

A non-reductionist perspective on animals and humans

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Abstract

Assessing similarities and differences between animals and human beings is fairly difficult in an academic culture dominated by neo-Darwinism for quite some time. First of all, modal laws, holding for whatever is functioning within the various aspects of reality, ought to be distinguished from type laws holding for a limited class of entities only. Whereas animals, in spite of possessing sensory capacities absent in humans, are restricted to their basic physical, biotic and sensory concerns in life, ethology does acknowledge that currently a human person is seen as a “cultural being” with a “life history” and reduced instincts. The restricted sensitive intelligence of animals is surpassed by human rational intelligence. Rensch discerns a deep gap between animals and humans, which is given in logical thinking. In the absence of any conceptual understanding animals are instinctively secured, manifest in inherited behavioural action patterns [“angeborene Auslöse mechanismus” (AAM)]. By contrast the sensitive openness of human beings highlights the deepened and expanded role of feelings and emotions within human life. Yet it is argued that the human person cannot be characterized or qualified merely with reference to one aspect only

– *such as homo sapiens, homo socuis, homo laborans, homo ludens, homo faber or homo symbolicus. Part of an alternative view explores a more nuanced and differentiated understanding of normativity, paving the way for explaining the view of Dooyeweerd in respect of the four structures intertwined within the human body – an approach taking distance from the traditional dualism between body and soul. While retaining their own inner sphere of operation, the physical, biotic and sensitive structures are, in a foundational sense, encapsulated within the human body under the guidance of the normative structure which, although qualifying, in itself is not qualified by any normative aspect. Attention is given to the relationship between temporality, supra-temporality and eternity before the analyses is concluded with a brief account of the distinct ways in which humans and animals function within the normative aspects of reality, with special reference to language. Language presupposes responsible and free human activities which requires accountable choices between multiple options, a quality absent amongst animals. The ethologist, Eibl-Eibesfeldt, holds that that “which, by contrast, regarding animals, is generally designated as ‘language’, exclusively moves within ... the domain of interjection, of the expression of moods lacking insight”, and he also categorically affirms that “the capacity of lingual communication is specifically human” and that “nothing really comparable is found in the realm of animals”.*

Opsomming

Dit is relatief moeilik om die ooreenkomste en verskille tussen diere en mense te beoordeel binne ’n konteks wat reeds vir ’n geruimte tyd deur die neo-Darwinisme gedomineer word. Eerstens moet modale wette, wat betrekking het op ’n onbepaalde klas van entiteite, van tipe wette onderskei word wat bloot op ’n beperkte aantal entiteite van toepassing is. Waar diere, ten spyte daarvan dat hulle oor sensitief-psigiese eienskappe beskik wat by mense afwesig is, beperk is tot hul basiese fisiese, biotiese en sensitiewe behoeftes, erken die leer van diere-gedrag dat die mens tans as ’n “kulturele wese” gesien moet word met ’n eie “lewensgeskiedenis” en gereuseerde instinkte. Die beperkte sensitiewe intelligensie van diere word oorskry deur die mens se rasonale intelligensie. Rensch onderken ’n diep gaping tussen dier en mens, gegee in die vermoë

tot logiese denke. In die afwesigheid van begripskennis by diere is hul lewe instinkversekerd, soos gemanifesteer in erflike gedragspatrone [“angeborene Auslöse mechanismus” (AAM)]. Hierteenoor belig die sensitiewe openheid van mense die verdiepte en meer uitgebreide rol van gevoelens en emosies in die mens se lewe. Nogtans word geargumenteer dat die mens nie gekarakteriseer of gekwalifiseer kan word deur enige aspek nie – vervat in vermeende aanduidings soos homo sapiens, homo socuis, homo laborans, homo ludens, homo faber of homo symbolicus. ’n Geedeelte van ’n alternatiewe seining ontgin ’n meer genuanseerde en gedifferensieerde verstaan van normatiewiteit wat die weg voorberei vir ’n verduideliking van die seining van Dooyeweerd met betrekking tot die vier strukture wat in die menslike liggaam vervleg is – ’n benadering wat afstand neem van die tradisionele dualisme van siel en liggaam. Terwyl die interne werkingsfeer van die fisiese, biotiese en sensitief-psigiese strukture in ’n funderende sin behoue bly, is hulle in die menslike liggaam ingekapsel onder leiding van die normatiewe struktuur wat, hoewel dit kwalifiserend is, in sigself ongekwalifiseerd is. Aandag word ook aan die verhouding tussen tydelikheid, bo-tydelikheid en ewigheid gegee alvorens die ontleding besluit word met ’n verantwoording van die onderskeie wyses waarop diere en mense in die normatiewe aspekte van die werklikheid funksioneer, met besondere verwysing na die aard van taal. Taal veronderstel verantwoordelike en vrye menslike handelinge wat op hul beurt toerekenbare keuses uit vele opsies verg – ’n eienskap wat afwesig is by diere. Die ondersoeker van diere-gedrag, Eibl-Eibesfeldt, is oortuig dat dit wat, alternatiewelik, rakende diere, in die algemeen as ‘taal’ aangedui word, eksklusief binne die sfeer van interjeksie beweeg, van die uitdrukking van insiglose gemoedstemminge – en hy bevestig ook kategorieë dat die vermoë tot talige kommunikasie tipies menslik is en dat werklikheids niks vergelykbaar in die diereryk aangetref word nie.

