# Contents

# Using Transition Systems to Formalize Ideas from Vedānta

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*Abstract*:
Vedānta is one of the oldest philosophical systems. While there are many detailed commentaries on Vedānta, there are very few mathematical descriptions of the different concepts developed there. This article shows how ideas from theoretical computer science can be used to explain Vedānta. The standard ideas of transition systems and modal logic are used to develop a formal description for the different ideas in Vedānta. The generality of the formalism is illustrated via a number of examples including *saṃsāra*, Patañjali's *Yogasūtra*s, *karma*, the three *avasthā*s from the *Māṇḍūkya Upaniṣad* and the key difference between *advaita* and *dvaita* in relation to *mokṣa*.
*Keywords*: Vedānta, *mokṣa*, transition system, Brahman.

## 1. Introduction

The *Upaniṣad*s, also called Vedānta [9], [25], move away from the purely ritualistic worship of God that is present in the earlier section of the Vedas. The *Upaniṣad*s are viewed as one of the earliest philosophical texts and many of them pre-date Buddhist thought. These writings cover a variety of topics including the origins of the universe, what happens after death, what is the root cause of our experiences, and "Who am I?" or "What is my true self". They also wish to answer the question of what is eternally true and what is changeable.

Because many of the *Upaniṣad*s are terse, the core ideas in the *Upaniṣad*s are expanded in different writings including detailed commentaries. These include, the *Bhṛguvalli* [29], [21], the *Pañcadaśī* [1], the *Yoga-Vāsiṣṭha* [2] and the *Vivekacūḍāmaṇi* [17]. More recent works (e.g. [31]) provide a high-level summary of many of these concepts. They all explain the notion of *Brahman*, the ultimate entity who is above the Vedic Gods, based on the descriptions in the *Kena* and other *Upaniṣad*s [4]. Technically, everything owes its existence to *Brahman* and *Brahman* is the sole "cause" of everything. In other words,

if *Brahman* did not exist, nothing would exist. The writings also go on to argue that one's true self, i.e., the answer to the question "Who am I?" is related to *Brahman*. Many of the *Upaniṣad*s also state that *Brahman* is not an object of knowledge. So *Brahman* cannot be known using conventional means of acquiring knowledge. *Brahman* is a pure subject and the basis of all experiences [6].

Explanations related to the universe and human existence is often based on *karma* or the law related to action and its consequences. *Karma*, in terms of the consequences that need to be bourne, is associated with an individual's *jīva*, which could be described as the individual's soul. It is the *jīva* that "carries" the karma. It is the presence of karma that leads to *saṃsāra* which is the cycle of birth and death. *Mokṣa*, which is salvation or freedom from *saṃsāra*, is the aim of all spiritual seekers [16]. *Mokṣa* is not only getting out of *saṃsāra* but it is also being one with the divine. The different interpretations of Vedānta have slightly different definitions of being one with the divine. In *advaita* one's true self is identical to *Brahman*. Therefore, *mokṣa* in *advaita* is realising that one is *Brahman*. This realisation is not just bookish knowledge. It is about how one interacts with everything and everyone in the world. In *dvaita*, one attains *mokṣa* when one reaches the abode of God. *Dvaita* claims that one cannot merge or become one with *Brahman*. This is because the *jīva*'s soul is different from *Brahman*.

All interpretations of *Vedānta* are based on the showing that one's true self is not the body or the mind. To explain this line of thought, these writings introduce different concepts including
- the five body sheaths or the *Pañcakosha* [21],
- the three types of bodies or *śarīra*s [24],
- *mithyā* which is loosely translated as illusion or what is unreal,
- *sat* which is the opposite of *mithyā* and thus loosely translated as real,
- *anirvacanīya* or the one that cannot be described because of limitations in language and
- the *neti-neti* (or apophatic) style of reasoning [28].

While the above ideas are developed at length using natural language, they are still subject to different interpretations. In this article, we describe a formalism that can, in principle, capture the semantics of all these different concepts. This is based using a labelled transition system [20], [12], and modal logic related to knowledge [10]. The process formalism used here can describe a variety of state based dynamic behaviours based on changes to the current state. This formalism can also be used to describe concurrent behaviours. While we do not focus on concurrency in this article, it is important that concurrency can be supported. Concurrency is needed to define how different entities evolve independent of each other as well how different entities can interact together.

The main purpose of the formalisation is to present a framework where all the key concepts from Vedānta can be defined in a precise way. The intention is that the formalisation will provide the basis for further discussions including distinguishing the different interpretations of the same concept. The usefulness of the formalisation is illustrated via a number of simple examples. These examples are not necessarily complete, in that they do not completely describe all the concepts in Vedānta and associated texts. They only illustrate the use of formalism to describe some of the key concepts. The examples also show how the formal descriptions can be used to characterise the different interpretations of Vedānta or comparing Vedānta with other schools of thought [19]. Such detailed comparisons are beyond the scope of this paper. Similarly, we do not focus on the logical aspects present in Vedānta-related epistemology or concrete reasoning systems (such as Nyāya [7]). Such descriptions can be found elsewhere, e.g. [5].

In short, the aim of the paper is to give a formal semantics to ideas from Vedānta. Towards this we use the idea of transition systems and logic of knowledge that are common in computer science. The key aspects of the formalism are first described in Section 2; the examples that use the formal

notation are described in Section 3. Based on the examples in Section 3, a high-level system view is presented in Section 4.

## 2. Formalisation

In this section we explain the notation that underpins the formalism used to describe the key concepts. The formalisation is based on the following building blocks.

- An infinite set of states $\mathbb{S}$ with a distinguished element called $B$. Here $B \in \mathbb{S}$ represents *Brahman*.
- This set of states is *partitioned* into many subsets. That is, the intersection of each distinct subsets is empty. Each subset is typically written as $S_j$ for a particular entity $j$. For example, $j$ can be a *jīva* which will be expanded in Section 3.1. Therefore, for different entities $j_1$ and $j_2$, $\mathbb{S}_{j_1} \cap \mathbb{S}_{j_2} = \emptyset$.
- An infinite set of actions $\mathbb{A}$ that represents the actions that can be performed.
- An infinite set of properties $\mathbb{P}$ that can be associated with each state except $B$. $B$ has no properties axiomatically. A number of properties may hold in any given state. Thus the set of properties for any given state will be a subset of $\mathbb{P}$.

    Some of the descriptions in Vedānta are in terms of knowledge. That is, Vedānta outlines what can be known, who can know what, etc. Here we focus on subset of the techniques outlined in the book by Fagin et al. [10]. For the purposes of this article, we define a binary relation K to represent knowledge. Elements of this relation belong to P as they are used to describe logical predicates. So we can describe what is known and by whom in any given state. For instance, if $\mathbb{K}(a, b)(s)$ holds in a given state, we can conclude that entity $a$ knows $b$ in state $s$. We can also have $\mathbb{K}(a, \mathbb{K}(b, c))(s)$ which indicates in state $s$, $a$ knows that $b$ knows $c$. As per the *Dṛg-Dṛśya-Viveka* [23], we cannot have $\mathbb{K}(o, o)$ as the object is different from the knower of the object. But we can have a chain of knowledge relations. For example, $\mathbb{K}(o_2, o_1)$, $\mathbb{K}(o_3, o_2)$, and $\mathbb{K}(o_4, o_3)$ are all possible knowledge relations. That is, $o_2$ knows $o_1$, $o_3$ knows $o_2$ and $o_4$ knows $o_3$. So an object can know other objects but not itself. Disallowing self-reference prevents logical inconsistencies.

- As everything other than *Brahman* changes, it is natural to capture change as transitions between states. So we define a set of transitions as pairs of states labelled with action(s). This is written as $s \xrightarrow{a} s'$ where $a \in \mathbb{A}$. This indicates that one can move from state $s$ to state $s'$ by performing action $a$.

Sometimes (mainly for notational convenience) we write $s \xrightarrow{\phi} s'$ where $\phi$ represents the change in properties as a result of performing some action $a$. Here the focus is not on the action but on the change in properties corresponding with the change in state. Thus $\phi \subseteq \mathbb{P}$.

- We use $B$ as the initial state for the transition system. This will be used to capture the fact that everything starts with *Brahman*. This indicates that without *Brahman* nothing can exist.

    The above formalism suffices for the main concepts we wish to illustrate via examples. The generality of this formalism has been illustrated in other research where different types of systems are described. The formalism presented in this article is more concrete than the other characterisations of Vedānta. For instance, the logic we are using here is relatively simple. More complex modal logics (e.g. [27]) can be incorporated in this framework without major effort. Similarly, Corazza [8] uses axiomatic set theory to define consciousness (an important aspect of Vedānta) but does not handle state transitions that occur in the material universe. State-based systems can be used to describe consciousness [13].

## 3. Examples of Reasoning

In this section we present a few examples to illustrate some of the concepts developed in Vedānta. The examples presented here are chosen to cover a number of diverse topics to illustrate the generality of the approach.

### *3.1.* **Brahman** *and* **Jīva**

Vedānta states that everything exists because of *Brahman*. This is captured by the requirement that for every state $s$, one can find a path from $B$ to $s$. As $B$ is the initial state nothing in the system can be obtained without *Brahman B*. This formalism answers the question what was there before *Brahman*. As *Brahman* is the initial state, the question of having something before *Brahman* does not arise. Otherwise, the entity before *Brahman* would be the initial state.

Furthermore, no entity can know *Brahman* and *Brahman* has no properties. This means that in all states $s$ and for all entities $e$ including $B$, we have $\neg \mathbb{K}(e, B)(s)$ and $\neg \mathbb{K}(e, \mathbb{K})(s)$. That is, *Brahman* cannot know *Brahman* and it is not possible to know the relation $\mathbb{K}$. These requirements are added to avoid potential logical contradictions. The fact that *Brahman* has no properties holds by definition.

The next idea we consider is that of *jīva* or soul that has not attained *mokṣa* or salvation. This captures the idea of living entities in this world. The reason for dividing the set of states into a set of disjoint states is that each subset represents the behaviour associated with a particular *jīva*. Formally, for each (say $j$), we can identify a set of states $\mathbb{S}_j \subset \mathbb{S}$ and as described earlier for different $j_1$ and $j_2$ the $\mathbb{S}_{j_1} \cap \mathbb{S}_{j_2} = \emptyset$. These properties state that the evolution of each *jīva* occurs within its own state space. Every *jīva* can interact with other *jīva*s and this is illustrated in Section 3.4.

Every *jīva* that is alive has a *sthūla* (gross), *sūkṣma* (subtle) and *kāraṇa* (causal) *śarīra* (bodies) [24]. To capture this, we define properties called 'has*Sthūla*', 'has*Sūkṣma*' and 'has*Kāraṇa*'. Formally, $\{\text{has}Sthūla, \text{has}Sūkṣma, \text{has}Kāraṇa\} \subset \mathbb{P}$.

These properties are associated with the layers of the *jīva* and can be used to characterise, both being embodied and being dead. In any state where all three properties hold, the *jīva* is said to be embodied. When the body dies, the *sthūla śarīra* ceases to exist. Thus death is characterised where 'has*Sthūla*' does not hold but 'has*Sūkṣma*' and 'has*Kāraṇa*' hold. Formally, death can be an abbreviation for the formula '¬has*Sthūla* ∧ has*Sūkṣma* ∧ has*Kāraṇa*.'

These three properties can also be used to characterise *pralaya* or dissolution of the universe. When *pralaya* occurs, all *jīva*s have only their *kāraṇa śarīra*. Both the *sthūla śarīra* and the *sūkṣma śarīra* cease to exist. So a state $s$ can be said to represent *pralaya* when for all *jīva*s the property '¬has*Sthūla* ∧ has*Sūkṣma* ∧ has*Kāraṇa*' holds.

The properties associated with the *śarīra*s allow us to impose consistency checks. For example, if 'has*Sthūla*' holds, then both 'has*Sūkṣma*' and 'has*Kāraṇa*' need to hold. Similarly, if 'has*Sūkṣma*' holds, then 'has*Kāraṇa*' has to hold.

Given this characterisation of a *jīva*, reincarnation is now a sequence of transitions from a state where the property associated with death holds to a state where the *jīva* acquires a new body, i.e., a *sthūla śarīra*. Consider the sequence of transitions $s_1 \overset{death}{\to} s_2 \overset{born}{\to} s_3$. Here $s_1$ and $s_3$ will belong to the same state partition associated with a specific *jīva*. In states $s_1$ and $s_3$ the property 'has*Sthūla*' holds while in state $s_2$ the property 'has*Sthūla*' will not hold. It is not essential for states $s_1$ and $s_3$ to be identical. The difference in $s_1$ and $s_3$ could be due to the change in karma (see Section 3.3) that is

associated with those states.

## 3.2. Free Will

In some theories, God acts as a controller also called *antaryāmī*. But this does not necessarily mean that all the *jīva*s have a pre-determined life. The *jīva*s have free will. God's role in free will can be defined in terms of the set of transitions that are available at each state. That is, the set of transitions represents the options one has at any given point. Each *jīva* can choose one of these options based on its current tendencies, thinking etc., capturing the semantics of free will. That is, free will is having choice to select possible behaviours at any given state.

  An example is shown in Figure 1. Assume that in state $s_1$ three choices are possible. God might decide, for whatever reason, that in this state the option to perform $b_1$ should not permitted. Thus the *jīva* still has choice to perform either action $a_1$ or $c_1$ but state $s_3$ is not reachable from $s_1$. If the *jīva* chooses $a_1$, the states $s_5$, $s_8$ and $s_9$ are potentially reachable. That is, God is not constraining any behaviour from $s_2$ and $s_5$. However, if the *jīva* chooses $c_1$, the only possible move is to state $s_6$ via action $c_2$ because action $c_3$ is blocked by God.
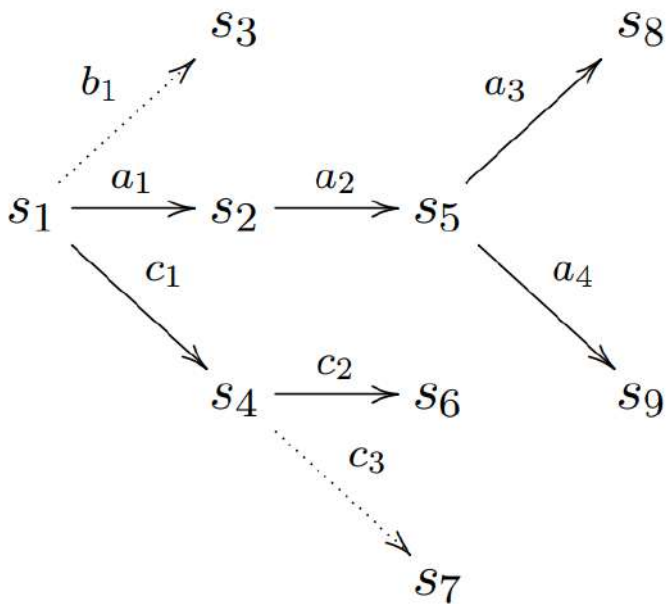


**Figure 1**: Free Will.

The example shows that behaviour of the *jīva* is not pre-ordained. Both God, via making options available, and the *jīva*'s free will by choosing the option that is made available have a role in deciding what happens in the future.

  Such control of behaviour could occur via assigning specific *karma* values (developed in Section 3.3) to each state. So one's past or current *karma* could enable or disable certain transitions. Therefore, the value associated with *karma* can be used to encode either the enabling or inhibition of certain actions.

