The ancient theory of mind

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Abstract

Happiness and suffering are both the result of two factors combined: the situation in which one is placed and our consciousness of it. Happiness is not only of personal importance, it is also a necessary factor for ensuring peace in society. Therefore it is important to know the two possible ways for the pursuit of happiness: applied science, which focuses on how situations can be controlled, and spirituality, which focuses on developing the various types of consciousness one can have.

1. The Human Condition

Everyone in this world is subject to the following similar conditions. Needing food and shelter and not to forget love, we are placed in a nature which is often difficult to cope with and in a society which often contains hostile elements. On the other hand, in places in the world where there is relative affluence and peace, one may be confronted with boredom and lack of purpose. Nevertheless, in whichever place and position one finds oneself, we and our close ones are ephemeral, we have a finite life, whereas in our daily preoccupations we usually act as if everything will go on forever. This situation surely does require contemplation.

2. Science

Science is directed toward insight into the functioning of the world. Armed with this insight, we obtain to some extent the power to control situations. The success of science helps us to solve some of our existential problems, notably those concerning food and shelter. We may be tempted to think that science can solve all our problems. But controlling a situation has its limits: scientifically, ethically, financially, politically and ecologically. Indeed, something may be impossible, against our better conscience, too expensive, not permissible or detrimental to the environment. This implies that in our lives spirituality from the religions plays an important role. Those who do not agree, think that happiness can be bought, that society is 'make-able' and that death is a medical failure. These of course are misconceptions.

Although science is limited in its capacity to control circumstances, it is not something to be looked down upon. On the contrary, science is one of the most impressive human enterprises which is based on curiosity, inspiration, persistence, craftsmanship and clear thinking. Moreover, it is the product of a tradition maintained over the course of millennia, one which is open-minded and open to criticism. Indeed, narrow-minded and authoritarian views held in science eventually extinguish themselves.

Reductionism and Holism

One essential element found in the methodology of science has often been criticised. In its attempt to understand reality, science makes a model of a certain part of the world, in which the phenomena usually are described in terms of simpler ones. Using this model, observations of the simpler phenomena enable the scientist to make precise predictions about the more complex ones. This is the reductionist method. It has been criticised by claims such as "The total is more than the sum of its parts". This statement is not correct, however. One should have said: "The properties of the total are not the sum of the properties of its parts". Sodium and chlorine are both poisonous; their chemical compound, table salt, is—in limited quantity—an essential nutrient. Therefore, although table salt consists of the constituents sodium and chlorine, its properties are totally new. This in its turn can be understood by a further reductionist step by looking at the subatomic structure of these elements with their layers of electrons.

Reductionism has also been criticised because it is felt that too little attention is paid to the total situation. This part of the criticism is sometimes justified indeed: reductionism can be used in a way that is too narrow-minded. By combining reductionism with holism a more panoramic view may be obtained. For instance towards understanding the structure of a piece of music, it is simply not enough to know the frequencies of the sound waves involved. One needs to consider also other levels, such as the form of the composition.

Determinism and Free Will

Another topic that is relevant to discuss here is *free will*. Do we in fact have free will, since our actions seem to be determined by our neurons and other cells and molecules? Let us not try to bring in quantum physics as the saviour of human dignity: it would put the tossing of dice as the foundation for our behaviour, not very dignified indeed. I support the claim that even if we imagine that determinism is true (this is neither certain nor impossible), then this is still consistent with the possibility that we do have a free will. The reason is simple. Determinism means that the future is determined by the present state of the universe; free will means that the future depends on us. Since we are part of the universe, we partly determine the future. It follows that *homo sapiens* is responsible for his or her actions and that our thoughts do matter.

The following example may be useful. Imagine a chess computer, a cheap one that always uses the same strategy. If we are playing a game against this computer and win, then we can always win simply by repeating our successful moves. It is clear that this machine is deterministic and does not have a free will. Now imagine we play against a more expensive chess computer, one that learns from its mistakes. After winning a game using a certain sequence of moves, we cannot win again with our previously employed strategy. The machine will remember that it is not good to repeat the same moves. We could say that this second machine has a rudimentary form of a free will: it reacts differently under similar circumstances. But since the machine has been programmed, its behaviour is deterministic. Thus, determinism and free will are compatible.

