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─**Abstract** ─

Rational choice theory which remains the major paradigm in social sciences has been challenged several times. Homo economicus' rationality has been *limited*, then *divided* (into instrumental and axiological types) and finally *deconstructed* by cognitive psychology. Opening the black box of rationality, we wonder whether social sciences explanations can still refer to it.

After a presentation of the core of rationality and the difficulties it has been faced with, we propose to defend it through an instrumentalist approach that seems to be the only relevant one at cognitive sciences age. Deconstructing people reasons into inferences based on beliefs and desires, two different *levels* of explanation (rational and cognitive) can be distinguished. We show that rationalist explanations in social sciences need to be based on a multidisciplinary approach both cognitive psychological and social.

Key Words: *Rationality, Cognitive Psychology, Instrumentalism, Dispositions, Multilevel model, multidisciplinary approach*

JEL Classification: D 70, D 89, Z 00

1. INTRODUCTION

"Economists often criticize psychological research for its propensity to generate lists of errors and biases, and for its failure to offer a coherent alternative to the rational-agent model. This complaint is only partly justified: psychological theories of intuitive thinking cannot match the elegance and precision of formal normative models of belief and choice, but this is just another way of saying that rational models are psychologically unrealistic." (Kahneman,2003:1449)

1.1. Towards a single model of rationality and cognition

Our objective in this article is to precise the logical and epistemological conditions under which social sciences are allowed to lead rationalist explanations considering the results cognitive sciences have produced for decades. Brain and psychological studies highlight the weaknesses and flaws in human reasoning. Natural cognitive processes that have been discovered through laboratory experiments question both the common conception of rationality and the standard economic rationality. As a result we must wonder whether social scientists have to make a choice between on the one hand persevering in a way that met success in predicting and modelling economic situations but that sounds obviously wrong today as long as decision making theories remain blind to cognitive processes, and on the other hand focusing only on biases, heuristics, schemas, cognitive dissonance, emotions, and so on. We assume that such a dilemma is not grounded. Social scientists are not compelled to choose between those two strategies. Provided we change our conception of rationality, a third way is possible that integrates both rationalist explanations and cognitive processes (that means in this paper only *psychological* processes, not *neuronal* ones) in a single theory of decision making. After the first attempt by H. Simon in the 1950's (Simon,1955), the construction of such a model of bounded rationality has been achieved by a second generation of political scientists (Rosati,1995; Gouin, Harguindeguy,2007). Unfortunately, many of these models are clear and convincing lists of constraints and limits to rationality, but not "theoretical integrations" (Gouin, Harguindeguy,2007:376) of both rationalist and cognitivist explanations.

From the social sciences point of view, two issues are at stake in the rationality debates. The first one is a realist one, addressing the question of whether individuals are really rational or not. If they are, then explanations of social action must be based on a theory of rational choice. The second one is epistemological, questioning the relevance of rational explanations in general. Depending on the signification they give to rationality, social scientists propose many different answers.

1.2. Is cognitive-oriented rationality a theory of cognition or rationality ?

Our definition of rationality in this article is the result of a long story of historical debates about the relevance of the standard economic rationality on which the theory of rational choice is based. Focusing on predictions, economists build models that have to be quite simple about human behaviour. They need a universal decision-making process. Human mind cannot be a dependent variable in their models, no matter they deal with macro or micro levels, because too many dependent variables already have to be taken into account in order to make good predictions: unemployment rate, investment rate, growth rate, inflation, competitors' strategies, productivity, competitiveness, risks, etc. As Lupia, McCubbins and Popkin write: " the standard definition of rationality […] equates rational actors with omniscient calculators" (Lupia, McCubbins, Popkin,2000:8). To be this kind of calculator means to know the consequences of all our actions and then to choose the one that maximizes utility. Partisans of rational choice theory agree with this principle. But many political scientists refuse such an unrealistic theory of choice. The first one who forged a scientific grounded conception of rationality challenging the standard model was H. Simon.