Overall, God or the principle of *karma* can act as controller (as in discrete control systems [26]) where certain actions are disabled while all the *jīva*s are like the environment in system theory. That is, the behaviour of all the *jīva*s is unpredictable as they have free will. They are free to choose from the available list of actions. But unlike a safe controller, not all unsafe behaviours are necessarily blocked by God. The chosen behaviour, be it good or bad, is left to the individual.

To capture this formally, we define a class of properties ''godAllows($\alpha$)' for every action $\alpha$ (i.e., $\alpha \in \mathbb{A}$). This can be used to describe aspects of the transition system in Figure 1 as follows.

In state $s_1$ the property 'godAllows($a_1$) $\wedge$ godAllows($c_1$) $\wedge \neg$ godAllows($b_1$)' holds.
In state $s_4$ the property 'godAllows($c_2$) $\wedge \neg$ godAllows($c_3$)' holds.
In state $s_5$ the property 'godAllows($a_3$) $\wedge$ godAllows($a_4$)' holds.

### *3.3.* **Karma** *and* **Mokṣa**

*Karma* can also be encoded in this system as a specific class of property. Changes in *karma* are captured via changes in the set of properties between the starting and ending state. For example, let us assume for the sake of simplicity that the property of *karma* is denoted as a pair of integer values representing good and bad karma (i.e., $\langle g, b \rangle$). If one does a good action but it is not without dispassion the in the new state will be $\langle g', b' \rangle$ where $g' > g$ and $b' \leq b$. The usual understanding is that $b$ will not change but it is possible to have a theory where a good action offsets a part of past bad *karma*; hence $b$ can decrease. Similarly, a bad action will result in the value of $b$ increasing ($g$ may or may not increase) and a dispassionate action will not change the values associated with *karma*.

Normally, *mokṣa* occurs when one's accumulated karma is zero or $\langle 0,0 \rangle$. *Mokṣa* at one level is simple and it occurs when the transition from a state to $B$ is taken. That is, one has reached the end goal of spirituality, namely, "being one with *Brahman*". Such a transition only occurs when the karma is $\langle 0,0 \rangle$.

Such transitions are not sufficient as they do not handle the notion of *jīvan mukta* [18]. A *jīvan mukta* is one who has realised *Brahman* but is still living, i.e., has a body. A *jīvan mukta* can be represented as a state where all the three *śarīra*'s exist and there is no *karma* (i.e., *karma* is $\langle 0,0 \rangle$). To capture the semantics of *jīvan mukta*, for all such states where they are alive, the only possible move is to a state where the body is dead and then both the *sūkṣma śarīra* and the *kāraṇa śarīra* disappear leading to *Brahman*.

Technically, we have to split karma into *sañcita karma* or the accumulated *karma* during this birth, *prārabdha karma* or the *karma* that is associated with one's birth and *āgami karma* that is the result of current actions. That is, we are refining the pair of integers can be split into '*sañcitaKarma*', '*prārabdhaKarma*' and '*āgamiKarma*'. This does not require any change to the basic framework. Only the encoding of *karma* has to change from a pair into three pairs. The above description of change in karma via current actions performed will apply only to the *āgami karma*. When we say a *jīvan mukta* has no *karma* it applies only to the *sañcita* and *āgami karma*. The *prārabdha karma* will disappear only at the time of death.

All transitions in the living world made by a *jīvan mukta* must keep the absence of *sañcita* and *āgami karma* invariant. That is, all transitions for a *jīvan mukta* from a state where there is no *sañcita karma* has to be to a state where there is no *sañcita karma*. Some aspects of this is captured by the transitions shown in Figure 2. Here actions *a* and *b* are performed when the *jīvan mukta* is living. Such an invariant applies only after the *jīva* has become a *jīvan mukta*. Otherwise, the *jīva* will continue to

accumulate *sañcita karma*.

Thus the property 'has*Sthūla*' holds in states $s_1$, $s_2$ and $s_3$. Also, '*sañcitaKarma*$(s_1)$ = *sañcitaKarma*$(s_2)$ = *sañcitaKarma*$(s_3)$' and '*āgamiKarma*$(s_1)$ = *āgamiKarma*$(s_2)$ = *āgamiKarma*$(s_3)$' are true. When the body associated with the *jīvan mukta* dies, the *jīvan mukta* enters the state $s_4$ where 'has*Sthūla*' does not hold. Now the only possible transition is to *Brahman*. This transition is called *videha mukti* in the literature (i.e., *mukti* achieved without a body or *mokṣa* after death). The absence of any other transition is shown using ×. Formally, *videha mukti* occurs in state (say $s_4$) where $\neg\exists\ s_5 \neq B, a: (s_4 \xrightarrow{a} s_5)$. That is, there is no action or state (other than *Brahman*) that the state $s_4$ can evolve to.
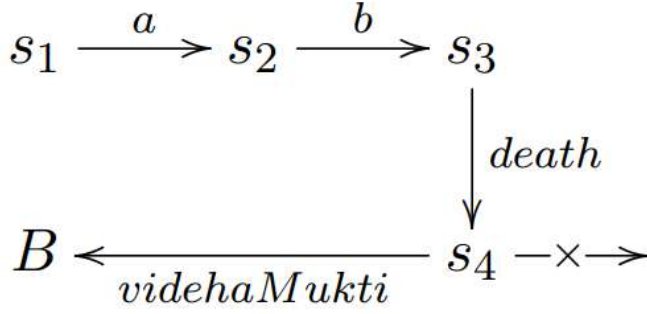


**Figure 2:** Jīvan Mukta

### 3.4. Interaction with Others and Joint Behaviour

Thus far we have outlined the behaviour of a particular *jīva* without any reference to other *jīva*s. In reality, each *jīva* interacts with other *jīva*s. To capture this, we define an interaction relation which will contain all possible interactions. This requires an extension to the basic formalisation which considered each state transition in isolation.

Formally, interaction is represented by a set by a set $\mathbb{I}$. This can be formally defined in terms of subsets of the relation →. Each interaction is a set of transitions from different *jīva*s. For example, the set $\{s \xrightarrow{\alpha} s', t \xrightarrow{\beta} t', u \xrightarrow{\gamma} u'\}$ represents an interaction between three *jīva*s. It describes the situation where the in states $s, t, u$ interact with each other and move to the states $s', t', u'$ respectively. The actions $\alpha$, $\beta$, and $\gamma$ need to be performed by the individual *jīva*s for the interaction to occur. We can impose a consistency requirement on elements in $\mathbb{I}$. We require that the partitions that contains $s$, $t$ and $u$ respectively are all mutually disjoint. That is, interaction occurs only between different *jīva*s. So $s$, $t$ and $u$ have to belong to sets associated with three distinct *jīva*s.

We now give a simple example that uses the above formalism. The example describes the incident from the *Mahābhārata* where Bhīma hits Duryodhana's thighs. This can be seen as an interaction between Bhīma, Duryodhana, Sanjaya (who was narrating the incident) and Dhṛtarāṣṭra (who was listening to Sanjaya). This can be represented by the following four transitions operating together.

**Bhīma**: $b \xrightarrow{hit} b'$ where *hit* represents hitting Duryodhana's thighs.

**Duryodhana**: $du \xrightarrow{gotHit} du'$ where *gotHit* represents getting hit on the thighs by Bhīma.

**Sanjaya**: $s \xrightarrow{describe} s'$ where *describe* is Sanjaya narrating the incident.

**Dhṛtarāṣṭra**: $dh \overset{emotions}{\rightarrow} dh'$ where the action *emotions* represents both feeling sad at Duryodhana's plight and feeling angry at the Pandavās. That is, the state $dh'$ associated with Dhṛtarāṣṭra denotes him feeling sad at the impending loss of his son, Duryodhana, and also angry at the Pandavās for inflicting damage to his children.

Without explicitly considering interaction, one can state that *hit* and *gotHit* have to occur in the same step. Other than this notion of "simultaneity", none of the previous descriptions, say related to properties such as karma need to change. One only needs to define what is the outcome of the joint behaviour. While joint behaviours requires the participation of multiple *jīva*s, the outcome for each *jīva* in terms of the resulting state is defined individually. Therefore, the idea of associating properties with states needs no change. For example, if aspects of the interaction are unethical, the performers' negative *karma* will increase and the *karma* of the one who suffered could reduce. Specifically, the result of this interaction could be the following.

• Bhīma accumulates some negative *karma* (for violating the rules of war). This change in karma will be reflected in the property associated with the state $b'$.

• Duryodhana who has become mortally wounded, has undergone suffering and will have some reduction in his negative *karma*. As he is not yet dead, he still has his *sthūla śarīra*. Similar to $b'$, the change in Duryodhana's *karma* will be reflected in the property associated with $du'$.

• Dhṛtarāṣṭra has also suffered and his negative *karma* will be reduced. The reduction would depend on the level of mental anguish offset with his emotions desiring revenge.

• As Sanjaya is just an observer and is not affected by the above actions, there will be no change in *karma* for Sanjaya.

### *3.5. Aspects from the* **Yogasūtras**

Patañjali's *Yogasūtra*s [3], have had a huge impact on Vedantic thinking especially the ideas related to meditation and controlling the mind. In this section we describe two related concepts from the *Yogasūtra*s. The first is a wandering mind, where in a given state one cannot focus and the second is a calm mind which is not affected by the behaviour of others.

To describe a wandering mind, we first define a set of actions (say $T \subseteq \mathbb{A}$) to represent one's thoughts. A mind is wandering in a given state (say $s$) when different actions from $T$ lead to different states. For example, let $a$ and $b$ belong to $T$, and $s \overset{a}{\rightarrow} s_a$ and $s \overset{b}{\rightarrow} s_b$ be the two possible transitions where $s_a$ and $s_b$ are different states. If the mind is focussed on only one thought (say on $a$), the transition $s \overset{b}{\rightarrow} s_b$ will not be taken. Otherwise in state $s$, the mind is wondering which action ($a$ or $b$) to perform.

In a way, this is related to free will. That is, certain transitions will not occur. In the case of a focused mind, the control in terms of which transitions are generated (i.e., elements of $T$) and which are not taken is exercised by the *jīva*. Here, unlike in the case of free will, God has no role.

In general one's mind is less wandering in state $s_1$ than in state $s_2$ if the cardinality of the set $\{s_a | s_1 \overset{a}{\rightarrow} s_a, a \in T\}$ is less than the cardinality of the $\{s_a | s_2 \overset{a}{\rightarrow} s_a, a \in T\}$. That is from $s_1$ there are fewer options than from $s_2$. Because the number of possible choices the mind has to consider (i.e., actions from $T$) in state $s_1$ is less than the number of possible choices in state $s_2$, one can conclude that the mind in state $s_1$ is not wandering as much as from $s_2$. An transition of form $s_1 \overset{a}{\rightarrow} s_1$ indicates that

the action $a$ has no effect on $s_1$ and also represents a non-wandering mind, for the action $a$. Here the thought $a$ occurs but has not change the *jīva*'s state.

In the above formalisation, the set of actions in $T$ are atomic. We can enhance $T$ with actions that represent the thought arising, the thought being extinguished as well as actually performing the action that arose. This only increases the granularity of the possible transition system.

Towards defining a calm mind, we consider transitions in $\mathbb{I}$ because we wish to measure the effect of external effects on one's mind. One's mind is calm in state $s_1$ with respect to a particular thought $a \in T$ when for every set $I$ in $\mathbb{I}$, there is only state $s_2$ where $s_1 \xrightarrow{a} s_2$ irrespective of the other elements in $I$. That is, the behaviours of *other entities* have *no effect* on the behaviour from the state $s_1$. This definition allows change from state $s_1$; but that would be based purely on the thought process of the *jīva* associated with state $s_1$.

As an example consider the two interactions $\{s \xrightarrow{a} s_1,\ t \xrightarrow{b} t_1\}$ and $\{s \xrightarrow{a} s_2,\ u \xrightarrow{c} u_1\}$ where $s_1 \neq s_2$. Here the *jīva*'s behaviour in state $s$ on the action $a$ is influenced by the actions $b$ or $c$ resulting in different consequences. Such a behaviour represents a mind that is not calm. The mind is reacting to what others are doing ($b$ or $c$ in this case). However, if $s_1$ and $s_2$ were identical, the mind can be said to be calm in this particular situation as it effectively ignores the influence actions $b$ and $c$.

The above definition of a calm mind can also be used to define *kṣhānti* (forbearance) where one is equipoised in all circumstances [14]. That is, the behaviour (i.e., transition) chosen by people exhibiting *kṣhānti* will not depend on the action of the others around them.

### 3.6. Dream State and Entities in a Dream

The *Māṇḍūkya Upaniṣad* [22] discusses how the three *avasthā*s of waking, dreaming and deep sleep are all different from Brahman. Here we show how the basic structure of the set of states and knowledge can be used to capture the intended semantics in the *Māṇḍūkya Upaniṣad*.

Given a *jīva* $j$, the set of states associated with it (i.e., $\mathbb{S}_j$) can be further divided into $\mathbb{S}_j^D$ and $\mathbb{S}_j^A$ to represent the states in the dreaming and the waking world respectively. A person starting to dream is captured by the state transition $s_1 \xrightarrow{dream} s_2$ where $s_1 \in \mathbb{S}_j^A$ and $s_2 \in \mathbb{S}_j^D$. As dreaming can occur only when the *jīva* has a body, the property 'has*Sthūla*' needs to hold in both state $s_1$ and $s_2$.

In a dream state, the entities dreamt by the *jīva* $j$ belong solely to $j$'s space. Thus whenever $\mathbb{K}(j,o)(s)$ holds where $s \in \mathbb{S}_j^D$, the object $o$ has to belong to $j$'s state space. It is possible that $o$ may correspond to an object in some other's *jīva*'s state but it itself has belong to $j$'s state space.

For example, one may dream about Kṛṣṇa teaching Arjuna but both Kṛṣṇa and Arjuna are in the dreamer's state and are not the "real" Kṛṣṇa and Arjuna. The Kṛṣṇa in the dream corresponds to the real Kṛṣṇa but is not the real Kṛṣṇa. So in state $s$ where *jīva* $j$ is dreaming, we have $\mathbb{K}(j, teach(k,a))$ where the predicate $teach(k,a)$ indicates Kṛṣṇa is teaching Arjuna. But $k$ and $a$ are not the same as Kṛṣṇa and Arjuna and neither are $k$ and $a$ some random entities. The Kṛṣṇa and Arjuna in the dream do have a link to the real Kṛṣṇa and Arjuna.

To capture the relation between the entities in the dream state and in the real world, we define a map that links Kṛṣṇa with $k$ and Arjuna with $a$. Formally, this map contains elements of the form $(a, d_a^j)$ where $a$ is an entity and $d_a^j$ is $a$'s appearance in $j$'s dream. So if, $K$ and $A$ represent the real Kṛṣṇa and Arjuna, we will have $(K, d_K^j)$ and $(A, d_A^j)$. That is, $k$, the real Kṛṣṇa is mapped to $d_K^j$ the Kṛṣṇa in the dream and $a$, the real Arjuna, is mapped to $d_A^j$ the Arjuna in the dream.

The linking of state transitions and knowledge-based predicates using the above example is illustrated below. Consider the following sequence of state transitions for an individual *jīva* j.

$$s_1 \xrightarrow{dream} s_2 \text{ representing } j \text{ starts dreaming,}$$

$$s_2 \xrightarrow{teachingInDream} s_3 \text{ where } j \text{ starts dreaming about Kṛṣṇa teaching Arjuna}$$

$$s_3 \xrightarrow{awake} s_4 \text{ and } j \text{ wakes up.}$$

In state $s_3$ we can state that $\mathbb{K}(j, teach(k, a))$ holds while in $s_4$ $\mathbb{K}(j, teach(k, a))$ will not hold. However if the person knows that Kṛṣṇa taught the Gītā to Arjuna, the knowledge formula $\mathbb{K}(j, teach(K, A))$ will hold. in states $s_1$ and $s_4$.

