programs or other 'intelligent' artefacts, or in formal models of language understanding, or again perhaps in some cases of mental pathologies, than to agree on a positive account of the property, or quality, exhibited by normal human beings in virtue of which they, or their processes, are said to be context-sensitive.

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It might be thought that the question can best be put in the following abstract form. Because human beings encounter an enormous variety of situations, while apparently deploying but a limited number of strategies, there must exist, by the pigeonhole principle, at least one strategy which applies to many different cases, yielding generally different outcomes in some of these different cases. There are two standard ways in science to account for this kind of phenomenon. Mathematical physics has models (sets of equations) which accept variables with infinite domains: one model, infinitely many situations to which the model applies, with as many different outcomes as one can wish. Computationalism rests on the notion of a program which can generate infinitely many different runs according to what data it is fed, and to what data it subsequently generates: again, one program, many inputs, many outcomes. The two strategies (numerical variation, conditional combinatorial generation) can also be combined.

This abstract approach to the problem has to date shed no light, however, whether heuristic or retrospective, on what cognitive scientists, in particular linguists and psychologists, have in mind. What classical artificial intelligence, and later connectionism, have aimed for is a general 'architecture', structural principle, or basic mechanism, such that, when incorporated into a model (simulation or description) of one or another specific cognitive ability, it would endow it with context-sensitivity. Despite some interesting advances by connectionist modelling, this search has however remained largely fruitless.

Others, especially in the natural language processing community, have tended to think of context as nothing but the vast amount of facts relative to our everyday world; solving the context problem has meant no more, to them, than finding the appropriate format for our folk knowledge. Pragmatists and philosophers of language focus on more specific facts relating to the necessary or contingent circumstances of utterances. Relevance Theory (Sperber and Wilson, 1986), for example, purports to account for the way in which 'contextual information' is efficiently harnessed in the determination of what an utterance conveys to the hearer.

A third group, mostly psychologists, associate context with perturbations of subjects's performance by features of the situation which a detached analysis of the task at hand shows to be irrelevant. Thus success at the seemingly simple reasoning involved in the solution of the famous Wason four-card problem is heavily dependent on logically neutral features of the experimental set-up.

Finally, some scholars sceptical about cognitive science view its seeming inability to appropriately deal with context as its Achilles heel.

Among philosophers (whether sympathetic or critical of cognitive science) and conceptually-minded cognitive scientists today, two broad attitudes regarding context can be discerned: 'inflationists' are pessimists who think of context as posing a serious problem, both scientific and philosophical; 'deflationists' deny that there is such a general, deep, problem, and are optimistic about the prospects of a piecemeal resolution of the diverse set of puzzles which are usually put in relation with the notion of context.

The aim of the present paper is to show that inflationists are right in taking context seriously, but wrong in believing that there is a fairly well-defined scientific problem to be solved which at present we see no way of solving. By the same token, deflationists

are right not to seek a general solution to the context problem, but wrong to believe that their naturalistic methods are bound to make it gradually vanish from sight.

Both sides, I contend, suffer from a misconception regarding the acquisition of knowledge. By transferring to epistemology an insight gained from ethics, I hope to show that, whether optimistic or pessimistic, the present views about context rest on a mistaken view of inquiry. According to this received view, inquiry is subject to a single norm, rationality. I argue that the search for objective knowledge, whether theoretical or lay, is governed instead by two fundamental norms: it is subject to both rational principles and to some 'sense of the situation', akin to prudence or good sense. In other words, I want to suggest a middle path between a hyperrationalistic and an intuitionistic or antirationalistic conception of knowledge acquisition or belief fixation, a path which I call *principled epistemic particularism*.[1]

In classical approaches, context is regarded as basically external to the agent, and subsequently assimilated, understood, interpreted on the spot. In the alternative view I suggest, context is manageable, when it is, only because it is, to some degree, constructed or constituted beforehand by humans, not because humans are equipped by exquisite 'context calculators', whether general-purpose or domain-specific. Moreover, there is no fact of the matter as to how well one does at negotiating context in one particular situation: it is the object of a normative judgment.

2. The singularness of singularity

'Context', as the word will be used in this paper, is meant in a very broad sense. It is not used as a technical notion, and it is important that it retain the loose, pretheoretical meaning it has come to take in contemporary use. Of course, in scholarly discourse, 'context' today means different things for different authors, and it has meant different things in the course of history. But distinctions and precise construals should not precede the statement of the problem at hand, lest they might bias the solution. It would not do to define 'context' as, say, 'what precedes or follows a given piece of text and has a bearing on its meaning or interpretation' (*Oxford English Dictionary*), as 'cognitive environment' (*à la* Sperber and Wilson), as 'circumstances of person, time and place of an utterance' (*à la* Kaplan or Perry), as 'scenario' or 'script' (artificial intelligence-style), or again as 'set of practices against which a human intention or act becomes intelligible' (*à la* Dreyfus or Searle). For such definitions, besides possibly hiding obscurities of their own, predetermine to some extent the conceptual space in which the investigation will be conducted.

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[1] This proposal is one among other attempts in recent analytic philosophy, too numerous to list, at introducing some degree of freedom with respect to an overly rigid view of rationality while remaining faithful to objectivism. Philosophers holding on to a *classical* objectivist-rationalist picture of knowledge are in fact beginning to appear as an embattled minority in view of the sheer abundance of recent publications promoting alternatives. The present approach differs from other proposals by taking context as its point of departure, rather than conceptual schemes, truth, cognitive styles, natural kinds, meaning, linguistic communities, social practices, or other putative sources of pluralism.

Let us instead try and state in general terms the question which, in various guises, is posed by the contextual nature of cognitive processes: To what extent, in what way, for what reasons, is it generally the case that cognitive processes are sensitive to the particular situation in which each of them unfolds, beyond the predictable dependence on the explicit input variables? Or, more briefly, how can we account for the singular effects which a singular situation exerts on a process, in virtue of being singular as opposed to being a token of a preidentified type?

A closely related way of putting the problem is the following. What happens in a given, particular situation rarely only depends on the *type* of that situation: there is something about it which is not exhausted by its being a *token* of the type. This is a problem because, or rather, to the extent that, it does not yield to the straightforward cure, viz. a redesigning of the types. Situations seem to resist classifications, somewhat like persons, or again, some will think, like illnesses or living organisms: the situation's causal potential seems to include, at least in many cases, besides a standard component revealed by the best available analysis of its general features, an ineliminable component which is attached to the situation as a singular event. Its being not only of a given type, but also the singular entity that it happens to be, endows it with additional properties.

One immediate objection is that this is not *always* the case: pragmaticians, among others, seek principles of classification for certain families of cases and meet with some success. This paper does not rely on denying this: its aim is to take a step back and propose a different, complementary perspective.

Another objection is this: numerical identity by itself surely carries no weight; there *must* be something *about* the situation, which is responsible for the extra causal powers. A more careful analysis is bound to eliminate the phenomenon, in principle at least. In practice, we may have to resort to idealization or settle for probabilistic models, as in the natural sciences.

But this way of putting the issue amounts to no more than a reformulation of the deflationary view of context, based on an uncompromising form of naturalism. It remains open to the pessimist's objections. To move beyond this stalemate, a couple of preliminary clarifications will be useful. First various notions of context will be surveyed. Second a rather peculiar methodological difficulty will be outlined. This will not contribute directly to the argument. Rather, it will help, I hope, to clear some common ground and dispel some misunderstandings.