In the 1950's H. Simon argued that human cognition was much more limited than the standard economic rationality claims. This "bounded rationality" is based on four principles that Jones clearly highlights (Jones,2003). First of all, rationality is *intended*, which means that " we look at the goal-oriented behaviours of people and investigate the manner in which their cognitive and emotional constitutions concomitantly promote and interfere with goal-oriented behaviours" (Jones,2003:397). Secondly, the principle of *adaptation* is based on the fact that most part of human behaviour is to deal with environment, but "the more time a decision maker spends on a problem, the more likely his or her understanding of the problem will approximate the actual task environment and the limitations of human cognitive architecture fades" (Jones,2003:398). Thirdly, Simon's principle of *uncertainty* goes much further than the calculus of probabilities and the "expected utility" theory. Uncertainty in bounded rationality is not just a question of risk and probability, but it posits that we must study cognitive factors of the risk perceptions too. Fourthly, the principle of *trade-offs* refers to the difficulties people face with when they have to make choices because of the multiple goals they have. Then *satisficing* (which is not a kind of maximization) implies for people to "set aspiration levels for the goals they wish to achieve. If a choice was good enough (that is, if it exceeded) for all goals, then it was chosen." (Jones,2003:399) Each of these principles is a critique to the fully rational choice model. Today Simon's bounded rationality has become both a theory of human behaviour for a few social scientists and a research program. In the 1950's cognitive science was just in its infancy and Simon had very few available knowledge to provide bounded rationality with a solid ground and thus to build a bridge between social and psychological sciences. Some political scientists today try to achieve Simon's goal: "the scientific advances of the last four decades give us an opportunity that Simon

didn't have when he forged the concept of bounded rationality – the opportunity to build Simon's bridge. […] we take the next step in building that bridge and toward offering more effective explanations of why people do what they do." (Lupia, McCubbins, Popkin,2000:12).

Bounded rationality is not only a theory that takes into account internal cognitive factors as limits to rational choice model. Behaviours we want to explain are not only produced by human psychology but also by organizational and institutional environments. People are situated, and contrary to the unrealistic omniscient calculator all information is not available to them. According to Simon, rationality is internally limited and externally situated. Nevertheless, in the limits of this articles, the contextual dimension of social behaviour cannot be taken into account.

Bounded rationality has become a big challenger for rational choice theory. However other critiques have emerged. When Weber forged the ideal-types of rational action, he distinguished between instrumental and axiological ones (Weber,1922). As a critique against both rational choice theory and Simon's bounded rationality, French sociologist R. Boudon argues that actions driven by values (which means irrespective of the consequences hey entail) are rational too (Boudon,1989). First of all, Boudon follows Simon in his defence of *subjective* rationality: decisions are said to be rational not because of their consistency with objective facts but because people have good reasons to draw these decisions as conclusions of a reasoning. Unlike objective rationality rational choice theory implies, subjective rationality asserts that people can have good reasons to give wrong answers to the questions asked. "Why are the reasons of the subjects perceived as good when their answers are wrong ? It is because they tried to answer the questions they were confronted with by making a *guess*, a *conjecture*, or by applying a *theory* or a general *principle* valid in many cases." (Boudon,1989:175). Thus rationality lies in the fact that people do inferences, do reasoning. This definition of subjective rationality allows Boudon to adopt a less restrictive conception of rationality than Simon's one, which was strictly instrumental. Actions may also be value-oriented. For example, drawing conclusions about how to behave from a moral principle is also having reasons too. Actually many cases in our everyday life cannot be explained by instrumental rationality, as Boudon illustrates through the fact that people in 2008 side with Antigone and against Creon in Sophocles' play (Boudon,2007:89). Such a behaviour cannot be goal-oriented, because there's no consequences for the audience. However people may easily give reasons for their choice.