1. Orientation

Whether or not humans actually evolved from unicellular ancestors or chance physical processes is irrelevant when it comes to an assessment of the similarities and differences between currently living animals and human beings, because we can investigate them directly. Yet the ideas of Darwin and his followers soon penetrated

the intellectual world and the public media. That this development is not of a recent date could be seen from the following words of Kuyper – from the year 1892. These words will remind us that this legacy is well-established in the West. In his rejection of the assumed or supposed *a-religious* nature of (neo-)Darwinism, Kuyper strikingly remarked: “The theory of evolution is the ‘formulary of unity’..., which currently unites all priests of modern science in their secularized temple” (Zwaan, 1977:40). More than a century later Roy Clouser argued that a “religious belief is a belief in something as divine per se no matter how that is further described, where ‘divine per se’ means having unconditionally non-dependent existence” (Clouser, 2005:23). The role assigned to *evolution* by neo-Darwinists fully meets this condition for being a *religious belief*.

It should therefore not be surprising that Lynn Margulis, a distinguished professor at the University of Massachusetts, says that history will ultimately judge neo-Darwinism as “a minor twentieth-century religious sect within the sprawling religious persuasion of Anglo-Saxon biology” (quoted by Behe, 2006:26). On the same page Behe continues: “At one of her many public talks she asks the molecular biologists in the audience to name a single, un-ambiguous example of the formation of a new species by the accumulation of mutations. Her challenge goes unmet. Proponents of the standard theory, she says, ‘wallow in their zoological, capitalistic, competitive, cost-benefit interpretation of Darwin – having mistaken him ... neo-Darwinism, which insists on (the slow accrual of mutations), is in a complete funk’.”

Behe’s book generated a lively debate, and in his 2006 edition he addressed some of the more substantial objections. Yet, after 10 years, he is even more convinced of the stance he took in 1996: “Today, with fresh denunciations issuing almost weekly from scientific societies and newspaper editorial boardrooms alike, it might seem a trifle premature to declare victory. Yet, although the cultural dynamic is still playing itself out, a decade after the publication of *Darwin’s Black Box* the scientific argument for design is stronger than ever. Despite the enormous progress of bio-chemistry in the intervening years, despite hundreds of probing commentaries in periodicals as diverse as *The New York Times*, *Nature*, *Christianity Today*, *Philosophy of Science*, and *Chronicle of*

Higher Education, despite implacable opposition from some scientists at the highest levels, the book's argument for design stands. Other than updating the list of my children in the Acknowledgements (append Dominic, Helen, and Gerard), there is very little of the original text I would change if I wrote it today" (Behe, 2006:255).

However, what is normally designated as *intelligent design* (German: *Bauplan*), is a remnant from the *vitalistic* tradition within modern biology. Initially it was embodied in the idea of an *immaterial vital force*, even supposed to be capable of *suspending* physical laws, but after the generalization of the second main law of thermodynamics to open systems, the neo-vitalists introduced alternative terms which no longer contradicted this generalized meaning of the law of *non-decreasing entropy* – characterizations such as an *instability factor* or a *central agent* were introduced.

What is at stake is the *difference* between *modal laws* (such as *physical laws* holding for all possible material entities) and *type laws* (holding for a limited class of entities only – such as atoms or elementary particles).¹ Our focus in this article will be on the implications of the type law for being human in respect of a dimension which is *shared* by animals and human beings and an account of respects in which humans and animals are *different*. We leave aside the fact that the diversity of type laws² corresponds to the discontinuities in the paleontological record.

2. The *typical* way in which animals and humans function within the sensory mode

There are significant differences between animals and humans regarding their respective functioning within the *sensory mode* of reality. Portmann distinguishes between animals and humans as

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- 1 The law for being an atom is universal in the sense that it holds (is valid) for *all* atoms. But it is at once limited to a specific *type* of entities, because not *everything* is an atom.
 - 2 Already in 1982 Mayr stated this feature of the fossil record: "What one actually found was nothing but discontinuities. All species are separated from each other by bridgeless gaps; intermediates between species are not observed. ... The problem was even more serious at the level of the higher categories" (Mayr, E. 1982:524 – see also Mayr, 1991:138).

follows: “Constrained by environment and protected by instinct: simply and briefly, that is how we can describe the behavior of animals. In contrast, human behavior may be termed open to the world and possessed of freedom of choice” (Portmann, 1990:79).³

The way in which animals experience reality remains enclosed within the scope of the physical, biotic and sensory aspects. These aspects constitute their *basic concerns in life*. Their world is restricted to what is accessible and what is inaccessible, what is edible and inedible, to an awareness of same sex and of the opposite sex. Finally, and this represents the highest subject-function of animals, their ultimate concern is in what is *comforting* and what is *alarming* or *endangering*.