The earliest occurrence of 'context', in the relatively brief history of the term, and also the narrowest, arises in the consideration of texts: any given fragment of text is, like a thread of woven material, inserted in a web of textual stuff (words, parts of sentences, whole sentences,...), which may affect the meaning of the fragment under scrutiny. Context is thus text near or around some other piece of text.

The first extension is to consider the non-linguistic factors which accompany the text and can modulate its meaning, or allow it to be fully interpreted. In the central case here, that of an utterance—an event in space and time— one often considers the entire situation (or the circumstances) of the utterance, within which some authors set aside, for theoretical reasons, certain fixed features such as the identity of the utterer, the time and place of the utterance, or more widely all that determines the

reference of the indexicals in the text, and group them under the label 'context'. The remaining aspects are seen as an unlimited repository of facts which may or may not exert some influence on the meaning of the utterance. Within this central case, the best studied is linguistic communication: an utterance is intended for a hearer or an audience, and is a means of conveying an intention, or set of intentions, of the speaker; the context is usually defined, roughly, as those circumstances which carry informational content accessible to both speaker and audience.

In the next natural extension, the text is allowed to be any modality-specific stream of stimuli, e.g. visual, or even any module-specific stream, e.g. phonetic (of course modules are largely hypothetical entities, so that the matter of what constitutes a module-specific stream is itself a scientific issue).

A bolder step away from the original notion consists in freeing the notion of text from any form of modal specificity. The set-up now involves an agent with a task to accomplish, a problem to solve, and the 'text' is, roughly, the 'statement' of the problem—where by 'statement' we cease to have primarily in mind sentences, or modality-specific stimuli, but information about the situation as it constitutes a *problem* for the agent. At this point we have reached the full range of the phenomena which classical cognitive science recognizes: agents process incoming information under constraints in order to achieve a predetermined ultimate goal.

Beyond this perhaps natural border, there are two more steps one may choose to take. The first is to break away from the informational viewpoint: context need not be solely made up of information; it may include any causal factor which has the potential to impinge on the process at hand, not only via semantic content. In fact, one may then choose to divide things up so that all the information together make up the 'text', while all the other causal factors are 'context' (as for example in Barwise, 1986). Naturally the question of what one means by information, and in virtue of what certain causal factors and not others are to be regarded as informational, arises here with some urgency. But it is a question one learns to live with, and which will be kept in the background of this paper.

In the final stage, text is all but disposed of, and the foreground of the set-up is occupied by agent and context. This move is justified by the consideration, seen obvious by some, rejected by others, that there is more to the life of an agent than solving problems or processing information in any sense well enough defined to motivate a research program. If this is correct, then there are episodes in agents' lives where, though fully conscious, they are not dealing with anything like a 'text' or 'input', although they are undoubtedly bombarded by stimuli and processing enough of them to be aware of their surroundings, to some extent. During those moments the agent is neither suspended in a mental void, nor cut off from the world. To use an old-fashioned word, the agent is in a contemplative state.

Granting for a moment that such a non-reactive cognitive mode exists, one may want to ask whether it involves something contiguous enough with the previous notions of context to be worthy of the name. One connection might be this: it could sometimes be the case that the situation in which an agent finds herself *causes* the appearance of a 'problem', the resolution of which is an information-processing task, which in turn involves a 'text'. In such a set-up, the context comes before the

text, and brings it about. Second, it could be the case that once the text comes into existence, so to speak, the context in which it is processed or interpreted *constitutively* includes or involves the world which the agent inhabits whether or not there is a text at hand: that world could be the *background* in the absence of which there could be no text, no information, no processing, no task, and for that matter no agent (*qua* agent) either.

This last step is one which many will be reluctant to take: even if they accept the demand for some elucidation of the ultimate grounding of meaning and action, they will insist on keeping that issue separate from the presumably more tractable one of context *sine* background. Again, my policy in this paper is to keep all doors open. It could turn out that by ruling background out of bounds, one is in effect also blocking the way to a satisfactory solution to some of the problems raised by the apparently more modest notions of context.

Let us now return to the problem at hand. The ultimate goal of a general theory of context would seem to be to account for the regularities, if any, which can be observed in the effects of context on cognitive processes. If there are indeed such regularities, the context problem, relative to the class of situations and processes at hand, has an in-principle solution, consisting in refining and otherwise modifying the state space. If, on the other hand, there are no regularities, how can we account for the fact that intelligent agents do act effectively in the real world?

Yet, the pessimist will insist, the available evidence does not speak in favor of the emergence of a theory of context. Are we not caught then in a dilemma: reject pessimism, despite the lack of empirical support, or accept an even less warranted view of context-sensitivity as miraculous?

There is way out: the pessimist can accept the 'no miracle' hypothesis that in every given situation, there are definite features of the context which account for its effect on the outcome of the process, but insist that those features are not among a pre-existing list. What the pessimist denies, or at least doubts, is that, given a class of situations and processes, there exists an exhaustive repertory of causal factors which any given context specifies or instantiates—a 'context matrix' for the given class.

To summarize in logical form: the optimist claims, and the pessimist denies, that for all classes of cognitive tasks and processes, there is a uniform context matrix such that for all situations in the class, the outcome of any process in the class is determined by the values taken by the matrix in the situation. If C stands for context (or context matrix, listing all possible contextual features), S for situation and P for process, denying, like the pessimist,

$$\exists C \ \forall S \ \text{(the value of C in S predicts or explains the outcome of P in S)} \qquad (1)$$

does not amount to asserting

$$\forall S \ \forall \ C \ \text{(the value of C in S predicts or explains the outcome of P in S)}.$$

Indeed, a pessimist of the no-miracle sort is committed to at least some reading of

$$\forall S \ \exists \ C \ \text{(the value of C in S predicts or explains the outcome of P in S)}. \qquad (2)$$

Thus, what seems at the present stage of analysis to stand between the optimist and the pessimist is a quantifier permutation.

It is now easy to state the methodological difficulty which plagues the discussion of these general issues. Suppose someone wants to take a serious look at some concrete example of the effects of context on a certain process—say, in communication, or criminal investigation. Once their work is done, they show their results. They describe the overall situation, they list a number of features, some relevant, some not, and proposes an account of how, in view of those features, the outcome of the process (an interpretation of the utterance, or the identification of the main suspect) can be explained or could be predicted. They have thus established an instance of (2), and if they can muster further arguments to show that this is a *typical* instance, they have gone some way towards making a case for (2) (and not just an *instance* of (2)). However, if their purpose is to defeat pessimism, they have made no progress whatsoever: no-miracle pessimists are already convinced of the truth of (2). What would lead them to change their mind is a very different result: *first* propose a fixed list (it could be infinite, provided it has a finitary description) of features; *then* analyze any situation arbitrarily chosen in the right class by relying solely on that list, and show that the values taken by the features instantiated in the situation explain or predict the outcome. In other words, the pessimist regards the analysis actually proposed as a form of *petitio principi:* it rests on an implicit or intuitive resolution of the local context problem, and therefore cannot be an argument in favor of the existence of a theoretical principle of resolution.

The moral to be drawn at this point is, again, merely methodological: on the issue at hand, examples are systematically misleading; they claim to suggest or support solutions to a problem which they actually perforce bypass.

3. Effective rationalism: a Leibnizian epistemic ideal

Up to this point, I have been running together (cognitive) processes and such typically human activities as interpretation or inquiry. There is a reason, or an excuse, for this: from the third-person perspective, or the naturalist perspective, these activities are nothing but processes of a certain kind, on par with the navigation of migrant birds, or the detection of texture or relative distance of objects.