As a consequence, through Simon's and Boudon's arguments, the standard economic rationality has been externally situated, internally limited and logically divided into instrumental and axiological types. Therefore in this article we define rationality in terms of reasons, assuming that "a rational choice is one that is based on reasons, irrespective of what these reasons may be. […] If our collective

scientific goal is to explain why people do what they do, then our task is to understand the reasons for the choices they make. Whether we agree with these reasons or not, whether these reasons make sense to us or not, and whether we use the term *rationality* to describe the process by which these reasons are formed or not is irrelevant." (Lupia, McCubbins, Popkin,2000:7-8) As we saw before, this definition would be perfectly acceptable for Boudon. However these two theories of subjective rationality that equally claim to be cognitive-oriented are actually in a deep opposition. For bounded rationality to be cognitive-oriented means that explanation must combine "the premise that people have reasons for what they do with the premise that our treatment of how people reason should be informed by modern scholarship about how cognition and affect affect information processing."(Lupia, McCubbins, Popkin,2000:12). But for Boudon the cognitive orientation of rationality is based on a *soft* definition of cognition (Gouin, Harguindeguy,2007:374), that refers only to reasoning and beliefs as commonsense psychology describes them. This cognition has nothing to do with the *hard* one, that refers to natural psychological processes. Hence Boudon's "cognitive sociology" (Boudon,2007:92) means that rational explanations should explain cognitive (that is to say intellectual) reasoning. Explaining what people think and believe is based only on the research of reasons they have to believe to what they believe to. Boudon refuses to explain choice by factors that are not reasons and he gives arguments for that rationalist position.

Because we defend an integration of rationalist and hard cognitivist explanations (but here only *psychological* processes) in a single theory, our aim in this article is first to refute objections against such a theoretical integration. Then we explain how to combine both explanations in a single model.

2. EITHER RATIONALITY OR HARD COGNITION, OR BOTH ?

Two kinds of arguments usually support assertions that rationalist and hard cognitive explanations are not compatible: ontological objections and logical ones. We assume that an instrumentalist epistemology, which is the only rational one to be adopted by social scientists, can legitimately avoid the dilemma about the existence of relevant factors. Then we argue that the logical objections against the dispositional nature of cognitive processes are not valid.

2.1. The ontological debates

The first ontological objection to the theoretical integration is given by realist rationalists and especially by Boudon (Boudon,2007:57-59). The core of multiple realist theories, as a philosophical principle, claim that there is a reality independent of our mind and that the role of science is to discover and to explain it. As a result the only relevant explanations, concepts and theories are those based on real objects and real processes. That's why Boudon accepts neural explanations of behaviour, like Damasio's ones: they refer to observable devices, whereas biases,

heuristics and other psychological explanations are based on conjectures. Nobody has never seen any of them. They are only inferred from the results they pretend to explain. These theories just provide us with circular explanations. According to Boudon, as far as social sciences are concerned, realism doesn't imply materialism. But we still can attest the reality of non observable objects (like reasons, desires, intentions and beliefs) because we can feel them. We consciously experience their existence and their causal power. On the contrary biases, heuristics and cognitive dissonance reduction for instance can neither be certified by people whose behaviour these cognitive processes are supposed to explain, nor be empirically observed. As a consequence, this kind of explanation must be abandoned.

The second objection based on an ontological argument is called eliminativism. This radical form of materialist reductionism aims at eliminating the commonsense psychology as a scientific explanation of human behaviour. It posits that "folk" psychology uses concepts and theories to refer to mental states that are incoherent and not scientifically grounded. Therefore two conclusions are to be drawn: the weak one says that cognitive sciences that ultimately give us a correct account of the workings of the human mind and brain must not refer to commonsense mental states anymore; the strong one suggests that beliefs, desires or intentions simply do not exist. Hence they have to be excluded from any scientific explanation.

There are many different realist or reductionist/eliminativist theories, some of them not concluding the same way. But the versions we discuss here are those directly connected to the question we address. These two objections to our theoretical integration of rationalist and hard cognitivist explanations in a single model share the same ontological realist principle. That is the tenet we reject, for three reasons. First of all, we are very fra from any consensus about the kind of ontology scientists have to share. What does exist is a problem that we may never agree on and that might never be solved. How to certify the reality of groups, categories, institutions or organizations ? Methodological individualism, which is one of the principles rationalist explanations are based on, posits that social reality is only made of individuals. Every collective actor, like classes, parties or nations are just the results of a conceptual aggregation of individuals. But as neuronal eliminativists claim, a radical materialist realism would object that the only relevant reality to explain human behaviour is neurons (or neurons networks). Debates about constructivism (Kukla,2000) and the so-called "social construction of reality" provide us with some more questions about social reality. Then, what are the criteria to attest the reality of an object ? Is it its observability (empiricism), the fact that we can mentally experience it (that might be a proof of God's existence !), the fact that actors think it's real, or the fact that scholars find it is ? As it is a philosophical debate implying philosophical assumptions, we think it is not a question scientists have to address first, before to build and to realise their

own research programs. Therefore it seems more rational to refute realist arguments.

