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ACCEPTANCE WITHOUT BELIEF

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Abstract: *We often use the same word “belief” to refer to two different cognitive attitudes. Both of them are dispositions to behave in the same way, but one of these dispositions is involuntary and context independent (and will continue to be called belief here), while the other one is voluntary and context dependent (and will be called acceptance). Belief, like perception, is the result of the automatic workings of our biological cognitive apparatus. Acceptance is the result of a decision, which can be guided by a variety of goals. Acceptance can be accompanied by belief, but need not, and very often is not. Acceptance, not belief, is the fundamental disposition in such varied fields as therapy, the law and science. And acceptance, not belief, is the proper object of a theory of rationality.*

Key-words: *acceptance; belief; rationality; epistemology; decision.*

1. CARTESIAN AND HUMEAN ACCOUNTS OF BELIEF

When someone believes that p , he (or she) has a tendency to behave as if p . If you tell me that you believe that p , but I observe that you behave as if *not* p , I have a good reason for doubting the sincerity of your assertion. Many attributions of belief are inferred from the observation of behavior. Of course, the inference can be wrong.

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In the case of a clear, conscious belief that p , something else – beyond the tendency to behave as if p – seems to be involved. What else? There are two main accounts of belief in the history of philosophy, exemplified by Descartes and Hume.

According to René Descartes, in order to believe (or to disbelieve, or to doubt) a proposition, besides considering or entertaining it, we have to execute an act of the will, we have to make a choice, a judgment, a mental act that we are free to perform or not. In general, we are free to believe whatever we choose to believe. Descartes only admits one exception: the case in which we are confronted with propositions so clear and distinct and indubitable (like the proposition that we are thinking, and hence exist), that we cannot choose to doubt or disbelieve them, once considered. I am not interested here in those exceptional cases of certainty, but in the normal type of belief. In the context of action we usually choose to believe things we are not certain of, i.e., we behave as if we were certain of them (even if we aren't)¹. In this normal case, everything can be accepted or rejected, believed or disbelieved, in an act of the will. The judgment is a voluntary act: “assuring, denying, doubting are different varieties of willing”². Because of that, the mistake is a sin, the result of a bad decision. And because we can believe whatever we want to believe, it makes sense to look for a method or procedure or strategy that instructs us on what to believe, in order to guarantee the truth of our beliefs.

According to David Hume, on the contrary, believing or doubting a proposition are involuntary mental states, feelings or emotions we can take notice of, but which we cannot decide upon. All we can do is

¹ René Descartes: *Les Principes de la Philosophie*. Principe 3.

² “... assurer, nier, douter, sont des façons différentes de vouloir”. René Descartes: *Les Principes de la Philosophie*. Principe 32.

observe them, and study how and under which circumstances they arise. If we have burned our hand by touching the fire, we cannot help believing that fire burns. We can't choose to believe or to doubt something. We can only find ourselves believing or doubting it. Because of that, Hume had no interest whatsoever in methods, procedures or exhortations to believe this rather than that, as if it were in our hand to choose. Given our present circumstances, we just find ourselves believing certain things and not others.

This belief is the necessary result of placing the mind in such circumstances. It is an operation of the soul ... as unavoidable as to feel passion of love, when we receive benefits; or hatred, when we meet with injuries. All these operations are a species of natural instincts, which no reasoning or process of the thought and understanding is able either to produce or to prevent³.

Some authors have tried to combine both accounts. So Henry Price⁴ analyzed belief into a volitive element analogous to choice or decision, and an emotional element, a sentiment of confidence. I myself also tried earlier to combine both threads. More recently however I became convinced that both accounts (the Cartesian and the Humean) are accounts of different things, which should not be combined or mixed up, but clearly differentiated. Other philosophers, like Keith Lehrer, Jonathan Cohen and Michael Bratman, have come to similar conclusions.

Let's reserve the name *belief* for the Humean belief, and let's call *acceptance* the Cartesian variety.

³David Hume: *An Inquiry Concerning Human Understanding*, section V, part I, paragraph 38.