Before we sail, it will be most useful to disembark processes and keep only inquiry (and related notions such as belief fixation, interpretation, problem-solving and so forth) on board. This will simplify the exposition. More importantly, inquiry is a typical 'central' or 'horizontal' process, in Fodor's terminology,[2] in contrast with 'modular' or 'vertical' processes such as face or phoneme recognition, and perceptual processes generally. Fodor has offered as a key feature of input processes their 'cognitive impenetrability'—in my terminology, these processes give rise to a fully

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[2] Fodor's authority hardly needs to be invoked for this obvious point: there is a better chance of finding rich contextual phenomena in higher, non-reflex, fallible processes, than in lower, automatic, and nearly infallible ones.

soluble context problem; context is in fact eliminable. Central processes, on the other hand, are plagued with an intractable context problem, which according to Fodor's "First Law of the Nonexistence of Cognitive Science" (Fodor, 1983: 107)[3] rules out the possibility of a science of central processes. This is the reasonable place to look for evidence. Finally, inquiry, in the broad sense in which I will use the term, is of perennial concern to the philosopher.

Leibniz had a well-known ideal of inquiry: the *Characteristica Universalis* he thought could be devised would allow people disagreeing on some matter to determine by calculation which assertion was right, or at least more probable.

Now it might be argued that the procedure recommended by Leibniz applies to checking, or choosing between competing views or theories, and thus has no direct bearing on inquiry and the role played by context. After all, aren't logic and mathematics areas in which inquiry is notoriously difficult and poorly understood, but where checking procedures of the sort Leibniz had in mind are indeed available? There are three responses to this remark, the last of which will direct us to the heart of the matter.

The first is that it would do no good here to set formal science apart from empirical science, for the whole point of Leibniz's proposal is to bring the latter under the banner of the former, via the proper formal system—langage plus inference rules—granting that the rules perforce will be inductive, thus yielding probable rather than necessary conclusions (Hacking, 1975: 134–140).

The second response is that checking a conclusion involves making sure that everything relevant, and nothing irrelevant, has been taken into account: context is still in the picture. An end to a particular inquiry in the form of a solution to the initial problem includes (sometimes implicitly) a solution to the problem of determining the proper context in which to frame the problem; and the checking of the solution includes the checking of the context. The choice of context is no more self-verifying than the solution itself.

The third and final thought is that checking is itself a kind of inquiry: it is something someone *does* with an epistemic goal in mind. The set of issues discussed throughout the paper is distinct from the matter of discovery *vs* justification. The crucial contrast, rather, is between the here and now of a particular epistemic action and the general knowledge or maxims applicable to the kind of situation faced by the inquirer. One reason why one might be tempted to align the two distinctions is that checking may be, in many cases, a significantly *simpler* affair than discovering; and there is no denying that simpler inquiries involve deep issues, such as context, to a lesser extent than harder ones. Inquiry, like many other skills, admits a continuum of degrees of difficulty, from trivial to maddeningly hard.

Let us now sketch the ideal type of the inquirer which I think is mistaken and which stands or falls with a deflationist view of context. Whether Leibniz would claim it as his own, or see it as compatible with his views, is a matter I have no authority to discuss and is of no import for the matter at hand. I hope I can be allowed to use **Leibinizian* to characterize the view I have in mind.

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[3] See also the whole of Part V. Fodor's pessimism is reaffirmed in his recent book (Fodor, 2000). This pessimism is predicated on an uncompromising form of context inflationism.

The *Leibnizian inquirer is equipped with a perhaps large set of rules which can be applied in any given situation of inquiry. These rules are rational, objective, devoid of ambiguity, effective and efficient; *ie.* they cannot fail to pass the test of reason (there is no conceivable way in which a reasonable person could challenge their validity), they are independent of the individual who upholds or applies them, their application requires no interpretation in order to be seen as applicable (or not) in any particular case, they can be combined so as to lead unfailingly to an answer, and that answer is true or most probably true (*ex datis:* with respect to the available data). (Note that this last property can also be called 'rational': the rules are conducive to reaching the goal of uncovering the truth, or probable truth.)

*Leibnizian inquirers come in a strong and a weak variety. The strong kind of inquirer is equipped not only with the set of rules, but with a control structure which stipulates what rules to apply in what order. In other words, the strong *Leibnizian inquirer has (or is an implementation of) a universal algorithm, or (effective) decision procedure. Nothing thus stands in the way to truth, except perhaps limitations due to combinatorial complexity, memory, energy, misfunctioning, etc., and of course incomplete data. Weak inquirers lack the control structure, so that, rather like real-life mathematicians, they have to figure out by themselves what rule to apply at any given step; there is thus no guarantee that they will hit upon one of the winning combinations of rule applications. The weak *Leibnizian inquirer has (or is an implementation of) a production system[4] which either comes up with a correct answer, or keeps trying without reaching a conclusion (or gives up if resources run out or if some other business becomes more pressing); but he or she is never *at a loss*.

But of course, *Leibnizian inquirers, whether strong or weak, owe their success to the fact that the world they are placed in possesses certain properties. The motions which they have the potential to go through will produce epistemic progress only provided the medium they act on meets certain specifications, much as the locomotor system of the cow will not get it far on ice, or the seal's on an alpine trail. A *Leibnizian world is one in which a *Leibnizian inquirer meets with success.

What makes a world *Leibnizian? There surely is no easy answer to this question, else it would have been established long ago that our world is *not* *Leibnizian, as I believe is only now, gradually, becoming the majority view. But we can imagine worlds which are: for example, finite worlds, or effectively finitely generated worlds (e.g. worlds composed of formal words), or more generally, formally-learnable worlds in the technical sense in which a computable learner would converge in the limit on a complete description of the actual world to which the learner is exposed.[5] In ordinary language, exhaustively explorable, single layered,[6] atomistic worlds are presumably *Leibnizian; but *necessary* conditions for a world to be *Leibnizian are not forthcoming to my knowledge.

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[4] In roughly the computer science sense: a set of rules of the form "IF precondition P is satisfied, THEN add conclusion C to the data base.".

[5] I am referring here to the formal learning theory developed by Gold, Putnam, Solomonoff (see, for example, Osherson et al., 1986). It has been proposed that the syntaxes of natural languages are formally learnable by computable learners, and would thus present a nontrivial example of a *Leibnizian world.

[6] A rough and ready way of barring emergent phenomena.

The sort of context a *Leibnizian inquirer in a *Leibnizian world encounters is nothing but a collection of facts which exhaust the situation which he or she faces, within the bounds of accessibility (the color of the hidden face of the moon is a fact which belongs in the list, although it might be missing from the sublist to which the inquirer has access). In logical terms, the situation is exhaustively characterized by its *diagram:* all the sentences of the form "a, b, c,... are/are not in relation R, S, T,...", for all the entities a, b, c,... and all the relations R, S, T,... which enter in the situation.

My contention is that the classical conception of rationality is essentially *Leibnizian, *i.e.* involves a set of effective rules—effective in that they apply univocally, and that they lead, either in all cases (strong version) or in some cases (weak version), to the truth or the most probable truth given the available facts. I further claim that, despite a growing suspicion of the massively un*Leibnizian character of the world we live in, many theorists want to hold on to the *Leibnizian inquirer, possibly out of fear that a non-*Leibnizian inquirer would espouse some form of subjectivism or irrationalism. It is worth therefore exposing the difficulties a *Leibnizian conception of inquiry encounters when context, and singularity, come into play.