This leads us the second objection to realists' argument. Historians of science show that scholars always built theories that contain non observable objects. According to realism, were they wrong ? Late nineteenth- and early twentieth-century debates over the reality of molecules and atoms polarized the scientific community on the realism question. Without any sensible evidence, should have these scientists better abandoned their research ? What about the quantum theory, that quickly ran into difficulties over the possibility of a realist interpretation ? What about positrons, quarks, antimatter and Higgs' boson today ? Should physicians stop the study of these non observable entities ? Are their theories not relevant, from a scientific point of view, because they are based on theoretical entities ?

What must absolutely be distinguished here are the causal power of objects in reality and the explanatory power of scientific entities (Jackson, Pettit,1988). In this issue, we side with instrumentalists. Science purpose is to explain and to predict. If a theory produces good predictions and convincing explanations, it doesn't matter whether it is based on theoretical and non observable entities or not. Nobody has never seen any centre of gravity, but it is a fantastic tool for successful predictions.

Then, in order to explain human behaviour, no matter cognitive psychology contains non observable entities or objects of which we cannot attest the reality, provided they permit us to make good predictions and explanations (that is to say more convincing than any other, irrespective of the attestability of the reality of explanatory processes). This is Dennett's position about representations, beliefs and mental states in general (Dennett, 1991). To him, explaining behaviour, either as a sociologist or a cognitivist, consists in making rational attributions of desires and beliefs ("the intentional stance") according to a few rules that he calls the "theory of intentional systems" (Dennett,1987). This intentional strategy thus entails that "it is not that we attribute (or should attribute) beliefs and desires only to things in which we find internal representations, but rather that, when we discover some object for which the intentional strategy works, we endeavor to interpret some of its internal states or processes as internal representations. What makes some internal feature of a thing a representation could only be its role in regulating the behavior of an intentional system." (Dennett,1987:74) Boudon agrees with such an "intentional stance", but as he defends a realist philosophy of science, he would not conclude to the idea of intentional systems. On the contrary, Dennett refuses to take part into ontological debates, then he logically infers the theory of intentional systems from the intentional stance.

We think Dennett is right. Unlike realists, we defend a thesis about social and psychological reality that is not ontological but epistemological, which is a form of

instrumentalism (Dennett,1991). As a result, we are not compelled to refute ontological arguments based on realism, we can just ignore and reject them.

The last argument against rationalists' ontological objection is what we would call its "boomerang effect". Asking cognitive processes for their reality, rationalists should first be sure that the concepts they use don't refer to chimeras, because if it is the case, realism would condemn them exactly as it condemns cognitive processes. Now considering the fact that realist rationalists cannot be materialist (because they would have to give material evidence of the reality of mental states, which is not possible), the only proof left to attest the reality of mental states is the subjective experience we make. We think it is far less sufficient to support their objection against psychological explanations. We can argue that subjective experience is not a reliable evidence, firstly because the only subjective experience we do is ours and thus attributing the same one to other people is an abusive induction. Secondly, it is sometimes very difficult to have a lucid idea or to express clearly our own subjective experience of reasoning and believing. It is sometimes impossible to say whether reasons are the results of reasoning or of *a posteriori* rationalization. As a consequence, subjective experience is not a rational way of attesting the general reality of reasons. This finally leads us to conclude that the objection rationalists launch against cognitive processes burrows its way back to undermine their own theory. Rationalism cannot be realist in any way. Either it accepts instrumentalism, or it destroys itself. In both cases, rationalists have no more ontological arguments against explanations based on unobservable cognitive processes.