⁴H.H. Price, "Some considerations about belief". *Proceedings of the Aristotelian Society*, vol. 35 (1934-35).

Both belief and acceptance can be considered either as discrete, binary matters (you believe or do not believe that p) or as questions of probability and degree. Most of what I have to say here is invariant with respect to this distinction. For the sake of simplicity of expression, I will use the binary idiom.

2. FINDING ONESELF HAVING VS. CREATING A DISPOSITION

Acceptance that p and belief that p are similar in being dispositions to behave in a certain way, as if p , including (in the case of humans) the verbal behavior of answering that p , if asked. These dispositions are displayed in open behavior when the occasion arises, but of course can be repressed when one has the intention to deceive others about one's beliefs and acceptances. In those rare cases one conceals one's own dispositions and acts like an actor on the stage, according to a scheme of pretense. In those cases one can behave as if p , even if one believes or accepts that *not- p* .

Acceptance and belief differ in the voluntary character of the acceptance, which contrasts with the involuntary character of belief. As spelled out by Michael Bratman, "belief is not normally subject to direct voluntary control. We do not normally just choose our beliefs, [...whereas acceptance] can be subject to our direct voluntary control"⁵.

The belief is a disposition I find myself having, a product of my automatic biological cognitive mechanism. The acceptance is a disposition I create by a voluntary decision. Some things are voluntary, for example raising my arm. It is enough that I decide to raise my hand for my hand to go up. If you offer me one thousand dollars for raising

⁵Michael Bratman, "Practical reasoning and acceptance in a context", *Mind*, vol. 101 (1992), p. 1-15.

my arm, then I decide (for economic reasons) to raise my hand, and my hand goes up. But I cannot decide what to see or to hear. Of course, I can decide to move my head in a certain direction, and to open or close my eye-lids, but what I see at a certain time by looking in that direction with open eyes does not depend on my decisions. Neither can I decide what to believe. I can try to cajole myself into believing something that I do not believe by exposing myself to circumstances that increase the probability of acquiring those beliefs, by deciding, for example, to read certain books or to have certain experiences. Still, the outcome of that maneuver is not under our control. I can no more choose what to believe than I can what to see or to feel. But I can decide what to accept. I can easily accept something I do not believe. Often we just accept some hypothesis for expedience, without really believing them. We do not have (or are not ready to spend) the resources of time, energy, attention or money necessary for checking them. Acceptance is then a form of risk-taking without any definite probability evaluation. In the extreme cases of certainty the risk taken can be zero.

3. UNCONSCIOUS AND EXPLICIT PROCESSING OF INFORMATION

The difference between acceptance and belief (like the one between wanting and deciding) is a special case of a general difference between the unconscious processing of information which is going on all the time in our brain, and the conscious, explicit, linguistically articulated, decision-driven processing of information. Sometimes both types of process overlap, but generally they do not. As stressed by Jonathan Cohen, acceptance is tied to some form of linguistic formulation (which needs not be uttered aloud) in a way that belief is not. That is the reason

why, though animals and pre-linguistic infants can be credited with beliefs, they cannot be credited with acceptances⁶.

When you play tennis or – say – ball against a wall, your brain is implicitly estimating distances, angles and durations, and is unconsciously computing where your hand has to be in order to catch the ball in the next second. You don't know how, but you find yourself putting your hand in the right place at the right moment. You could achieve the same result if you measured the distances and angles with appropriate instruments, and consciously applied the theorems of Euclidean geometry and Newtonian mechanics, and explicitly calculated the position in which the ball would be in one second from now, and decided to put your hand there. Of course, it would be extremely difficult to perform all this explicit measuring and calculating in the short real time available. So it is better after all to rely on the unconscious mechanisms of space-time coordination which we have inherited from our mammal ancestors.

You find yourself longing for something, for example, craving for shrimps with white wine, but you decide not to have any, as your doctor has warned you of the threat they would pose to your present frail health. The craving is a state resulting from the unconscious processing of information by your brain, your decision to abstain is the result of a conscious, explicit process.