In this view our choices are determined, but this does not release us from having responsibilities. On the contrary, the only way to be responsible is to make decisions based on a mixture of—among other things—feeling, thinking and conscience. That the outcome of the decision may be fixed *a priori* does not matter: the only way to arrive at our conclusions is to live and to go through the decision procedure.

Mind and Matter

Now we have arrived at an aspect of the scientific model in its present form which is perhaps problematic. Some call it the materialist vision of science. Actually it is not true that science only deals with matter; it also refers to forces and other concepts. However, the open problem is whether our consciousness can be explained by the concepts of present-day science. Some claim that an explanation has already been given: our consciousness equals the neurophysiological processes that occur in our brain. The opposite view is one which believes that the mind is essentially different from matter or anything else described by physics. The first view is unsatisfactory. If a computer would be able to simulate our brain processes, would it then suddenly become conscious? The second opposite view is also unsatisfactory: it leaves the question of how mind and matter interact unanswered. This is all concerned with the 'hard consciousness problem'. We will not enter this complex field of philosophy of mind but instead conclude this section with the observation that there seems to be an essential 'explanatory gap'. This yawning gap appears between consciousness as we experience it and as we describe it in neurophysiological and cognitive models.

3. Spirituality

Religion in its appropriate form aims at helping us in existential matters. By cultivating an inner peace of mind, it can provide an optimistic outlook on life, in spite of its inevitable termination. The ways in which religions furnish these forms of mental support can be classified by placing them in at least three categories: 1. faith and belief, 2. revelation and experience, and 3. purification. These three forms may appear simultaneously in some of the traditions. We will describe the first two in this section and the latter one in the following section.

Faith and Belief

A religious tradition based on faith often holds that there is an Absolute being or power that sets the example of how to behave. Moreover, after behaving well during one's mortal lifetime, one is rewarded after death and given eternal bliss. We see that metaphysical and ethical aspects are clearly present.

There is a difference between a religion based on faith and one based on belief. Believing in some metaphysical assumptions implies that one's view is based on them. Having faith in these assumptions implies the same but in addition one considers these as truths. To make this terminology more clear, consider the following example. Before 1800 Euclidean geometry was based on faith. One had a small collection of axioms and these were considered to be valid in the universe. In the nineteenth century the rise of non-Euclidean geometry caused a shift. It was no longer possible to speak of the absolute truth of Euclidean geometry, since there were alternative theories that were later affirmed by relativity theory. Nevertheless, Euclidean geometry remained consistent and provided a formidable deductive power. From that period on it became, in our terminology, a belief. A religion based on belief may not necessarily be true, but it does give a psychological hold. In the Catholic tradition, both faith and belief in this sense have been described as possible forms of worship in this religion (*fides quae* versus *fides qua*).

Revelation and Experience

There are mental experiences that contain a high degree of rapture and bliss. Moreover they are on the border of being and non-being. During such an experience one has a different state of consciousness and our daily state of mind is seen from outside (as a remembrance). One is beyond fear and desire. These 'altered' states are a form of sublime consciousness and are described in the writings of the mystics. Often these experiences are given a metaphysical interpretation and are described as being in contact with the Absolute. Other interpretations are also possible. In any case, they do affect our daily lives. After going to sleep in such a state, the night is clear, undisturbed and without dreaming. Waking up the next morning there is no transition phase for becoming 'sharp': complex mental tasks, like doing mathematics, are possible right away.

The difference between the meaning of the words 'revelation' and 'experience' can be found in the following explanation. If sublime consciousness is seen as a sign of the Absolute, then one calls it 'revelation'; in other cases it is referred to as 'experience'.

Experiencing sublime consciousness is temporary (and often lasts only a few moments). Several traditions (such as classical Buddhism) and individuals (such as St. John of the Cross) advise not to indulge in these experiences: one may become attached to them. Nevertheless these altered states of consciousness are impressive. They make it clear that mental states beyond fear and greed are possible. One does not just believe this: one knows. It is a strong drive towards fostering one's spiritual development.