2.2. The logical debates

Within an instrumentalist frame, both reasons and psychological explanations are safe from ontological objections. The last objection rationalists may oppose to cognitive psychologists deals with the logical form of many of their explanation. The idea is that some cognitive processes such as biases, heuristics, ways of reducing dissonance don't work as mechanistic devices but refer to dispositional explanations. Here appears clearly the instrumentalist epistemology of cognitive psychology, based on theoretical entities that have only an explanatory power, not a causal one. First of all, as E. Bourdieu brilliantly explains (Bourdieu,1998), a disposition is a propensity or a tendency to act or to think a certain way (it's not a deterministic explanation): "to attribute a disposition to a person means to assume a tension of this person to a possible behaviour that would amount to the actualisation of this disposition" (Bourdieu,1998:113). Then a disposition is adaptive and autonomous, that is to say it is not determined only by the conditions of its acquisition but actualises because of slightly different *stimuli* and may determine these stimuli on its own. Therefore many cognitive processes are dispositional explanations. For example, heuristics are parsimonious and effortless ways of problem solving and information processing. A heuristic provides a

simplifying routine instead of a deep understanding of the problem, and then may lead to approximate solutions or even fallacies and shortcomings. For example, representativeness heuristic posits that "whether an object or instance belongs to a particular category is often decided quickly on the basis of some crude assessment of the similarity between object and category, rather than a logically sound comparison of the object with all the defining features of the category. For instance, an unknown person who is characterized as aggressive and uninterested incomputer technology is more likely to be identified as a professional boxer than a teacher, although the given information is not particularly diagnostic and despite the fact that the base rate of teachers in the population is much higher than the base rate of professional boxers. Indeed, the relative insensitivity of human judges to statistical base-rate information is most often cited as evidence for the representativeness heuristic." (Fiedler, Schmid,1996:296). But people don't use heuristics all the time. They are dispositions, which means that different kinds of these cognitive processes actualise when certain stimuli occur. The actualisation of this disposition depends on many factors, as the internal mental state and the internal brain state, the form and the content of the stimuli, the anchorage level of this heuristics, and so on. The conclusion is that under certain conditions, this person will use a representativeness heuristic in his or her information processing.

Opponents of dispositional theories, namely Boudon, claim that dispositions produce tautological explanations. The point is that cognitive processes psychology refers to are non observable. What we can see is only results that are supposed to be their effects. But at the same time these results are the only proof of the existence of the explanatory disposition. So the argument is tautological. First we observe someone doing a wrong categorization and we explain it as a consequence of his using of a representativeness heuristic. Secondly we certify the existence of this person's propensity thanks to the case we have just observed and explained through this disposition.

Actually there's no vicious circle at all because the result we observe is not the only criteria to conclude to the use of a heuristic. Firstly, this disposition permitted good predictions in many experiments. So it seems to be a good scientific tool, which is the only relevant criterion for instrumentalism. No matter whether it "really" exists or not, it's a good explanation. Thus it is scientifically rational to explain this even unique result observed in a new case with this tool. Secondly, the dispositional logic always specifies the conditions under which the actualisation is possible and likely to occur. As a consequence, when we observe a result (the wrong categorisation), the dispositional explanation is relevant only if the conditions we observe are appropriate to the dispositional theory. The same result could not be explained by this disposition if the conditions were not those proper to the actualisation. This is also an argument to refute the classical objection of logical analyticity. According to it, the fragility of a glass cannot be the explanation

of the fact it broke when it felt down because this very fact is the definition of fragility. Here lies the so-called analyticity. But this is not a valid objection because the definition of the fragility specifies that a felt glass breaks only under certain conditions. Therefore as the relation between fragility and the breaking of the felt glass is contingent and not necessary, there's no analyticity. From a logical point of view the disposition (fragility) can be an explanation of the observed result (the breaking of the felt glass).

As a conclusion, we first demonstrated that provided we assume an instrumentalist epistemology rationalist explanations are safe from contradicting itself and from eliminativists' ontological objections, and cognitive processes are safe from realist arguments. Secondly the logical objections to the dispositional logic have been refuted. Now we have to specify how these two kinds of explanation both justified from an instrumentalist point of view can be combined in a single model of human behaviour.