This may at first appear as too easy a task: after all, the most optimistic rationalist is aware of the less than complete success of our inquiries; and knows that success, when it does obtain, has often required a generous push by Fortune. Still the rationalist does maintain, I contend, a *basically* *Leibnizian view of inquiry, which does work a lot of the time, in a lot of areas, and which at any rate is the only rational option open to us: when it fails, failure is our lot, barring divine intervention: epistemic boundedness again.

Rather than go over that well-explored issue, I shall concentrate on what I see as the deep difficulties that the *Leibnizian view, however qualified, runs into.

4. A budget of troubles

The phenomenology of context is rich and fascinating, and a detailed examination is beyond the purview of this paper (cf. Dreyfus, 1972; Andler, 1993, 2000a). There have been numerous attempts to prove that one or another of the phenomena arising from context is distinctly un*Leibnizian. The issue has remained undecided, and the debate is logged by a couple of difficulties of a general nature.

One difficulty has been that participants disagree on the framework of the discussion: inquiry is such a general concept, ranging from everyday activities—looking for one's wallet—to ecological tasks—is this mushroom edible?—social tasks—is this man walking up to me aggressive?— and to systematic investigation, judicial, technical, scientific,... Some context deflationists (cf. Hirschfeld and Gelman, 1994, especially the essay by Dan Sperber; and Sperber, 2000) are currently engaged in the so-called 'massive modularity' strategy. The idea is to show that many of the higher processes ('central' in the Fodorian sense) actually belong to special domains where the context problem becomes local and solvable by specialized heuristics acquired

through natural selection. What remains is essentially theoretical ('metarepresen-tational' is their way of putting it). Whether or not the domain of theory is afflicted by an unsolvable context problem may then appear as relatively unimportant: a naturalistic, scientific theory of theoretical inquiry is not at present a realistic aim anyway.

The other difficulty has already been mentioned: the issue of context is not one which we can hope to settle with the help of examples and counterexamples. Reports of situations, it was argued, depend on a preliminary decision regarding the con-textual frame appropriate to the particular situation reported. It might be objected that we can refer to, or invoke, real-life situations without providing complete descriptions—somewhat in the way that we can depict a zebra without providing a faithful map of its stripes. In fact we do it all the time, pretty much everytime we talk, read, and write. And it is true that we can seriously discuss the proper way of taking account of the context on the basis of reports: we don't have to take part in the battle of Waterloo in order to meaningfully debate about the comparative rele-vance of the many facts reported or surmised. But this only pushes the problem back one step: the human ability to grasp an entire meaningful situation on the basis of a finite number of clues is part of what we seek to explain, not something we can help ourselves to in a putative explanation. We shall return to this later. For now the lesson, I think, is unambiguous: the issue of context is essentially theoretical, and there is little hope of settling it with the sole help of elementary empirical methods.

I shall now focus on three general considerations which appear to weigh against a *Leibnizian view of inquiry.

The first was actually just touched upon. Context seems to many to display a *holistic* character; in fact, it is often assumed that holism is the defining trait of context: it is one and the same, on that view, to take holism (of a certain sort: there are many forms of holism, many senses of the word) to be a real phenomenon and to take context to be a genuine problem. Although I agree that context often assumes holistic properties, I think this is only part of the problem. But what part is that exactly?

Let us go back to our *Leibnizian inquirers, at the outset of their inquiry. How are they suppposed to proceed? The simplified, two-step model goes as follows. They are equipped with instructions which allow them to (1) identify the relevant traits of the situation at hand—the context. They can thus categorize the situation as such and (2) process the 'text' accordingly. Space does not permit here to look at some examples. Unsurprisingly, the interpretation of actual text, especially utterances, provides the most obvious ones. But we can also think of reasoning, problem-solving, memory retrieval, strategic planning, criminal investigation, etc.: we will always be able to rely on a pretheoretical distinction between what, in the task we have in mind, plays the role of text, and what the role of context—such a distinction is taken for granted by the scientists who study the task domain. (In passing, let us remark that on the *Leibnizian view, it does not seem possible to account for the distinctive asymmetry between text and context: for the *Leibnizian inquirer, text is informa-tion stored over *here* or coded in *this* particular way, while context is information stored over *there* or coded in *that* way. There is more to the difference, I surmise, and the model seems unable to say what that might be, a serious lack I should think,

but shall not examine the issue further.) Going back to our inquirer, a more sophisticated model would have him or her go back and forth: query now the situation, now the text, rather than proceed linearly; the motivation being that in some cases, the right question to put to the situation at some point may depend on the answer to some question regarding the text.

One should not underestimate the potential of such a strategy: it does yield results in many cases (we shall soon have to face the question of whether there is a hidden reason why this should be the case). However, it would seem to founder whenever the contextual information needed to process the text depends on an identification of the situation *as a whole:* it looks in such cases as if the inquirer would need to already grasp the situation in order to discover some needed piece of knowledge about the situation—but how can s/he have already identified the situation if s/he is still in the position of having to ask some questions about it? On one of the classical characterizations, holism consists in the fact that the meaning of the parts depends on the meaning of the whole, which in turn depends on the meaning of the parts: substituting, as you will, 'informational content' or 'answer to questions posed by the inquirer' for 'meaning', one obtains a formulation of the problem as I just stated it.

The conclusion seems to be that the inquirer would need a way of identifying the situation which is *independent* of his or her postulated ability to identify its components, but the existence of such a way is ruled out by the very terms of the problem: a situation which came equipped with a label wouldn't be a situation, but a file with a file name ready to be read by the inquirer together with the 'text' at hand.

The second puzzle for *Leibnizian inquirers is novelty. As we noted earlier, some of the situations s/he encounters owe their singularity not simply to their locations in space and time, but by virtue of being different in some substantive way from any situation encountered previously. Of course, the instructions s/he is equipped with are conditional: s/he has an immense advantage over any purely reflexive system. S/he can certainly conduct a preliminary inquiry in order to determine which specific case is at hand. However, this preparatory phase must end after a finite number of questions have been asked (the time-sequence is in fact irrelevant, but the linear model is simpler to discuss than the back-and-forth one). The inquirer has no way of making certain that all the questions which might have unearthed information relevant to the inquiry have in fact been asked. So how can s/he decide to go ahead and apply the rule which according to the partial information s/he has secured is applicable to the problem at hand? Substituting probability in the light of available facts for certainty, another refinement of the model, will not relieve the problem. The only response is to admit that s/he is shooting in the dark: the procedure is fallible, it may indeed turn out that the rule was in fact not applicable.

But is not that—fallibility of conclusions, defeasibility of inference rules—a fact of life, rather than a failure of the theory of inquiry? The point is well taken, but perhaps a little facile. Fallibility is a cloak which can hide theoretical knee-trembling. In this case, there might be considerable slack between the failures of a *Leibnizian inquirer and those of a competent human one.

Classical rationalism has a typical tendency to throw up its arms in despair whenever theory is at fault—if theory can not do it, nothing can. But whether

human inquirers deploy intellectually acceptable resources besides, or beyond, theoretical principles, is largely an empirical issue. As we shall soon see, there is one area, viz. applied ethics, where the evidence seems to point in the direction opposite to an exclusive reliance on principles. There undoubtedly is a vast difference between inquiry and moral deliberation, yet epistemologists may have a lesson to learn from ethicists, which will be spelled out in more detail in the next section. The moral to be drawn, at this point, is that *Leibnizian inquirers seem to to be forced, in a world such as ours in which novely is the rule, to jump to conclusions in an way which by their own lights is entirely unjustified.