Think of love. You find yourself in love, you fall in love. Love is nothing you decide upon. Love is the result of unconscious brain mechanisms you neither know nor control. Dating, sharing the same apartment or marriage, on the contrary, are things you decide upon. You can choose whether to date, to marry or to share your apartment, but

⁶Cohen (1994), p. 12.

you cannot choose whether to fall in love or to be in love. Believing is like being in love, acceptance is like dating or marriage.

4. CONTEXT-DEPENDANCE OF ACCEPTANCE

Besides the question of voluntary control, another important difference between acceptance and belief is that belief is context independent or context invariant, whereas acceptance is context dependent. The difference persists even if we restrict our attention to reasonable belief, somehow more akin to rational acceptance. According to Bratman, “reasonable belief is, in an important way, context independent, ... [whereas] what one accepts ... can reasonably vary across contexts”⁷.

So the notion of acceptance here considered is not the same as the context independent one proposed by Bas van Fraassen⁸ and criticized by Paul Horwich⁹. Van Fraassen defines acceptance of a theory as belief in all its observable consequences (whether ever observed or not), accompanied by commitment to the corresponding research program. He is right in his analysis of commitment, but excessive (I think) in his insistence in belief in all observable consequences across all contexts. Many scientific commitments are context dependent, and many acceptances take into account the empirical difficulties of the accepted theories (for lack of better ones).

⁷ Michael Bratman, “Practical reasoning and acceptance in a context”, *Mind*, vol. 101 (1992), p. 1-15.

⁸ Van Fraassen (1980), p. 12.

⁹ Horwich, Paul, 1991. “On the nature and norms of theoretical commitment”. *Philosophy of Science*, 58, pp. 1-14.

Intellectual commitment is a especial case of acceptance, it is acceptance for (at least partially) epistemic reasons. According to Richard Foley,

committing yourself to the truth of a proposition and merely acting as if it were true do have much in common, especially in the ways they contrast with belief. For example, they are both context dependent in a way in which belief is not. When you commit yourself to a proposition, as when you are acting merely as if it were true, you are ordinarily prepared to do so only in a limited range of situations. ... Genuine belief, by contrast, is not like this. You don't believe a hypothesis relative to a context. You either believe it or you don't. As a result, belief is neither necessary nor sufficient for commitment¹⁰.

You believe what you believe, whatever the risks. But you can decide to accept a hypothesis only in certain contexts or under certain circumstances, and you often do. You can be more careful in your acceptances, for example, when higher risks are involved.

5. EVIDENTIAL CHARACTER OF REASONABLE BELIEF

Another difference usually indicated is, in the words of Bratman (1992), that “reasonable belief is shaped primarily by evidence for what is believed and concern for the truth of what is believed, [... whereas acceptance] can be influenced by practical considerations that are not themselves evidence for the truth of what is accepted”.

Foley emphasizes that only evidential reasons are relevant for belief, but non-evidential ones can also be relevant for intellectual commitment. Considerations of simplicity, computability, easiness of use, fruitfulness and promise are very important for accepting a hypothesis or theory rather than another by scientists with limited

¹⁰Foley, Richard, 1991. “Rationality, belief and commitment”. *Synthese*, vol. 89, pp. 365-392.

resources of time, energy, money and intellectual capacity. But more on that later.

Our belief system forms the default cognitive background of our practical deliberations, as well in science and technology as in ordinary life. This system often has to be adjusted for making decisions and guiding actions in a certain context. Different adjustments may be needed in different contexts.

The scope of our beliefs is often too narrow for the task at hand, and has to be supplemented with hypothesis accepted for the occasion. In that case one adjusts the default cognitive background by positing that p and taking p for granted in one's deliberations in that context, even though one does not believe that p . That is a case of acceptance without belief. Sometimes we bracket and ignore some belief we actually have in our deliberations in that context. It remains in the cognitive background, but it is not taken into consideration. That is a case of belief without acceptance.

You can accept that p in a certain context (and perhaps not in others) for a wide variety of reasons: for good epistemic reasons, evidential or computational; for prudence and safety, accepting too high or too low estimates, because of the risks involved; or even for social advancement (you accept the ideas which are likely to foster your career, given the circumstances).