Another simple example is when a person (say *jīva* j) dreams about achieving something. The person dreaming (j) and the person in the dream ($d_j^j$, i.e., j is dreaming about j) are clearly not the same but are related. Thus j will be mapped to $d_j^j$.

This concludes the description of the various examples. In the next section, we will put some of these ideas together to construct a big-picture system view.

## 4. System View

Thus far we have looked at individual concepts that are used to explain the different metaphysical concepts in Vedānta. We now present a high-level system view without all the internal details of the individual systems. Figure 3 has a simple depiction of how the universe arises from *Brahman*, and an abstract semantics for *saṃsāra*, *pralaya* and *mokṣa*. The system has a potential unending cycle because after *pralaya* there is a re-creation of the universe. Figure 3 does not indicate how many times the cycle of *saṃsāra* is taken. The exact number of iterations would depend on the specific values of *karma* and the actions that update it. Thus the *karma* shown in the diagram is not a specific value. It represents the presence of *karma* for all concrete states associated with the *jīva*. So, this general description needs be instantiated for each particular situation, to explain how an individual's life unfolds.

The transition labelled *mokṣa* leading to *Brahman* is technically valid only in *advaita*. Also, it does not capture the behaviour of a *jīvan mukta*. Similarly, the label of *māyā* on the transition from *Brahman* to the universe is also specific to *advaita*. A dashed arrow is show from *Brahman* to the universe to illustrate that the state "*Brahman*" does not change. So the transition does not represent an evolution of *Brahman*'s state. Formally, this can also be represented by asserting that *Brahman* exists at each and every state.
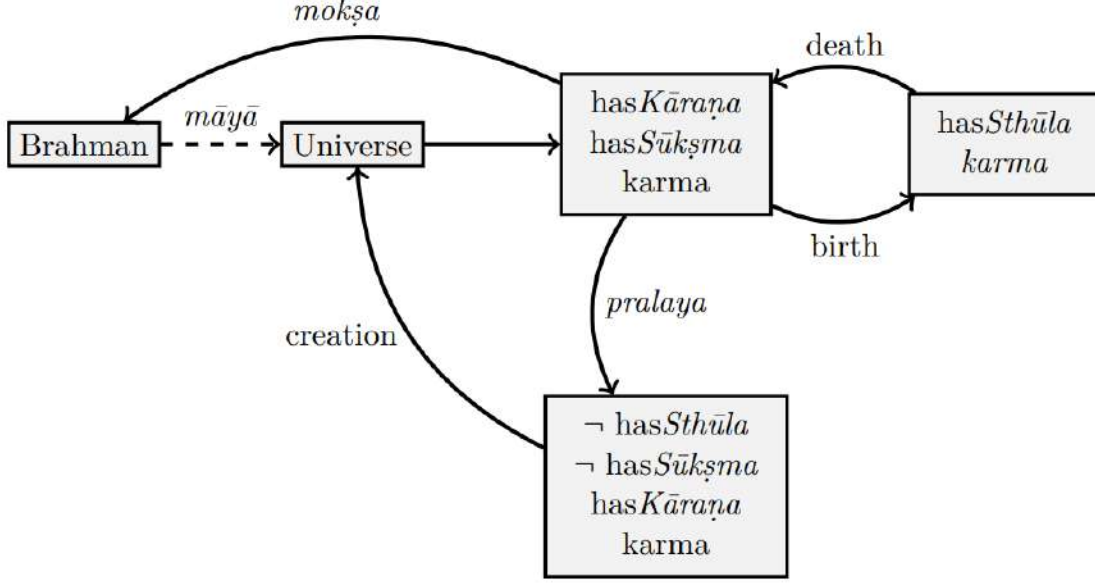
**Figure 3**: System Behaviour in *Advaita*

The transition system in Figure 3 can be interpreted as giving a precise semantics for the *mahāvākya*s [15] that appear in the different *Upaniṣad*s. For example, the statement "*tat tvam asi*" (or Thou are That) can be stated as follows. For each *jīva j* that corresponds to "Thou" in any state *s*, we can always find a path from *s* that leads to *Brahman*. So in our formalism we do not equate the true self of any *jīva* with *Brahman*. It is about the possible evolution of behaviour that can eventually reach *Brahman*. Thus the semantics of the *mahāvākya* in our system is that all *jīva*s can reach *Brahman*.

   The statement "*prajñānam Brahmā*" requires a more careful analysis. The statement is not about any *jīva*. Hence it is not directly related to the transition system. As the statement is about knowledge, the semantic characterisation of *Brahman* is the relation $\mathbb{K}$. This relation $\mathbb{K}$ can be associated with *Brahman* because *Brahman* cannot be known in the conventional way but "knows" everything. All other states will have some item that is not known. That is, for every state $s \neq B$, there exists a formula $\mathbb{K}(i, o)$ such that $\mathbb{K}(i, o)$ does not hold at $s$. That is, entity $i$ does not know object $o$ in state $s$. We axiomatically equate *Brahman B* with $\mathbb{K}$. We do not wish to state that $B$ knows *everything* as that could lead to logical contradictions.

   The *dvaita* view is captured in Figure 4. Firstly, *mokṣa* is reaching *Brahman*'s or *Viṣṇu*'s abode (*Vaikuṇṭha*) and not merging with *Brahman*. The relationship between *Viṣṇu* and *Vaikuṇṭha* is captured by the transition labelled "lives" to indicate *Viṣṇu* lives in *Vaikuṇṭha*. In *dvaita*, grace of God is important. Hence apart from *karma*, we include a new predicate called 'getsGrace'. *Dvaita* does not believe in *māyā* but has a notion of *līlā* (God's non-selfish play). Therefore, the transition (again shown as a dashed line to show that *Brahman* does not change) from *Brahman* or *Viṣṇu* is now labelled *līlā*. Here again, each *jīva* has a sequence of transitions that lead to *Vaikuṇṭha*.
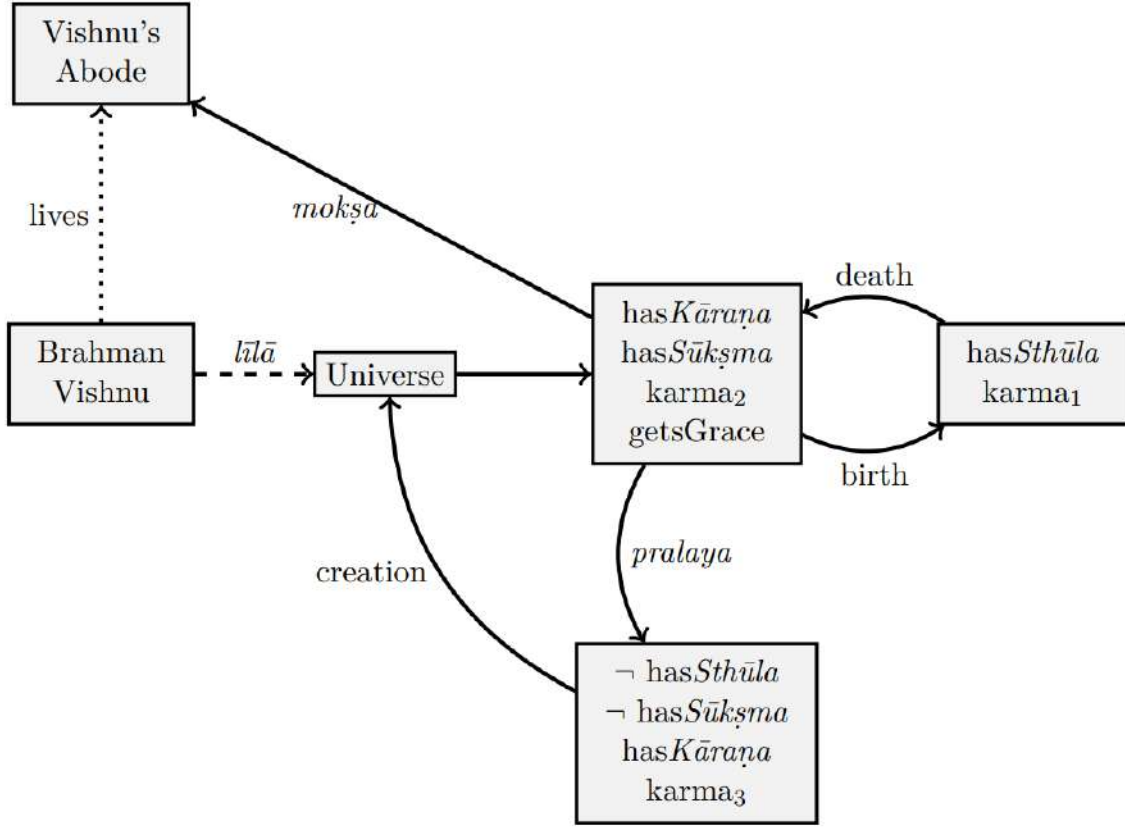
**Figure 4**: System Behaviour in *Dvaita*

Apart from identifying the difference in the definition of *mokṣa*, the formalism identifies what is common to *advaita* and *dvaita*. For instance, concepts such as *sthūla śarīra* and *pralaya* are not affected by the different interpretations of *mokṣa*.

## 5. Conclusion

In summary, this article has illustrated how many aspects of Hindu philosophy, viz., Vedānta can be captured in a mathematical framework. The key contributions are

• A set of states ($\mathbb{S}$) that can be partitioned for each *jīva* and within the states for the *jīva* it can be divided into dreaming and waking states. A map that can captures the correspondence between entities and their occurrences in people's dreams.

• A set of properties ($\mathbb{P}$) that can be used to describe the properties that hold at each state. This can be used to encode a variety of concepts including the *śarīra*s and *karma*. The different *śarīra*s are represented by simple predicates while *karma* is represented either as a simple pair of integers or as a pair of pair of integer values to capture *sañcita karma* and *prārabdha karma*. The notion of knowledge ($\mathbb{K}$) can also be associated with states to indicate what is known in each state.

• A set of transitions ($\rightarrow$) between states to capture behaviour. Transitions combined with properties such as 'godAllows($\alpha$)' for specific actions, enables the description of the role of God in free will for the *jīva*s. The transition system can also be used to define a *jīvan mukta* and when *videha mukti* can

occur.

- A set of interactions ($\mathbb{I}$) which are nothing but sets of transitions to capture joint behaviour. This is necessary as the *jīva*s interact with each other in this world. It is also useful to define the influence of others on a particular *jīva* and how that *jīva* reacts to this external influence. This set of possible interactions is used to identify a calm mind.
- Various examples (e.g., free will, aspects from the *Yogasūtra*s, *mokṣa*) to illustrate the usefulness of the formalism.

The formalism presented here can be used to describe concepts such as consciousness [11]. The formalism can also be extended to cover probabilistic behaviours and notions of information to accommodate other descriptions of consciousness [30]. Potential future work is to develop a deep semantics for specific concepts in Vedānta.

## Acknowledgements

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## Representation and Reasoning in Vedānta

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*Abstract*
This paper considers the matter of representation in Vedānta by examining key claims in the *Ṛgveda* and the *Upaniṣad*s, which are some of its principal texts. Specifically, we consider the logic behind the paradoxical verses on creation and the conception of consciousness as the ground on which the physical universe exists. This also is the template that explains the logical structure underlying the principal affirmations of the *Upaniṣad*s. The five elements and consciousness are taken to pervade each other, which explains how gross matter is taken to consist of all the four different kinds of atoms that get manifested in different states of the substance. The verses on creation are an example of the use of *catuṣkoṭi* in Indian philosophy prior to the use of it by Nāgārjuna in the Madhyamaka tradition. It also contrasts central ideas of Vedānta with the corresponding contemporary scientific ideas on consciousness.
*Keywords*: logic in Vedānta, consciousness, superposition, error in reasoning, representation.

## 1. Introduction

This essay considers representation at the basis of reasoning in Vedānta. For this we use some references from *Upaniṣad*s which, together with the *Brahma Sūtra*s and the *Bhagavad Gītā*, are the fundamental texts of Vedānta. Since their dates are indubitably much before the rise of Buddhism, one need not be concerned about questions of the possible innovations of Buddhism having influence on it. The motivation is not only to determine how reasoning was used and described but also throw light on some key passages of the *Upaniṣad*s.

Vedānta is concerned with the *jñānakāṇḍa* or the knowledge portion of the Vedas and, therefore, it addresses the duality between the subject and the object as well the presumed unity of knowledge. The Upaniṣads assert that knowledge is paradoxical: *parokṣa-priyā iva hi devāḥ, "*the gods love what is

paradoxical" (*Aitareya Upaniṣad* 1.3.11; *Bṛhadāraṇyaka Upaniṣad* 4.2.2). This is explained elsewhere (such as *Muṇḍaka Up.* 1.1.4) on the basis of knowledge being of two kinds: first, of things (*dravya*, substance, that can also be an abstraction as in Pāṇini's *Aṣṭādhyāyī* 1.2.45) and their relationships (*aparā*, lower); and second, of cognitions and consciousness (*parā*, higher). Words represent the *aparā* perspective, whereas the sentence communicates the *parā*, and paradox arises when these two categories are conflated [1].

For the reasons articulated in Vedānta, paradoxes are a common theme in Hindu mythology (e.g. [2]) and also in the grammatical tradition, emphasizing the inconsistency of language when it contains its own truth predicate. An example of the latter is the Bhartṛhari's paradox [3] that if something is unnameable or unsignifiable (Sanskrit: *avācya*) it becomes nameable or signifiable precisely by calling it unnameable or unsignifiable. Bhartṛhari in *Vākyapadīya* 3.3.25 mentions *sarvam mithyā bravīmi*, "everything I am saying is false" to highlight the tension between the lower and the higher meanings.

The Vedānta tradition asks how the physical universe and consciousness, which belong to different categories, interact with each other given that normal evolution goes according to natural law (Sanskrit *ṛta*). To put this question in a contemporary perspective, note that the case has been made that consciousness, that is awareness of internal or external existence, is not computable [4], [5], that is it cannot be explained in terms of known physics or computing models. Furthermore, everything is taken to be part of a causal chain where the past determines the future, yet individuals believe that they possess freedom.

Language is associated with the mind, and thus with the brain, and it is interesting that neural network theory provides a number of autonomous agents of the brain that is consistent with the Sāṅkhya categories [6]. Also, according to the *dṛṣṭi-dṛṣṭi-vāda* of Vedānta, observation (*dṛṣṭi*) [7] leads to creation (*sṛṣṭi*) which may be compared to the Quantum Zeno Effect where a quantum state can be steered by observation alone [8]. This reasoning is perfectly consistent with the general framework of Indian logic that includes conscious agents [9], [10].

This essay examines the paradoxical nature of knowledge in the Indian tradition by considering claims in early Vedānta literature. We begin with the Creation Hymn of the *Ṛgveda*, analyze key passages from the *Upaniṣad*s for their logical structure, and discuss how *adhyāsa*, that is superimposition of characteristics of one entity on to another, becomes a source of error.

## 2. Paradox in the Creation Hymn

Consider the Ṛgveda where in the hymn 10.129 (Creation Hymn or the *Nāsadīya Sūkta*) reality is represented in terms of logical divisions that were later formalized as the four corners of *catuṣkoṭi*: "A" (affirmation), "not A" (negation), "A and not A" (both), and "not A and not not A" (neither). The difficulties of interpreting catuṣkoṭi in Buddhist narratives are well known [10], and it is not our purpose to go into these.

