

Abhidhamma Notes

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Abstract

The most ancient texts of (Theravada) Buddhism, the Pali Canon, consist of the three ‘baskets’, the *Tripitaka*: these are the *Vinaya*, the *Suttas* and the *Abhidhamma*. The *Vinaya* deals with the rules how to live as monk and how these rules came to be. The *Suttas* consists of longer and shorter sermons of Buddha and other material. The *Abhidhamma*, the most profound part covering about 5000 pages, is concerned with psychology. Inspired by lectures on the *Abhidhamma* given by Ven. U. Nandamala Sayadaw (Centre of Buddhist Study, Sagaing Hills, Myanmar) this paper is written. It is an attempt to convey the Buddhist model of consciousness in a personal modern style, thereby forming a snapshot of the author’s present understanding and non-understanding. Extensive use is made of Bodhi [1993], the modern version of a classical *Abhidhamma* commentary *Anuruddha* [Medieval]. This paper could not have been written without the vipassana experience obtained under guidance of the most Ven. M.T. Mettavihari (Buddhavihara, Amsterdam, The Netherlands). I thank Rutty Bessoudo for assistance making codes for the *cetas* and *cetasikas* based on their Pali names and Samaneri Agganyani for stimulating discussions on the subject.

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1. Buddhist Psychology

In the fifth century B.C. crownprince Gautama Sakyamuni was living a luxurious life in a small kingdom in Northern India. His parents had been careful not to show him the suffering side of life. But when he was already 29 years old, for the first time in his life, he encountered the existence of poverty, old age, sickness and death. Gautama became completely upset by this, notably the fact that even he as future king had no control over ageing and dying. He left his family and court in order to engage in religious practises towards answering the question whether life is worthwhile even if there comes an unavoidable end to it. Monks with apparently a serene mind had attracted him to do this.

His first meditation teachers instructed him to reach mystical states in which one is beyond pain and pleasure but nevertheless with an exalted state of mind. Gautama thought he had found the solution to the existential problem. Stopping with the meditation practice, however, made him loose the exalted state. For this reason he was not satisfied with the practice leading to mystical states giving only ‘temporary happiness’. Gautama left his teachers and continued his quest, first with others, later alone. Eventually, at age 35, he reached an insight in the nature of mind that solved the existential problem. From then on he was called the Buddha, the enlightened one, and taught what he had discovered for the remaining 45 years of his life.

Part of Buddha’s teaching was practical, aimed directly at reaching the fundamental insight. During the course of ages this resulted in the Vinaya, rules for trainees how to reach this. The method is intended for monks but has been modified for lay people. Another part of the teaching consisted of the Sutras, consisting in the collection of sermons about the fundamental insight and its consequences. The final part of Buddha’s teaching consisted in the Abhidhamma, the deeper psychological theory. Although written up a few centuries after Buddha, it is considered as coming directly from him.

Buddhist psychology, as coded in the Abhidhamma, has as starting point the insight that we do not really want things, but we want mental states. We want the experience of satisfaction. Therefore the subject is interested in an understanding of the ‘laws of (dis)satisfaction’. Knowing these provides an approach to diminishing suffering: changing our desires. This is possible, while still having an open eye for life. This ‘applied Buddhist psychology’ uses systematic mental development by means of meditation.

The Abhidhamma is a remarkable psychological theory. It consists of 7 volumes with in total more than 2500 pages. Its main thesis is similar to the fundamental thesis of physics. The 20-th century physicist Richard Feynman stated that the main fact of physics is that all things around us consist of numberless atoms, discrete particles that build up our apparently continuous world. From the laws how atoms interact with each other one then can deduce how there are solid, liquid and gaseous forms of matter; how atoms can be combined in attached groups so that materials are obtained with properties different from their constituents; how atoms may be split into elementary particles, giving rise to fundamental forces in nature. The Abhidhamma states that consciousness, in spite of its continuous appearance, is also composed of

numberless ‘mental atoms’, called *cetas*. Such a ceta is not located in space, like the atoms described in physics, but in time. The theory also describes ways how cetas interact and form ‘mental molecules’. Finally there are ‘mental elementary particles’ *cetasikas* being part of the cetas¹. Given this comparison between physics and the Abhidhamma it should not come as a surprise that the work contains many tables that can be compared to the periodic system of elements, melting and cooking points of the elements and compound matter and charts of interacting elementary particles. Because of the resulting complexity and abstractness the Abhidhamma is usually studied via commentaries and subcommentaries, i.e. commentaries on commentaries.

The Abhidhamma psychology is not only of interest for those that are interested in reaching enlightenment and their teachers. It is also highly relevant for ‘ordinary’ psychology, psychotherapy and the theory of mind. We have presented the theory not literary but in a personal modern style. Hereby I tried to be faithful to what is—in my partial understanding—the original. In a few cases the theory is somewhat extended or modified. It will be indicated when this is the case. This paper is based on inspiring lectures by Ven. U. Nandamala Sayadaw on the Abhidhamma and Bodhi [1993], a modern rendering of the classic commentary Anuruddha [Medieval]. Essential for this writing was personal experience with vipassana meditation under skilful guidance of the most Ven. M.T. Mettavihari, see Barendregt [1988] and [1996] for a personal description.

2. Trained Phenomenology

Living our lives we are concerned with situations and our reactions to these. Often we want to have something, but we do not have it. Conversely we may not want to have something, but do have it. Finally we may become uptight by trying to keep things that we have, even if these form a burden. These three tendencies, technically called *desire*, *hatred* and *ignorance*, form the cause of suffering.

Science provides insight in the way objects behave depending on a context. Using this insight we may manipulate situations in order to get or avoid something. This possibility is provided by technology, applied science. If it is cold we can use a heater and if it is hot an airconditioner. Although proper care should be taken to use technology in a responsible way, it has great possibilities to improve our living conditions. On the other hand there are limitations to the degree in which things can be manipulated: financial, political, moral, ecological or scientific. Indeed, something may be too expensive, not allowed, unethical, polluting or simply impossible. Human desire to control situations is large. The extreme case is present in ruthless dictators, that ignore the financial, political, moral and ecological limitations. But finally they will face that also they cannot do the impossible.

¹More precisely, the cetasikas form a fixed set of accompanying factors of the cetas. Each ceta comes with a subset of the cetasikas, varying in qualities and number. As the word ‘ceta’ is also used to denote this agglomeration, one can say that the cetasikas are part of it.

Notwithstanding the importance of applied science for the relief of suffering, the Buddhist method has a different applicability. Given enough effort and patience, it is possible to deal with suffering caused by the limitations of control mentioned above. It enables us in an optimistic way to accept life, in spite of its transiency. But Buddhist psychology has more to offer: an understanding of the human mind including its conditioning. If this insight is reached not just intellectually, but also by direct intuitive inner vision, then the result is a greater personal freedom in one's actions and thinking.

The method of Buddhist psychology is that of introspection using meditation. One may justifiably wonder whether this is an objective method. The claim is that Buddhist psychology is objectively valid. Buddha exhorted his students never to believe something unless they verified for themselves that it was true. Following Buddha one should be cautious with accepting the truth of this statement. In the late nineteenth century, for example, the psychologist Wundt wanted to introduce introspection as a tool to make psychological investigations. His program failed as all the experimentors reported different things. Indeed, part of our introspection may be coloured and therefore unreliable.

If introspection is trained, then the situation may change. Take for example mathematics. This subject is rightly considered as one of the most exact forms of science. A statement is true based on rigorous proofs and computations. Nevertheless we need a mental judgement that a proof is correct and that a computation applies in a given situation. For this reason Husserl, Gödel and Bernays have argued that mathematics is a phenomenological science. We know that this field has reached one of the highest standards of objectivity.