3. A MULTILEVEL AND MULTIDISCIPLINARY ANALYSIS

3.1. Four rules: primary focus, compatibility, consistency, relevance

One of the reasons why social theorists still oppose about rationality is that they focus primarily on the explanatory factors more than on the kinds of objects they want to explain. Many of them don't realize that they unconsciously restrict the scope of their explanatory theory to certain kinds of objects that remain unfortunately implicit. As a consequence, compatible types of explanation, each equally justified and equally relevant to the kind of objects it has been constructed for, are still challenging each other. As we'll show, as soon as we focus primarily on the kinds of objects we have to explain, then we choose the type of explanation that sounds the more relevant and the more convincing. Doing so, we can eventually combine successful explanatory theories, and particularly rationalist theories and cognitive processes, depending on the kinds of object we study. Scientists who firmly defend ontological principles cannot easily follow such a strategy because when ontology is given first, it looks as if there was no more questions to ask about the kind of object. On the contrary, it is easy for instrumentalists to look first to it and then to choose the type of explanation that sounds the most relevant. The relevance of a theory or of a type of explanation is based on the success of its predictions and the level of conviction it arouses when it is compared to other theories or types of explanation.

Of course, this strategy entails that the theories among which we choose one in particular are compatible (so that the choice is at first based on the kind of object). Compatibility of two theories (for instance T_1 and T_2) refers to the fact that T_1 doesn't imply or entail any content or process that are contradictory to some contents or processes T_2 is based on, and *vice versa*. For example, in a coherent combination when T_1 implies that Mr X deliberated and consciously followed the

reasons he gave to himself before to act, the explanation of the same act by T_2 cannot imply or entail that Mr X was not aware of what he was doing (because he was entirely determined by internal or external forces) when he did what he did. Mr X couldn't be consciously deliberating and not consciously deliberating at the same time. The compatibility rule shows that instrumentalism has nothing to do with syncretism. Provided the theories are compatible, within a specific ontological frame there are very few chances that there are enough theories left in order that we still have any choice to make. But from an instrumentalist point of view, compatibility is necessary much wider. Hence a first criterion we have to apply to any theory is its logical consistency (which shows that instrumentalism doesn't involve relativism). The stake is not to know whether a theory is consistent or inconsistent (we assume that all theories taken into account are coherent), but to measure its internal strength: how solid and complete is its internal architecture? how strong is its explanatory logic (deductive, inductive, probabilistic, etc.)? Then the relevance criterion allows us to select the theory(ies) we intend to apply (or to combine) among all other coherent ones. Guided by these four rules (primary focus on the kinds of objects, compatibility, consistency and relevance) we have now to explain how to combine rationalist explanations and cognitive dispositions.

3.2. Social behaviours and the missing bridge

As combining reasons and hard cognition must at first address the question of the kind of the object to be explained, two main analytical categories will be distinguished here: social behaviour and mental behaviour. In this section we study the former one.

Social behaviour is what people do as material human beings living among other people in a world (whether real or fictive). Thus social behaviour is the fact rationalists refer to when they talk about actions and the same fact socialization theorists refer to when they talk about practices or actualisation of dispositions. The first lesson we can draw from the "primary focus" rule is that when it comes to social behaviour rationality debates won't oppose rationalist explanations and cognitive processes. The latter deal with what happens in people's minds, not with what people do. Even when the social behaviour is not a conscious action but a reflex or the actualisation of a disposition, we need a theory to bridge the gap between the information process and the movement. That's why P. Bourdieu for example, as a coherent theorist of socialization, constantly repeats that social dispositions are first inscribed in the body, not in the mind (Bourdieu,1997). If he had set social dispositions only inside the mind, he would have missed a theory to explain how these dispositions might have produced movements. In rationalist explanations the bridging function of this missing theory is played by consciousness and will (no matter these concepts refer to real devices or not – they permit good predictions, which is enough from an instrumentalist point of view). Because of the same missing bridge, hard (psychological) cognitive processes need

either consciousness or social dispositions to take part in the explanation of social behaviour. They need either a consciousness or a body, which means that if we want to integrate them as a part of the explanation of the whole human behaviour, we have to distinguish different analytical levels to account for it. In the whole explanation of human behaviour cognitive processes intervene at a higher level than rationalist and social dispositionalist theories, and cannot be direct and sufficient explanations of the social dimension of human behaviour.