Besides this largely empirical issue, novelty raises a well-known conceptual problem, concerning the idea of following a rule, which leads to the third problem. Stemming from Wittgenstein's *Philosophical Investigations* and made into a central topic by Kripke (Wittgenstein, 1953; 138–242; Kripke, 1982),[7] the problem may not seem at first directly related to the context issue, but rather to the notion of a rule, to the meaning of words, to the content or mastery of concepts. The example used in the debate regards the rule of addition: what makes it the case that the correct application of addition to 57 and 68 yields 125, rather than, say, 5? A crucial assumption here is that addition has not previously been applied to these two numbers.

The 'soft' interpretation of Wittgenstein's point is that a regression threatens a certain classical conception of a rule: we seem to need a meta-rule which grants permission to do to 57 and 68 what we did to previously encountered couples. As O'Neill (2001: 18) points out, this is already clearly stated by Kant (1781: A133/B172). We should thus reject this notion of a rule: a rule does not require a further interpretative investigation to determine whether to apply it or not in a given situation. The 'hard' interpretation goes on to deny that there is a fact of the matter as to whether the rule is or isn't applicable in the singular case at hand, or whether such-and-such (125) rather than so-and-so (5) is what a *correct* application of the rule yields. Under both interpretations, the mere statement of, or adhesion to, the rule does not suffice: the decision to apply it in one particular way lies with some other authority. Besides the norm of the rule, there is a norm whose domain is the application of the rule—a norm which had better not have the logical form of a rule, as we have just seen, on pain of regression. This is a crucial insight.

What bearing does it have on the *Leibnizian inquirer? Let us first admit that until Wittgenstein came along, few epistemologists worried terribly much about $57 + 68$. Perhaps then we should let this particular dog go back to sleep, and turn our attention to a worry which may or may not be equivalent to the 'Kripkensteinian' perplexity. Real-life inquirers, dealing with the external reality rather than numerals, find themselves regularly faced with the question of whether to apply a rule (a piece of knowledge, a concept, an inference,...) in a given situation. Some features of the situation invite the application, while others make it a first: never before have the inquirers met with quite the circumstances at hand, hence the uncertainty. Were the relevant features neatly summable in the form of a definite value of an argument, the

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[7] The secondary literature is simply immense; see, for example, Hale (1999).

problem would be exactly Wittgenstein's (and would perhaps not bother our inquirers; the point remains moot). But this is usually not the case: no summation procedure is available to the inquirers. Here we are in no doubt as to whether there is or isn't a problem. We face it all the time in our everyday and scientific activities. Again, the crucial insight is that the rule doesn't relieve us of the decision, and the decision is a real one due to the inevitable presence of novel aspects of the situation, not novel enough to constitute a different 'text', yet novel enough to raise a problem. Even if they were able, contrary to fact, to survey the entire situation, the *Leibnizian inquirers would still be in the dark as to whether they may or may not apply the rule in this particular set of circumstances. They would thus be completely helpless, like motorboats without rudders: they can leap forward or stall, but cannot steer a course.

5. Particularism versus principlism in ethics

The *Leibnizian model of inquiry is in jeopardy. So at least I have argued. The remainder of the paper is devoted to an attempt at showing that letting it go does not spell the end of rational inquiry. In the present section, I shall first present in summary form the particularist approach in ethics, and then show why, appearances notwithstanding, moral conduct and epistemic inquiry have enough in common to make a transfer of model from one to another at least conceivable.

Ethical particularism is the general view that moral conduct, evaluation, decision making, cannot rely on principles, or perhaps cannot rely on principles alone. Particularism is sometimes also called 'situationism', and is seen by its defenders as an antidote to a mistaken view in ethics which they think deserves the label 'principlism'. There are a variety of considerations motivating different strands of particularism, each with their proprietary positive proposals (Hooker and Little, 2000; Little, 2001). The basic idea is plain enough: when it comes to deciding on particular cases, whether we are engaged in evaluating, or in committing ourselves to, a course of action, we find that we cannot simply call up principles, not even when they are supplemented with methods for conflict resolution.

The moderate particularist merely claims that principles, though necessary, are not sufficient, because their application is "irreducibly context dependent" (Little, 2001: 32). The radical particularist believes that principles have no role to play. Of course, all kinds of intermediate positions can be sustained. How is the slack, or the void, taken up? Theorists invoke a variety of capacities: a direct grasping of a particular situation as a whole; a skill enabling the moral person to discern and categorize the relevant aspects of the case at hand; a sense of tradition or precedent allowing people to appropriately transpose the lessons from previous cases, or the handlings or sayings of authoritative individuals or bodies, to the present case; a virtuous, caring, empathetic, fair or otherwise morally excellent attitude from which the proper line of conduct flows unproblematically (although it may take an effort to put oneself on the spot in such an attitude); and so on.

Our present aim being to buttress the case for *epistemic* principled particularism, we need to argue that there are sufficient analogies, and no lethal disanalogies,

between the two domains to make it a reasonable strategy. Space does not allow for argument, and I will merely propose a couple of distinctions.

The first concerns the source of the proposed analogy. There seem to be two kinds of ethical principles. Principles of the first kind are those to which moral agents are, sometimes at least, presumed to abide. Examples are ''Thou shallt not kill'', or ''Do not do unto others what you would they did not unto you''. Principles of the second kind are at work in ethical theories: whether normative or descriptive, they belong to the moral theorist's world, not the agent's. The first, not the second, kind of principle is the source for the analogy I want to suggest.

The second distinction relates to the target. Let's proceed by way of an example, borrowed from Perry. Our inquirer is a veterinarian trying to determine whether Johnny's dog has a broken leg. He examines the dog, examines the X-ray, finds out what happened which purportedly brought it about that the dog's leg is broken, etc. His verdict is that Johnny's dog has a broken leg (or: that it is highly probable that it has a broken leg). The small fragment of reality which the vet is investigating is a microworld of crisp facts: dogs' legs are broken or not, X-rays show the fracture or they don't, stories about falls from 6th floor balconies are either true or false, and so on. In this realm, principles apply straighforwardly. On the other hand, vets have on their hands, day in and day out, a large array of variously harmed or diseased pets (not to mention neurotic pet owners). Their diagnostic and therapeutic inquiry is what we are after here; *that* is our proposed target. We want to know whether principlism applies to the inquiry, not to the *Leibnizian microworld to which the particular facts under investigation turn out to belong.

So the proposed analogy links the moral *agent* to the epistemic *inquirer*. The suggestion is that the plausibility of principled particularism about the first lends *some* support to the plausibility of principled particularism about the second. Note that on the epistemic side, the need for principles is not seriously in doubt, and the question is whether they can be coherently supplemented by another resource; while on the ethical side, at least in recent discussions, doubts are on the side of principles, while context-linked abilities have seemed pretty secure.

Sure enough, there are more threatening disanalogies. The most important one, one which might seem to be crippling, is this. In moral deliberation, one is seeking to make the world of the next moment conform to something in the mind: the direction of fit, as the expression goes, is from mind to world. And the same holds, despite the change of modality, when one assesses post facto a decision or piece of behavior from the moral standpoint: it is now a matter of *checking* whether or not, or to what extent, the observed piece of behavior is identical to the one the agent should have engaged in. While in inquiry, one is seeking to make the mind at the next moment conform to something in the world; it's the opposite direction of fit, world to mind.