You can consider some of your beliefs and accept them, endorse them. In those cases your acceptance or endorsement just comes to reinforce a disposition that was already present before, as a product of your automatic belief forming mechanism. It is relatively unusual to submit a belief to explicit consideration. Most beliefs are never explicitly considered or endorsed. When we drive a car, we are unconsciously processing lots of beliefs we have never considered, but which we have formed as a result of previous experiences and actual perceptions.

In some of the rare cases when we consider and examine one of our beliefs, we can decide to reject that belief, not to accept it. But the consciously rejected belief needs not disappear. You have been brought up in the belief that the number 13 is an omen of bad luck. Confronted to the overwhelming evidence against such a belief, you reject it, you accept that the number 13 is just a number like any one else in this respect. Still your behavior (avoidance of tickets or rooms with the number 13) shows that you continue to believe that 13 should better be avoided.

I can accept the contradictory of what I believe for testing what I believe. If, believing that p , I accept that *not* p , and I obtain much predictive success, the probability increases that my belief mechanism will switch from believing that p to believing that *not* p . When performing indirect proofs (by *reductio ad absurdum*) in mathematics we accept the contradictory of what we believe (and try to prove) as a matter of routine.

6. CASES IN TECHNOLOGY, ECONOMICS AND RELIGION

The engineer in charge of the construction of a new bridge does not know how many cars or trucks are going to cross the future bridge. Even though he lacks any precise beliefs or convictions about that number, he still has to decide on the amount and the strength of the materials to be used in the construction. In order to play sure and to avoid possible catastrophes, the engineer accepts an unrealistically high hypothesis about how many cars and how heavily loaded trucks are going to cross the bridge. The financial manager of the planned toll bridge operation doesn't have any firmer convictions concerning future traffic than the engineer. But in order to play sure and to avoid embarking into a ruinous business venture, the financial manager accepts

an unrealistically low hypothesis on future traffic. If, even on that low hypothesis, the operation is profitable, he gives the go ahead for the construction. And the engineer orders materials resistant enough that even with unexpectedly heavy traffic the bridge will not collapse. Of course the engineer and the financial manager can be the same person. This person will accept very different hypotheses in those different contexts (the engineering and the financial one), due to the risk asymmetry involved.

I do not know how long I am going to live. I could die tomorrow, or I could live to become a centenarian. I don't have any definite beliefs on this matter. Nevertheless a life insurance is offered to me. If I pay a certain monthly fee till I am 70, I am going to receive a fixed monthly payment from then until my death. In order for me to subscribe or reject the offered insurance, I have to make some calculations, and for these I need to accept some hypothesis. I accept (in this context) that I am going to live 80 years, and I make my calculations on the convenience of the insurance on that basis. Of course, I still do not believe that I am going to die precisely at 80 (not earlier or later). I cannot even estimate the probability that I am going to die at 80. (I could estimate the probability that an average citizen of my country dies at 80, but my own biological destiny needs not coincide with that average).

Some planned *Festschriften* never make it to the printing press. I am asked to write a contribution to a *Festschrift* in honor of an admired colleague. I am skeptical whether it is going to be published. I do not hold any firm belief on that. I am even unable to estimate the probability that it will be published. On the other hand, I would never choose to waste my time writing a contribution I know is never going to be published. So, I accept (even if I do not quite believe it) that the *Festschrift* is going to be published after all, and I start writing my contribution.

It is possible that you have some religious beliefs, that you believe, for example, in angels and devils, or in eternal bliss and damnation. You have been brought up like that, you have internalized those tenets, you are a religious believer. You can also happen to be a nonbeliever who, nevertheless, accepts religion for social convenience, in order not to disappoint your parents, for nationalistic reasons (your religion is the perceived core of your nationality), for Pascalian reasons of weighing the risks and benefits of embracing religion or remaining atheistic, etc.