A second argument in favour of the reliability of trained introspection is related to a dispute about colors, called the Newton-Goethe controversy. Physicists claimed that colors form a one-dimensional phenomenon. Indeed, each color can be described by a number λ , the wavelength of the light having that color. On the other hand the phenomenologists claimed that colors form a three dimensional phenomenon. Their argument runs as follows. Suppose we have a bag with 1000 uniformly colored cubes of the same size but with different colors. If we want to order the cubes in such a way that they are close to each other if the colors are intuitively close, then we cannot order them in a linear array, nor in a plane but only in a cube. Therefore, the phenomenologists claimed with as important proponent the writer Goethe, the phenomenon is 3D. The solution to this apparent contradiction was proposed in the 19-th century by the physician Young and later the physicist Helmholtz. They proposed the hypothesis that there are three kinds of receptors for colorvision, each having a different sensitivity for wavelengths. In this way a single wavelength λ gives rise to a triplet of reactions, thus transforming the 1D light in the sense of Newton into 3D light perception in the sense of Goethe. This hypothesis was later confirmed and nowadays the multi-billion US\$ industry of color monitors, flatscreens and beamers depends on this understood way of color perception.

It should be added that mentioned experiment on color vision is relatively simple. The training in mathematics and meditation is considerably more involved. For both fields a certain degree of concentration is needed. Now concentration is not something that one can make at volition. It can, however, be

developed. It is interesting that in the Buddhagosa [n.d.], an important work on the training of Buddhist insight meditation, 11 chapters out of 23 are devoted to the systematic development of concentration.

The principal application of Buddhist psychology is to obtain the insight that Buddha had obtained in order to diminish and eliminate suffering. Therefore the main concept of the theory is mind (*nāma*), the field in which pain, pleasure and attachment are present. In order to be able to state what mind ‘does’ one needs the notion of ‘object’, i.e. input. In important cases ‘matter’ (*rūpa*) is an object for mind. After that mind can also be object for mind. It is important to understand that *rūpa* is not matter in the world (the ‘real thing’) but a primitive form of perception that gets refined after *nāma* gets a hold of it. Of course eventually *rūpa* depends on things in the world, but that is as much beyond Buddhist psychology as consciousness is beyond neuroscience at the present stage of this subject. Later on we will discuss more why we think this phenomenological character of *rūpa* is the right interpretation. Readers that don't like this interpretation may (start to) interpret *rūpa* in a realistic fashion.

As both consciousness and its objects are important, they form the main focus of attention in the Abhidhamma. Next to that also attention is paid to output. The Abhidhamma is also an ethical system, making value judgements about human behaviour. It may not be obvious immediate why this is necessary. The reason is that a major part of the output of our mind is input for that same mind. It happens to be the case that what is ultimately good for ourselves is also good for others. Also this will be discussed later on.

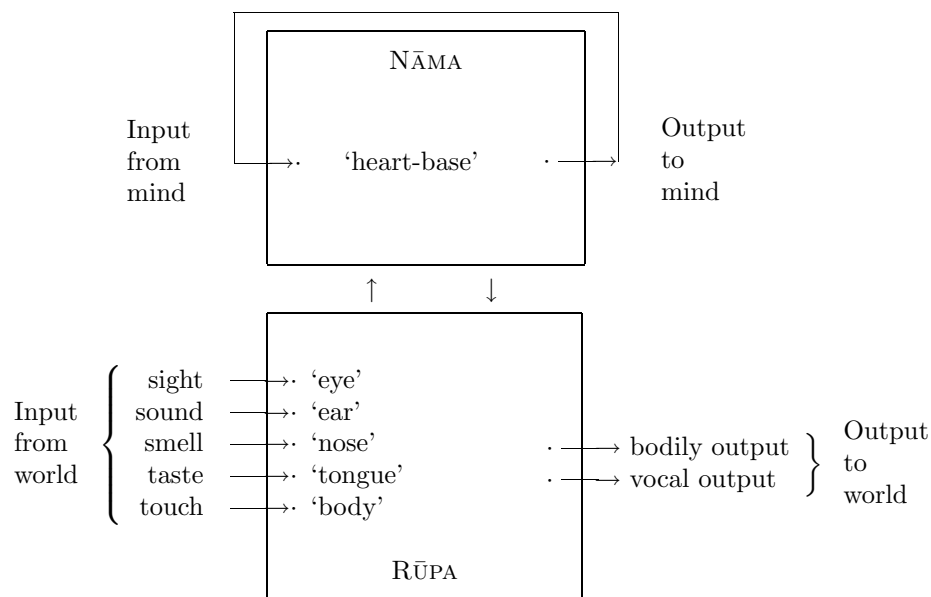


Figure 1: Nāma-Rūpa

The theory of mind in the Abhidhamma and also picture in Fig. 1 seems to be simplistic dualism: objective matter on the one hand and subjective consciousness on the other. But, given the phenomenological interpretation,

this is not the case. In fact the theory will emphasize that there is no subject. This is the basic selflessness *anatta* doctrine of Buddhism. As a modern writer on Buddhism has stated “Consciousness is like a TV that is turned on, but no one is looking.”

Also one should not consider that the world is represented in *rūpa* and that *nāma* observes it. In this view *nāma* would be the ‘Cartesian Theatre’ of Dennett. In the Abhidhamma model data (objects) come from the world, but are interpreted by ‘order-making forces’ in the mind. These forces are also considered as *rūpa*, although they come from the mind. Then in full-blown consciousness, there is much emotion interweaved. The purification of mind consists of the untangling of this data-cognitive-emotional complex.

3. Objects

The Abhidhamma treats in the first place consciousness and its factors and causal relations between different types of consciousness. Next to this also a good deal of attention is paid to the content of consciousness. In order to be able to state what consciousness ‘does’, the Abhidhamma uses the notion of ‘object’ (*ārammaṇaṇi*, from: ‘to delight in’). Consciousness (*ceta* or *citta*, from *citi*: to cognize) consists in the cognizing from moment to moment of an object. The meaning of the term ‘object’ in Buddhist psychology is different from that in daily life and science. Matter forms an object for consciousness. But consciousness also can have (a previous consciousness) as object. Also there is a quite special object, called *Nibbāna* (Nirwana). These three kinds of objects are all called absolute (*paramattha*). Next to these there are ideas, that form the class of conventional (*paññatti*) objects, the so-called concepts.

Next to the classification between absolute and conventional objects, there is the division between conditioned and unconditioned ones. Traditionally only *Nibbāna* is considered as unconditioned object. Slightly extending the analysis in the Abhidhamma one can put mathematical ideas also among the unconditioned ones. In this way one obtains the classification objects as in Fig. 2.

	conditioned (<i>sankhata</i>)	unconditioned (<i>asankhata</i>)
absolute (<i>paramattha</i>)	matter, mind	<i>Nibbāna</i>
conceptual (<i>paññatti</i>)	‘existing’ concepts, ‘non-existing’ concepts	mathematical concepts

Figure 2: Classification of objects

Some explanation is in place. A concept like ‘dress’ is called conditioned, as it depends on fashion what kind of arrangement of cloth is called this way. Nevertheless it is a concept that has reality value. A concept like ‘dragon’ is also conditioned, as it depends on the myths of a certain culture how such an animal is imagined. We know that there are no dragons. Therefore one calls a dress an existing conceptual object and a dragon a non-existing one. A third

class of ideas is unconditioned: mathematical concepts, like prime number². Nibbāna is an object that is both absolute and unconditioned. It is a goal of the practise of meditation to experience Nibbāna as an object of consciousness. This happens when the practitioner perceives for the first time path consciousness (*maggacitta*).

4. Matter

The classification of matter in the Abhidhamma is somewhat intricate. There are several overlapping classifications. In order to make some order, we choose some of the categories also to be found in the Abidhamma, while leaving out some others³.