For any claim, A, one can speak of four possible cases:

(a) A
(b) ¬A
(c) A ∧ ¬A
(d) ¬ (A ∨ ¬A)

The interpretation of each of these cases depends on how the claim is defined in the universe of possibilities. If the universe consists of clearly defined objects (such as colored or numbered balls) and A represents balls of specific color or colors or numbers with a given property, then case (c) is the null

set, and (d) is equivalent to (c), which doesn't make the scheme useful. But if some of the balls have multiple numbers, or properties that are superpositions (as, say, in quantum theory, or in real life) then this may be of value in certain deductions.

For example, consider the set {1,2,3/4,5,6}, where 3/4 means dual label of 3 or 4. Let A be numbers that are even: {2,3/4,6}. Then ¬A: {1,3/4,5}; A ∧ ¬A: {3/4}; and ¬A ∧ ¬ ¬A: {3/4}. There can be other more interesting examples, where the cases (c) and (d) are not identical. In general, the Venn diagram for the catuṣkoṭi will be as below, where the properties of A are defined suitably.
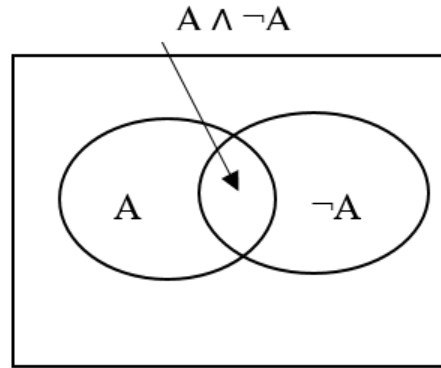


**Figure 1**: Venn diagram for A and ¬A.

Let us now consider the first two verses of RV 10.129 that describe the universe at creation:

*nāsad āsīn no sad āsīt tadānīṃ*
*nāsīd rajo no vyomā paro yat*
*kím āvarīvaḥ kuha kasya śarmann*
*ambhaḥ kim āsīd gahanaṃ gabhīram*

Not non-existence was it nor existence was it then; there was no air nor the heavens beyond. What covered it? Where? By who sheltered? Was water there, an abyss unfathomable?

*na mṛtyur āsīd amṛtaṃ na tarhi*
*na rātriyā ahna āsīt praketaḥ*
*ānīd avātaṃ svadhayā tad ekaṃ*
*tasmād dhānyan na paraḥ kiṃ canāsa*

Neither death was there nor immortality then, not of night or day was there distinction. That alone breathed without air by its own power; apart from that there was none else.

In this description of the creation of the universe, the first verse speaks of there being neither existence nor non-existence, which appears illogical given that if there is no existence then one has non-existence, so how can one make the assertion of no non-existence. It further asks what the covering was over this state, hinting that something additional had been left out.

The second verse clarifies the ambiguity by explaining that this was before time came into the picture (so no death, nor immortality), indicating further that what remained was the *cover* within which existence and non-existence were wrapped, as indicated in the first verse.

## 3. The Interpenetrating Elements and the Witness

In the Sāṅkhya system, reality may be seen through the two elements of *puruṣa* (consciousness) and *prakṛti* (nature). These two, in turn, lead to another twenty-three elements (*tattvas*), namely intellect (*buddhi* or *mahat*), ego (*ahaṅkāra*) mind (*manas*); five sensory capacities; five action capacities; and five "subtle elements" or potentialities (*tanmātras*), from which the five gross elements (*mahābhūtas*) of *pṛthivī, āpas, tejas, vāyu, ākāśa* arise. The interplay of all these elements leads to sensory experience and cognition.

But it is important to note that the Sāṅkhya categories are not hierarchically defined, or separated from each other, as in the case of the contemporary scientific view in which chemistry *emerges* from physics, biology from chemistry, and consciousness from the complexity of the electrical activity in the brain. The relationship between the Sāṅkhya *tattvas* is similar to the relationship between the classes of existence and non-existence. To understand this, it is helpful to go to the famous dialogue between Yājñavalkya and Gārgī in the Bṛhadāraṇyaka Upaniṣad (BU 3.8), which by scholarly consensus is considered several centuries prior to the Buddha. The setting for the dialogue is the series of questions that Gārgī asks of the sage Yājñavalkya.

The first questions with answers describe how the elements are pervaded by other elements in a sequence:

**Verse 3.6.1:**

*yadidaṃ sarvamapsvotaṃ ca protaṃ ca, kasminnu khalvāpa otāśca protāśceti; vāyau gārgīti; kasminnu khalu vāyurotaśca protāśceti; antarikṣalokeṣu gārgīti*

If all this is pervaded (Skt. *ota-prota*) by water, by what is water pervaded?' 'By air, O Gārgī.'
'By what is air pervaded?'
'By the sky, O Gārgī.'

This means that the five elements (*mahābhūtas*) of *pṛthivī*, *āpas*, *tejas*, *vāyu*, *ākāśa* that are normally translated as earth, water, fire, air, and ether are not quite identical to the conventional meaning of these terms. The Sanskrit word *ota-prota* means interweaving, and it implies that the elements are always presents in what might be seen as entanglement with the other elements. Also note that *ota-prota* is a symmetric concept, so that if A pervades B, then B also pervades A. The literal meaning of ota-prota is from *ota* (from *udīcī*, northward) and *prota* (from *prācī*, eastward), that is lengthwise and crosswise weaving.

The Vaiśeṣika system explains that four elements *pṛthivī*, *āpas*, *tejas*, and *vāyu* are atomic and gross matter consists of all four [12]. The example is given that gold normally is solid (seemingly, and erroneously, only *pṛthivi* atoms), but when it is heated it becomes liquid (*āpas* atoms get manifested), and further heating it starts to flame (*tejas* atoms manifested), and if the process is continued it will lose mass (owing to the working of the *vāyu* atoms).

Further on in the dialogue, Yājñavalkya says:

**Verse 3.8.4:**

*sa hovāca, yadūrdhvaṃ gārgi divaḥ, yadavāk pṛthivyāḥ, yadantarā dyāvāpṛthivī ime, yadbhūtaṃ ca bhavacca bhaviṣyaccetyācakṣate, ākāśe tadotaṃ ca protaṃ ceti*

He said, 'That, O Gārgī, which is above heaven and below the earth, which is this heaven and earth as well as between them, and which they say was, is and will be, is pervaded by the unmanifested ākāśa.'

In this cosmology, the physical universe with objects is composed of the elements pṛthivī, āpas, tejas, and vāyu that are pervaded by ākāśa (ether). And finally, all this is contained within "consciousness":

**Verse 3.8.11:**
*tadvā etadakśaraṃ gārgyadṛṣṭaṃ draṣṭṛ, aśrutaṃ śrottṛ, amataṃ mantṛ, avijñātaṃ vijñātṛ; nānyadato'sti draṣṭṛ, nānyadato'sti śrotṛ, nānyadato'sti mantṛ, nānyadato'sti vijñātṛ; etasminnu khalvakśare gārgyākāśa otaśca protaśceti*

This immutable, O Gārgī, is never seen but is the witness; It is never heard, but is the hearer; It is never thought, but is the thinker; It is never known, but is the knower. There is no other witness but this, no other hearer but this, no other thinker but this, no other knower but this. By this immutable, O Gārgī, is the (unmanifested) ākāśa pervaded.

There are two interesting aspects of this assertion:
1. Witness (*draṣṭṛ*) – and hearer, thinker, knower – is the name given to the conscious agent behind the cognition that takes place in the mind.
2. This consciousness does not only reside in physical space, but transcends it.

Now we can return to the Creation Hymn (RV 10.129), and see that non-existence and existence were within the cover of this consciousness, who is the Witness. It is only later that time and space were created and then one can speak of things.

Since consciousness is taken to transcend physical space and time, it doesn't figure in the definition of "existence" and "non-existence" (Figure 2).
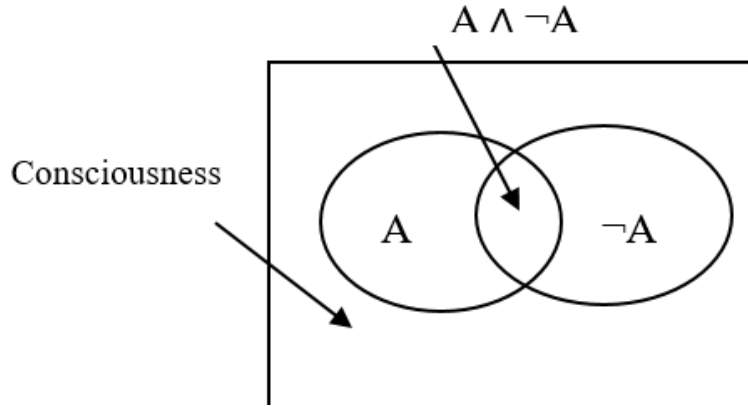


**Figure 2**: The universe within consciousness.

Considering consciousness as the "ground" on which the physical universe is created leads to several representational paradoxes. Noting that *Brahman* is the term used to define the Universe together with consciousness, the following *mahāvākyas* (great statements) from the *Upaniṣad*s sum up the heart of the Vedic conception:
1. *tat tvam asi,* That thou art. *Chāndogya Upaniṣad* 6.8.7.
2. *aham brahmāsmi*, I am Brahman. *Bṛhadāraṇyaka Upaniṣad* 1.4.10.
3. *prajñānam brahma,* Consciousness is Brahman. *Aitareya Upaniṣad* 3.3.
4. *ayam ātmā brahma,* This self (ātman) is Brahman. *Māṇḍūkya Upaniṣad* 1.2.

The first means that Brahman includes all that one can see and think of, so it includes both physical and

cognitive categories; the second means that the consciousness that illuminates the mind (the individual self) is the same as the "ground" on which the universe exists; the third and the fourth are direct assertion of the identity of consciousness and the universe.

By including consciousness within the conception of the universe, one can speak of paradoxes concerning whether one is in true reality or merely a simulation of it, which is a matter that contemporary futurists have speculated on. Ordinary consciousness has time as a foundational element, but the time variable depends on physical phenomena. In contemporary discourse, it has been said that, someday, technology will make it possible for humans to become "post-human," that is, transcend the limits of the human condition [12]. There are others who believe that the only way to make sense of all the scientific facts is to take reality as a simulation. Another scenario is to imagine that once humans learn how to completely characterize brains, they will be able to copy themselves into computers, creating their emulations, or *ems*, in the process. In a world of emulations, one cannot speak of what is real.

The paradoxes related to the impossibility of determining the difference between an event and a simulation thereof are encountered in the Purāṇas [2], the Yoga Vāsiṣṭha [13], and other books.

Although these paradoxes may be resolved by privileging the initial state as real and the later states as simulations or dream states, that cannot be done otherwise. In absolute terms, the situation becomes one of unresolvable illusion, which is called the Māyā.

Consciousness is not a property of Brahman but its very nature. Brahman is one without a second, all-pervading and the immediate awareness and in this abstraction it is *nirguṇa* Brahman, or Brahman "without qualities." This Brahman is ever known to itself and constitutes the reality in all individuals selves, while the appearance of our empirical individuality is due to *avidyā* (identification with our material self).

Brahman thus cannot be known as an individual object distinct from the individual self. However, it can be experienced indirectly in the natural world of experience in the mind. Later Vedānta speaks of Brahman as the light (*Prakāśa*) that illuminates the mind [14].

## 4. The Problem of Time

The problem of distinction between the real and its emulation is a part of the larger question of the relationship between consciousness and time. Ordinary consciousness is anchored on physical phenomena and time as a conceptual category becomes problematic even in contemporary cosmology where in the theory of black holes, time and space are assumed to flip to make sense of how an object simply disconnects from the rest of the physical world [15].

To emphasize the relative nature of time and space, there are stories in the flow of time at different rate for individuals in different worlds [2]. To give an example, the *Devi Bhāgavata Purāṇa*, has the story of the sage Nārada questioning Viṣṇu about this, who says: "Before I explain, will you fetch me some water?" pointing to a river. Nārada does as he was told, but on his way back, he sees a beautiful woman. Smitten by her, he begs the woman to marry him. She agrees and he forgets about Viṣṇu.

Nārada builds a house for his wife on the banks of the river. She bears him many children. Loved by his wife, adored by his sons and daughters, and by his grandchildren, he feels happy and secure. Suddenly, dark clouds appear in the sky and there is thunder, lightning, and rain. The river overflows, breaks its banks and washes away Nārada's house, drowning everyone he loved, and destroying everything he possessed. Swept away by the river, he cries for help, and Viṣṇu from nowhere stretches out his hand and pulls him out of the water. Viṣṇu asks, "Where is my water?" And the spell that was upon Nārada breaks, and he realizes that the years that he felt he had spent with his family, which had brought him such joy, were just an instant.

Ordinary consciousness in our mind is grounded on objective reality, in the absence of which one cannot distinguish between real and dream states.

## 5. Brahman as the Universal Set

We now return to the Bṛhadāraṇyaka Upaniṣad verses about the interweaving (or interpenetration) of the different elements. This may be represented variously and for illustration we do so in Figure 3.
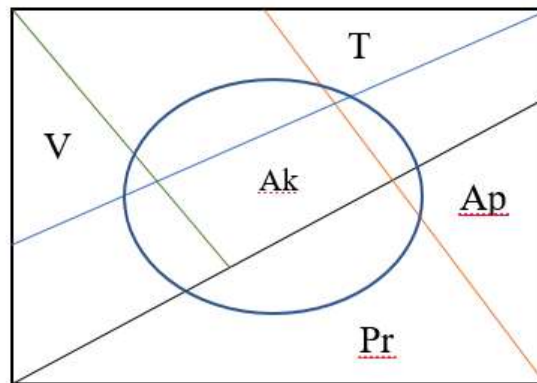


**Figure 3**: The interweaving of the elements.

Consciousness pervades through all the elements and it is accessible directly to the individual in the light that illuminates the mind, which is an instrument based on the brain's neural networks.

The mind is atomic and its size depends on the acuteness of its concentration, therefore it apprehends consciousness that can be as small as is possible and since it is the foundation for reality, it is also as large as can be conceived. This is expressly stated at many places as in the Īśa Upaniṣad, which is one of the most significant texts of Vedānta. Speaking of the *ātman* (consciousness), it says:

> *anejadekaṃ manaso javīyo nainaddevā āpnuvanpūrvamarṣat |*
> *taddhāvato'nyānatyeti tiṣṭhattasminnapo mātariśvā dadhāti*

> The [ātman] is motionless, yet faster than the mind; and the senses cannot overtake for it runs before them. Inactive, it goes faster than those who run after it. In it, the all-pervading air supports the activity of all beings.

> *tadejati tannaijati taddūre tadvantike |*
> *tadantarasya sarvasya tadu sarvasyāsya bāhyataḥ*

> It moves, yet it is motionless. It is distant, yet it is near. It is within all, yet it is outside of all.

Brahman as the universal set is accessible to us through our mind means that it is possible to reach false judgments about things by invalid associations. A common error of perception arises from conflation of material and cognitive aspects of one's self, and similar errors can also arise within a more limited locus based on invalid generalization from a limited set of attributes.

## 6. Error and True Knowledge

The Advaita Vedānta scholar and teacher Ādi Śaṅkara used the term *adhyāsa* to indicate erroneous or illusory perception. In the introduction to the *Brahma Sūtra*, Śaṅkara defines adhyāsa as the apprehension of something as something else with two kinds of confounding, namely as the object and its properties. The illusory object, like the real object, has a definite locus [16].