4. The Path of Purification

Purification is present in many religious traditions. The living tradition of classical Buddhism with its insight meditation is most explicit and systematic about the mental development toward purification, see for example [Nyanaponika Thera 1976] or [Goldstein & Kornfield 2001]. Therefore, the words from this tradition will be used. The principal way in which purification helps us to deal with the human condition is to temper our attachment to fear and greed. This results in taking away the cause of existential crises (fear of death) and the conditions for war (greed and/or fear).

The path toward purification consists of developing the mental faculty of *mindfulness*: non-interfering attention to the phenomena occurring in our consciousness. This is practiced during sitting and walking exercises, both focused on detached attention. One may, for example, observe: "there is irritation", "there is desire" or "there is angriness", when such emotions do arise, in all cases taking a distance from it. One does not focus on the cause of the emotion, but on the 'texture' of it. If we apply this method in the right way and with proper effort and concentration, then we may get insight in the functioning of the mental phenomena, in particular the coming and going of various forms of suffering. If we have the courage to see these phenomena clearly and with patience, we can develop the mental quality of equanimity. By surrendering[1] in this situation it may happen that the process of suffering gets detached from us. A systematic mental de-

[1] This means developing a view of oneself which no longer has the idea of a constant-being ego, which performs and exists in the world. Instead, one sees oneself as a changing cluster of components stemming from the groups: (sensory) input, feeling, cognition, output and consciousness; there is nobody possessing these phenomena.

velopment may even detach us from all possible forms of suffering. This means that phenomena like fear and greed can be coped with, become less potent and eventually, they will cease exerting their influence. This then is the state of pure consciousness.

Sometimes the mental state of equanimity is misunderstood; one sees it as a kind of indifference. This is an understandable, but nevertheless incorrect interpretation. The quality of equanimity is such that in this state one is able to have compassion toward a fellow being that suffers. Furthermore, one is able to have the opposite; shared joy with someone that has pleasure. With indifference no such mental qualities will arise. Still, it may sound unbelievable and appear as almost a kind of *hubris* to claim that a mortal can reach a state of perfection such as pure consciousness. In most religious traditions, one may become more and more a good person, but perfection is seen as a state occurring at 'point infinity', that one never can attain in this life. The solution for this apparent paradox is that pure consciousness is a matter of eliminating mental impurities one by one. It is not a point found at infinity but at zero: all disturbances have been removed.

Another effect resulting from the development of pure attention is that we may obtain a different appreciation of time. Perhaps, we recollect that as a child, while we were visiting our relatives out of town, our grandparents for example, a day seemed to feel as if it were a year. Now, being grown-up, a year is often felt more like a day. This is a serious depreciation. It means that the expected duration of the rest of our life is only a few days (at most 20-60). If we could reverse the situation and feel again as a child, then we might still live many years or even centuries.

Although spirituality based on purification is also experiential, it is different from spirituality based on "Revelation and experience" as we discussed above. First of all, the experience is not seen as having been caused by something from the outside, but by something from within. Secondly, the method is not directed towards an experience of something new, but towards eliminating disturbing factors. Nevertheless, in the training of purification it may happen that states like bliss and rapture appear to the practitioner, similar to the ones occurring in the mystics. Even if they are recognised as a form of sublime consciousness, in classical Buddhism one is discouraged to remain with these experiences: "It is a waste of time!" a good teacher of insight meditation will say. The reason is that rapture and bliss depend on conditions. Therefore, these phenomena are conditioned temporary states and after a while one falls back to our daily state of mind. Purification on the other hand is unconditioned, having been caused by the elimination of disturbance factors, and therefore ensuring an ever-lasting quality. Ethical rules are not obeyed out of duty, but out of virtue.

5. Feedback to Science

One important aspect of the ancient theory of mind is that consciousness is not explained away. On the contrary, the tradition takes consciousness as a primitive notion, and makes it a point of departure. The theory is based on empirical observations during mental purification, something that is only possible in a trained mind. This means that the methodology used is both related to that of the empirical sciences (being based on observations) and that of mathematics (being based on personal but inter-subjective insight).

The theory comes close to some of the findings in modern psychology, neuro- and cognitive science. For example, just after reaching pure consciousness one monk exclaimed: "Now I understand: my ears cannot hear and my eyes cannot see!" Indeed, the ear for example is only a kind of microphone and in order to hear much more is necessary.