This explains why animals are very selective in what they see. From what is present within their visual field they make only a limited selection. The other side of the coin is that various kinds of animals have observational capacities exceeding the sensory abilities of human beings by far. We know of animals that can register supersonic waves, that can see ultraviolet rays as light and can discern the difference between polarized and non-polarized light (bees). Some fishes, on the basis of a self-produced electrical field, utilize an electrical orientation (Eibl-Eibesfeldt, 2004:139). There are birds capable of using the magnetic poles of the earth to aid their navigation. These abilities are lacking in humans (cf. Portmann, 1970:200 ff.). Notwithstanding their poor eyesight, bats can hear ultra sound inaudible to us. Through the echo of their own call they form a copy of their environment (Eibl-Eibesfeldt, 2004:139).

Within their visible field human beings can perceive much more than what they are actually *noticing*. Moreover, whatever is noticed deepens and enriches their visual field, because those things that are noticed are grasped in *conceptual representations*. The

3 A more literal translation of the original German expressions reads as follows: “Umweltgebunden und instinktgesichert” = “restricted to an ambient and secured by instincts”; and “weltoffen und entscheidungsfrei” = “open to the world and free to choose”. Eibl-Eibesfeldt holds that currently a human person is seen as a “cultural being” with a “life history” and reduced instincts (the human being is an “Instinktreduktionswesen”) (Eibl-Eibesfeldt, 2004:673).

acquisition of genuine concepts, however, is absent in animals. Therefore we have to differentiate between *sensitive intelligence* and *rational intelligence*. Instinctively secured animals are *sentient creatures*, qualified by the sensory mode of reality. They can locate many things within their environment (*Umwelt*) and avoiding fire shows that experience can exert a controlling influence on later behaviour, supported by the continuity of their associative abilities. Yet all of this remains enclosed within the domain of sensory experience. For this reason Overhage is justified in stressing that the practical intelligence of animals never exceeds the sensory-perceptive domain (Overhage, 1977:117). Empirical research revealed that animals are restricted to particular forms perceived by them. On the basis of their sensitive intelligence, animals are able to detect similarities and differences. Yet the signs taught to Sarah, Washoe, Moja and Lana never exceeded sensory sound-like and image-like modes of locating the relevant similarities.⁴ Surely human beings also participate in this perceptive dimension – but humans are not *confined to* or *qualified by* this sensitive fashion of dealing with similarities and differences.

On the basis of investigations stretching over years with anthropoids and many apes, having 60 different natural and cultural objects at hand, Koths concludes that the constructive abilities of animals are *qualitatively* different from what humans can achieve when they make a completed end-product with a persistent function. Anthropoid intelligence is *qualitatively different* from the conceptual thinking of humans (see Overhage, 1972:275-276). According to Rensch the deep gap between animals and humans is given in *logical* thinking (Rensch, 1968:147). Logical thinking does not merely entail *causal coherences* but also concepts for *logical connections*, such as *consequently*, *because*, *when*, *in case*, and so on. This constitutes a difference in principle between the anthropoids and humans. Such a deep abyss is not present between the lower apes and the anthropoids.

What Portmann designated as the instinctively secured nature of animals manifests itself in inherited behavioural action patterns.

4 See Eibl-Eibesfeldt where he summarizes the research done by R.A. and B.T. Gardner regarding the use of signs by Chimpanzees – Eibl-Eibesfeldt, 2004:216 ff.

Particular stimuli or a combination of them may set in motion an action pattern that precedes any prior experience. It appears to be an inborn disposition. The American Robin, a migrating songbird, known as *Turdus migratorius*, or *North American Robin*, shows how a fake or dummy can still trigger such an inborn pattern of behavior. In German this is designated as an “angeborene Auslöse mechanismus” (AAM) which does not require any *conceptual understanding*.

The Robin has a bright red breast and controls its own domain. The bright red breast of other species members activates the desired protective action pattern. Every trespasser entering this domain will be attacked. However, the absence of any conceptual understanding is clearly seen from what Lack did in 1943. He placed a dummy Robin (without the red breast) within the domain of a Robin and interestingly no attack was activated. But when an artificial Robin with a red breast was constructed, the attack once again commenced! The same result was reached in 1960 when Peiponen investigated the behavior of blue breast Robins (Eibl-Eibesfeldt, 2004:162-163).

This clearly shows that the Robin does not have a *concept* of a Robin as a *bird*! It therefore differs from human perception, for when humans perceive a Robin it is immediately recognized (identified) *as a bird*. In other words, human perception is cognitively opened and deepened to the level of what we have called *conceptual representations*.