The Advaita theory of error (*anirvacanīya khyāti*, the apprehension of the indefinable) holds that misperception is a product of the ignorance about the substratum. The illusion could arise from association with the memory of a previous experience (*smṛtirupaḥ paratra pūrva dṛṣṭaḥ avabhāsah*), or confounding the appearance of one thing with the properties of another (*anyasya anyadharma avabhāsatam*).

*Adhyāsa* arises when properties of the body are superimposed on the experiencing self. The argumentation in the Brahma Sūtras is to establish that consciousness cannot arise from the body alone [17] which is the same view that consciousness cannot be computed or computers will never be conscious [4].

## 7. Conclusions

This essay presented the logical framework in which reasoning is done in Vedānta. It began with the Creation Hymn of the Ṛgveda, analyzed key passages from the Upaniṣads for their logical structure, and discussed how *adhyāsa*, that is superimposition of characteristics of one entity on to another, can become a source of false perception. Some key verses of Upaniṣads that are central to the Vedānta system were examined using Venn diagrams.

Consciousness, which is the universal set in these diagrams, is accessible to the human agent through the cognitions of the atomic mind, which is a category separate from consciousness. It is this counterintuitive dichotomous basis that is the primary source of the paradoxes of Vedānta.

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## Descriptions of *Ānvīkṣikī* in the Texts
## of Classical India and the Nature of Analytic Philosophy

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*Abstract*:
The author enters an already old dispute, that is, whether a counterpart of the notion of *philosophy* could be encountered in the traditional India, upholds the view that the term *ānvīkṣikī* (lit. "investigation") was nearest to it and traces its meaning along the texts on dharma, politics, poetics and philosophy properly. Two main avenues to the understanding of philosophy's vocations in India have been paved in the *Mānavadharmaśāstra*, along with the commentaries thereon and by Kamandaki, the author of the *Nītisāra* (as the knowledge of Ātman) and in the *Arthaśāstra* and the Nyāya texts composed by Vātsyāyana and Uddyotakara (as a metascience helping the other branches of knowledge bear their fruits). Therefore philosophy in India as well was regarded as the duality of ideological and methodological constituents, while the emphasis on analytic practice in the definitions of *ānvīkṣikī* (Wittgenstein's conception of philosophy as a practice is also referred to in this context) paves a good promise for comparative philosophy.
*Keywords*: philosophical self-reflexion, defining, controversy, *dharma*, politics, Nyāya, philosophical practice, analytic philosophizing.

In spite of such facts that Indian philosophizing is as old as in Greece and the texts in Indian language which could be regarded as philosophical completely or at least partly can be counted in five-digit numbers,[1] the very notion corresponding to *philosophy* is so comparatively a rare bird in the texts of Indian culture that some even eminent Western scholars have doubted whether we have there any real counterpart of it at all. So Paul Hacker, a great authority in Advaita-Vedānta and in Indian spiritual culture in general, while acknowledging that the term *ānvīkṣikī* is near to it, came to conclusion that it means (bearing in mind its contexts in the *Arthaśāstra* in the first place) rather some "examining science" (nachprüfende Wissenschaft) suitable for any field of knowledge and that in spite of doubtless presence of philosophy in Indian culture and even a notion of it, a corresponding term has nevertheless been lacking there [6, pp. 80-81]. His follower and critic Wilhelm Halbfass, the author of an epoch-making book on Indo-Western cultural encounters and dialogue, doubted his predecessor's point that we can have a notion of something without having a term for it and put into question whether we have a univocal term for philosophy in Western culture

as well, and substituted the issue of "an Indian counterpart" by another one, i.e., of the importance of Indological studies for Western philosophical self-reflection [6, pp. 80-81]. Both named Indologists, nevertheless, devoted very careful job to disclosing the conceptual and historical contexts of the related terms. As to Indian Indologists, they revealed, at least in the second half of the twentieth century, a scarce interest to these texts and contexts but comparatively numerous among them of them took more interest in pretended apologetic perspectives of the issue (see below).

My point is that in order to identify *philosophy* in Indian culture one has to take as premises not intuitions, preconceived suppositions and still less wishes but some objective criteria. I believe as well that such criteria should necessarily involve the possibility or, contrary, impossibility to detect such a concept and, correspondingly, a term which could both cover the specific characteristic of the phenomenon under discussion and serve as an umbrella (not in our eyes but in Indian text-sources) for those schools which fall into the category of philosophical ones with the same rights as all Western schools identified as philosophical (without embarking on an endless talk what philosophy as such is or should be).

The only term fit for it is, according to the texts in my disposal, the same *ānvīkṣikī* (lit. "investigation"), highlighted in this capacity already by such a luminary in Indology as Hermann Jacobi more than centenary ago and endorsed slightly later by Moritz Winternitz (see: [9] and [24]), the main case for it being the monumental treatise on politics and state government *Arthaśāstra* where it is defined as exploratory activity and the class of such units as the schools of Sāṅkhya, Yoga and Lokāyāta univocally philosophical ones. Later on one found that the same covering of both a specific investigating activity and philosophical schools was testified also in the *Kāvyamīmāṅsā* by Rājaśekhara, a very notorious treatise on poetics (see below).

On the other hand, some Indian historians of philosophy at least up to the end of the twentieth century vigorously promoted the term *darśana* (lit. 'vision') which should demonstrate spiritual advantage of Indian over Western philosophy as expressing direct vision of the spiritual truth independent of rational instruments of knowledge and, in accordance with it, the main (if not only) goal of Indian philosophizing, i.e. final liberation (*mokṣa*).[2] But this identification of philosophy in India contradicts directly to the very texts of classical India. These texts, be they Hindu, Buddhist or Jain, use this term in quite different sense, that is as the designation of philosophical schools (and by no means methods of their work) in doxographic texts collecting their tenets (sometimes with their justifications and refutations).[3] But its allegiance with mystical vision inasmuch as it expresses the semantics of vision is not more evident than in the cases of such English terms as "views", "points of views", "viewpoints", etc. And as to the method of philosophy as the latter has been identified in India, we'll see that it was regarded in description of "philosophy" just as the opposite to "mystical vision". Therefore, to understand semantic connotations of *philosophy* in India would be mostly profitable to center on the first term under discussion in different texts. These texts belonged to various fundamental classes of Indian literature, not to applied ones, like "compendiums" discussed just above.

The most ancient text where *ānvīkṣikī* was mentioned (at least for contemporary knowledge) was the *Gautama-dharmasūtra* composed most likely about the 2nd century B.C. It is stated there that a king should master (only) two disciplines, i.e. the Three Vedas (*trayī*) and just one under discussion (XI.3). The term occurs in the later teachings of dharma as well, in more extensive royal curricula, that is of the versified *Dharma-śāstra*s. So in the *Mānavadharmaśāstra* (circa the 1st century A.D.) already four disciplines are testified, i.e. the Three Vedas and *ānvīkṣikī* are supplemented by the science of government (*daṇḍanīti*) and science of economics (*vārttā*). It is essential that *ānvīkṣikī* is disclosed also concerning its subject, as *ātmavidyā* – "the science of Ātman", i.e. almost mataphysics (VII.43). The same quodrangle of disciplines which had become already canonical was reproduced in the *Rājadharma*, i.e. one of two didactical sections of the *Mahābhārata* (XII. 59.33) which cannot be dated more exactly than from the first half of the 1st millennium C.E. The same "date" could be attributed also to such an authoritative text of the *smṛti*

class as the *Yājñavalkya-smṛti* wherein the same four disciplines of royal competence are also listed (I.311).

Medhātithi (circa 9th – 10th centuries C.E.), the most authoritative commentator of the *Mānavadharmaśāstra* interpretes *ānvīkṣikī* in two formats, i.e. according to its subject and its method. In the first regard, he treats it as the science of Ātman, with the explication that "the inner Ātman" is meant in the commented verse and that the profit from this science for a king consists in its usefulness for any Ātman (therefore of a king himself) and therefore commends it for pacification of the excitements of mind. In the second regard, philosophy is treated as the science of right use of reasoning (*tarkavidyā*), and here two interesting clarifications are offered. On one hand, this science is recommended for study in order to repel onslaughts of the Buddhists, materialists and other impious persons who use quasi-reasonings for alienating "weak ones" from the faith, on the second hand it is needful for a king to be on a firm ground in negotiations with ambassadors of his royal neighbors. Medhātithi was followed also by a later interpreter, Sarvajñanārāyaṇa, who clarifies that "the science of right reasoning" should be taken from such philosophers as the Naiyayikas and Sāṅkhyas (not from the Buddhists and other *nāstika*s,[4] as is suggested). But other later commentators, Kûlluka, Rāghavānanda and Rāmacandra leave an impression that they suggest (against the quadrangle of the royal sciences embraced by the compiler of the *Mānavadharmaśāstra* itself) divorce *ānvīkṣikī* and *ātmavidyā* as two different sciences. Kûlluka treated the second science already as "the science of Brahman" and Rāghavānanda clarifies that *ānvīkṣikī* deals with justifications of some and refutations of other propositions while *ātmavidyā* with such statements as Ātman is unborn and therefore eternal and that removing sadness implied by that should be regarded wholesome for the soul.[5]

Rāghavānanda's logic slips away from me. Indeed, what is the difference between justification of the statement that Ātman is eternal and, correspondingly, rejection that it is ephemeral (as the Cārvākas and Buddhists promulgated it from different presuppositions), on one hand, and dealing with Ātman's eternality on the other, if it was not only stated but repeatedly endorsed by his time by Indian philosophers that to establish one tenet is the same as to repudiate one opposing to it? But it is true that such detachments of what was the same led Paul Hacker to scepticism in relation to *ānvīkṣikī* as the counterpart of *philosophy* (see above).

The second class of literature has been already touched above when we substantiated the view that it was just the place occupied by *ānvīkṣikī* in the science of politics that made it the nearest counterpart of *philosophy* for some authoritative Indologists. The compiler (or editor) of the *Arthaśāstra*, dating probably from the 1st – 3rd centuries A.D.[6] appeals to *ānvīkṣikī* in many contexts in the first chapter of his great code of the political science (I.2). A very exquisite panorama of authoritative (even if semi-historical) views on the very body of the quadrangle of the royal disciplines was displayed there. The Mānava school rejects *ānvīkṣikī* as a separate science by incorporating it into Three Vedas. Some Bṛhaspati school rejects both it and the Three Vedas by maintaining that only politics and economy deserve the title of sciences. The school of Uśanas asserts that there is only one necessary knowledge, i.e. the science of government. But the compiler (or editor) of the text posits his own view (while identifying it with that of Kauṭīlya) that all the four sciences are both independent and necessary for all other knowledges and human prosperity. As to *ānvīkṣikī,* he not only makes it the designation of the class to which three philosophical schools belong but describes its method as "investigating by means of arguments" (*hetubhir ānvīkṣamāṇā*), and still more, reveals such a secularism (which in the Dharmic literature could have been quite unreal) as to name it (in one verse, most likely composed by him but cited as a piece of a lore) the light of all knowledge (the Three Vedas being included) and the foundation of all successful activity and human prosperity: "Light to all kind of knowledge, easy means to accomplish all kinds of acts and receptacle of all kinds of virtues, is the science of Ānvīkṣikī ever held to be"[7] By what reason? Because the light is such a thing that helps see all other things in their truth, i.e. what profit and damage are in economy, correct and incorrect means in politics and even dharma and adharma in the scope of the Three Vedas.[8]

But Kamandaki in the *Nītisāra* (circa 5th – 6th centuries A.D.), a follower of the author of the *Arthaśāstra*, who managed to expound its subjects in twenty versified chapters, corroborates, while receiving royal sciences again, the definition of the *Mānavadharmaśāstra* to the result that *ānvīkṣikī* is the science of Ātman, with such a clarification that its profit for anyone (a king, certainly, is being included) consists in the fact that investigation of the nature of enjoyment and suffering offered by it delivers its student from both of them (II.7, 11). But he does not overdo as his predecessor did (who made philosophy the light even for the Three Vedas, see above) by leaving dharma and adharma wholly on the care of the Vedas.

It is not surprising that the place occupied by philosophy in the traditional quadrangle of royal sciences was comprehended in philosophical texts themselves, i.e. in the texts of the Nyāya school. Vātsyāyana, the founder of the multistory exegetical building of the school who commented its *sūtra*s in the *Nyāya-bhāṣya* (4th – 5th centuries A.D.) tried to realize the correlation between *ānvīkṣikī* and *ātmavidyā* from a quite new view-point. For him to "*ātmavidyāmātram*", i.e. nothing more than the knowledge of Ātman in such texts as the *Upaniṣad*s, sixteen "scientific" categorical topics (beginning with the sources of knowledge and ending by the points of defeat in a dispute) are as it were added in the science of Nyāya. And, one could read up Vātsyāyana to the end, just these 16 topics constitute that medieval science of reasoning (*tarkavidyā*) whereon the late interpreters of the *Mānavadharmaśāstra* beginning with Medhātithi will write (see above). But Vātsyāyana inserts the Nyāya philosophy into *ānvīkṣikī* as well, by their identification by means of intended play of assonances. Namely, inference basing itself on perception and tradition is after-knowledge (*anvīkṣā*), but after-knowledge is also an examination of what was known by means of perception and tradition before, and what is realized by means of this examination is just *ānvīkṣikī* which is the knowledge of Nyāya (*nyāyavidyā*) or, in the other words, the science of Nyāya (*nyāyaśāstra*). Therefore, *ānvīkṣikī* which is "the light of all sciences" (the verse from the *Arthaśāstra* is cited – see above) is just that science whose distinguishing features are sixteen categorial topics expounded in the *Nyāya-sūtra*s (I.1.1). And this science is implemented, according to Vātsyāyana, by means of three intellectual operations, i.e. the nomination of objects of knowledge (*uddeśa*), their definition (*lakṣaṇa*) and critical examination of definitions (*parīkṣā*), viz. inspection whether definiens corresponds to definiendum, and he also adds classification (*vibhāga*) in another fragment of his text (I.1. 2-3) [22, pp. 3, 4, 17].

Vātsyāyana's ideas were approved by his interpreter. Uddyotakara in the *Nyāyavārttika* (7th century A.D.) comments not only his predecessor but also that verse from the *Arthaśāstra* wherein *ānvīkṣikī* as the science par excellence was glorified (see above). He clarifies that it is "the light to all kinds of knowledge" inasmuch as all other sciences can deal with their matters by means of the sources of knowledge and other categorial topics which, in turn, are dealt with only by *ānvīkṣikī*. To the objection of an imaginative opponent as to why other sciences cannot do with these sources of knowledge themselves, Uddyotakara responses that it is because it is not their business (*anadhikārāt*) and therefore they are dependent on the science under discussion. And also concerning it as "the means to accomplish all kinds of acts and receptacle of all kinds of virtues" (the same verse from the *Arthaśāstra*) the point is the same: it is because of the capability and vocation of *ānvīkṣikī* to serve as the assistant to all other sciences for their fruiting (*upakārakatva*) [21, p. 21].

Medhātithi's contemporary Jayanta Bhaṭṭa in the monumental *Nyāyamañjarī* (circa 9th century A.D.) while having endorsed that there are just four sciences in the world also devoted himself (like Vātsyāyana) to pastime with etymologization, very estimated in Indian traditional scholarship. The word *ānvīkṣikī* came from the verb √ *īkṣ* + *anu*, but derivation according to this view contains the very essence of any thing, which in this case is after-vision or examination of the knowledge acquired from other sources, viz. perception and inference [12, p. 4]. Therefore Jayanta follows Vātsyāyana almost in everything with only such a difference that the second source of knowledge has been changed and *ānvīkṣikī* becomes something like after-inferential knowledge.