The traditional theory of mind also gives hints that may be valuable to those conducting research in these modern fields of science. By pointing out the various components of the mind and describing their fluctuating character, the phenomena that are currently called 'mental dissociations' obtain a natural place in the ancient theory. Since it is obvious that the mind consists of several modules, dissociation is also from a contemporary theoretical point of view quite natural. The actual work of 'domesticating' the fluctuating mind in the tradition of insight meditation emphasises the powerful negative energy that usually accompanies it.

Based on the practice of insight meditation, in [Barendregt 1996] the rôle of feeling is described as covering up the clear view of our fluctuating mental components. From this and the previously mentioned negative energetic effect of this flux, we can better understand our attachment to feelings. They are there to 'protect' us, by hiding something we do not want to see: the non-substantiality of the ego. This attachment has to be sustained by some mechanism which is able to produce effects whose durations are on a different time-scale than those pertaining to thoughts. For more than a decade in neuroscience growing evidence has accumulated that in addition to communication between two neural endings (synapses) there is another form of communication in which a neuron releases transmitters that are received at a distance. At these target sites the local neural activity is modified as a consequence. This process, called volume transmission (see e.g. [Agnati *et al.* 2000]), may be related to this mechanism of feeling. If so, it gives an attractive explanation of the relatively long duration of our emotions. Indeed, the effect of a transmitter at the specialised location of a synapse is terminated by re-uptake. In a wide range broadcast this active recycling is not present and hence the effect is much longer lasting—as we know from our daily experience with emotions.

The use of detached attention and insight in the path of purification hints at the possibility of overcoming mental vicious circles by the utilisation of extra neural resources. Several forms of psychotherapy have been based on this. For example Kabat-Zinn, Price, Schwartz and Segal *et al.* use the development of mindfulness to treat a range of mental aspects of diseases such as chronic pain, depression and obsessive-compulsive disorders (see references). When mental aspects of diseases are successfully treated, physical improvements often occur as well.

6. Variations on an Ancient Theme

In this final section four short descriptions of the path of purification will be given: respectively for psychologists, neurophysiologists, logicians and meditators. The language used in the first three variations is—as opposed to the tradition—not phenomenological, but phrased in more common scientific terms. The fourth description is phenomenological and is actually the ancient theme of which the first three are variations.

For Psychologists

By using a systematic trained detachment it is possible to become free of known and unconscious conditionings that effect a person's mental balance. Psychological security cannot be obtained by holding on to something, because the 'object' or our perception of it is impermanent. True freedom from insecurity arises when no object whatsoever is held. The training consists of a systematic development of continued non-interfering attention to all phenomena in consciousness, together with calmness, equanimity and bliss. In order to be able to do this, the mind should be purified by insight into the vicious circles of the body-mind system (the so-called *mind-objects*). Then by surrendering the purification may become permanent. The main bottleneck is 'to become ready' for this. Indeed, letting go is usually coupled with the phenomenon of fear, since humans have the urge to be always in control. Another difficulty to be overcome is one caused by the tendency to be sidetracked by euphoric experiences.

For Neurophysiologists

Sitting meditation causes suffering, usually in the form of pain. By the mindful walking exercises extra resources of attentional neuro-circuitry are developed. If this attention is directed to something neutral, like breathing, the suffering during sitting is not present in the mind. However, any unconscious mental process (like daydreaming) will result in an increased experience of pain. By the resulting state of alarm and the developed attention the circuits of the non-perceived mental activity will become marked. In this way pain acts like a smoke detector and one learns to avoid the unconscious mental activity. An important auxiliary process consists of concentration with its analgesic effect. In this way the suffering of the deconditioning becomes bearable. Concentration by itself has no purifying effect, however. Since the deconditioning of a human is comparable to using a new operating system in a computer, it is clear that the transition has to take place in a special way. The work cannot be done fully under one's control. It has to rely on a small fundamental mechanism that at this stage has become automatic: discipline. Nevertheless one needs a conscious effort to reach the state in which the transition can happen.