Dooyeweerd points out that the knowledge of animals remains “limited to their biotic and sensitive environment” while serving “the instinctive biotic urges, also insofar as they cannot be explained by knowledge”. To this he adds that the “identification of properties, which is the essence of logical analysis, is altogether lacking both in animal intelligence and in instinctual distinction”. And then he mentions Grünbaum who reports that a “certain number of vibrations of the threads of its web (49 per second) are to the garden spider the signal for the presence of a prey in the web”. Yet this spider knows so little of the “prey in the net” that it also attacks a tuning fork which vibrates 49 times per second. Dooyeweerd concludes: “From this it is clear that this instinctive knowledge is of a sensitive nature, and remains limited to the immediate biotic environment.” For the more highly developed animals Dooyeweerd

does acknowledge a “sensory ‘intelligence’” (Dooyeweerd, 2011:158-159).

Buytendijk supports this basic distinction between animal and human intelligence and he considers action on the basis of judgment absent in animals. He describes this difference as follows: “Therefore, one defines animal intelligence as the concrete experiential and senso-motoric structuring of practical behaviour, whereas human intelligence displays itself as a rational-logical, categorically judging conceptualization of the task-setting nature of the concrete situation and the discovery of a solution which does not follow from the immediate sensory effect of the situation” (Buytendijk, 1970:97; cf. Overhage, 1977:118).

3. Sensitive openness

Besides the fact that human perception is opened up towards the logical-analytical aspect, human sensitivity in general could be disclosed by anticipating the various normative aspects of reality. Through their senses human beings orientate themselves within the surrounding world. The senses enable an immediate awareness of our environment. We observe the movement of a dove flying from the branch, we hear the roar of an approaching vehicle, we feel biting cold in the winter wind and we taste salt water when we swim in the sea. Although we can focus our attention on specific things in our sensory environment, the basic functioning of our sensory orientation is free from rational deliberation.

On the basis of this sensory equipment, we are slotting into the different normative dimensions of our socially differentiated existence. We read the result of an examination which fills us with happiness or sorrow; we hear of a planned social happening and we feel excited about everything we can possibly experience and enjoy, and so on.

One may distinguish between *feelings* and *emotions*. According to De Graaff all the different types of feelings reflect their own distinctiveness, extent, durability, intensity and vitality which are simultaneously open towards the normative subject functions of human beings. He holds that our feeling reactions are a direct response to that which we sense. In our awareness of something, we experience pleasure or discomfort, we like it or disapprove,

experience acceptance or rejection and even the good and bad. That is why he holds that to feel is intrinsically linked to appreciation. When we taste something bitter, we feel rejected, when we enjoy a nice warm bath, we feel relaxed, etc. In distinction from our feelings, he argues that *emotions* show the total bodily agitation which we experience as our reactions to a particular situation: “emotions are immediate, spontaneous, overwhelming, intense reactions that deeply affect our entire physical and organic functioning. They mobilize the whole person and make us pull away from or move toward someone or something. In our emotions we live out here and now and surrender bodily to how we feel in a particular situation” (De Graaff, 1980:141-142).

Emotional openness is linked closely by De Graaff to the way in which we react in emotional disclosure within the context of a differentiated diversity of normatively-marked societal contexts. The joy which we experience is not, for instance, purely psychic-sensitive by nature. It is the joy with which we approach an old friend at a meeting (social joy), or it is the joy which we experience when we listen to a good musical performance (aesthetic joy). Similarly, the anger we experience is not just a psychic phenomenon because it is always about the feeling of injustice of someone who is wronged, or the bodily scar which someone inflicted on you purposefully, etc. That these different emotional reactions are always imbedded in the normatively-differentiated human reality, is evident in our ability to react in an appropriate emotional way. Someone who laughs in reaction to the serious warning of a friend is considered to be irresponsible; someone who bursts into tears when hearing a good joke is considered socially abnormal, etc. In reality it is a fundamental requirement for every person who is educated to differentiated maturity, to possess the full spectrum of emotional reactions. Actually, it is often a first sign of emotional-psychic disturbance if a person is no longer able to experience the full spectrum of human emotions. Each person's emotional health is not only dependent on the possibility of the emotional spectrum of fury, anger, offense, feeling touched, feeling neutral, feeling excited, experiencing happiness, reacting positively, exultant and even having an ecstatic experience, but also to the active living out of all these “escape valves”. Disclosed maturity cannot do otherwise but to lean on and be supported by a healthy

emotional disclosure and the appropriate emotional reactions accompanying it.

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Thus far we have focused on those aspects in which humans share *subject functions* with material things, plants and animals, that is to say, on *similarities* between us and the different realms within nature. Yet we have shown that in spite of these similarities there are nonetheless striking differences to be noted within each of these shared dimensions. The type law for being human determines the *typical way* in which the human being functions within the physical, biotical and sensitive modes of reality. Since things, plants and animals do not subjectively function within the normative aspects of reality, the mere acknowledgment of this fact already highlights important differences between human beings and the entities we encounter in nature.

The traditional body-soul dualism actually proceeds from a reification of a few normative functions. The view that humans are rational-ethical beings is just one (pretty dominant) example of such a reification. Views such as these raise the question if it is possible to characterize humans in terms of one or perhaps a few modal aspects.