As to "after-knowledge" of *ānvīkṣikī* itself in the *Kāvyamīmāṅsā* by Rājaśekhara (10th century), it is identified here as the polemical activity of two camps, viz. the deniers of the Vedic

authority (the Buddhists, Jainas and Cārvākas) and its defenders (the Sāṅkhyas, Naiyayikas, Vaiśeṣikas). Moreover, it is clarified that polemics is being accomplished in three modes as canonized in the *Nyāyasūtras* – debate for truth (*vāda*), wrangling (*jalpa*) and cavilling (*vitaṇḍa*) (II.2) [16, pp. 18-19]. But here an attempt is made to combine different calculations of the sciences (*śāstra*s), and while venerating the quadrangle of the "royal sciences" (suggesting however with an older authority named Yāyāvarīya that the science of poetics could be added to them as the fifth one) Rājaśekhara acknowledges also eighteen disciplines of "the sacerdotal scheme"[9] wherein *ānvīkṣikī* is also inserted by him in spite of the fact that usually the place of philosophy had been usually occupied according to this scheme by *nyāyavistāra*, "the wealth of *nyāya*".[10]

All the said reveals that even if quantitatively self-reflection of philosophy in India has been more than moderate if compared with European tradition[11], its small 'extent' helped it be more qualitatively centered. Two avenues for understanding the vocation of philosophy had been paved: in the *Mānavadharmaśāstra* as the science of Ātman and in the *Arthaśāstra* as a kind of meta-science, the idea enthusiastically developed by the philosophers of Nyāya, and in accordance with these two vocations philosophy was considered later in India as the dual unity of the ideological and methodological constituents.

Most clearly the methodological dimension of philosophy has been clarified by the great philosopher Vātsyāyana who differentiated "mere knowledge of Ātman" in the manner of the Upaniṣads and the same knowledge in the context of professional investigation supplied with the special categorial topics. Under the angle of comparative philosophy one cannot avoid almost exact parallels here with Arthur Schopenhauer for whom "ordinary sciences" can also bear their fruits via corresponding applied philosophies (like philosophy of botany, philosophy of zoology etc.) which in turn draw upon the proper Philosophy which investigates the principle of sufficient reason while they only use it [18, pp. 155-156]. But what is still much more important, Indian understanding of philosophy from the *Arthaśāstra* and culminating with the *Nyāya-bhāṣya* and *Nyāya-vārttika* is nearest to Ludwig Wittgenstein's vision wherein it is a *practice* and by no means a set of doctrines.[12] A difference could be identified by the fact that in India this practice was cogitated not as monologic clarification of notions but as the dialogical, i.e. controversial work on propositions and, correspondingly, concepts as has been highlighted "visually" by Rājaśekhara but presupposed also in the related contexts of commentaries on the *Mānavadharmaśāstra* and in the very practice of Indian actual philosophizing. One can mention only such things that ancient Indian syllogism itself included "superfluous members" as compared with Aristotelean inference, and not because of "inductive mentality" ascribed sometimes to Indian mind in the West but for such a reason that polemics of a proponent with an opponent (usually an imaginative one) left its vestiges in the classical five-membered syllogism of Nyāya and was directly incorporated in the seven-membered and ten-membered ones in ancient Jainism and Sāṅkhya.[13]

And this justifies, I believe, my earlier idea that analytic philosophizing has been by no means specifically Western but intercultural undertaking which could be described as philosophical classicism with clear-cut parallels in both the axial time in all the three breeding grounds of philosophy in the world and full blossomed scholasticism of the medieval and post-medieval ages in European and Indian traditions.[14] There are only two reasons for overlooking these parallels, one of them being residual hypocritic Eurocentrism and another one, and much more important, quite sincere lack of understanding that analytic philosophy is just a practice and not a set of doctrines wherein Wittgenstein was also sure (see above).[15]

**Acknowledgements**

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# Notes

1. One can make sure in it while looking at least in the last edition of the most notorious bibliography of Indian texts (by no means complete as the whole literature in all Indian languages was not referred to there): [14].

2. See, e.g.: [8, pp. 182-183; 2, p. 2; 3, p. 102; 19, p. 13; 17, p. 22] to name only a few publications.

3. One can name here the titles of most notorious texts of this genre, popular in the schools of Jainism and particularly Advaita-Vedānta, i.e. the *Ṣaddarśanasamuccaya* (7 – 8th centuries A.D.) by the Jaina Haribhadra lately twice at least commented, *Sarvadarśanasiddhāntasaṅgraha* of surely Advaitic authorship and falsely ascribed to Śaṅkara (as numerous scriptures of the school), *Sarvamatasaṅgraha* of the same school and again without recognized authorship and, at last, the most detailed and renown text of the class, the *Sarvadarśanasaṅgraha* composed by the Advaitin Mādhava Viidyāraṇya (14th century A.D.) wherein 15 schools were reviewed (if one regards the last chapter on Advaita itself an authentic one). The text was used by Western Indologists of the later half of 19th century as the main textbook on Indian philosophy wherein one could find the essentials of every school without much job. It occured only recently that some Indologists argued that not Viidyāraṇya but some Cannibhaṭṭa, the preceptor of both Viidyāraṇya and his brother Sāyaṇa, was the author of it judging by numerous textual coincidences in the *Sarvadarśanasaṅgraha* and his other works. Almost exhaustive description of the contexts of the term *darśana* in the related literature has been presented in [7, pp. 296-309].

4. Philosophers denying the authority of the Vedas and related texts along with other corner-stones of Brāhmanism were meant under this designation

5. See: [11, pp. 774-775]. Mutual correlations of these two notions in the commentaries under discussion were carefully dealt with in [15, p. 52] and [7, pp. 322-323]. Among Indian scholars Dharmendra Nath Shastri is to be mentioned who did not see any evidence against the view that the science of Ātman was included in *ānvīkṣikī* (see: [13, p. 21]).

6. Kauṭīlya-Viṣṇugupta, the famous minister of the Maurian emperor Candragupta living in the end of 4th century B.C., could not have been the author (against the univocal traditional lore) inasmuch at least as the person under this name is mentioned many times in the text along with other authorities not to mention the fact that this text mirrors realities of many historical epochs.

7. The classical translation of the text by R. Shamasastry is cited here: [1, p. 6]. In the original:
*Pradīpaḥ sarvavidyānām upāyaḥ sarvakarmāṇām// Āśrayaḥ sarvadharmānām śaśvadānvīkṣikī matā.*

8. Just before the verse cited it was stated that the same science "keeps the minds steady and firm in wheal and woe alike and bestows excellence of foresight, speech and action" (Ibid.). So it is true that philosophy in India was regarded a means for the right way of life but not as "the direct vision of reality" (see above), in contrary, as a science of reasoning by arguments.

9. This distinction of two schemes of sciences, very successful in my opinion, was formulated in [6, pp. 66-69] and developed later in [15, pp. 31-39].

10. It goes without saying that my survey, however detailed in a sense, was confined mostly to the evidences on the traditional disciplines of knowledge in classical Sanskrit literature. It does not claim on the coverage of all sources, such as, e.g., Śaivite treatises or Purāṇic texts, nor it took account of vernacular Indian literatures, but I believe that the very infinity of these scriptures could be at least a small excuse for me.

11. Although not all cases of the use of the term under discussion in all commentaries and subcommentaries (including very later ones) to the named texts were mentioned above, they don't contribute, I believe, anything substantial to what has already been stated. In contrast, different facets of understanding φιλοσοφία only in Plato's texts could constitute the contents of a book (and numerous investigations in the field have been already published), in Greek and Roman on the whole of an extensive one and in the whole Western tradition up to the end of the 20th century could not be packed in one volume. To make sure of it one can look only in the article *Philosophie* (Bd.7) in many volume *Historisches Wörterbuch der Philosophie* under the guidance of Joachim Ritter, Karlfried Gründer and Gottfried Gabriel (1971-2007).

12. Compare the famous "*sūtra*" in the *Tractatus Logico-Philosophicus* (the very structure of this text reminds strikingly that of the basic texts of Indian darśanas) 4.112: "Philosophy aims at the logical clarification of thoughts. Philosophy is not a body of doctrines but an activity. A philosophical work consists essentially of elucidations. Philosophy does not result in "philosophical propositions," but rather in the clarification of propositions. Without philosophy thoughts are, as it were, cloudy and indistinct: its task is to make them clear and to give them sharp boundaries."

13. All of them had a very ancient lineage in the debates of experts in Vedic rituals and texts in the first half of the 1st millennium B.C. and in the debates of the first Indian dialecticians in the epoch of the Buddha (the very middle of the same millennium).

14. See: [20]. Then I was almost a solitary in this attitude but not one-aloner. For example, L. Cohen avowed that analytic philosophers are those who are interested in issues connected with reason and reasoning and therefore they constitute the historical line in Western philosophy beginning with Socrates, and D. Follesdale included Aristotle in their ranks. As to *ānvīkṣikī*, it was at least such an authority as Alan Warder who, while referring to the definition of Rājaśekhara (see above) characterized it as "philosophy and more accurately as what is sometimes called analytical philosophy" with clarification that in the first place "it is an area of controversy". See: [4, p.49; 23, pp. 7, 9]. But some

features of the same practice can be discerned also with ancient Chinese disputants from the School of Names (with Gongsun Long at the head) even if it was suppressed by the authoritative rulers, and only later Chinese culture got acquainted with analytic methods by means of translations of Indian Buddhist texts dealing with it.

15. It is true that some cases of incorporating Indian philosophy (of the very late period) in this format take place now, see, e.g., [5]. But its analytic features had revealed themselves already one and half millennia before Navya-Nyāya for already contemporaries of the Buddha practiced perpetual critical analysis of propositions (sometimes of definitions as well) in everlasting disputes (using very willingly such polemical expedients as trilemma and especially quadrilemma – *catuṣkoṭi*) for which some kings and queens (Mallikā from Kosala was one of them) erected even special lodgings called *kutūhalasālā*. On this intensive analytic activity and using manifold means of investigation-in-polemics one could be referred to a masterpiece on the topic which is by no means outdated even today, that is [10].

## The Traditional Approach to the Periodization of Indian Philosophy as a Hegelian Approach

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*Abstract*:
This paper is devoted to the methodology of history of philosophy. There are considered two approaches: the Hegelian and Schellingian ones. It is shown that the Hegelian approach has many weak points. Both approaches are demonstrated on the material of Indian philosophy. The Schellingian approach was hammered out then by Foucault as archeology of philosophy.
*Keywords*: historic time, prehistoric time, Hegel, Schelling, Foucault, Indian philosophy.

## 1. Introduction

There are two extreme approaches to the study of the history of philosophy authored by: (i) Diogenes Laërtius (ca. 3rd century A.D.) who wrote the book *Lives and Opinions of Eminent Philosophers* (Βίοι καὶ γνῶμαι τῶν ἐν φιλοσοφίᾳ εὐδοκιμησάντων; *Vitae Philosophorum*) and (ii) Georg Wilhelm Friedrich Hegel (1770–1831) who is an author of the following three books on this subject: *Vorlesungen über die Philosophie der Geschichte* (1837), *Vorlesungen über die Philosophie der Religion* (1832), and *Vorlesungen über die Geschichte der Philosophie* (1833–1836). The first approach is focused on differences among philosophers and their concepts. The second approach accepts some general features and joint viewpoints in philosophies to reconstruct a joint history of philosophy of all nations as a linear development.

The methodology for the history of philosophy reflected by Hegel is based on two principles, used by many philosophy historians so far: (1) the philosophical idea is considered given only as the history of this idea (each philosophical system has a genealogy and does not arise without the influence of previous systems, on the one hand, and competing systems, on the other hand); (2) the philosophical idea develops from its abstract forms to more concrete ones (after development, the philosophical system becomes more complex, and there is an increase in its philosophical reflection).

Hence, according to Hegel, each philosophical idea is defined by its genealogy in the retrospective view or by its history in the perspective view. In Hegel's terminology, each idea is a development and transition from the state *an sich* (in itself) to the state *für sich* (for itself) and it can be revealed only genealogically from the end of the transition process or historically from the beginning of the transition process.

For example, Brahman from the *Upaniṣad*s as the supreme existence and absolute reality was regarded by Hegel as "a supreme being, but one that merely thinks itself, or is merely at home with itself, outside which all other content and configuration still lies" [6, p. 331]. In this feature, He is close to "the God of Judaism". Both are "an abstraction, God in the spirit but not yet God as spirit" (*Ibid*.). As a consequence, Brahman of the *Upaniṣad*s as well as the God of Judaism is the God *an sich* (in Himself), i.e., He is just a beginning in the theological reflections, where Jesus Christ should become the God *für sich* (for Himself) as the end of theological reflections.

Hegel claims that the movement of the human spirit, including any philosophical reflection, has proceeded from the east to the west. It means that philosophy begins in the east and ends in the west. To the same extent, there were only three principles in religion proceeding from east to west: (i) the God in Himself as He is presented in the world of Far Eastern religions (Mongolian, Chinese, Indian); (ii) the God out of Himself as He is presented in the Islamic world; (iii) the God for Himself as He is presented in the Christian world:

> For if we cast our eyes around the world, we can discern three main principles in the older continents: the Far East (i.e., Mongolian, Chinese, or Indian) principle, which is also the first to appear in history; the Mohammedan world, in which the principle of the abstract spirit, of monotheism, is already present, although it is coupled with unrestrained arbitrariness; and the Christian, Western European world, in which the highest principle of all, the spirit's recognition of itself and its own profundity, is realised. This universal series has been described here as existing perennially; but in world history we encounter it as a sequence of successive stages [7, pp. 128–129].

Now, only Christian peoples play a significant role in the world history:

> The whole eastern part of Asia is remote from the current of world history and plays no part in it; the same applies to the north of Europe [7, p. 172].

In this paper, some strict limits in the Hegelian approach to the history of philosophy are shown. So, I am going to discuss that the deep problem of the approach founded by Hegel is that all the substantial differences among cultures and philosophies of different times and geographic locations are ignored so that a reconstructed philosophical tradition is examined as hermetic and self-sufficient – as a linear development from *an sich* to *für sich*. In Section 2, the traditional periodization of Indian philosophy is examined as made in accordance with the Hegelian approach and there its main problems are shown. In Section 3, I consider the criticism of the Hegelian approach proposed by Friedrich Wilhelm Joseph von Schelling (1775–1854).

## 2. Periods of the Indian Philosophy According to the Hegelian Approach

A good illustration of applying Hegel's methodology can be presented by the following periodization of the Indian philosophy. This periodization is intended to reflect the linear development of Indian thought, starting from the period of the compilation of the Vedas: (H1) the four Vedas (*vedaḥ*): *Ṛgveda*, *Yajurveda*, *Sāmaveda*, and *Atharvaveda*, and the Vedic period as such (developing an abstract ideal

picture of the world through organizing a complex religious ritual with reciting hymns); (H2) *Brāhmaṇa*s, *Āraṇyaka*s, and *Upaniṣad*s – the first proto-philosophical books comprehending H1 (the birth of Indian proto-philosophy as a beginning of reflection carried out by the Brahmins in respect to the Vedic texts as well as Vedic rituals); (H3) *Sūtra*s belonging to Āstika (classical schools) – the first philosophical books in the strict sense as treating the texts of H2 (creating *ṣaḍdarśana* or six philosophical schools of Āstika: Sāṃkhya, Yoga, Nyāya, Vaiśeṣika, Mīmāṃsā, and Vedānta); (H4) *Sūtra*s belonging to Nāstika (non-classical schools, first of all, Buddhism and Jainism).