You cannot believe (but you can accept) what you cannot understand. The so-called mystery of the Holy Trinity (that God is one and three simultaneously) can be accepted (and is accepted by most Christian theologians), but not believed. You can only pay lip-service to it. The bishops at the Nicaean Council were not asked to believe it, but to accept it. No one at the Council really understood or believed the Trinitarian dogma, but Emperor Constantinus (who lacked any theological background) just accepted it (in order to put an end to the disputes on the matter, which were disrupting the Church), and everyone else had to do so, or else flee the Roman Empire. Most medieval theologians thought that religious faith is born by an act of the will, so that the lack of faith is a sin of the will. That type of description would fit acceptance more than belief. Others thought that faith was a free gift of God, independent of the will of the person, in whose case it would be a case of belief.

7. CURATIVE POWERS OF BELIEF

Several well controlled experiments¹¹ show that placebos often have the same curative effects as real pharmaceutical drugs, on condition only that the patient believes that the placebo is the real drug. What

¹¹See, for example, Ornstein and Sobel (1987), chapter 4.

cures is the belief. Mere acceptance will not do. If you know you have been given the placebo, but decide to act as if it were the real drug and accept that it is, nevertheless this acceptance will not cure you.

The same thing happens with religious faith in the miraculous curative powers of certain holy places or holy rivers. Very often real believers affected by certain kinds of illness are really cured when they visit such holy places or bathe in such holy waters. But if you, who are skeptical of miraculous powers, nevertheless decide to join the pilgrimage of the faithful and accept everything they believe, just to see whether it works, *you* will not be cured. So in the dynamics of psychosomatic interactions beliefs seem to play a different role than acceptances.

8. ACCEPTANCE WITHOUT BELIEF IN THE COURT OF LAW

A criminal trial in a court of law culminates in the verdict or decision by the jury or the judge to accept the innocence or the guilt of the defendant. The prescribed legal procedures for the trial do not regulate the beliefs of the judges or juries, but their decisions, their verdicts; not what they think or believe, but what they accept, and thereby what they commit the legal system to. Rational legal procedures tend to regulate acceptance (not belief) of innocence and guilt in such a way that, in the long run, first of all, most innocent defendants are cleared and set free, and secondly, most criminals are convicted.

It often happens that the jury or the judges believe the defendant is guilty, are convinced the defendant is guilty, have a gut feeling the defendant is guilty, even know the defendant is guilty, but, because of lack of legally admissible proofs, they cannot accept the guilt of the defendant and have to deliver a verdict of not guilty. Not all pieces of evidence are admissible under law. Wire-tapped phone recordings,

opened private letters and certain types of videotapes are not legally admissible under some circumstances. If made public, they can convince the judges, but the judges cannot accept the guilt of the defendant on the basis of them. Often police arrest mob bosses well known for their crimes, but they must be released for lack of admissible evidence. For the police and the legal system it is often more difficult to convict the criminals than to catch them. Everyone believes they are guilty, but no one can accept it in the court of law, because of procedural limitations and restraints. These procedures are rational if in the long run they lead to just results, but concrete results need not be.

9. ACCEPTANCE WITHOUT BELIEF IN SCIENCE

Truth and precision are not the only aims of science; computability and easiness of use of a theory are also important aims. Computability problems arise even in the application of good and *prima facie* deterministic theories (like Newtonian mechanics) to simple situations, like the three body problem. The theories we accept for application are the result of a trade-off between these possibly conflicting aims.

In real scientific practice scientists have to make do with extremely limited resources of time, money, skill, intelligence, capacity of concentration and attention. In many real-life situations a computable lie that is not too far off the mark is preferable to an incomputable truth. Often we need a solution in short real time. Easiness of computation is then more important than accuracy. We need results or solutions or predictions with a certain degree of accuracy. It is rational to use the simplest or handiest theory to obtain them, even if we do not believe the theory and there are not good enough evidential reasons to believe it.

The student of physics learns a variety of conceptual tools or theories, and acquires (through problem solving) an explicit knowledge or at least an intuitive feeling as to what theories are adequate to which problems. A well trained physicist would not try to apply general relativity to particle physics, or quantum mechanics to galaxy dynamics, or any of them to airplane or spaceship design and navigation.