4. How do we characterize humans?

Is it possible to characterize humankind merely by employing a combination of two aspects (such as found in the view that humans are rational-ethical beings)?

In the history of economic theory the novel *Robinson Crusoe* (by Daniel Defoe, published in 1719) is sometimes seen as an illustration of the theoretical orientation of the classical school in economics, where an individual will act in a purely rational-economic way, apart from the normal economic surroundings of production, money, trade and prices. The assumption of classical economic theory was that humans act as if they are consistently and solely guided purely by choosing the optimal *rational-economic* option. This view therefore advanced the idea of “man” as *homo economicus*, according to which humans are actually qualified by the economic aspect of reality. In addition to the long-standing depiction of “man” as “*homo sapiens*” humans are sometimes also designated as *social beings*

(*homo socius*), *homo laborans* (“working man”), *homo ludens* (the “playing man”), *homo faber* (“man the maker”) or *homo symbolicus* (capturing the lingual ability of humans).

When Von Bertalanffy explains his view of *symbolism* as the distinctive human characteristic he does that by down-playing morality: “man’s moral instincts have hardly improved over those of the chimpanzee” (Von Bertalanffy, 1968:15). He continues: “Symbolism, if you will, is the divine spark distinguishing the most perfectly adapted animal from the poorest specimen of the human race” (Von Bertalanffy, 1968:20). Ironically he adds a strange dialectical twist to this appreciation of language, because he disqualifies this distinctive feature by depreciating it at once to be the root-sin of humankind: “But man’s Original Sin precisely was what the Bible says it was; eating from the tree of knowledge; that is, in modern parlance, invention of symbolic universes” (Von Bertalanffy, 1968:25).

In the case of material things, plants and animals the distinctive feature is given in their respective unique qualifying functions, namely the *physical*, *biotic* and *sensitive* modes.

Sometimes the realization that humans are involved in multiple normative contexts helps to broaden an understanding of the multi-aspectual nature of human beings. Kugel, for example, wrote a work on the philosophy of the body, presented as a philosophical perspective on human behaviour. He distinguishes four kinds of norms, namely the *economic* norm, the *jural* norm, the *ethical* norm and the norm of *harmony* (the “aesthetical” norm) (Kugel, 1982: 280-283). The first obvious omission is the logical-analytical aspect within which the contrary logical-illogical is found. The normativity of life include the other omissions as well, namely the cultural historical, the lingual, the social and the certitudinal. But there is something else lacking in the choice of Kugel. His mode of speech suggests that there is just *one* norm in each case, because he alludes to *the* economic norm, *the* jural norm, and so on in the singular.

However, in fact it is possible to discern multiple modal norms or principles simply by investigating the connections between each normative aspect and all the other aspects of reality. Those intermodal connections referring to the aspects that are foundational to a specific normative aspect are designated as retroci-

patory analogies or just as retrocipations. Those referring to normative aspects appearing later in the order of aspects are known as anticipatory analogies or anticipations. To illustrate this point a brief analysis of the meaning of the logical-analytical aspect will be sufficient and also shows why Kugel's "singular" view of modal norms is incorrect.

Just contemplate the nature of the logical principles of identity, non-contradiction and the excluded middle. The first two principles are made possible by the intermodal coherence between the logical-analytical and the arithmetical aspects. The numerical analogy (retrocipation) found on the norm side of the logical aspect underlies every *logical unity and multiplicity*. On the one hand it provides the foundation for the logical principle of identity (whatever is distinctly identified is identical to itself). Moreover, what is distinct underlies the logical principle of contradiction which demands that whatever is distinct should not be considered as identical. In other words, the numerical analogy on the norm side of the analytical aspect explores the two sides of unity and multiplicity, and thus serves as the basis of the two most basic logical principles⁵ underlying every analytical act of identification and distinguishing.

As long as we attempt to find one aspect to explain the uniqueness of the human being, our efforts will continue to be dispersed within the *diversity* of normative modal aspects. No single human being is solely involved in just one kind of modal functioning: no one acts *just* in a logical-analytical way, or *just* in an economic way (as *homo economicus*), or just in a *social* fashion (*homo socius*), and so on. All of us can switch from one guiding norming functioning to another. The one moment a person can buy something, the next moment she can talk cordially to a good friend encountered at the shop, then arrive home to join her family where she may have to fix something (requiring some technical skills), and so on.

5 The principle of the excluded middle in fact is a retrocipation to an *anticipation*, because it presupposes the retrocipation from the logical-analytical mode to the arithmetical mode, which in turn anticipates towards the factual spatial whole-parts relation in subjection to and determined by the spatial time order of simultaneity (only in the case of an infinite totality is the bifurcation *A* and *non-A* viable – see Strauss, 2009:303-306).