For logicians

The essence of mindfulness is attention with detachment. This detachment may be compared to going to a 'meta-level'. Consider the following notions from language semantics. There are objects in reality and names in language.
In line 1 of Fig. 1 under 'Reality' we see (the picture of) a girl; under 'Language' we read her name. In line 2 we see that the name of the girl also occurs in reality; and that the name in quotes is the name of the name. One can state: "Maria is a nice girl" and "The name 'Maria' consists of five letters."

	Reality	Language
1	(:-)|-<	Maria
2	Maria	'Maria'

Figure 1: Objects and names in language.

This phenomenon may be compared to the act of mindfulness. The mind is always capturing an object (for example our breathing). This is shown in line 1 of Fig. 2, where under 'Object' a process is described that is observed by consciousness, in this case the physical raising and falling of the abdomen. Under 'Mind' the inner awareness of the object is denoted. This awareness of the object in our consciousness can be 'recollected' (this is the literal meaning of *sati*, the ancient Pali[2] word for 'mindfulness'). In that sense the mental event becomes an object for the mind and its awareness is mindfulness, see line 2 of Fig. 2.

	Object	Mind
1	breathing	mental event
2	mental event	mindfulness

Figure 2: Objects and mental representation.

Using mindfulness one works, in computer science terms, with the *code* of consciousness rather than with its *executable*. Therefore one is detached without loosing any information. In this way one can react in an equanimous way to phenomena that are 'as if' desire or 'as if' fear. This form of *reflection* is pure consciousness.

[2] The language in which the ancient theory of mind is written.

For Meditators

"*Thou dwellers of the great monastery: work with confidence, understanding, effort, concentration and above all mindfulness. At first restrain your senses and stay with their input as much as possible. Make a mental note if your consciousness is pulled elsewhere. This eventually will set you free and your sensory restraint has served its purpose. Be aware of two pitfalls. Too much concentration may give apparent freedom; but you will fall back. Secondly, it is not you who can finish the work. Start with your desire to be unconditioned. At some point you will see that it reaches nowhere. Then let discipline take over and surrender with attention. Do not expect anything and the work will be over soon: bliss of Nibbana*[3] *becomes permanently accessible. In this life, you may use it for the benefit of all living beings.*"

Postscript

We have discussed ways in which the quality of our life is enhanced by the two great traditions: science and religion. On the other hand it cannot be denied that both institutions also have had the opposite effect. Indeed, science has been misused by creating weapons for aggressive war; and religion has been misused by creating some of the preconditions which such a war. This is very unfortunate. But actually this is neither the fault of science nor of religion. It is the fault of people that use on the one hand the power of science and on the other hand the institutions of religion. In both cases the underlying causes can be linked to greed, fear and ignorance.

The human race thinks of itself as having no more major natural enemies, which are defined as species posing a threat to our existence. This, however, is only partially true. I do not mean the threat of micro-organisms and viruses. A larger problem remains. Humans often face other humans as serious enemies, both within a group and between groups. Here the notion of group can be defined in various ways: nations, races or even practitioners of a particular profession or religion.

In our view the essence of the great religious traditions is only slightly different. Based on faith, revelation and purification they are directed toward peace of mind in order to live in a harmonious world. Of course there will be some subtle differences between particular lineages in each of these three classes. But the common ground of these traditions is fairly uniform. The relative distance between the essence of the great religious traditions is in sharp contrast to the distance between life with spirituality and life with, say, aggression. That this aggression is sometimes committed in the name of some religions is unfortunate. That science and technology are misused to help the expression of this aggression

[3] Pali for Nirvana, the state of pure consciousness.

is also unfortunate.

If we want to continue living on this rich and unique planet, we will have to do this in harmony. This puts the leaders of all the great religious traditions in a particularly responsible position. For them it would be a sign of wisdom, if they would be able to inspire their followers to see the positive in the different religious approaches and also if they would start to discourage overpopulation[4]. This open attitude may very well give them more respect both from within and outside their group. Another particularly responsible group are all those that make use of the fruits of science. I refer to the scientists themselves, but also to employees and leaders of industry, to politicians and to consumers. This group of people, i.e. everyone, and their children, grandchildren and so on, will experience continual enjoyment in what they do, provided it is done with respect for their fellow human beings, for life and for the earth.

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[4]In order to decrease the world population one does not need to employ the policy of allowing one child per couple. If people start having children after the age of thirty, then this will also create a dramatic reduction.

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