The six senses, i.e. the eye, ear, nose, tongue, body and mind, can be classified into two groups. The first five can be called material senses and the mind is can be called the mind sense. There is matter that is an object of a material sense. This kind of matter is called *objective material phenomena* (*gocararūpa*). Then there is matter that is object of the mind as sense. This form of matter falls into two groups called *sensitive matter* (*pasādarūpa*) and *subtle matter* (*sukhumarūpa*).

Objective material phenomena

These are the objects of the five material senses: sight, sound, smell, taste and touch. Touch is divided into three, corresponding with earth, fire and air belonging to the four⁴ traditional elements: hard-softness, heat-cold and motion all three subgroups as phenomenal input.

Sensitive matter

These are the six material bases corresponding to the six senses: the sensitive parts of the eye, ear, nose, tongue, body and mind. In physiological terms the retina, eardrum, olfactory bulb, pallats, afferent corporal neurons and (part of) the brain.

Subtle matter

This class consists of an interesting mix of concepts.

²A number >1 is called *prime* if it is only divisible by 1 and itself. E.g. 2, 3, 5, 7, 11 are prime numbers and 4, 6, 9, 12, 15 are not. Whether these mathematical concepts are real (existing) or imagined (non-existing) is a discussion in the philosophy of mathematics that we do not enter here.

³The categories we leave out have to do with the four elements earth, water, fire and air. These four are no longer seen as fundamental elements in science since 1800 and moreover the element water is treated in the Abhidhamma in an exceptional way (by making it not an object of touch like the other three but a mental object).

⁴In the Abhidhamma the element water is not considered as phenomenal input, but as a 9mental input correspondig to a) force that holds mater together.

- The ‘water’ element that is a mental construct of a force acting as cohesive of material objects in the usual sense of the word. Phenomenologically this makes sense. The world around us comes to us in many colors falling on the retina. We have to partition these colors into groups that belong to each other, in the sense that they belong to the same material object⁵.
- Femininity and masculinity. These serve to make clear what gender another person has.
- The ‘life faculty’ serves to make e.g. material input surveyable in a parallel fashion. For example if we have a page with many letters in black and exactly one letter in red, then we always see the red on immediately. This contrasts with a page with many red and black T’s and many black F’s and one red F. Now one has to scan letter by letter in order to find the red F.
- Edibility aspect of a material object. It may be delicious, yummy, edible, awful, poisonous, inedible, etcetera.

The matter elements discussed so far, totalling 18, are called ‘concretely produced matter’. The next ten elements are called non-concrete matter.

- The space element deduced from the absence of matter, between bordering concretely produced matter.
- Two elements indicate intentions: bodily and vocal.
- Lightness.
- Malleability.
- Wldiness.
- Production.
- Continuity.
- Decay.
- Impermanence.

In this way there are 28 phenomenological elements labelled as matter. See Fig. 3. The first 7 elements are objects of the five physical senses. The next 5 elements correspond to the five physical sense organs that are perceptible in (deeper) meditation. The next element is the heart-base corresponding to physical organ of the mind (the brain). It is not satisfactory that it is not listed under sensitive matter. In fact the heart-base was not present in the original Abhidhamma and has been added by later commentators.

⁵Pictures of an acricultural landscape taken by a satellite are being processed by some software that tries to make a subdivision according to the kind of crops that is growing on the land. The water element corresponds to the mental act of ‘parsing’ the visual input into coherent chunks.

Gross matter	Objective matter	10 Sight	} Touch	Concretely produced matter	
		11 Sound			
	12 Smell				
	13 Taste				
	1 Hard-soft 'earth'				
	3 Hot-cold 'fire'				
	4 Motion 'air'				
Sensitive matter		5 Sensitive eye			
		6 Sensitive ear			
		7 Sensitive tongue			
		8 Sensitive nose			
		9 Sensitive body			
Subtle matter		16 Heart-base (sensitive mind)	} Sexuality	Non-concrete matter	
		2 Cohesion 'water'			
		14 Femininity			
		15 Masculinity			
		17 Life faculty			
		18 Nutritive value			
		19 Space			
		20 Body output			
		21 Verbal output			
		22 Lightness			
	23 Softness				
	24 Workability				
	25 Appearance				
	26 Continuity				
	27 Decay				
	28 Impermanence				

Figure 3: Matter (logical classification)

- material object
- mental object
- output

Numbering refers to Bodhi [1993], Table 6.1.

Now we come to what we consider as a satisfactory classification. Actually the mixture of rūpa objects and nāma objects is a good one. Our perception is very much filled in by our consciousness. One way of showing this is known from optical illusions. In these cases consciousness fills in too much.

The two forms of rūpa ‘bodily intimation’ and ‘vocal intimation’ should be considered as output. Next to the important mental output these are the only way to show the world that we want something. That rūpa output is split into bodily and vocal output is a good idea. The nature of speech is very much different from that of physical actions, even if both are performed by physical devices (body and voice).

Interpreted matter	1	Hard-soft	'earth'	} 'Four elements'
	2	Cohesion	'water'	
	3	Hot-cold	'fire'	
	4	Motion	'air'	
	10	Sight		
	11	Sound		
	12	Smell		
	13	Taste		
	18	Nutritive value		
	14	Femininity	} Sexuality	
15	Masculinity			
17	Life faculty			
Sense organs	5	Sensitive eye		
	6	Sensitive ear		
	7	Sensitive tongue		
	8	Sensitive nose		
	9	Sensitive body		
	16	Heart-base (sensitive mind)		
Out-put	20	Body output		
	21	Verbal output		
Mode of Matter	19	Space		
	22	Lightness		
	23	Softness		
	24	Workability		
	25	Appearance		
	26	Continuity		
	27	Decay		
	28	Impermanence		

Figure 4: Matter (phenomenological classification)

— material object

— mental object

— output

Numbering refers to Bodhi [1993], Table 6.1.

5. Mind

Having spoken about objects of consciousness one may wonder whether the Abhidhamma also speaks about a subject, that has the object in his or her consciousness. This is not the case. In fact, the subject, the 'I' that possesses the object of consciousness is only a conventional thing, constructed on the bases of the absolute things consisting of body and mind forms of consciousness. There is no genuine existence for this concept.

relative frequencies of types of cetasa in these classes are shown in the following scheme⁷.

plane\kind	Karma		Indeterminate		#
	Unwholesome	Wholesome	Resultant	Functional	
Sense	12	8	23	11	54
Fine-Material	0	5	5	5	15
Immaterial	0	4	4	4	12
Supramundane	0	4	4	0	8
#	12	21	36	20	89

Changing to the Pali terminology and a more subtle subdivision we obtain the following diagram.

bhūmi\jhāti	Kamma		Abyakata		#
	Akusala	Kusala	Vipaka	Kiriya	
Kama	8+2+2	8	8+7+8	8+1+2	54
Rupa	0	5	5	5	15
Arupa	0	4	4	4	12
Lokuttara	0	4 (20)	4 (20)	0	8 (40)
#	12	21	36	20	89 (121)

The cetasa are notated in Fig. 5. For each type a code, a certain combination of letters and numbers, is introduced for quick reference.

Let us first explain the meaning of the kind (*jhāti*) of a ceta. If a ceta with kamma occurs, then the ‘accumulated⁸ amount of kamma’ is increased. Depending on conditions the probability of certain actions is increased. If the stored kamma comes from an akusala ceta, then the possible action has a negative (unpleasant) effect, if it comes from a kusala ceta, then the possible effect is pleasant. We call this the *statistical law of kamma*⁹. The resultant (*vipaka*) cetasa are the effect of kamma. In their turn they can be part of the conditions mentioned above that cause other kamma seeds to ripen and come to action. The functional cetasa, except D^5, D^m , are only for arhats. They have the same effect as their corresponding cetasa under kusala kamma, except that the accumulation of kamma will not be increased when they occur. Of the three

⁷These two tables are due to Ven. U. Silananda and taken from Bodhi [1993]. Many of the schemes in this paper are inspired by his diagrams.