If human beings have the normative flexibility to act successively under the guidance of *any* normative aspect, then no single one of them can be elevated to be the sole guiding principle in all human activities. Interestingly, even Dooyeweerd himself struggled with this issue, and initially opted for a mistaken solution, which he soon had to leave behind. His first article in *Philosophia Reformata* on the problem of time in the *Philosophy of the Cosmonomic Idea* states that that the *spiritual* bodily structure is qualified by the function of faith.⁶

The idea of the mutual coherence of everything within creation has significant implications for the traditional understanding of the human being in terms of a *material body substance* and a *spiritual-rational soul substance*. By and large this view included the idea that the human soul can “act” independently of the material body, thus performing *purely spiritual acts*. Just recall the position of Thomas Aquinas (mentioned in the article on the rational soul and trust in reason) where he states that the intellectual principle, which he calls the mind or the intellect, essentially operates independently of the body, from which he concluded “that the human soul, which is called intellect or mind, is something incorporeal and subsistent” (see Pegis, 1945-I:685). Sometimes this dualism was tempered by introducing something bridging the gap. In an attempt to overcome the dualism between his two substances (*space* and *thought, res extensa* and *res cogitans*), Descartes accepts the *physical effect* of a small cerebral gland influencing human consciousness (the *parvaglandula*). Even during the 20th century we still see the influence of this dualistic understanding, for example in the thought of George Herbert Mead for whom mind possesses “a world of representation which is simply a duplication of the physical world, leaving ‘the connection between this world and the physical world’ a ‘mystery’” (Mead, 1945:360).

It turned out that holding on to “immaterial” acts of thought ran into a dead end because continued natural scientific investigations made it clear that even the slightest thought-act can only take place on the basis of brain processes which have their foundation in

6 See Dooyeweerd, 1940:222 where he refers to the “z.g.n. geestelijke (door de geloofsfunctie gequalificeerde) lichaamsstructuur”.

physical functions. Although the brain as organ occupies merely 2% of the total body mass of a mature human, 25% of the total metabolism of the human body takes place within the brain (see Plamenac, 1970).

The human brain cannot be identified with anyone of the bodily structures of human beings, although it can be accessed through the point of entry of any aspect. The complexity of this multi-functional existence of the human person explains why it is still impossible to discern, for example, the precise connection between logical concepts and the brain as an organ. In spite of the highly specialized knowledge currently available in neurology (and cognitive science) with regard to neurons, synapses and many more detail elements of the nervous system and brain, it is still not possible to locate or correlate the concept “dog” or “triangle” with givens accessible through the gateway of any pre-logical aspect.

5. The new integral view of Dooyeweerd – the structural interlacements present within the human body

Although the key position of the theory of modal aspects in Dooyeweerd’s thought should not be underestimated, it should be kept in mind that he always knew that the intermodal and transmodal nature of individual entities exceeds the scope of any single modal aspect. Sometimes the problem in this regard is designated in terms of the opposition between a so-called substance theory versus a bundle theory. The idea of individuality structures as it was developed by Dooyeweerd side-steps both these extremes. No single natural or social entity is merely the combination of a “bundle” of modal aspects, and the modal universality of the aspects prevent them from merely being properties of some or another substance. The temporal identity of individual entities, their persistence through time, constantly specify, in a typical way, the modal universality of the aspects in which they function. But this specification does not turn what is universal into something individual.

Nonetheless Dooyeweerd still wrestled with the relationship between universality and what is individual. He implicitly identifies the universal side of what is individual, namely its law-conformity (“wetmatigheid”) with the universal “law for” its existence. The implication is that the factual side of reality is then stripped of any form of universality – every subject is strictly individual. What is not

realized is that “being individual” is itself a universal trait holding for whatever is individual! The effect is an ambiguity in Dooyeweerd’s understanding of “individuality structures” (see Strauss, 2009:449-453). He started in 1931 by frequently using the phrase “individual structure” (see Dooyeweerd, 2010:ii). When the switch is made to *individuality structure* the question concerning the relationship between what is individual and what is universal arises. Are they two ends of a continuum? If they were, the distinction between them would collapse. If the move from “individual” to “individuality” intends to acknowledge the universality of a law holding for subjects, then the phrase individuality structure refers to the law side of reality. To be sure, the term “structure” contains a similar ambiguity, because it may refer to the *construction* of something (best expressed by referring to the “structure of”) or to the law for (“structure for”) something.

Therefore, neither (universal) individuality structures nor (universal) modal aspects could be *individualized*. Yet, appearing at the factual side of reality, concrete entities function in a twofold way within modal aspects:

- (i) In a concrete individual way (*this* entity and not *that* entity);
- (ii) In a concrete universal way (this *type* of entity and not that *type* of entity – manifested in the orderliness or law-conformity of factual reality).

The encompassing task of explaining the nature of the human being does not belong to any special science, but to *philosophical anthropology* as a *totality science*. For this reason Dooyeweerd argues that “no single special science as such can give us an idea of human nature, since man is a whole, which, in its temporal manifestation, comprises all aspects of reality within a typical hierarchy of individuality-structures” (Dooyeweerd, 2011a:134). The structural configuration of the human being is therefore in need of a theoretical investigation proceeding beyond the mere recognition of the different modal aspects in which humans function.