Mathematicians often are convinced of a presumed mathematical fact they think they can “see”: they are sure of it, they believe it, but they cannot accept it until they find an adequate proof. The rules of the mathematical game regulate when you accept something (when you prove it), not when you believe it. Believing something without being able to prove it is a frequent and frustrating experience in mathematics.

Of course the surface of the Earth is not at all a sphere. Just look at all those buildings, mountains and cars around. But we accept that it is a sphere (or a spheroid) in order to compute distances, areas, angles of directions and the like. To live up to our reasonable belief that it is *not* a sphere or spheroid would plunge us into unsurmountable computational difficulties. The geometry for dealing with such a complex form as the exact surface of the Earth just does not exist.

Let’s look to a less elementary case. In cosmology, general relativity is taken to describe the underlying structure of spacetime. But in most cases of general-relativistic spacetime the equations of general relativity are wildly unmanageable. We are unable to solve them. The only cases where solutions are forthcoming and computations are relatively easy are the spacetimes with Friedmann-Robertson-Walker metric, which correspond to perfectly homogeneous and isotropic universes. In order to be able to compute in our cosmological models, we accept that the universe is perfectly homogenous and isotropic, that it has Friedmann-Robertson-Walker metric. Every cosmologist accepts it. But everyone knows it is not true, and no one believes it. We accept that

the universe is a perfect fluid (where the galaxies are the particles) with perfectly homogeneous and isotropic distribution against all evidence, which rather points towards a non-homogeneous foam-like structure, with great walls of densely packed galaxies, separated by huge voids.

In order to build advanced models of the early universe like the inflationary universe models, we need to presuppose some one of a variety of highly speculative particle physics theories (a grand unified theory of the electroweak and the strong forces, like SU_5 , or a supersymmetry theory or a superstring theory), which are uncheckable by empirical means now and in the foreseeable future. So, when Alan Guth proposed the first inflationary universe model in 1981, he accepted SU_5 . But no one really believes any of those theories. You accept one of them in order to be able to work in your model. As is well known, the last partially checkable and generally accepted theory in particle physics is the standard model: Weinberg-Salam electroweak theory + quantum chromodynamics. And even for this model the checks have been only partial: no Higgs particles have yet been found.

The same scientist can accept different and incompatible theories at different times or in different applications, explore them, devise experiments based on them, invest time and effort in their development, just to see how far they will take us. Physicists like Feynman, Salam, Glashow, Witten and many others have accepted and pursued and worked on a variety of different and incompatible theories, often simultaneously.

Whereas philosophers and theologians appear to possess an emotional attachment to their theories and ideas which requires them to believe them, scientists tend to regard their ideas differently. They are interested in formulating many logically consistent possibilities, leaving any judgment regarding their truth to observation. Scientists feel no qualms about suggesting different but mutually exclusive explanations for the same phenomenon (Barrow & Tipler (1986), p. 15).

A cosmological model, an econometric theory, a generative grammar, and the existence of inaccessible cardinal numbers are not the sort of thing one can really believe. Our believing mechanism did not evolve for that. Even the notion of truth becomes an awkward category to work with in these contexts. These complex theoretical devices are rather the type of thing you can accept in theoretical science, the type of program able to guide your research, the type of idea you can commit yourself to explore seriously and to devote time and energy to.

Our cognitive apparatus responsible for the formation of our beliefs is generally reliable. Usually our beliefs are correct or true. Perception is a continuous source of generally reliable beliefs. Intuitions about everyday situations very often point in the right direction. But all this cognitive apparatus evolved to cope with mesoscopic situations at slow velocities, not to deal with the subatomic realm or the universe at large. In quantum mechanics and in cosmology and in many other domains of science we cannot rely on beliefs or intuitions, and even the notion of truth does not seem to make much sense.