We see a linear development from H1 and through H2 to H3, and then H4 appears as a critical revaluation of previous periods. It is a step-by-step revelation of Vedic thought from its state *an sich* (H1) to its state *für sich* (H3) and then it comes to its negation (H4). This periodization was well formulated by Friedrich Max Müller (1823–1900), one of the founders of Indology, see [10]: (1) *Khanda* period, earlier than 1000 B.C. – composing hymns of the Vedas and forming the Vedic religion; (2) *Mantra* period, from 1000 to 800 B.C. – collecting hymns into the four Vedas; (3) *Brāhmaṇa* period, from 800 to 600 B.C. – composing the texts of *Brāhmaṇa*s, *Āraṇyaka*s, and *Upaniṣad*s; (4) *Sūtra* period, since 500 B.C. – first of all, the *Śulbasūtra* (considering the fire-altar construction) and the text of Pāṇini about the Sanskrit grammar – the *Aṣṭādhyāyī*.

Müller pays attention that the same periods are repeated as appropriate classes in the traditional study of *Ṛgveda*:

A student of a Rig-Veda-*s*âkhâ (a recension of the Rig-Veda), if sharp and assiduous, takes about eight years to learn the Dasagranthas, the ten books, which consist of (1) The Sa*m*hitâ, or the hymns. (2) The Brâhma*n*a, the prose treatise on sacrifices, etc. (3) The Âra*ny*aka, the forest-book. (4) The G*ri*hya-sûtras, the rules on domestic ceremonies. (5–10) The six Angas, treatises on *S*ikshâ, pronunciation, *G*ryotisha, astronomy, Kalpa, ceremonial, Vyâkara*n*a, grammar, Nigha*n*tu and Nirukta, etymology, K*h*andas, metre [10, p. 161].

In the meanwhile, Müller understands that Buddhism is out of this scheme and explains this fact based on archaeological data. According to these data, there were the Northern conquerors of India from the 1st century B.C. to the 4th century A.D. who were not believers in the Vedas, but they follow Buddhism with some own religious traditions such as Mazdeism and other Iranian worships. These conquerors were Indo-Scythians (Sanskrit: *Śaka*), i.e., they are one of the Iranian-speaking tribes from Tūrān (the region of today's Turkmenistan, Tajikistan, Kyrgyzstan, Uzbekistan, and the north-eastern parts of Afghanistan and Pakistan):

The Northern conquerors, whatever their religion may have been, were certainly not believers in the Veda. They seem to have made a kind of compromise with Buddhism, and it is probably due to that compromise, or to an amalgamation of *S*aka legends with Buddhist doctrines, that we owe the so-called Mahâyâna form of Buddhism – and more particularly the Amitâbha worship – which was finally settled at the Council under Kanishka, one of the Turanian rulers of India in the first century A.D.
If then we divide the whole of Sanskrit literature into these two periods, the one anterior to the great Turanian invasion, the other posterior to it, we may call the literature of the former period *ancient* and *natural*, that of the latter *modern* and *artificial*.
Of the former period we possess, *first*, what has been called the *Veda*, i.e., Knowledge, in the widest sense of the word – a considerable mass of literature, yet evidently a wreck only, saved out of a general deluge; *secondly*, the works collected in the Buddhist Tripi*t*aka, now known to us chiefly in what is called the Pâli dialect, the Gâthâ dialects, and Sanskrit, and probably much added to in later times [9].

Thus, according to Müller, H4 differs from H1, H2, and H3 due to some external influences of the *Śaka*s (Indo-Scythians) on the Indo-Aryans. Without their invasion of North India up to some central parts, we would have a pure hermetic philosophical tradition from H1 and through H2 to H3, but after their invasion, Mahāyāna as a part of H4 appeared.

The periodization close to Müller on the basis of the Hegelian approach was also proposed by Sarvepalli Radhakrishnan (1888–1975), the Indian philosopher [13, pp. 57–59]: (1) the Vedic period (1500 B.C.–600 B.C.) which covers the spread of the Aryan culture in India and "it was the time which witnessed the rise of the forest universities, where were evolved the beginnings of the sublime idealism of India" [13, p. 57]; (2) the epic period (600 B.C.–200 A.D.) – developing the early *Upaniṣad*s and the *ṣaḍdarśana*s, composing the two Indian great epics: the *Rāmāyaṇa* and the *Mahābhārata*, forming and expanding Buddhism, Jainism, Śaivism, Vaiṣṇavism; (3) the *sūtra* period (from 200 A.D.) – founding philosophy in the narrow sense in India; (4) the scholastic period (from 200 A.D.) – founding the tradition of philosophical commentaries.

Müller and other indologists have continued the Hegelian approach to the periodization of Indian philosophy as a hermetic and self-sufficient tradition. For instance, Erich Frauwallner (1898–1974) proposed the following general periodization:

> First, the continuation of the Vedic thought-world and the beginning of the *Vedānta* up to the time of the system built by *Śaṅkara*. Secondly, the systems built by the *Śaiva*s. Thirdly, the decline of Buddhism and the rise of the Tantric Schools. Fourthly, the *Vedānta* system of the *Vaiṣṇava* and the other *Viṣṇuistic* Schools. Finally, is dealt the continuance still of the systems of the older period, so far as they continue in this period. A sub-division of the period of the modern Indian Philosophy renders itself to be unnecessary as it embraces only an entirely small compass of time. Thus, is given an organization of Indian Philosophy which, in my view, largely docs justice to the course of historical development and also simultaneously summarizes in clarity the phenomena belonging together, in well-arranged groups [5].

Nevertheless, there is a great deal of textual evidence which refutes this insularity of Vedic tradition from H1 to H3 assumed in advance. First, many of the earliest philosophical *sūtra*s of Āstika contain quotations from Madhyamaka and Yogācāra – two early schools of Mahāyāna from North India. So, the *Gauḍapādīyakārikā*, on the one hand, represents the earliest available record of an uncompromising non-dualistic doctrine (*advaita-vāda*) – the central and principal concept of Vedānta school, and, on the other hand, shows that its author(s) had a good knowledge of Madhyamaka and Yogācāra texts [8]. The *Nyāyasūtra*, the basic logical treatise of Āstika, also contains some direct quotations from Madhyamaka and Yogācāra books and was written surely after the Buddhist logical treatise *Milindapañha* [17].

The Pāli Canon was composed from the 1st century A.D. to the 4th century A.D. It is one of the earliest hermetic corpus of Indian texts with effective dating due to some inscriptions and cross-cultural textual analysis. It is quite surprising that many times there are mentioned not the four Vedas, as it can be expected, but only three Vedas (*Ṛk*, *Yajur*, and *Sāma*), for instance:

> *tena kho pana samayena brāhmaṇassa pokkharasātissa ambaṭṭho nāma māṇavo antevāsī hoti ajjhāyako mantadharo **tiṇṇaṃ vedānaṃ** pāragū sanighaṇḍukeṭubhānaṃ sākkharappabhedānaṃ itihāsapañcamānaṃ padako veyyākaraṇo lokāyatamahāpurisalakkhaṇesu* (*Ambaṭṭhasutta* 1, 3); [14, p. 88].

At that time Pokkharasāti had a student named Ambaṭṭha. He was one who recited and knew the hymns (*manta*) by heart, and was an expert in the **three Vedas** (*tiṇṇaṃ vedānaṃ pāragū*), together with their vocabularies (*nighaṇḍa*), ritual (*keṭubha*), phonology (*akkhara*) and etymology (*pabheda*), and the stories (*itihāsa*) as fifth. He knew philology (*pada*) and grammar (*veyyākaraṇa*) and was well versed in cosmology (*lokāyata*) and the [32] marks of a great man (*mahāpurisa*).

Why three? It is possible to explain by that the *Atharvaveda* was not a canonical book at least in the 1st century A.D. Another critical point in respect to the assumption of linear development from H1 to H3 is that at the time of Buddha and his disciples for a few hundred years early Sanskrit or Vedic was associated only to the Vedas and was not popular as a language of philosophy or other literature:

> *tena kho pana samayena yameḷakekuṭā nāma bhikkhū dve bhātikā honti brāhmaṇajātikā kalyāṇavācā kalyāṇavākkaraṇā. te yena bhagavā tenupasaṅkamiṃsu, upasaṅkamitvā bhagavantaṃ abhivādetvā ekamantaṃ nisīdiṃsu. ekamantaṃ nisinnā kho te bhikkhū bhagavantaṃ etadavocuṃ—"etarahi, bhante, bhikkhū nānānāmā nānāgottā nānājaccā nānākulā pabbajitā. te sakāya niruttiyā buddhavacanaṃ dūsenti. handa mayaṃ, bhante, buddhavacanaṃ chandaso āropemā"ti. vigarahi buddho bhagavā ... pe ... kathañhi nāma tumhe, moghapurisā, evaṃ vakkhatha — "handa mayaṃ, bhante, buddhavacanaṃ chandaso āropemā"ti. netaṃ, moghapurisā, appasannānaṃ vā pasādāya ... pe ... vigarahitvā ... pe ... dhammiṃ kathaṃ katvā bhikkhū āmantesi — "na, bhikkhave, buddhavacanaṃ chandaso āropetabbaṃ. yo āropeyya, āpatti dukkaṭassa. anujānāmi, bhikkhave, sakāya niruttiyā buddhavacanaṃ pariyāpuṇitun"  ti* (*Khuddakavatthukkhandhaka*, *Cūḷavagga* 5, 33); [12, p. 139].

At that time, Yameḷa and Kekuṭa were the names of two monks who were brothers, *brāhmaṇa*s (Brahmins) by birth, with beautiful voices, with excellent enunciation. They went to the Lord; and after arrival they greeted the Lord and sat down at a respectful distance. As they were sitting down at a respectful distance, these monks spoke the following to the Lord: "Recently, Lord, monks of various names (*nāma*), various clans (*gotta*; Sanskrit: *gotra*), various births (*jacca*; Sanskrit: *jāti*) have gone forth from various families (*kula*); these corrupt the words of the Buddha in his own dialect (*sakāya niruttiyā*). Now we, Lord, transform the words of the Buddha into the metrical form (*chandaso āropemā*) [of Vedic]." The Buddha, the Lord rebuked them, saying:
"How can you, foolish men, speak thus: 'Now we, Lord, give the speech of the Buddha in the metrical form (*chandaso āropemā*) [of Vedic]'? It is not, foolish men, for pleasing those who are not pleased …" And after rebuking them, he gave a reasoned talk – he talked to the monks the following words:
"Monks, the speech of the Buddha should not be given in the metrical form (*chandaso āropemā*) [of Vedic]. Whoever should give it, there is an offence of wrong-doing. I allow you, monks, to learn the speech of the Buddha according to his own dialect (*sakāya niruttiyā*)."

The hypothesis that the expression *chandaso āropemā* means early Sanskrit or Vedic was put forward by Thomas William Rhys Davids (1843–1922), see his translation (1899–1921): (i) as the antithesis to "his own dialect"; (ii) because of using the word *chandasi* in the *Aṣṭādhyāyī* of Pāṇini with the meaning "the Veda-dialect"; (iii) since this change of sermon language was proposed by "Brahmins by birth"; (iv) within the traditional commentaries to this verse by Theravada scholars – so, Buddhaghosa (5th

century A.D.) comments: *chandaso āropemā ti vedaṃ viya sakkaṭa-bhāsāya vācanā-maggaṃ āropema*, where *sakkaṭa* means *saṃskṛta*.

In the Pāli Canon, we do not find quotations from the Indian epics, only some references to epics as an especial genre (*itihāsa*). Furthermore, we do not find some contexts of phrases showing that their authors knew the Vedas or *Upaniṣads*. The critique against the notion of *ātman* (the idea of non-self; Pāli: *anattā*; Sanskrit: *anātman*) is an attempt to develop a Buddhist type of reflection on all the cognitive and emotional states to distinguish them from ourselves. Initially, *ātman* (*attā*) is a singular reflective pronoun for all three persons and all three genders in Sanskrit (Pāli). The Buddha criticizes different idols of the mind and using the pronoun *ātman* is regarded by him as a sign of uncriticism in general. Hence, *anātman* (*anattā*) in the Pāli Canon is not directly connected to a critique against the *ātman* from the *Upaniṣads*. It is a Buddhist critique against non-reflection and nothing more.

Nevertheless, in the Mahāyāna *sūtra*s we can find some ideas of *ātman* which are close to the *Upaniṣads*. For instance, in the *Mahāparinirvāṇa-sūtra* (大般涅槃經; *Dàbān níhuán jīng*, T. 12, No. 376), the first Chinese translation of which appeared in 417 A.D., it is maintained that every separate mental state (*dharma*) [切法; *qiè fǎ*], according to its nature [其性; *qí xìng*], does not have itself (*anātman*) [無我; *wú wǒ*]. But it does not mean that the *ātman* does not exist. It is *dé* (*puṇya*) [我者是德; *wǒ zhě shì dé*] and it is obtaining mastery (*vaśitā*) [我者自在; *wǒ zhě zìzài*]. Thus, the *ātman* is the Mahāyāna path as such:

切眾生承如來言展轉相教皆說無我，此是如來知時方便濟眾生故，說一切法其性無我，非如世間所受吾我，故說一切法其性無我。時復說我，如彼良醫明乳藥法，當知我者是實，我者常住非變易法非磨滅法，我者是德，我者自在，如善乳藥醫，如來亦然為諸眾生說真實法，一切四眾當如是學

*qiè zhòngshēng chéng rúlái yán zhǎnzhuǎn xiāng jiào jiē shuō wú wǒ, cǐ shì rúlái zhī shí fāngbiàn jì zhòngshēng gù, shuō yīqiè fǎ qí xìng wú wǒ, fēi rúshìjiān suǒ shòu wú wǒ, gù shuō yīqiè fǎ qí xìng wú wǒ. shí fù shuō wǒ, rú bǐ liáng yī míng rǔ yào fǎ, dāng zhī wǒ zhě shì shí, wǒ zhě chángzhù fēi biànyì fǎ fēi mómiè fǎ, wǒ zhě shì dé, wǒ zhě zìzài, rú shàn rǔ yào yī, rúlái yì rán wèi zhū zhòngshēng shuō zhēnshí fǎ, yīqiè sì zhòng dāng rú shì xué* (*Taishō Tripiṭaka* 1988, T. 12, No. 376, 0863a09–0863a16)

All sentient beings who inherit the Tathāgata's words, change their cognitions and all say that there is no *ātman*. This is because the Tathāgata knows that it is convenient for all living beings. It is said that the nature of all *dharma*s has no ego [*ātman*], and it is not the same as the world accepts itself [*ātman*]. This is as in the case of the great doctor who well understands the *dharma* [*fǎ*] for the milk medicine, you should know that the *ātman* is true [*shí*], the *ātman* is permanent [*chánhzhù*], it is a non-changeable [*fēi biànyì fǎ*] and non-erasing *dharma* [*fēi mómiè fǎ*]. The *ātman* is virtue [*dé*, *puṇya*], the *ātman* is obtaining mastery [*zìzài*, *vaśitā*], like a good milk medicine doctor, and the Tathāgata is also the same who teaches all sentient beings about the true *dharma*, and all the four groups should learn it like this.