The recognition of the physical aspect of our human existence reveals the entity structure (individuality structure as Dooyeweerd prefers to call it) of the material building blocks of living things. The realm (kingdom) of material entities is qualified by the *physical* aspect. In terms of our present knowledge of atoms the distinct number of elementary particles within them are ordered in a typical

spatial and kinematic way, reflected in the structured electronic orbits that configure the atom as an individual physical-chemical micro-totality. In order to understand that molecular structures have their foundational function within the spatial aspect of reality, we only have to look at the following isomeric forms, for they will show that the *same number* of atoms, depending upon alternative spatial configurations, may yield different *chemical properties*.

In alternative structurations the following atoms C_3H_6O may yield chemically distinct configurations (conformations): $CH_3.CH_2.CHO$ or $CH_3.CO.CH_3$. Another example is $C_4H_4O_4$. In different spatial configurations these twelve atoms constitute the chemically different acids: *maleic acid* and *fumaric acid*. Merely taking the *number* of atoms into account cannot explain this situation. It is only when the *spatial patterns* are considered that we can do justice to the chemical difference at stake. Interestingly, the largest macromolecules known to us are about one million times *smaller* than the smallest living cell.

While material things – atoms, molecules, macro-molecules and macro-systems – clearly belong to the realm of physically-qualified things, human existence is by no means excluded from this sphere. Surely our physical existence is bound to the presence of those physical entities necessary for our bodily functioning – from the four ‘organic’ elements (hydrogen, oxygen, carbon and nitrogen) up to the variety of inorganic substances that make an equally necessary contribution to our existence.

Yet, when we consider the “material building blocks” of living things, it is incorrect to speak of “living matter” (or: “non-living matter” / “dead matter”). Atoms, molecules, macro-molecules and macro-systems are not alive – and if they are not alive they cannot be “dead” later on! The German physicist, Von Weizsäcker, is therefore fully justified in introducing the new term “unbelebt” (“non-living”) designating that which is not, and has never been, alive (Von Weizsäcker, 1993:32). He writes: “Stones are ‘unbelebt’. But one should not say that they are dead. Only something that actually once lived could be dead.”

In addition to the subject functions of material things within the first four aspects, living entities also have a modal subject function within the biotic aspect. In principle they have also latent object

functions within all the post-biotic aspects. Surely the biotic aspect presupposes the aspects of number, space, movement and energy-operation, but it cannot be reduced to these foundational facets. The modal concepts of function employed by physics do not include terms derived from the original meaning of the biotic aspect, such as *life*, *growth*, *differentiation*, *integration*, *adaptation*, *goal-directedness* (*finality*), and so on.

Dooyeweerd developed a new structural theory to account for the interlacement between the material substrate of living entities and the organic nature of such entities. The term *organism* is actually derived from the presence of “organs”, and the latter are indeed fully *alive*. Therefore the meaning-nucleus of the biotic aspect could best be designated as *life* instead of *organic life*. The latter phrase rather reflects an interconnection with the numerical aspect in the presence of a *multiplicity* of organs.

Dooyeweerd introduced the term *enkapsis* to account for all those kinds of (entitary) interlacements where the intertwinement does not terminate the inner structural properties of what is interlaced. He followed the biologist, Heidenhein, in this regard, but added the idea that differently-natured structures are interwoven in such a way that each retains its unique character. The constitutive physical configuration of living things do not lose their physical-chemical qualification when they are functioning within living entities. Thus we can say that such entities are functioning *enkaptically* – that is, retaining their physically qualified nature – within living things. Similarly, both the material components and the biotic organs in a human being are enkaptically interwoven in the total bodily existence of a person.

With this new understanding flowing from the term *enkapsis* Dooyeweerd at once surpassed the limitations of the whole-parts relation – a relation that appears in its original modal meaning within the spatial aspect. Suppose we ask whether or not Sodium and Chlorine are genuine parts of table salt. Surely every division of table salt must continue to display the NaCl structure of table salt. But what happens when the process of division reaches a single salt molecule? Once such a molecule is divided, one is left with a Sodium atom and a Chlorine atom – and it is evident that real parts of salt will still possess the same chemical structure of salt, namely NaCl. The critical question is whether Sodium and Chlorine each

has a salt structure, i.e., are Sodium and Chlorine true parts of salt? The answer is self-evident, because neither on its own has a NaCl structure. In this case, the internal sphere of operation of the atoms remains intact although, through a chemical bond, they were taken up in the table salt molecule.

Within the realm of physically qualified entities, we therefore encounter different geno-types. Atoms are, for instance, geno-types within the radical type (realm) of material things. Within different bonds, the same atom displays variability types. When an atom engages in chemical bonding, a characteristic enkaptic totality emerges: (i) besides the internal sphere of operation of an entity there is (ii) an external enkaptic sphere of operation in which the enkaptically-bound entity serves (iii) the encompassing enkaptic totality or whole.