⁸The Abhidhamma is not clear about the way the storage is done. It seems to be either an external kind of static memory or jumping dynamically from ceta to ceta. The first possibility seems less likely in the light of the (*anatta*) doctrine, that there is no fixed entity in the stream of consciousness.

⁹In the Buddhist tradition the law of kamma is interpreted more strictly: if something negative happens, then this is due to an occurrence earlier of ceta with unwholesome kamma and conversely, if something pleasant happens, then this is due to a ceta with wholesome kamma. This strict interpretation does not seem justified. It is stated in the Abhidhamma that accumulated kamma leads to an effect if the conditions are right. Of course this is done under the assumption of rebirth, giving the ‘seeds of kamma’ a virtually unbounded time to ripen, making the chance that something happens as a consequence converge to 1, i.e. be virtually certain. On the other hand, a life continuum is not always unbounded: if the eightfold path is successfully traversed and one becomes arhat, then after passing away the stream of cetasa stops.

exceptions D^5 and D^m serve in the process of input to the body mind system. Finally the citta H^{ar} , again only for arhats, makes them produce a ‘faint smile of enlightenment’.

The planes of the cetas have a different significance. The sensual (*kāma*) plane contains cetas that if they have a desirable topic as object of a physical sense (nice sight, beautiful sound, sweet smell, delicious taste or erotic touch), then the conditions are such that the resulting actions will tend to the preservations of that object. More precisely, to the tendency to the reoccurrence of a ceta with the same object. Dually, if a ceta occurs with an undesirable object the tendency is to get rid of it. Cetas in the rupa and arupa planes do not tend towards pleasant perception in the physical senses (*sukkhā*). They tend towards joyful (*pīthi*) or neutral (*upekkhā*) mental states. The difference between rūpa and arūpa cetas is that the former are based on rūpa objects, while the latter on nāma objects. These states, collectively called ‘sublime consciousness’, constitute the Buddhist mystical states.

But in Buddhism there are states of consciousness beyond mysticism. These are the supramundane¹⁰ states. These states are free from the defilements greed, hatred and ignorance. But there is more to it. The supramundane states with kamma, M_{1-5}^{so} , M_{1-5}^{sa} , M_{1-5}^{an} and M_{1-5}^{ar} , named *paths*, i.e. consciousness of the first, second, third and fourth path, also have as effect that a subset of the cetas with unwholesome kamma is destroyed or attenuated. The sublime states are only beautiful on the spot, but do not warrant beautiful future cetas. This is different for the supramundane states. These four states occur only one time at most during one’s life. Their cumulative effect on the available cettas with unwholesome kamma will be described later. Just one occurrence of the ceta M_{1-5}^{ar} suffices to make one an arhat, a fully enlightened person. Why this is so will be made subject of speculation in section 7. The supramundane cetas can be counted either as 8 (4 kamma and 4 vipakka) or as 40, depending on which way it has been obtained¹¹.

¹⁰These states are not supernatural, but just not commonly available.

¹¹If they occur after a R_i^k one may denote the resulting path as M_i .

bhūmi\jhāti	Kamma		Abyakata	
	Akusala	Kusala	Vipaka	Kiriya
Kama	$A_{sda}^l, A_{sd}^l, A_{sa}^l, A_s^l, A_{da}^l, A_d^l, A_a^l, A^l$ A_a^d, A^d A_v^m, A_u^m	$K_{sna}, K_{sn}, K_{sa}, K_s, K_{na}, K_n, K_a, K$	$V_{sna}^h, V_{sn}^h, V_{sa}^h, V_s^h, V_{na}^h, V_n^h, V_a^h, V^h$ $V_C^k, V_S^k, V_G^k, V_J^k, V_K^k, V_R^k, V_I^k, V_{Is}^k$ $V_C^a, V_S^a, V_G^a, V_J^a, V_K^a, V_R^a, V_I^a$	$K_{sna}^{ar}, K_{sn}^{ar}, K_{sa}^{ar}, K_s^{ar}, K_{na}^{ar}, K_n^{ar}, K_a^{ar}, K^{ar}$ H^{ar} D^5, D^m
Rupa		$R_1^k, R_2^k, R_3^k, R_4^k, R_5^k$	$R_1^v, R_2^v, R_3^v, R_4^v, R_5^v$	$R_1^{ar}, R_2^{ar}, R_3^{ar}, R_4^{ar}, R_5^{ar}$
Arupa		$A_1^k, A_2^k, A_3^k, A_4^k$	$A_1^v, A_2^v, A_3^v, A_4^v$	$A_1^{ar}, A_2^{ar}, A_3^{ar}, A_4^{ar}$
Lokuttara		M_{1-5}^{so} M_{1-5}^{sa} M_{1-5}^{an} M_{1-5}^{ar}	P_{1-5}^{so} P_{1-5}^{sa} P_{1-5}^{an} P_{1-5}^{ar}	

Figure 5: The 89 (or 121) types of cetasa

s: mental joy (*somanassa*), d: wrong view (*dithi*), a: unprompted (*asankhara*);
n: with knowledge (*nāna*);
C: eye (*cakkhu*), S: ear (*sota*), G: nose (*ghāna*), J:tongue (*jivhā*), K: body (*kāya*).

Unwholesome (<i>Akusala</i>)
$A_{sda}^l, A_{sd}^l, A_{sa}^l, A_s^l, A_{da}^l, A_d^l, A_a^l, A^l$
A_a^d, A^d
A_v^m, A_u^m

Rootless (<i>Ahetuka</i>)	
$V_C^k, V_S^k, V_G^k, V_J^k, V_K^k, V_R^k, V_I^k, V_{I_s}^k$	H^{ar}
$V_C^a, V_S^a, V_G^a, V_J^a, V_K^a, V_R^a, V_I^a$	D^5, D^m

Beautiful (<i>Sobhana</i>)		
great wholesome (<i>mahākusala</i>)	great resultant (<i>mahāvīpaka</i>)	great functional (<i>mahākiriya</i>)
$K_{sna}, K_{sn}, K_{sa}, K_s, K_{na}, K_n, K_a, K$	$V_{sna}^h, V_{sn}^h, V_{sa}^h, V_s^h, V_{na}^h, V_n^h, V_a^h, V^h$	$K_{sna}^{ar}, K_{sn}^{ar}, K_{sa}^{ar}, K_s^{ar}, K_{na}^{ar}, K_n^{ar}, K_a^{ar}, K^{ar}$

The 45 cetās for daily life			
Unwholesome (<i>Akusala</i>)	Wholesome (<i>Kusala</i>)	Resultant (<i>Vīpaka</i>)	Functional (<i>Kiriya</i>)
$A_{sda}^l, A_{sd}^l, A_{sa}^l, A_s^l, A_{da}^l, A_d^l, A_a^l, A^l$	$K_{sna}, K_{sn}, K_{sa}, K_s, K_{na}, K_n, K_a, K$	$V_{sna}^h, V_{sn}^h, V_{sa}^h, V_s^h, V_{na}^h, V_n^h, V_a^h, V^h$	D^5, D^m
A_a^d, A^d		$V_C^k, V_S^k, V_G^k, V_J^k, V_K^k, V_R^k, V_I^k, V_{I_s}^k$	
A_v^m, A_u^m		$V_C^a, V_S^a, V_G^a, V_J^a, V_K^a, V_R^a, V_I^a$	

Sublime (<i>Mahaggata</i>)
$R_-, R_-^{ar}, A_-, A_-^{ar}$

Supramundane (<i>Lokuttara</i>)
$M_{1-5}^{\{so,sa,an\}}, P_{1-5}^{\{so,sa,an\}}, M_{1-5}^{ar}, P_{1-5}^{ar}$

Figure 6: Selected classes of cetās

Mental Factors

While cetas can be compared to mental atoms, they do not form the smallest distinguishable mental unit. There are also phenomena that correspond to elementary (subatomic) particles. Each ceta is composed of a number of mental factors called cetasikas. The Abhidhamma states that a cetasika like a ceta has an object that it is cognizing. Moreover, the cetasikas making up a ceta all have the same object as that ceta. To simplify matters it seems possible that one can abstract from the object of the cetasikas and just consider the coloring that they give to a ceta.