Yet what is common to both cases is that they involve an agent wondering what to do next. In both it is a matter of deciding on a course of action. Both involve practical judgment. From the standpoint of the processes themselves, as opposed to their respective outcomes, both set-ups exhibit a mind-to-world direction of fit after all. Besides, this way of viewing the matter is nothing new: probability theory, for

example, was developed so as to accommodate intuitions about ethical decisions as well as intuitions about epistemic decisions.

Further, in both cases the agent draws on two kinds of resources: detached, general principles and the situation at hand. It is in both cases a matter of applying or honoring general principles in a singular case. Some of the moral agent's principles are normative (moral laws, rules or maxims), others are factual (reliable generalizations about the world, including of course other agents). Some of the epistemic inquirer's principles are factual (reliable generalizations about the world), others are normative (methodological maxims, 'good sense'). The different rankings reflect different degrees of salience, yet both kinds of principles are present in both cases.

Another putative disanalogy, the first to come to mind in fact, is that the *subject matters* differ in precisely the relevant way: it has always been recognized that moral issues are moot, while factual matters are crisp. *Leibnizian inquiry perfectly fits pure *Leibnizian worlds, and the more *Leibnizian a given world is, the more successful an essentially *Leibnizian form of inquiry will be: why seek inspiration in an un*Leibnizian realm if one is interested in a largely *Leibnizian one? But this misses the logic of the argument: we have already accepted that the world of facts fails to be even approximately *Leibnizian by quite a long shot. This is what led us in the first place to look for clues elsewhere.

There is no doubt however that the *Leibnizian inquirer *seems* to be less or, less often, at a loss in the factual realm than the moral agent in the moral realm. This does require an explanation.

6. What makes epistemic success possible?

Having solicited, and received, some encouragement from ethics, the epistemologist must now come up with some positive suggestions. S/he actually has two duties to discharge, and not just one. S/he must explain how inquirers seem successful in effortlessly dealing with context in so many particular cases; and s/he must explain how they can live with the context phenomenon even when no solution seems at hand.

The first task, which is the topic of the present section, is motivated by the following consideration. Principlism, or, to go back to our initial term, the *Leibnizian theory of inquiry, has been regarded, and is in some circles still regarded, as a live option. Thus the context problem has long remained invisible, and is still hard to grasp from certain standpoints. There must be a reason for this invisibility (just as there are reasons for perceptual illusions). This is the question which was raised at the end of the last section.

The second task befalls on anyone who believes that the context problem is intractable in the classical sense, yet notices that inquiry, unlike other quests, does not usually cause unsurmountable anguish. Are we to believe that people light-heartedly accept failure in the many cases where no satisfactory solution is available? And why does there not seem to be a break between the soluble and the insoluble cases? This problem will be taken up in the next and final section.

Let us then consider the first question: Why does context in fact raise no particularly difficult problem in not infrequent cases? (It is the involved agent who finds it easy-the theorist may have a much harder time.) We shall take our cues from two cases. The first is linguistic communication. This is an area where much is understood, thanks to the efforts of linguists and philosophers in the last fifty years. It is also an area in which the context problem seems at first glance to be particularly hairy: there is so little in the text, come to think of it, and so much in the context! Language travels immense distances in practically no time; at any moment, without so much as a second's notice, any topic whatsoever can be raised, any realm of reality, or unreality, can be invoked, hybrid worlds proliferate, and polyphony is child's play. Nothing which *techne,* art, has invented, from the Greeks to our age of multimedia and virtual reality, comes close to everyday language in expressive versatility and power. Pragmatics seeks to account for the rather astounding fact that whatever the speaker expresses is regularly picked up by the intended audience. Given the poverty of the information encoded, the torrential effects on the hearer can only be attributed to a clever enrollment of contextual information. Communication owes its efficiency to the low ratio of information directly transmitted over information conveyed. But how can the hearer retrieve the balance, the non-transmitted information, among the infinite store held within, and potentially retrievable from, the environment?

The context provided by the present journal makes it quite unnecessary to belabor the point. The reader is familiar with both the problem and the broadly accepted solution. According to Relevance Theory (Grice 1989, Sperber and Wilson 1986), which will not be discussed but only used as a starting point, communication is a collaborative game in which the speaker intends the hearer to recognize her intention, a fact which the hearer exploits in order to attain this goal. Among the myriad elements present in the cognitive environment,[8] some are, to the mutual knowledge of both parties, most salient relative to the information presented in the utterance and to the cognitive state of the hearer. They are the ones which the hearer picks to get going in the process of retrieving the speaker's communicative intention, on the grounds that the speaker relies on the hearer's awareness of the saliency of these elements.

This is of course not a full account of the theory, which has several further essential ingredients, but it suffices to make apparent the general direction of the theory. The proposed solution to the context problem in ordinary communication works for the following specific reason: every instance of the problem is set up precisely as a problem in the sense of elementary school. Just as the pupil knows that the teacher has provided exactly what she needs in order to solve the problem, both directly (in the wording of the exercise) and indirectly (e.g. in fixing the topic by tacit reference to the subject matter and lesson), the hearer knows that the speaker has provided him with just the right clues. The context problem, in each instance of communication, is essentially pre-solved by the speaker, and the hearer's task merely consists

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[8] I have expressed some misgivings about this notion elsewhere, but again for the purpose at hand we need not go into what I, or anybody else, sees as possible problems with RT.

in retrieving the solution, which is done by following, metaphorically speaking, the dotted line. The dotted line is picked up by virtue of a crucial optimality assumption of the theory: the inferential path expected to be followed is the easiest one open.

This solution, *i.e.* this system of context-based inferential communication, is at least conceivably naturalistic: it involves conscious rule-following neither on the part of the speaker nor of the hearer; it is automatic, fast, context-independent, topic-independent, universal, and shared about equally by all normal individuals. Sperber and Wilson offer some speculation about extending their approach to cognitive tasks other than communication. What makes the model work, they argue, is the precisely goal-oriented character of the task. This is what *appears* to be missing in open-ended cognitive processes where the context problem seems insoluble. But perhaps natural selection can be enrolled as a provider of natural teleology: *homo sapiens* has evolved so as to meet with reasonable success in many ecologically important games with nature. S/he might retrieve nature's 'intention' by exploiting the clues which s/he has implicitly marked off in the environment, and which s/he identifies by going down a path of greatest descent in some landscape identified by the agent with the (unconscious) help of a suitable extension of the principle of relevance.

Whether this is a hopeful strategy is anybody's guess. But I would like to propose a more natural, though less naturalistic, direction in which to extend one insight of Relevance Theory. My inspiration is a well-known game: the treasure hunt. I agree that communication is a paradigm for context-taming policies in many other areas of human cognition, but not by virtue of natural selection: by virtue of human selection, i.e. selection of situations in which contextual clues are planted by mankind as in a treasure hunt. Of course, a large part of the planting is not done deliberately by an enlightened prince or a council of sages: trial and error, tinkering and luck receive in this nonbiological evolution much the same role as the one they play in Darwinian evolution. Once established, however, a treasure-hunt variety of context affords the inquirer in search for clues the crucial meta-clue that the more salient ones are presumably those which one is expected to spot first, a piece of background or metaknowledge which allows one to look no further.