Hence, instead of a linear development of the Buddhist teaching from a Brahminical context to a more independent doctrine we encounter some Brahminical ideas such as the concept of *ātman* not in early Buddhist texts, but, on the contrary, only in later ones, i.e., dated from the 2nd century A.D. This is explained by the fact that Buddhism and Brahmanism developed in parallel for some time. This fact is

well confirmed archaeologically, too. For example, refuting the linear development of the Vedic thought from H1 to H3 is confirmed by the fact that the earliest Sanskrit inscriptions are dated strongly from the 1st century B.C. to the 1st century A.D., not earlier [15]. And for a long time, we can observe a smooth change from Prakrits such as Gāndhārī into pure Sanskrit through some hybrid forms from the 2nd century A.D. to the beginning of the 5th century A.D. Only since the 4th–5th century A.D. there have been many long phrases in pure Sanskrit, although the earliest Prakrit inscriptions are dated to the 4th century B.C.

It is worth noting that the earliest Vaiṣṇava inscriptions are dated to the early 2nd to the late 1st century B.C., while all the early Śaiva objects and inscriptions are found exclusively at Buddhist sites for a long time within a syncretic Buddhist-Śaiva culture and only since the early 5th century A.D. Śaivism has been completely emancipated from Buddhism [18].

Thus, the Hegelian approach to historically consider each philosophy as a linear development from the state *an sich* to the state *für sich* is not validated by the textual analysis and there is no archaeological evidence at least on the example of Indian philosophy. We face a mixture of various concurrent movements presenting H2, H3, and H4 until about the 2nd–4th centuries A.D., when the philosophical discourse in India had been finally formed.

The dating of the life of the Buddha is a decisive moment for the dating of the post-Vedic period (i.e., the period after H1). And there are two approaches to this: long and short chronology. According to the long chronology, Śākyamuni Buddha lived from ca. 566 to ca. 486 B.C. (i.e., Buddha's *parinirvāṇa* dates to 218 years before Aśoka's coronation). According to the short chronology, he lived from ca. 448 to ca. 368 B.C. (i.e., Buddha's *parinirvāṇa* dates to 100 years before Aśoka's first regnal year).

The short chronology was substantiated by Heinz Bechert [1], [2] who showed, based on the references to *Dīpavaṃsa* 1.24–26 and 5.55–59, that the long chronology of 218 years was a later development [2, p. 104 ff.]; [1, pp. 329–343]. The short chronology is acknowledged by the following quotation from a 1st century A.D. Kharoṣṭhī manuscript (British Library fragment 4.6 recto): Aśoka was "a century after the Blessed Buddha achieved *parinirvāṇa* (*vasaśada pariṇurvude budhe bhagavade*)" [11, p. 68].

According to the Gilgit manuscript of the *Bhaiṣajyavastu* [3] written in Sanskrit and dated to the 8th century A.D., the short chronology may be even much shorter, namely Buddha's *parinirvāṇa* goes back to 400 years before the Kaniṣka *stūpa* (erected ca. 130 A.D.). It indicates the years of Śākyamuni's life from ca. 350 to ca. 270 B.C.:

*bhagavān kharjūrikām neuropath | khajūrikāyāṃ bāladārakān pāṃsustūpakaiḥ krīḍato 'drākṣīt\* | bhagavān bāladārakān pāṃsustūpakaiḥ krīḍato dṛṣṭvā ca punar vajrapāṇiṃ yakṣam āmantrayate | paśyasi tvaṃ vajrapāṇe bāladārakān pāṃsustūpakaiḥ krīḍataḥ | evaṃ bhadanta | eṣa caturvarṣaśataparinirvṛtasya mama vajrapāṇe kuśanavaṃśyaḥ kaniṣko nāma rājā bhaviṣyati | so 'smin pradeśe stūpaṃ pratiṣṭhāpayati | tasya kaniṣkastūpa iti saṃjñā bhaviṣyati | mayi ca parinirvṛte buddhakāryaṃ kariṣyati* (*Mūlasarvāstivādavinaya* 1: 2–3); [3].*

Bhagavān [Buddha] reached Kharjūrikā where he saw boys playing with a heap of earth. Seeing the boys playing with the mud heaps, he then turned to the *yakṣa* Vajrapāṇi, "Do you see, Vajrapāṇi, how the boys are playing with the mud heaps?" "Yes, sir". "Four hundred years after I have completely liberated, Vajrapāṇi, there will be a king named Kaniṣka of the Kuṣāna lineage. He shall set up a *stūpa* on this very spot, and it shall be called the Kaniṣka *stūpa*. Since I have been completely ceased, it will be he who will carry out the duty of the Buddha.

Evidently that the shorter the chronology is, the better we may explain various facts of the non-linear development from H2 to H4. The point is that in the short post-Vedic period until the 2nd–4th centuries C.E., Brahminical and Buddhist stages of development really coexisted. Furthermore, the shortest chronology with the dating from ca. 350 to ca. 270 B.C. agrees well with the facts of the beginning of the *śramaṇa* movement from ca. 400 A.D. in the context of the first large growth of Indo-Aryan urbanization in the Ganges Valley at that time.

## 3. Schelling versus Hegel

An alternative methodology for the history of philosophy was proposed by Friedrich Wilhelm Joseph von Schelling (1775–1854) in his late works such as *die Philosophie der Offenbarung* (Vorlesung; 1841–1842) and *die Philosophie der Mythologie* (Vorlesung; 1842). He was the first who grounded that the historic time (*die geschichtliche Zeit*) as a history of philosophical idea from *an sich* to *für sich* is just an official imagined history, i.e., it is a history within the current dominance of our certain ideology. To reveal the true genealogy of the given idea, we need to turn to its prehistoric time (*die vorgeschichtliche Zeit*) – we must refute the official ideology, where this idea is presented now within a linear imagined or made-up history of *geschichtliche Zeit*. It means we should go beyond a unified hermeneutics for one corpus of studied texts. Thus, the "Hegelian" periods from H1 to H4 correspond to the existed (*Śaiva* as well as *Vaiṣṇava*) traditions of today's Hinduism, for example, to the classes of studying the *Ṛgveda* [10, p. 161] mentioned above as corresponding to the periods from H1 to H3.

Schelling maintains that *die vorgeschichtliche Zeit* means to be before the historic process as such (to be *vorhistorische*) at the stage, where our consciousness did not yet reconstruct a linear development in the meaning of Hegel. At this stage we can observe religions and mythological ideas in their pure forms, i.e., without our imaginations and one-sided (historic) interpretations:

> Der wahre Inhalt der vorgeschichtlichen Zeit ist die Entstehung der formell und materiell verschiedenen Götterlehren, also der Mythologie überhaupt, welche in der geschichtlichen Zeit schon ein Fertiges und Vorhandenes, also geschichtlich ein Vergangenes ist [16, p. 588].

> The true content of prehistoric time is presented by the emergence of formally and materially different doctrines of gods, therefore, [by the emergence] of mythology in general, which is already given as something finished and available in the historic time, therefore, as something past historically.

Hence, according to Schelling, historic and prehistoric times are two different approaches to the history of philosophy and our thinking as such:

> Demgemäß sind die geschichtliche und die vorgeschichtliche Zeit nicht mehr bloß relative Unterschiede einer und derselben Zeit, sie sind zwei wesentlich verschiedene und voneinander abgesetzte, sich gegenseitig ausschließende, aber eben darum auch begrenzende Zeiten. Denn es ist zwischen beiden der wesentliche Unterschied, daß in der vorgeschichtlichen das Bewußtsein der Menschheit einer innern Notwendigkeit, einem Prozeß unterworfen ist, der sie der äußeren wirklichen Welt gleichsam entrückt, während jedes Volk, das durch innere Entscheidung zum Volk geworden, durch dieselbe Krisis auch aus dem Prozeß als solchem gesetzt und frei von ihm nun jener Folge von Taten und Handlungen sich überläßt, deren mehr äußerer, weltlicher und profaner Charakter sie zu historischen macht [16, pp. 588–589].

Accordingly, historic and prehistoric times are no longer merely relative differences of one and the same time; they are two essentially different and separated, mutually exclusive, but just, therefore, also limiting times. So, there is an essential difference between the two so that in the prehistoric one the consciousness of humanity is subject to an inner necessity, to a process which, as it were, removes it [time] from the external real world, while every people, which has become a people through an internal decision, is also composed of the process as such through the same crisis, and free from it, it is now left to this sequence of deeds and actions for which a more external, worldly and profane character makes it [time] historical.

In line with the Schellingian idea of prehistoric time, Paul-Michel Foucault (1926–1984) views genealogy in a new way (not Hegelian) – as a necessary method of philosophical analysis, in which we should get out of the isolation of one hermeneutic tradition with a one-sided historical reconstruction – in other words, we must abandon the Hegelian principle of ascent from the abstract to the concrete, while preserving the idea of the historicity of philosophical knowledge. According to Foucault, each cultural or social phenomenon can be philosophically investigated through a genealogical reconstruction of epistemic frameworks. To this end, he began to distinguish between the epistemological level of knowledge, representing what is now, and the genealogical reconstruction of existences. He called the genealogical reconstruction "the archaeological level of knowledge" or "the archaeology of knowledge." According to Foucault, philosophy also has its archaeology. It is one of the core objectives of philosophy:

(…) archaeology, addressing itself to the general space of knowledge, to its configurations, and to the mode of being of the things that appear in it, defines systems of simultaneity, as well as the series of mutations necessary and sufficient to circumscribe the threshold of a new positivity [4, p. xxv].

As we see, the archaeology of philosophy in the sense of Foucault should replace the history of philosophy in the sense of Hegel, if we would like to consider philosophical texts outside of only one closed philosophical tradition. The periodization of Indian philosophy from H1 to H4 reflects only one philosophical tradition with one hermeneutics – the Hindu philosophy of existing *Śaiva* as well as *Vaiṣṇava* religious traditions.

Within the framework of Foucault's approach, structuralist methods of text analysis are used. These methods are easily enhanced by the methodology of other humanities dealing with the history of knowledge: (a) historical reconstruction based on both archaeological data and other methods of studying material culture (description, interpretation, cataloging); (b) reconstruction presented in historical sociology, which studies societies in their historical dynamics; (c) methods of comparative textology and hermeneutics, which study different corpora of texts of the same or different traditions.

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## Cognitive Science of Religion and Faith in the West

*Abstract*: The interview given by Lluis Oviedo, a full Professor for Theological Anthropology at the Pontifical University Antonianum of Rome, and Fundamental Theology at the Theological Institute of Murcia (Spain). He is team member of research group on *Creditions*, based in Graz University (Austria). He edits a book series on "New approaches to the scientific study of religion" (Springer) and the bibliographic bulletin *Reviews in Science, Religion and Theology*. Research interests focus on the dialogue between theology and sciences, including the new scientific study of religion, and more recently to the interaction between religious belief and AI, and to how religious beliefs and behaviors are related to personal and social wellbeing.
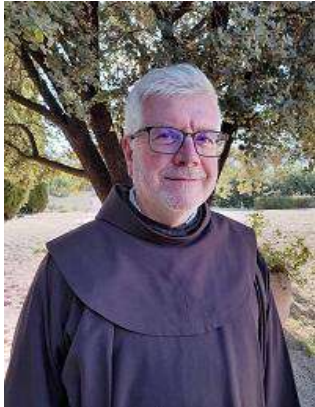
*Keywords*: cognitive science of religion, evolutionary science of religion, religion, morality, war in Ukraine.

*Konrad Szocik*: One of your research areas is cognitive and evolutionary science of religion. I wanted to ask you about the attitude of believers, non-scientists, towards this research perspective. What in it might be useful to believers, and in turn, what potential elements might be a threat?

*Lluis Oviedo*: In my opinion the impact of these new studies on religion is very limited beyond the narrow circle of their practitioners and little more. To start with, my colleagues theologians – who could be more concerned – have largely ignored those developments, as if they were irrelevant for theological research. This is for me wrong, as theology should be more aware and receptive towards every attempt to better understand religion. That said, general believers could find several points of the new scientific study of religion interesting, for instance how many cognitive biases weight in our way to believe; or how much religion is evolving as all other cultural expressions; or how much religion as a culture is entrenched with the general evolutionary process we humans undergo. I myself use sometimes these ideas in my lessons and even in my preaching, to render believers aware about aspects of their faith and life, otherwise hidden to them. Obviously, the greater risk is that religious belief and praxis becomes naturalized, reduced, deprived of transcending and healing strength, and that the scientists could provide an explanation of religion that could become more convincing than traditional ones, and would displace it as something outdated, as several colleagues in that area have already tried.

*Konrad Szocik*: How do you assess the future of religion globally? To what extent is the weakening of the role of religion in Western culture an exception, and to what extent can we assume that other parts of the world will repeat the fate of religion in the future inherent in Western culture?

*Lluis Oviedo*: The question regarding the global future of religion can be answered only in a nuanced way, and considering its great complexity. I have been following such declining process in Western societies for more than 30 years, and a surprising thing is that, despite the odds, religion,

and especially Christian faith, resist in a stubborn way in many areas, some of them quite unexpected. I could speak even about post-secularization and revivals when I witnessed in a recent visit to Oxford how full churches from different confessions were, or how many visitors attended the beautiful Church of England Evensongs. This is happening in many places, and appears to many as almost ironical. For instance last August the *New York Times* published an article with the title "New York's Hottest Club is the Catholic Church" (https://www.nytimes.com/2022/08/09/opinion/nyc-catholicism-dimes-square-religion.html). Well, something is changing, especially because the minority now attending churches is younger, better formed, and urban; several studies describe this new trend and new books of high intellectual level reflect on the positive value of Christian faith. A possible explanation is that now that attitude is free and less constrained by habitude or social norms; then, many are discovering to what extent faith and religious practice have a positive influence in their lives, provide coping and resilience in adversity; give quality to our relationships and families; and are a factor of personal and social wellbeing. Indeed, hundreds of studies are published each year to indicate that positive effect. This is truly the real and most promising new scientific study of religion.

*Konrad Szocik*: One of the topics of your research is the influence of religion on the evolution of morality and cooperation. This is undoubtedly a very complex issue. What, in your opinion, was and is the influence of religion on morality? How could religion be useful today for strengthening morality?

*Lluis Oviedo*: Again, we need to be more subtle. Contrary to some generalist views, not every religious or spiritual form has a prosocial effect. We know in history and in the present many religious forms very little concerned about other's welfare and focusing just on the one's own interests and perhaps its immediate niche. I think that just a bunch of religions and religious expressions inside them stress the prosocial dimension or identify their cult with the attention towards to benefit others. Even Christianity has had to struggle along its history to remind its followers about that call and duty, since it does not appear as the religious cognitive default position. That said, yes, I think these evolved religious forms are clearly committed to the task of moralizing, or now better, they contribute to character formation, to human flourishing or to a virtuous life, concepts somehow démodé today, but still looked for in many cases, especially when dealing with development of the youngest, and with growing corruption mentality in Western societies.

*Konrad Szocik*: Public interest in the war between Russia and Ukraine seems to be waning after the initial shock. How do you assess the attitude of Western European societies toward this war? Is it possible to point to any one dominant approach? And, in your opinion, are there any significant differences in thinking about this war between intellectuals and academics on the one hand, and lay people on the other?

*Lluis Oviedo*: I think that the dominant attitude in Europe is against war and for peace. However, such rejection of war assumes later a political tone and divides the public: for a sector – I think still the biggest – peace can be achieved only after deterring the aggressor efforts, and so supporting in every way the victim party and its resistance; for the other, peace can be achieved only through a reduced military support to the victims of aggression, so to constrain them to seat down and negotiate. The difference is between those who think that arming one side is not the best way to stop the war, and that a compromise or settlement is desired and expected. I do not have figures that allow me to answer to the other question, about differences between intellectuals and other people, I am afraid. I expect intellectuals to be more nuanced and less emotionally driven, better informed and aware of how complex these processes are, but I am not sure in this case. Even the idea of moral sensitivity could favor both tendencies. This is clearly an unsettled issue.