Most cosmologists discuss their models and theories in terms of acceptance and working, not in terms of truth and belief. Instead of quoting from private conversations, I will just quote some answers collected by Alan Brightman and Roberta Brawer¹². For example, Fred Hoyle, the main proponent of the steady state theory, comments: “I never had any faith [in the steady state theory]. ... I don’t really work in terms of belief. I didn’t go beyond saying that the steady state theory is a *possibility*”. And Roger Penrose: “If you are asking for my preferences

¹²Lightman, Alan and Roberta Brawer, 1990. *Origins*. Cambridge (Mass.): Harvard University Press. The quotes are found in the pages 57 (Hoyle), 224-227 (Peebles), 369-373 (Geller), 388 (Huchra), 420 (Penrose) and 446 (Schramm).

now, ... I'd prefer the open models. So I think I would put my money on the $k = -1$ models. Not much money”.

Notice the weak acceptance of the now fashionable inflationary universe model by James Peebles:

I could see how beautifully the inflation model solved what seemed to me to be the essential puzzle – how did the universe get to be homogeneous. ... I was glad to adopt the inflationary picture as a good possibility. I was not – and still am not – convinced that it *has* to be the way the universe started, but I certainly had to agree that it was a wonderfully elegant idea and so certainly should be pushed harder. ... I've been very excited with this concept [inflation]. I'm willing to pay attention to its predictions, but I don't feel bound to those predictions. And I certainly am a little skeptical that those predictions are even *right*.

Still you always need some model in order to be able to work. In words of Margaret Geller: “You *have* to have a theoretical model. You can't do science without a prejudice. ... So far the success of the hot big bang model is remarkable. It really is remarkable how it's withstood the test of time and how much of a guide it has provided. ... I think it is difficult in this field [cosmology] to really have the courage of your convictions. You have to have a sense of humor about it because the likelihood of ever being right is so low”. David Schramm is still more emphatic: “I'm pretty sure that everything we're working with right now is *not* the way it happens”. And John Huchra concludes: “Well, there are things you can accept, and there are things that you cannot accept. Then there are things that you *must* accept until you have more information one way or another. ... It is exceedingly important that I not get too married to any particular theory. I can be married to the data, but I can't be married to the theory”.

10. PRAISE AND BLAME

No one is free to choose his or her Humean beliefs. And we cannot praise or blame someone for something which is not under his or her control. I cannot praise or blame you for your species (for being a human rather than an elephant), or for your sex or your age, or for finding yourself in the middle of winter, or for seeing so many stars in the nightly sky. We cannot and should not be praised or blamed for what we believe, for what we find ourselves believing, except in an indirect way. If there is no choice in our beliefs, then neither can there be norms about them. There are no normative questions about belief, but there are about acceptance. Still, beliefs can be evaluated by an outside observer. Some beliefs are unreasonable, in the sense of being most implausible from the point of view of a well informed observer.

You can try to cajole yourself into changing your own beliefs. You can, for example, entertain and accept for a while the contrary thesis, and let the possible success of your new acceptance have an effect on your beliefs. It can also happen that the failure of your tentatively accepted thesis only cements your good old belief, which perhaps was not so unreasonable after all.

Acceptance or commitment can eventually lead to belief, like dating or sharing an apartment can lead to love. Of course sharing an apartment can also lead to the contrary of love, like the failure of acceptance can cement disbelief.

I cannot directly control my beliefs or my pains, but I can try to influence them by indirect means. If I am in pain, I cannot decide not to be in pain (being in pain is not a matter of decision), but I can decide to take an aspirin, or to have a massage, or whatever, in order to relieve my pain. I cannot be blamed directly for my headaches, but only, eventually, for my prior decisions, for example, for drinking too much alcohol the

night before, or for my lack of posterior decisions, for example, for not trying hard enough to get rid of the headache, for not searching for aspirins or massages diligently enough.

I cannot decide on the strength of my muscles, but I can choose whether to engage in gymnastics. According to Aristotle, “while no one blames those who are ugly by nature, we blame those who are so owing to want of exercise and care”¹³. We cannot choose the beauty of our body, but we can try to improve it through some program of physical exercise. We can be praised for engaging in gymnastics, but cannot be directly blamed for our ugliness. If gymnastics does not help, it is not our fault.