It may be asked whether the sort of game which can be won in this way is not severely limited in degree of complexity. There certainly are limitations, but they may be less stringent than appears at first blush: as communication, and for that matter *sophisticated* treasure hunts show, identification by salience need not be a one-step, simple-minded affair -iterated back-and-forth consultation of text and context, guided, as in Relevance Theory, by a principle of double optimization, can lead the inquirer down highly complex paths.

There are bounds, presumably, to the epistemic feats which can be achieved in this fashion. Mankind does not usually court difficulty, however: the more problems can be solved by simple means, the better as far as it is concerned. Therefore people aim at organizing things so that as many inquiries as possible can be conducted in delineated areas in which a treasure-hunt stategy stands a good chance of bringing about success. The fact, alluded to earlier, that one can often, almost unfailingly, take in an entire situation on the basis of just a few of its features, squares with this hypothesis. It is usually assumed that this capacity can only be explained by means

of default contexts, scenarios, frames or other fixed informational structures; but the well-known drawback of models involving fixed structures is their unability to account for graceful degradation: they break down disastrously when, for example, due to whatever reason (a non-standard situation, a less than ideal inquirer), the right clues, and only those, are not picked up in the right order (to put is simplistically). What both connectionism (Smolensky, 1986, 1988) and Relevance Theory suggest is that we can let go of fixed structures, while honoring the constraint of felt immediacy and ease, by assuming instead a universally applicable principle of 'harmony' or 'relevance'.

A realm in which the local context problem is solvable in this way is a world which is always already familiar, in a basic sense, to the inquirer, although s/he remains ignorant of many of its features, and thus needs to inquire. It is a world in which s/he dwells, by virtue of belonging to some historical community, which has, so to speak, appropriated it: made it into a humanly significant part of the natural world. A part of the world which presents the inquirer with tasks which are, for the most part, standardized.

7. Norms of inquiry

A quick assessment of the situation might be useful at this point. In the first half of the paper, the case was made that the *Leibnizian inquirer runs into an insurmountable obstacle caused by a central feature of the world as it is presented to us humans: singular tasks are encased in contexts against which the principles of rationality, by themselves, remain powerless. Then we turned our attention to the field of ethics, where many thinkers are prepared to bite the bullet and reject an exclusive reliance on principles in favor of an ability to deal with particular cases. We saw why the case of ethics might be of some relevance to us, and what lesson could be learnt: ethical particularism can retain principles, which is precisely what our intuition tells us a theory of inquiry should do. Finally, we considered a special area, communication, in which the context problem is solved by appeal to an implicit control procedure, and suggested that other areas may be crafted by mankind on a similar model. In such areas, principlism seems to work, on the deck, thanks to clever engineering, by nature or man, in the ship's hold.

But what then of the particularist dimension of inquiry? Do we really need particularism after all, how can we account for it, and how can it be fitted in the overall picture?

There are three moments in the inquiry where principles unaided might fail. First, as I just hinted, even within 'treasure-hunt' type areas, principles (explicit, general rules) need to be picked and applied here and now, and the control required may well, for either empirical or conceptual reasons, not be itself a matter of principles. The second moment where principles would seem to fail is when the inquirer must categorize a given case as a treasure-hunt of a specified type; whether this is always, or only sometimes, a theoretically serious problem, would require close examination; but we know from experience in old-fashioned artificial intelligence, and, I

would think, by first-hand experience in real life, that situations are not always unambiguously of a single type: there are emergencies in restaurants, and meals in emergency wards.

The third and most important failure of the principles-only approach occurs whenever there is no treasure-hunt domain to which the task at hand is seen by the inquirer to belong, whether this be a matter of fact or a matter of the cognitive resources available on the spot to the inquirer. I shall not offer at this point a new argument; perhaps the most expedient is to shift the burden of the argument: let the defender of the *Leibnizian model convince us otherwise. I do appeal, however, to a strong intuition that can, I think, be shared: most of the intellectual tasks which we prize, especially those in our academic professions, but many others as well, do not appear, on the face of it, as treasure-hunts, however sophisticated. Not that they are, in some sense, necessarily more difficult; but we feel that they haven't been, somehow, pre-solved for us; there is no benevolent power which has marked out the relevant aspects of the situation, no solution which we could look up if we had supernatural powers, if we could, so to speak, read the mind of nature or mankind. They are tasks which require, as we say when we let ourselves go, intelligence—*whatever that is*, as we are prepared to hastily add if challenged to say what we mean.

It seems that we have reached tiringly familiar waters: intuition as a complement to logic, or *esprit de finesse* versus *esprit de géométrie*. Well, there may be something to this feeling, but the proposal is rather more specific. Recall the problem: by stipulation, a situation comprises the set of entities, relations, features, facts, which are knowable or graspable by the inquirer (equipped, of course, with background knowledge, memories, etc.). We cannot assume, on pain of circularity, a separate 'situation-sensor': we are precisely asking how the inquirer is able to focus on the potentially relevant features and facts, to give a structure to the situation by imposing a gradient of relevance on elements and relations; by what process the situation becomes a whole, with an identity of its own. We know that metaprinciples will not do it; and we will not settle for a miracle. It looks as if we are stuck.

But there is a way out. Our predicament is caused by a tacit assumption which is invariably made, and which I have pretended to take for granted up until now: the notion that there is a fact of the matter as to what the one correct context is, given the objective situation and the subjective orientation of the inquirer (the inquirer's beliefs and desires, and interests and preferences, say). I propose that we rid ourselves of this assumption: contexts don't *exist*, they are not out there to be discovered, in the way where the (first-order) objects of inquiry are.

Lost wallets, murderous butlers, causal agents of mad cow disease, authors of the *Odyssey*, electromagnetic fields, and even likely candidates in the presidential elections in Costa-Rica in the year 3001 have a kind of existence, regardless of one's stand on realism, scientific or otherwise. My contention is that contexts do not, any more than the beauty of a piece of art, or the elegance of a parting gesture, or the nobleness of a sacrifice. Context is not to be discovered, but appreciated and debated. Setting an inquiry in the proper context does not imply the identification of the context: it means getting about the job in a 'good', skilful, laudable, way; it means, in a word, proceeding intelligently. On this proposal, intelligence is a norm in its

own right, which cannot be eliminated or reduced to any other norm, let alone a natural law. Intelligence, in this particular construal, is not mastery of rational principles: it is a norm which allows us to compare and weigh applications of rational principles in singular cases.

This is, I suppose, context eliminativism with a vengeance: *context* is ruled out of the realm of existing entities. On the other hand the *context problem* is with us to stay: it is not an illusion, nor is is solvable by the discovery of a set of context-identification rules.

When rational inquirers set out to investigate a particular issue, all they have to go on are the facts at hand, their stored knowledge of general facts and special cases, and the rules of rationality, including heuristics. In the course of their work, they gradually stabilize on a subset of features and facts within the immense collection available to them in the circumstances. That set is the context in which they have, in fact (though not in a way which is completely deliberate or reasoned), defined the context of their investigation. In this limited sense, context has an objective existence, but it is relative to a single historically defined investigation, it does not pre-exist. Nor can it be literally reproduced or checked: the inquirer's supervisor might attempt to put himself in her shoes and carry out the investigation himself; whatever context he comes up with may or may not coincide or be close to the inquirer's, but context will not thereby gain an objective status as an ahistorical, transportable entity. The recognized superior skill of the supervisor may be a good reason to take his or her result as a model against which to judge the first inquirer. But this carries exactly the same weight as the fact that there are recognized experts in musical beauty, culinary taste, elegance and so on. No degree of consensus or authority yields matters of fact.