Concerning the explanation of social behaviour, rationalist approach is thus opposed to socialization theories. Within an instrumentalist epistemological frame, both reasons and dispositions are acceptable, as we demonstrated before. The second step in the attempt to combine these theories (this is just for instance because our objective here is not to integrate rationalism and socialization theories into a single model) would be to measure their compatibility. Can we rationally explain what someone did by reasons and social dispositions at the same time? The final answer depends on two other ones: first, does one theory imply or entail elements contradictory to the other theory? If yes, combination is impossible; if no, do we accept multiple causes for a unique effect? If no, combination is impossible. In that case, we have to chose the type of explanation we suppose to be the best one. Consistency and relevance are then the rules to follow.

As far as rationalist explanations and social dispositions are concerned, we propound that the kind of object (actually the commonsense) be the first criterion once more. It seems to us that habits are generally better explained by dispositional explanations and deliberate actions by rationalist theories. There is no tautological risk in the qualification process of the behaviour as a habit or a deliberate action, because it is empirical research that must be the way to estimate whether the behaviour is closer to the ideal-type of habit or to the one of deliberate action. If the data research shows that the social behaviour has been frequently repeated (comparatively to the number of situations where the person is set under the same conditions), it seems more rational to rely on dispositional theories that are well built to explain this kind of recurrent social behaviour. On the contrary, we would not try to explain a behaviour about which the empirical research shows that the person prepared, explained and justified it in advance, by a social disposition to it. Rationalist explanations sound more suitable. Maybe this behaviour corresponds exactly to the actualisation of a social disposition, but it is difficult to imagine that when the behaviour occurred the person was not consciously and carefully following what he explicitly planned before. The basic idea of this argument is that when people are set under conditions that appear to them as the normal conditions under which they usually behave the same way, the probability that they reproduce the same social behaviour is high. However, as soon as they perceive conditions that are not the usual ones, they start to think and to process information in order to deliberate and adapt their behaviour to these new conditions. This may be one of

the most fundamental discoveries cognitive sciences made in the study of attention (Pashler,1997). This basic argument entails that empirical research must first specify the conditions the person usually perceives as normal, which must be based on information processing theories.

As a conclusion, cognitive processes cannot be the only explanations of social behaviour because they need either reasons (consciousness and will) or social dispositions to bridge the gap. Therefore in the cognition/rationality dilemma, when it comes to explain social behaviour, rationality is not only safe from the threat of hard cognition, but cognitive processes need rationality to explain social action. The theoretical integration of both explanations is necessarily based on a two-level model of human behaviour that distinguishes the social (what people do in the world) and the mental (what people do in their mind) dimensions of the behaviour. From a methodological point of view, cognitive processes play a role in the first step that consists in the determination of the conditions (circumstances and prerequisites) the person perceives as normal in/on which he or she usually adopts the behaviour we study. If there's no evidence of a deliberating process in a case of unique occurrence of the social behaviour, cognitive theories are helpful to establish whether the behaviour is not adopted in conditions that the person perceives and interprets as stimuli of a disposition that is usually actualised in *apparently* different conditions (from an observer's point of view). In fact, the person may unconsciously perceive a pattern inside the elements of the situation that was also present in the *apparently* very different learning conditions of the disposition. Cognitive processes provide social dispositions with a scientific ground (which is not essential to social dispositions as long as they permit good predictions) when they explain how and why a person interprets a situation the way he/she does and not differently.