I cannot be praised or blamed for my beliefs, but I can for not submitting them to closer scrutiny, or for not feeding my brain, so to speak, with more inducements to change my belief system. Our system of beliefs depends on unconscious and uncontrollable mechanisms, but we can try to manipulate those mechanisms, to influence our beliefs, for example by reading certain books, by making certain observations, by paying attention to certain facts. And for those efforts we can be praised or blamed, but not for the results.

If we are consistently rational in our acceptances and decisions and intellectual commitments, this policy will in the long run have an effect in shaping a reasonable system of beliefs. For the rationality or irrationality of our acceptances we can be praised or blamed. For the reasonableness or otherwise of our beliefs we can only be congratulated or pitied.

¹³Aristotle, *Nicomachean Ethics*, book III, 1114a23. Translation by W.D. Ross, revised by J.O. Urmson.

11. RATIONALITY OF ACCEPTANCES

In order for questions of rationality to arise, two conditions have to be fulfilled: (1) there must be a variety of alternatives among which to choose or to decide, and (2) the agent has to have preferences or goals. In a purely deterministic situation, with no options open but one, there is nothing to deliberate rationally about. If you are falling from the upper floor of a skyscraper, you have no rationality problems. But if you are not indifferent to questions of time and money, and you intend to fly from Boston to Barcelona, and there are different routes available, and each route takes a different time to fly and a different price to pay, then you have a rationality problem.

Acceptance of a proposition, hypothesis or theory depends on me. I can be blamed or praised for it. I can try to do a good job in deciding which propositions to accept. It is the task of theoretical rationality to help me with this job. Rationality is a goal-directed strategy for decision making. Accepting a type of deciding, it is deciding what what to incorporate into the framework of our explicit intellectual commitments.

If rationality concerns our decisions, but not our involuntary states, and if we decide what to accept, but just find ourselves in certain states of belief, it follows that a theory of rationality has nothing to say about what we believe, but much to say about what to accept. Rationality (as an optimizing strategy) tells me what to accept, not what to believe. Of course, and as already remarked, what we accept can indirectly contribute to fashion what we believe, and what we believe can indirectly contribute to fashion what we accept. But we can subject only our acceptances – which are explicit, linguistically articulated and voluntary –, not our beliefs, to the discipline of an equally explicit, linguistically articulated and voluntary method of rationality in a straightforward way,

How far away can our acceptances depart from our beliefs? Can I accept what I actually disbelieve? We saw that we can accept the proposition p , even if we believe that *not* p , for technical reasons: for testing our beliefs, for conducting indirect proofs, for greater safety in face of grave risks, etc. I can accept a numerical value r , without believing that the actual value (even the most precise measurable value) is exactly r . I can accept a bad map of the city I visit, because there is no better one available, and because it still affords some orientation. I can accept a model I do not believe in, if it leads to good enough answers. What I cannot do (if I behave rationally) is delude myself just for psychological comfort. Cases of bad faith (like not accepting the health or economic problems I know I have, or not admitting that smoking increases the probability of lung cancer, if I am a smoker) can only lead to making the wrong practical decisions.

The study of belief, like the study of perception, falls under the subject matter of empirical psychology; it tells us how and what, as a matter of fact, we actually believe or perceive. The theory of rationality is a goal-directed and goal-relative normative theory of decisions. It tells us what to decide, given the circumstances and our goals. When we accept that p , we make the decision to behave as if p and to use p as a premise in our arguments. This decision can be rational or irrational, given our goals. If we want to make good investment decisions in the stock exchange or good theoretical decisions in the scientific enterprise, we'd better care about the rationality of our methods and strategies.

Truth, precision, computability, simplicity, consistency with the rest of the already accepted intellectual framework are some of the important goals that we pursue in accepting some ideas rather than others. Theoretical rationality is the strategy for optimizing our attainment of these goals or of some trade-off among them.

I do not know whether I really *believe* in the distinction I have tried to establish here between *acceptance* and *belief*. In any case I *accept* the distinction, at least for the time being, and I am ready to carry out and explore its implications. I am committed to give this idea a try. It seems promising to me. I am ready to behave as if acceptances and beliefs were different things. If my aim is conceptual clarification, I think this is the rational thing for me to do.

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