The upshot of this is to suggest a two-norm model of inquiry. The first norm enjoins the inquirer to make use of the principles of rationality, in the active sense of applying them only when they can be applied, and in the passive sense of respecting them no matter what. The second norm enjoins the inquirer to follow her better judgment whenever no rule comes to mind. Rationality and intelligence are the two norms of inquiry.

Finally, we are now in a position to understand a couple of features in the phenomenology of context. One is the seamlessness which we experience as we move from areas in which context is all but invisible and intelligence (as distinct from, say, combinatorial speed and freedom from error, or faultless memory retrieval etc.) plays no noticeable role, to areas in which context looms large and intelligence seems indispensable. Or, to put it another way, from modular processes to central processes. Together with this seamlessness goes a sense of continuity: all grades of mixes seem to be possibly experienced, with this much 'mindless' principle-churning and that much contextual-sensing intelligence. In fact, looking back, we realize that with the possible exception of borderline cases between cognition and perception, for example, there is always, in however vanishingly small amounts, some intelligence involved, and at the other end of the spectrum, some principle-churning. We also see why the same tasks can involve, according to the states of inquirers and the states of general knowledge at their disposal, varying proportions of churning and sensitivity. 'Mixes' and 'proportions' are manners of speech, of course: to repeat, there aren't two kinds of process or two kinds of resources, but two norms.

The other phenomenon which we can easily account for was mentioned earlier: in all but extreme cases, inquirers do not experience anguish—in the easily recognizable way in which moral agents, political actors, artists, scientists, and philosophers possibly, experience anguish. On the *Leibnizian conception, inquirers should regularly or perhaps even always, experience a sense of helplessness when faced with situations which they cannot handle on the sole basis of their repertoire of rational principles. The usual explanation is that they rely on their experience of similar cases: they do as they did before, or as they saw their masters do, making whatever adjustments, if any, seem to them required. My suggestion is that agents just go ahead, counting, as they tend to say, on their intelligence, however limited and regardless of their own opinion about it. They understand that there is no 'right' way to proceed, in the objective sense, only in the evaluative sense: and they accept the risk of scoring lower than others. Although they may wish they could do better, they are not in anguish. Of course, their decisions are caused by perfectly normal processes such as memory of precedents, recent experience, etc. The role of bodily habits, much stressed in recent publications, may well be crucial. However, the point here is to explain how the average inquirer can calmly cope with the insufficiency of rational principles, without believing in nonrational methods nor being a moral hero.

8. Conclusion

This paper has defended a mixed model of inquiry, which combines the traditional rationalist reliance on principles with a due consideration of the particularist conception. The proposed solution is based on an examination of the role of context in what is sometimes called 'situated cognition', the background assumption being that cognition is invariably situated. The consideration of the issue of context has guided us on a middle course between hyperrationalism and antirationalism. Cognitive science has provided encouragement, in the form of models of context-sensitive processes. It has also been silently hinting that the search for some distinct capacity or skill for context identification or processing, or again for some distinct general property of cognitive processes endowing them with sensitivity to context, may well be a goose-chase. The moral which cognitive scientists may in turn choose to draw is two-fold. On the negative side, attempts at 'solving', whether by ways of principles or architectural features, a general form of the context problem, have little chance of succeeding. On the positive side, in the search for areas in which context is tractable, treasure-hunt domains may be an alternative, or a complement, to the naturalistic central modules postulated by the massive modularity thesis.

References

Andler, Daniel, 1993. Is context a problem? Proceedings of the Aristotelian Society 93, 279–296.
Andler, Daniel, 2000a. The normativity of context. Philosophical Studies 100, 273–303.
Andler, Daniel, 2000b. Context and background. Dreyfus and cognitive science. In: Wrathall, M. (Ed.),
    Heidegger, Coping and Cognitive Science. MIT Press, Cambridge, MA, pp. 137–159.

Barwise, Jon, 1986. Information and circumstance. Notre Dame Journal of Formal Logic 27, 324–338.

Clark, Herbert H., 1997. Dogmas of understanding. Discourse Processes 23, 567–598.

Dreyfus, Hubert L., 1972. What computers Can't Do. New York: Harper and Row; revised edition 1979; third ed. What Computers Still Can't Do, MIT Press, Cambridge, MA, 1993.

Fodor, Jerry, 1983. The Modularity of Mind. MIT Press, Cambridge, MA.

Fodor, Jerry, 2000. The Mind Doesn't Work That Way. MIT Press, Cambridge, MA.

Grice, H. Paul, 1989. Studies in the ways of words. Harvard University Press, Cambridge, MA.

Hacking, Ian, 1975. The Emergence of Probability. Cambridge University Press, Cambridge.

Hale, Bob, 1999. Rule following, objectivity and meaning. In: Wright, C., Hale, B. (Eds.), A Companion to the Philosophy of Language. Blackwell, Oxford, pp. 369–396.

Hirschfeld, Lawrence A., Gelman, Susan A., Eds., 1994. Mapping the Mind: Domain Specificity in Cognition and Culture. New York: Cambridge University Press.

Hooker, B., Little, M.O. (Eds.), 2000. Moral particularism. Oxford: Clarendon Press.

Kant, Immanuel, 1981. Critique of Pure Reason (P. Guyer and P. Wood, trans.). Cambridge University Press, Cambridge.

Kaplan, David, 1989. Demonstratives. In: Almog, J., Perry, J., Wettstein, H. (Eds.), Themes from Kaplan. Oxford University Press, New York, pp. 481–563.

Kripke, Saul, 1982. Wittgenstein on Rules and Private Language. Blackwell, Oxford.

Little, Margaret O., 2001. Particularism and moral theory. Hastings Center Report 31 (4), 32–40.

O'Neill, Onora, 2001. Practical principles and practical judgment. Hastings Center Report 31 (4), 15–23.

Osherson, Daniel, Stob, Michael, Weinstein, Scott, 1986. Machines that learn. MIT Press, Cambridge, MA.

Perry, John, 1993. The Problem of the Essential Indexical and Other Essays. Oxford University Press, New York. second ed.

Searle, John R., 1992. The Rediscovery of Mind. MIT Press, Cambridge, MA.

Smolensky, Paul, 1986. Information processing in dynamical systems: Foundations of harmony theory. In: D. Rumelhart, J., McClelland and the PDP Resarch Group (Eds.), Parallel Distributed Processing: Explorations in the Microstructure of Cognition, Vol. 1, 194–281. Cambridge, MA: MIT Press.

Smolensky, Paul, 1988. The proper treatment of connectionism. Behavioral and Brain Sciences 11, 1–74.

Sperber, Dan, Wilson, Deirdre, 1986. Relevance: Communication and cognition. Blackwell, Oxford. second ed.

Sperber, Dan, 2000. Metarepresentations in an evolutionary perspective. In: Sperber, D. (Ed.), Metarepresentations: A Multidisciplinary Perspective. Oxford University Press, Oxford, pp. 117–137.

Travis, Charles, 1989. The Uses of Sense: Wittgenstein's Philosophy of Language. Clarendon/Oxford University Press, Oxford.

Waismann, Friedrich, 1945. Verifiability. Proceedings of the Aristotelian Society 19, 119–150. (reprinted In: A. Flew, ed., Logic and language, 122-151. Garden City, NJ: Anchor, 1965).

Wittgenstein, Ludwig, 1953. Philosophical investigations. Basil Blackwell, Oxford.

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