3.3. Mental behaviours, consciousness and intention

Concerning the explanation of the second dimension of human behaviour, the mental one, cognitive processes and rationalist explanations seem to be in opposition. This dimensions includes all kinds of beliefs (opinions, social representations, certitudes, values, etc.), all kind of inferences (deductions, inductions, abductions, etc.) and information processing (perceiving, selecting, categorizing, memorizing, denying, spreading apart, etc.). When it comes to explain why people think what they think, cognitive processes are generally defined as unintentional and unconscious. The point is that we cannot choose not to undergo them. When they occur it is not because we consciously wanted to follow them as rules for inference or perception. Many cognitive processes imply by definition that they are unintentional. For instance, the reduction of cognitive dissonance that arises after a person did something which he/she finally disagrees with (or which he/she is not proud of) must be involuntary, because we cannot intentionally change our feelings or emotions about what we did, like by wishing

not be ashamed or in love anymore. Unfortunately it doesn't work. On the contrary reasons are supposed to be the results of conscious and intentional inferences. Obviously, most of the time when we think it is difficult to know exactly what we are conscious of. That's why rationalists like Boudon try not to tie cognitive rationality to consciousness, because if rationalist explanations necessary imply to be perfectly conscious of what we have in mind, they will refer to a very unrealistic human thought. Perfectly aware of this danger, we think, they specify that reasons may be conscious or sometimes "more or less conscious" (Boudon,2002:2,22). This weird state of semi-consciousness may be a simple conjuring trick to avoid the objection of a too unrealistic conception of mind and to stay safe from the objection of rationalization at the same time. But this slight shade involves big consequences. Cognitive rationalists prefer to stay closer to reality event if it entails dangers for the consistency of the theory (which a logical preference because realism is their big objection to other social theories). Indeed if the explanatory power of reasons in general is no more tied to the fact they are conscious, it must have its power in something else. As reasons make sense to people, if some of them are not conscious, then they must make sense after they have been produced, when people account for them. In these cases rationalists have no more arguments to avoid the objection of *a posteriori* rationalisation.

Once again this leads us the four-rules strategy. Cognitive processes and rationalist explanations are both justified from an instrumentalist point of view, but they are not compatible. Thus we have to choose one or the other to explain a mental behaviour. As we've just seen, cognitive processes are built to explain unconscious and unintentional mental behaviours, whereas cognitive rationality remains strong and consistent only when reasons are conscious. As a consequence, we should focus primarily on the kinds of objects we have to explain. Two ideal-types could effectively guide the empirical research: intuition an reasoning. As Kahneman writes: we can distinguish "two modes of thinking and deciding, which correspond roughly to the everyday concepts of reasoning and intuition. [..] Reasoning is done deliberately and effortfully, but intuitive thoughts seem to come spontaneously to mind, without conscious search or computation, and without effort."(Kahneman,2003:1450) Through an empirical research we then have to seek signs or evidence that the mental behaviour we study is closer to one or to the other type. According to the results, we choose the theory that is both the most consistent and the most relevant.

4. CONCLUSION

The theoretical integration of rationality and hard cognition can now be processed. We distinguished two analytical dimensions of human behaviour: the social and the mental ones. The explanation of a social behaviour is necessary based on rationalist theory (by definition this integration excludes social dispositions). It then consists in making explicit the reasons of deliberate action, which can be either goal-

oriented or value-oriented. Reasons are inferences that draw conclusion (the intended action) from premises including desires (goals and values) and beliefs (at least the belief that the intended behaviour will satisfy the desire). These elements, that are the explanatory factors at the first level, also belong to the second dimension of human behaviour. But at this higher level they become the mental objects that have to be explained. In order to understand why people do what they do we need to explain why they think what they think. Mental behaviour determines social behaviour(from a rationalist point of view which is our assumption here). At this higher level there are two opposite theories: cognitive rationality, which means that people have reasons to believe, to desire and to infer the way they do; cognitive psychology, that insists on unconscious and unintentional processes bounding rationality. Either we proceed on the rationalist way, or we switch to hard cognitive explanations. The theoretical integration of rationality and cognitive processes necessarily takes place in an instrumentalist epistemological frame and according to a methodological strategy that consists in four rules (primary focus on the kinds of objects, compatibility, consistency and relevance). The single model combining rationalist and hard cognitive explanations comprises two levels that refer to the two dimensions of human behaviour. Depending on the kinds of objects that are to be explained (which are closer either to the ideal-type of intuition or to the one of reasoning), if cognitive processes sound more relevant, the two-level architecture of the model allows to combine a rationalist explanation of the action (lower level) and a hard cognitive explanation of these reasons (higher level).

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