To give the idea of the role of cetasikas, consider looking at a flower. One can be in an angry mood or in a peaceful mood while looking. The object of the resulting consciousness is the same, the flower, but the coloring by angryness or peacefulness makes a difference. The role of the cetasikas is to provide this coloring. Actually ‘coloring’ is an expression that tends to the meaning of ‘static quality’. But the cetasikas have a quite dynamic property, they are the agents of mind.

In Fig. 7 one finds a list of the 52 cetasikas described in the Abhidhamma. The claim is that it is a complete list. The subdivision in six groups has an important functionality. The cetasikas in the top middle (neutral universals) are present in all mundane cetas. A subset of the neutral occasionals may be added to obtain cetas with more mental factors. This happens when going into the direction of sublime consciousness found in the so called *jhanas*, the Buddhist mystical states. Another way of extending the set of cetasikas in going from the neutral universals either to the left or the right, obtaining respectively the unwholesome universals or beautiful universals. It is not possible to mix the beautiful and unwholesome cetasikas. Having done this one may extend the set of mental factors present in one ceta by going down into the occasional unwholesome or beautiful set. In this process one may also add some of the occasional neutral cetasikas.

Apart from this functionality, there are several more issues in the Abhidhamma. For example the cetasikas sloth and torpor always come together. The main unwholesome kamma cetasikas greed and hatred are mutually exclusive (and from the discussion above it follows that they are always coming together with ignorance).

It is interesting how the Abhidhamma analyzes certain states of mind as combinations of cetasikas. For example (*khanti*), often rendered as ‘patience’, but literary ‘ability to sustain one’s normal state of mind’ is seen as the follows.

$$\text{khanti} = \text{ad} + \text{s} + \text{vi} + \text{p}.$$

The first two components, anti-hatred (*adosa*) and mindfulness (*sati*), are part of the universal beautiful group. The latter two, effort (*vīriya*) and wisdom (*pañña*), belong to the occasional neutral and beautiful groups, respectively.

	unwholesome		neutral		beautiful		
Universals	Delusion (<i>moha</i>)	m	Contact (<i>phassa</i>)	ph	Confidence (<i>saddhā</i>)	sd	
	Shamelessness (<i>ahirika</i>)	ah	Feeling (<i>vedanā</i>)	ve	Mindfulness (<i>sati</i>)	s	
	Restlessness (<i>uddacca</i>)	u	Perception (<i>saññā</i>)	sa	Fear of Wrong (<i>otappa</i>)	ot	
	Fearlessness of wrong (<i>anotappa</i>)	an	Volition (<i>cetanā</i>)	ce	Shame (<i>hiri</i>)	hi	
			One pointedness (<i>ekaggatā</i>)	ek	Non-greed (<i>alobha</i>)	al	
			Life faculty (<i>jīvitindriya</i>)	ji	Non-hatred (<i>adosa</i>)	ad	
			Attention (<i>manasikāra</i>)	ms	Neutrality of mind (<i>tatramajjhataṭṭā</i>)	ta	
					Tranquility of mental factors (<i>kāya-passaddhi</i>)	kp	
					Tranquility of consciousness (<i>cita-passaddhi</i>)	cp	
					Lightness of mental factors (<i>kāya-lahutā</i>)	kl	
					Lightness of consciousness (<i>cita-lahutā</i>)	cl	
					Pliancy of mental factore (<i>kāya-mudutā</i>)	km	
					Pliancy of consciousness (<i>cita-mudutā</i>)	cm	
					Adaptibility of mental factors (<i>kāya-kammaññatā</i>)	kk	
					Adaptibility of consciousness (<i>cita-kammaññatā</i>)	ck	
					Proficiency of mental factore (<i>kāya-pāggūññatā</i>)	kn	
					Proficiency of consciousness (<i>cita-pāggūññatā</i>)	cn	
					Rectitude of mental factors (<i>kāya-jukatā</i>)	kj	
					Rectitude of consciousness (<i>cita-jukatā</i>)	cj	
	Occasionals	Greed (<i>lobha</i>)	l	Initial application (<i>vitakka</i>)	vt	Right speech (<i>sammā-vācā</i>)	sv
		Wrong view (<i>dīṭṭhi</i>)	di	Sustained application (<i>vicāra</i>)	vc	Right action (<i>sammā-kammanta</i>)	sk
		Conceit (<i>māna</i>)	ma	Decision (<i>adhimokkha</i>)	am	Right livelihood (<i>sammā-ājīva</i>)	sj
Hatred (<i>dosa</i>)		d	Effort (<i>vīriya</i>)	vi	Compassion (<i>karunā</i>)	k	
Stinginess (<i>macchariya</i>)		mc	Joy (<i>pīthi</i>)	pi	Shared joy (<i>muditā</i>)	mu	
Jealousy (<i>issā</i>)		is	Willingness (<i>chanda</i>)	ch	Wisdom (<i>pañña</i>)	p	
Remorse (<i>kukkucca</i>)		ku					
Sloth (<i>thīna</i>)		th					
Torpor (<i>middha</i>)		mi					
Doubt (<i>vicikicchā</i>)		vk					

Figure 7: Mental Factors

cetasika		unw-univ.	neutr-univ.	beaut-univ.	l	di	ma	d is mc ku	th mi	vk	vt	vc	am	vi	pi	ch	sv, sk, sj	k, mu	p
Akusala																			
ceta		X	X		X	X					X	X	X	X	X	X			
A_{sda}^l		X	X		X	X			X		X	X	X	X	X	X			
A_{sd}^l		X	X		X	X					X	X	X	X	X	X			
A_{sa}^l		X	X		X		X				X	X	X	X	X	X			
A_s^l		X	X		X		X		X		X	X	X	X	X	X			
A_{da}^l		X	X		X	X					X	X	X	X		X			
A_d^l		X	X		X	X			X		X	X	X	X		X			
A_a^l		X	X		X		X				X	X	X	X		X			
A^l		X	X		X		X		X		X	X	X	X		X			
A_a^d		X	X					X			X	X	X	X		X			
A^d		X	X					X	X		X	X	X	X		X			
A_u^m		X	X							X	X	X		X					
A_u^m		X	X								X	X	X	X					
Ahuta																			
$V_{phys.sense}^{a,k}$			X																
$V_R^{a,k}$			X								X	X	X						
$V_l^{a,k}$			X								X	X	X						
V_{Is}^k			X								X	X	X		X				
H^{ar}			X								X	X	X	X	X				
D^5			X								X	X	X						
D^m			X								X	X	X	X					
Sobhana																			
$K_{sna} K_{sn}$			X	X							X	X	X	X	X	X	X	X	X
$K_{sa} K_s$			X	X							X	X	X	X	X	X	X	X	
$K_{na} K_n$			X	X							X	X	X	X		X	X	X	X
$K_a K$			X	X							X	X	X	X		X	X	X	
$V_{sna}^h V_{sn}^h$			X	X							X	X	X	X	X	X			X
$V_{sa}^h V_s^h$			X	X							X	X	X	X	X	X			
$V_{na}^h V_n^h$			X	X							X	X	X	X		X			X
$V_a^h V^h$			X	X							X	X	X	X		X			
$K_{sna}^{ar} K_{sn}^{ar}$			X	X							X	X	X	X	X	X		X	X
$K_{sa}^{ar} K_s^{ar}$			X	X							X	X	X	X	X	X		X	
$K_{na}^{ar} K_n^{ar}$			X	X							X	X	X	X		X		X	X
$K_a^{ar} K^{ar}$			X	X							X	X	X	X		X		X	
Mahaggata																			
$R_1^{k,v,ar}$			X	X							X	X	X	X	X	X		X	X
$R_2^{k,v,ar}$			X	X								X	X	X	X	X		X	X
$R_3^{k,v,ar}$			X	X									X	X	X	X		X	X
$R_4^{k,v,ar}$			X	X									X	X		X		X	X
$R_5^{k,v,ar} A^{k,v,ar}$			X	X									X	X		X			X
Lokuttara																			
$M_1^- P_1^-$			X	X							X	X	X	X	X	X	X		X
$M_2^- P_2^-$			X	X								X	X	X	X	X	X		X
$M_3^- P_3^-$			X	X									X	X	X	X	X		X
$M_4^- P_4^-$			X	X									X	X		X	X		X
$M_5^- P_5^-$			X	X									X	X		X	X		X

Figure 8: Cetas and their cetasikas

Relating cetas and cetasikas

An important issue is how a ceta of a certain type corresponds to a set of its accompanying cetasikas. In Fig. 8, inspired by the corresponding chart of Ven. U. Silananda in Bodhi [1993], this is shown. It comprises the methods of associations and combinations.

6. Cognitive-Emotional Processes and Kamma

Mental processes

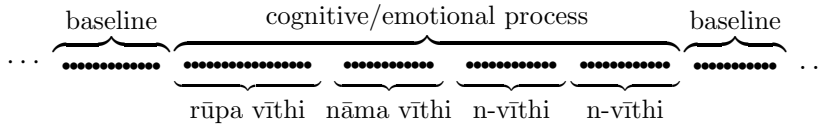
The cetas influence each other: those occurring later depend on the earlier ones. This is the law of *kamma* (Sanskrit: karma). This will be described in Section 4. In that section a difference will be made between a type of ceta and its function. The Abidhamma model states that the first and last ceta of someone’s life are of the same type, but these two have clearly different functions.

The same Section 4 describes how chains of 17 cetas (for rūpa; vīthi’s for nāma consist of 12 cetas), with a specific structure, form a so called ‘ceta street’ (*vīthi*), playing a distinct role in mental processing.



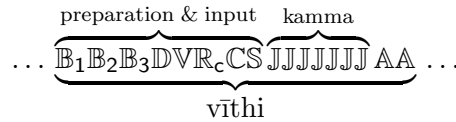
A vīthi (‘street’ of 17 cetas)

Outside the specific vithis the life chain of cetas consists of a so called ‘baseline consciousness’ (*bhavaṅga*), consisting always of one and the same ceta type that is equal to the type of the rebirth-linking ceta and of the death ceta. The baseline serves as a baseline consciousness, while the vīthis come as information packages.



For material input

For consciousness entering through a physical sense we have the following. We take visual consciousness as example.



where both ... can be either the baseline process (bhavaṅga) or another vīthi.

Symbol	Function	Available cetas	# possibilities
B	Baseline	$V_1^a, V_1^k, V_-^h, R_-^v, A_-^v$	19
R_c	Receiving	V_R^a, V_R^k	2
D	five sense door	D^5	1
V	eye-consciousness	$V_C^a(O), V_C^k(O)$	2
C	Checking	V_1^a, V_1^k, V_{1s}^k	3
S	Selecting	D^m	1
J	Javana	$A_-, K_-, R_-^k, A_-^k, P_-^-, S_-^{ar}, K_-^{ar}, R_-^{ar}, A_-^{ar}$	55
A	‘Afterwave’	$V_1^a, V_1^k, V_{ij}^k, V_-^h$	11

All 17 cetas have the same (visual) object O, but it is displayed explicitly only for V_C^k . All 7 Javana cetas have the same type as well. The 7-fold repetition is to make impact.

The scheme holds if the visual object is very well visible (sufficiently lighted). There are also discriptions for when the object is gradually less visible.

B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	J	J	J	J	J	J	J	B
B ₁	B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	J	J	J	J	J	J	J
B ₁	B ₁	B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	S	S	B	B	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	S	S	B	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	S	S	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	S	S	S
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₃	D	V	R _c	C	S	S	S
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₂	B	B	B	B	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₂	B	B	B	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₂	B	B	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₂	B	B	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₂	B
B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₁	B ₂	B ₂

The vīthi just before dying is said to be slightly different from the usual vīthis.

For mental input

A clear mental object is perceived as follows (limited javana process).

$$\dots \underbrace{B_2 B_3 D^m J J J J J J R_g R_g}_{\text{vīthi of a mental process}} \dots$$

Absorptions

The mystical states or absorptions (jhana) have the following cognitive process. For people ‘with keen faculties’ it is possible that \mathbb{P} is left out.

$$\dots \underbrace{\mathbb{B}\mathbb{B}\mathbb{B}\mathbb{B}_2\mathbb{B}_3\mathbb{D}^m(\mathbb{P})\mathbb{U}\mathbb{A}\mathbb{G}\mathcal{J}^\infty}_{\text{vīthi of an absorption}} \mathbb{B}\mathbb{B}\mathbb{B} \dots$$

After the baseline consciousness and its disappearing ($\mathbb{B}_2, \mathbb{B}_3$) there are four jhavana class cetasa $\mathbb{P}, \mathbb{U}, \mathbb{A}, \mathbb{G}$. After that the absorption starts. It belongs to a subclass of the Jhavana class. The interesting and point is that after the initial phase the jhana itself can last from one \mathcal{J} class ceta to so many, that several days are spent in the absorption. This is indicated by \mathcal{J}^∞ . After that the consciousness jumps immediately back to baseline, without any afterwave. In Fig. 9 the number of available cittas for \mathcal{J} is taken from the extended system with 121 elements, differentiating in supramundane consciousness between the rūpa-jhanas from which the paths have been obtained.

Symbol	Function	Available cetasa	# cetasa
\mathbb{B}	Baseline	$V_1^a, V_1^k, V_1^h, R_1^v, A_1^v$	19
\mathbb{P}	preparation (<i>parikamma</i>)	$K_{sna}, K_{sn}, K_{na}, K_n,$	8
\mathbb{U}	access (<i>upacāra</i>)	$K_{sna}^{ar}, K_{sn}^{ar}, K_{na}^{ar}, K_n^{ar}$	
\mathbb{A}	conformity (<i>anuloma</i>)		
\mathbb{G}	change-of-lineage (<i>gotrabhū</i>)		
\mathcal{J}	Absorption Javana	$R_1^k, R_1^{ar}, A_1^k, A_1^{ar}, P_1^-$	58

Figure 9: Cetasa for absorptions and path attainments

Of course in the absorption process supramundane cetasa can only be used if they have been obtained previously during path attainment, described in next subsection.

Path and Fruit Attainment

When the mental development of the trainee using vipassana meditation has been matured, see section 7, it is possible that the following absorption of path attainment occurs.

$$\dots \underbrace{\mathbb{B}\mathbb{B}\mathbb{B}\mathbb{B}_2\mathbb{B}_3\mathbb{D}^m\mathbb{P}\mathbb{U}\mathbb{A}\mathbb{G}\mathbb{M}^d\mathbb{P}^d\mathbb{P}^d}_{\text{vīthi of path and fruit}} \mathbb{B}\mathbb{B}\mathbb{B} \dots$$

Here d stands for the degree of attainment: it can be one of {so, sa, an, ar}. Again \mathbb{P} may be left out. In that case there are three occurrences of \mathbb{P}^d . If the Ms are differentiated according to the 121 system, then the Ps get the same number.

Comparing the diagrams of the vīthis of an absorption and that of a path and fruit attainment, one can understand that the absorptions are considered

as more spectacular. In fact, many trainees reaching an absorption think they have reached maggaceta. This is called a ‘defilement’ of vipassana and a good teacher recognises this and exhorts his or her students not to enter anymore the jhanas. The reason that path attainment is to be preferred is that unlike absorptions, path attainment is purifying, i.e. uproots a class of unwholesome cetas.

Death and Rebirth

According to the Abhidhamma birthrelinking works as follows. If the last \bar{v} thi in one’s life is a sense-object, then it does not last 17 cetas, but only 15. This is to enable two cetas to pass over the bar of death and start the new life.

$$\overbrace{\dots \mathbb{B}_1 \mathbb{B}_2 \mathbb{B}_3 \text{DVR}_c \text{CSJJJJJAAC}}^{\text{‘old life’}} \mid \overbrace{\mathbb{P}_s \mathbb{B} \mathbb{B} \dots}^{\text{‘new life’}}$$

\mathbb{C}	death (<i>cuti</i>)
\mathbb{P}_s	rebirthlinking (<i>paṭisandhi</i>)

In this way the \bar{v} thi of 17 cetas can be thought to include also \mathbb{C} and \mathbb{P} . In this way the object of \mathbb{P} is determined by the previous life and one life is connected with the other. There are variations modelling the last \bar{v} thi in which it lasts only 16, 15 or 14 cetas. In these cases the new life starts with more cetas \mathbb{B} after \mathbb{P} . For mental consciousness there are analogous models.

The Force of Kamma

The law of kamma is so strong that it is stated by Buddha that

*“Everything has a cause.
There is no first cause.
There is no causeless cause.”*

How then, one may ask, can one change one’s destiny (through meditation)? The answer is that one has to use kamma in order to purify kamma.

Rūpa input is always there. Whether it is coming to consciousness depends on whether consciousness bothers to look at it. In the case of rūpa output, this has to be made by consciousness and be chosen as object. Probably at the same moment. Therefore rūpa is not very interesting from a kammic point of view. Everything is essentially determined by nāmā.

Cetas with kamma and their objects are ‘remembered’, active over a long period. One may wonder what is the mechanism how this is implemented. One possibility is that it could be statically stored in memory and used whenever relevant. This explains the Abhidhamma statement that kamma never can be changed, not even in an Arhat. Another possibility is that the kamma is dynamically stored. It is taken from ceta to ceta¹².

¹²The Abhidhamma model with its discreteness of consciousness is not strange at all from a neurophysiological point of view. Neurons in the brain fire in a discrete manner. There is an

At the moment of path entry the class of available cetasikas and cetas with kamma is diminished.

path	eliminated cetasikas	eliminated cetas
M_{1-5}^{so}	di, vk, (is, mc) ¹³	$A_v^m, A_{sda}^l, A_{sd}^l, A_{da}^l, A_d^l$
M_{1-5}^{sa}		
M_{1-5}^{an}	l ¹⁴ , d, ku	A_v^m, A_-^l, A_-^d
M_{1-5}^{ar}	m, ah, an, u, l ¹⁵ , ma, th, mi	A_-

The following is speculative. Given a present ceta C with object O and a ‘kamma store’ K, we notate this as (C, O, K). The next such state is determined by the previous one. Moreover the kamma store is extended only if C is listed under the cetas having kamma.

7. The Path

Practice

In this section we describe the method of Vipassana meditation. The goal is to remove the unwholesome cetasikas from the stream of consciousness. This removal can be temporarily or permanently, the latter after reaching maggaceta M.

The method is to apply as much as possible the cetasika mindfulness, sati, belonging to the universal beautiful group. From the section on mind we know that the presence of mindfulness (sati) in a ceta causes the unwholsome cetasikas to be absent. From a phenomenological point of view, mindfulness ‘freezes’ the effect of consciousness. It is like quoting a sentence: the phrase ‘I am sad’ does not imply that my mood is down, as I did not utter the sentence! At the same time one is very close to the meaning of the phrase, but one just doesn’t interpret it¹². The first approximation of mindfulness is naming. It consists of naming what one just percieved in natural language, like English.

onset, when at the beginning end of the neuron sufficiently potential is built up. Then there is the firing of the neuron, during which a moving potential wave goes from the start to the end (the action potential). Finally there are chemical reactions at the end of the neuron that start the next neural activity. These three phases may correspond to what is called the arising, existence and decay of a ceta. But cetas, with their cetasikas and objects are too complex to be coded by one neuron. In a well-known model of von der Malsburg cognition is not coded by the firing of one neuron, but by the simultaneous firing of a group of neurons. This is called the synchronicity model. It fits very wel with the cetas-cetasikas-objects description in the Abhidhamma. On the one hand cetas are serial, on the other hand they have a parallel action. Kamma may be interpreted as the law how one subset of neurons activates the next one.

⁹According to the commentaries.

¹⁰Only greed for sensual pleasures (*sukkhā*).

¹¹Also greed for mental states (*somanassa*)

¹²In Vajrayana Buddhism one often practises compassion (*karuna*), belonging to the occasional beautiful group. If this cetasika is present in a ceta, then there are even more beautiful cetasikas present than just the universals. The disadvantage from the Theravada point of view is that this way maggaceta M will not appear, as it is a ceta without compassion, being too much directed towards Nibbāna. From the Mahayana point of view, this is good, as the Bod-

But this is imperfect mindfulness, as 1. the name in English of an experience in *nāma* and *rūpa* is only a rough approximation and 2. the naming comes after the occurrence of the object. The right mindfulness, *samma sati*, consists of the quoting of the mental process while it develops. In fact one can quote the contents of an object belonging to a *ceta* while it occurs. This needs to be developed. One has to be mindful of an object ‘one at the time’, do this ‘on time’ and ‘all the time’.

In order to apply the right mindfulness one needs a sufficient degree of concentration. This increased concentration is not something that can be obtained at will. But concentration can be developed using discipline (*sila*). By meditating with the intention of observing as much as possible the raising and falling of the abdomen, the method of Mahasi Sayadaw, or one’s footsteps, this concentrated mindfulness will gradually increase. And the necessary discipline can be obtained by will power. At first there may be only a moderate degree of discipline. Using this one increases one’s concentrated mindfulness, obtaining some more discipline. And so on.

In this so called mental development (*bhāvanā*) it is important to be flexible with one’s meditation object. Starting with observing the bodily sense contact (*kāyā*), it may happen that feelings, thoughts or impulses become stronger and eclips the original object. In that case one should switch to respectively the feelings, thoughts or impulses. As soon as these intruding phenomena disappear from the foreground one immediately returns to the sense contact. In this way one fixes clearly one’s mindfulness on the four foundations. During this process one encounters the five hindrances: doubt, sloth, hatred, restlessness and greed, preventing one to keep discipline. Using the five faculties: confidence, energy, mindfulness, concentration and analysis one counteracts the hindrances.

Working on in this way one may obtain one of the Buddhist mystical states: sublime consciousness (*jhāna*). This is consciousness without the hindrances is similar to that of a fully enlightened person, but it depends on conditions. It feels very good and exalted. One may not realize that this consciousness is a defilement of Vipassana. A good teacher exhorts the student to leave this type of consciousness, by strict application of the method. The mystical state is an intrusion of the bodily sensecontact and one should go back. If the trainee asks whether he is allowed to enjoy the mystical state for some moments, the teacher answers “It is a waste of time!”

Continuing the proper Vipassana course one separates parts of one’s stream of consciousness. At a good moment consciousness falls apart and one sees the discrete stream of it. One has arrived at a full view of the three characteristics of existence: chaos, nausea and beyond control. It is not clear whether the units consists of *cetas* or *vīthis*. This has a dramatic effect. Not only is consciousness broken, the phenomenon is disgusting (*dukkha*, literary nausea (*du*) for the void (*kha*)) and one cannot control it. This causes great fear. It takes extreme hard work for about 36 hours to overcome the fear. After that one becomes strongly

dhisattva vow implies that one does not yet want to reach enlightenment as long as others are suffering. From the Theravada point of view even an Arhat does not have only supramundane *cetas*. During the rest of his or her life many worldly *cetas* arise and these contain *karuna*.

normal person or an astronaut. Falling gives a sudden feeling of weightlessness. This gives strong kammic reactions, justifiedly, as falling is dangerous. An astronaut has to train body and mind in order to get over these normal reactions to weightlessness. Dukkha is usually translated by suffering. The actual meaning is ‘disgust for the void, for impermanence’. The training of a Vipassana meditator takes usually longer than that for an astronaut, because to be convinced that one can live without a controlling ego takes a radical different view about oneself. For this it is necessary to develop an observing consciousness as opposed to a reactive one. Therefore one needs mental development and to practise the use of mindfulness.

The nature of cetas

Why is there in the model of the mind as presented in the Abhidhamma the notion of ceta? It seems that one could do without it and just speak about combinations of cetasikas. It is said that next to a group of cetasikas the ceta takes care of ‘being aware’. The Abhidhamma does not explain what is this awareness in a ceta. Logically one may leave out the ceta and put the awareness in each of the cetasikas. In any case they have the same object as the corresponding ceta. Of course now one needs to endow all 52 cetasikas with awareness, whereas before only one ceta needed it.

Turning to Nibbāna there is a different view possible. Nibbāna is said to be an object and mind can cognize it. But also that it is there when consciousness and cetasikas have vanished (temporarily during cessation in a non-returner or Arhat or permanently after the death of an Arhat). Now one logically could identify ceta with Nibbāna, pure consciousness. It is only visible if the cetasikas disappear. This view is not present in Theravada Buddhism, but has been proposed by the Mahayana philosopher Nagarjuna. A consequence is that samsara (ordinary consciousness) and Nibbāna (pure consciousness) become the same, only the cetasikas prevents the view from this pure form of consciousness. This has as consequence that not the cetas are flashing in a discrete manner, but the cetasikas. In any case Nagarjuna’s view has one concept less than the Theravada view and solves the logical riddle of how there can be awareness of the Arhat in final Nibbāna.

8. Applications to Psychology

Neuroses

Freud has a well-known model for describing neuroses. We live in a society that has all kinds of demands. We must comply with rules in order to be accepted. This is called the super-ego. Next to this there are desires in us that often are not in harmony with the requirements of the super-ego. These forces have a strong nature and are called the ‘id’. Finally the ego must negotiated between the super-ego and the id. If the discrepancy between these two is too large, then there is a conflict and this is our basic neurosis.

This Freudian model of neuroses can be interpreted in the Abhidhamma

model in a natural way. The super-ego consists of the cognitive-emotional process coded by the *vīthi*'s. The id is coded by the *cetasikas* in individual *cetas*. A *ceta* with greed has a *kamma* effect and cannot be ignored.

There are implications for psychotherapy. Many forms of psychotherapy work on the level of the cognitive-emotional process. Notably this holds for cognitive therapy. The Abhidhamma model shows that working on this level can only result in favorable effects, if the particular situation of the client allows that the requirements of the super-ego be modified. In that case one can work towards this. A more proper therapy should work on the level of individual *cetas*. In fact that is what psychoanalysis attempts to do. By freely associating the client may suddenly become aware of a stubborn *ceta* that has been chasing him or her, this with the purpose to break the *kammic* force that maintains the neurosis. In fortunate cases this may be successful. In other cases the *kammic* force may be so powerful that the chain cannot be broken by free associations, or whatever human attention one may obtain from the therapist. This resulted in the eclipsing of psychoanalysis by forms of psychotherapy that mainly are based on medication. But in many cases medication only hides the problems and does not solve them.

The fact that the *cetasikas* concentration and mindfulness may be simultaneously trained in order to overrule the *kammic* force is a major discovery of Buddha. The MBSR (Mindfulness Based Stress Reduction) therapy developed by Kabat-Zinn has been an important and successful step to incorporate the power of trained mindfulness in psychotherapy, see Kabat-Zinn [2000]. It has been taken in by cognitive psychotherapists as MBCT (Mindfulness Based Cognitive Therapy), see Segal et al. [2002], ?. Important is that the therapist has sufficient experience with the *vipassana* method. Some psychoanalysts are discovering this powerful applicability of mindfulness.

Psychoses

What has been said about neurosis holds in a similar way about psychoses. There have been psychoanalysts that speak about the psychotic core of the human mind, see ?. Again from the Abhidhamma model a psychosis can be explained naturally. The cognitive-emotional process consists of collaborating *vīthis*. If this cooperative process fails to function for one reason or another, then the mental balance may be lost and one falls into a state of consciousness in which one observes individual *vīthis* or even *cetas*. This causes a dissociation, which often is a major component of a psychosis. The personal balance may be restored if the causes for the dissociation are removed. But it is also very well possible that the psychosis gets a more permanent character.

Also in this case improvement seems possible, as is witnessed by meditators that have climbed out the temporary dissociation in their *vipassana* development. Although it should be admitted that in the case of psychoses the development of concentration and mindfulness is much more difficult than in the case of a neurotic patient, the first important message to the sufferer of a psychosis is that it is a very understandable, if not natural, phenomenon. To some this news may be so reassuring that improvement follows soon. This probably will be

the lucky few. But I think that this class of clients is definitely not empty. For others a careful therapy, based on understanding and initial careful medication and sufficient patience the once deemed incurable illness may turn out after all to be curable. This judgement is purely based on personal experience with the powerful forces of the cetāsa and the sufficiently powerful force of mindfulness and penetrating insight. A document that points in a similar direction is Podvoll [1992].

9. Summary

We summarize the features of the cognitive model of the Abhidhamma.

1. Our field of awareness takes objects. There is no observer.
2. There are four classes of objects: rūpa, nāma, concepts and a single object forming the fourth class, Nibbāna.
3. Some nāma objects serve to support (interpret) the rūpa objects and are also classified as rūpa.
4. The model is discrete. Consciousness does not act in a flowing continuous way, but comes in ‘consciousness atoms’ that are located in time and have a short duration. Each such atom is called a *ceta* (or also *citta*).
5. The model is sequential and parallel: every moment there is at most one ceta having an object as input; on the other hand within a ceta several components called *cetasikas* are working together harmoniously.
6. The model is deterministic. What happens next is determined by the types and contents of the present ceta, the present kamma and the available input at the time of next ceta. One seems to need a store of kamma here, available to each C(O). This kamma store is updated if the C has kamma. The kamma store either may be an external ‘static’ memory, or an internal ‘dynamic’ memory that is transferred like a baton in an estafette match.
7. The model is finite state. There is a fixed finite set of *types* of cetasa.
8. The object set is large, corresponding to situations in the world, the mind of the carrier and output through movement, speech and thought. Since the objects should provide input conveying multimedia information about the world it seems possible to code them by numbers up to 10^9 .
9. The model speaks little about output. Movement may be coded as presenting an object O to V_K belonging to the bodily or vocal rūpa ‘intimation’. This will result in an action of the person in question. Again outputs are taken as numbers up to 10^9 . Mental outputs to mind are like mental inputs from mind, seen from the other direction.
10. The transition table of the model is not given. (Perhaps in the Patthana?)

Pali words

ceta	consciousness moment
nama	mind
rūpā	matter
Nibbāna	Nirwana
paramattha	absolute
paññatti	convention, concept
kamma	action (with future consequences)
vīthi	chain of consciousness moments
bhavaṅga	life-continuum, baseline consciousness

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