The factual configuration of a water molecule thus exists on the foundation of the geno-type of the chemical bond between the oxygen and hydrogen atoms. Without these atoms, a water molecule cannot exist. They therefore serve water in the sense of a unilateral foundational relation. Does this imply that the atoms become *parts* of the chemical bond that exists within the molecule? Not at all, because the bond applies only to the binding electrons and not to the whole atom. Besides, the atom nucleus is not just a specific characteristic of the atom, but precisely that nuclear part of an atom that determines its physical-chemical geno-type (compare the atomic number = the number of protons of the nucleus), as well as the atom's place within the periodic table.

According to Dooyeweerd the biotic substructure "governs the so-called autonomous nervous system with the muscular and glandular tissues insofar as they are innervated by this system: the so-called smooth muscles of the eye, the hair, the bronchi, the intestines and the striated muscles of the heart" (Dooyeweerd, 2011:146).

The physical and biotic substructures, in turn, are enkaptically bound within the sensory substructure with its sensitive qualification. This structure serves as the foundation for human consciousness, feeling life, desires and the human will. But it remains an enkaptically bounded substructure, retaining its internal sphere-sovereignty without becoming an integral part of the human body: "In its internal sphere-sovereignty this third individuality-

structure dominates those functions of the sensory and motor nervous system – particularly those of the brain (the sensory brain), the spinal cord, and the gland system (including the endocrine glands) – which in their being typically directed by the subjective sensitive function fall outside the domination by a person's acts of will, at least up to a certain point" (Dooyeweerd, 2011:146).

By and large traditional anthropological views identified the human body with its physical substructure, or at most with the first three, above-mentioned substructures. Dooyeweerd realized that the normative functions open up the reality of recognizing yet another bodily structure, namely the *act-structure*. With a view to the foundational substructures Dooyeweerd describes this fourth structure as follows:

This third individuality-structure in turn, and in combination with both earlier individuality-structures, functions enkaptically within a fourth individuality-structure, which I wish to call the individuality-structure of the human acts or act-individuality-structure of the body. By the word "acts" – differentiated in their basic dimensions of knowing, imagining and willing – I understand those activities which issue from the human selfhood but function within the enkaptic body individuality-structure. Through them, one orients oneself intentionally (i.e., with a purpose) towards states of affairs in temporal reality – or in the world of one's imagination – under the guidance of normative points of view. One internalizes these intentional (or intended) states of affairs by relating them to one's I-ness. Their "innerness" is involved in the intentional character of the "acts" (Dooyeweerd, 2011:146).

The specification regarding "the guidance of normative points of view" entails that humans can vary their actions constantly, they do not need to be involved in just one kind of action all the time. Any normative aspect may guide human actions. Through this reality the idea of a distinct qualifying aspect for human acts is ruled out. On the one hand, typical normatively guided human acts in principle function in all aspects of reality, which implies that being human is never exhausted merely by functioning in one or another aspect. On the other this insight makes it plain that although typically normative human actions belong to the highest bodily structure, this structure cannot be seen as being qualified by any one of these normative

points of view. In other words, the act-structure is the qualifying bodily structure which is *unqualified* in itself.

In the light of the preceding considerations we can circumscribe a human being as a *religious personality*. The term *religious* does not refer to the aspect of faith, but to the central *root dimension* of reality which determines the ultimate direction in life. The term *personality* embraces the three substructures as well as the qualifying act-structure of the human body. Every person has its own unique *tempo* (expressing the role of the physical substructure), its own *dispositions* (the contribution of the biotic substructure), its own *temperament* (sensitive substructure) and *character* (the manifestation of the in-itself-unqualified, qualifying act-structure). The human character is a *normative type* which is sometimes associated with specific roles within society or with peculiar ways in which modal normativity takes shape.

The dominant normative inclination of being human reminds us of the view that culture is not the second nature of human beings, but their *first* nature. Likewise, one can appreciate the freedom to choose, within the matrix of modal and typical norms, as the first nature of being human. Eibl-Eibesfeldt points out that only humans can act against their nature: “Only the human being can ultimately act against its nature, in what is good and in what is evil.”⁷

6. ‘Body’ and ‘soul’: between temporality, supratemporality and eternity

When Dooyeweerd objects to the (metaphysical) idea of the human soul, conceived of as a combination of normative (bodily!) functions elevated and opposed to the “material body”, he does not want to avoid the biblical reference to the “inner person” or the human soul. The duality entailed in traditional views of opposing two “function complexes” (most of the time reified into two substances), breaks apart the temporal unity of human functioning within all the modal aspects of reality. But the intrinsic unity of being human transcends this diversity. According to Dooyeweerd the “soul is the ‘inner person’ itself, in the Pauline sense, just as the body is the person in

7 “Nur der Mensch kann schließlich gegen seine Nature handeln, im Guten wie im Bösen” (Eibl-Eibesfeldt, 2004:745).

its external manifestation (the ‘outer person’). As a result he holds that in “the soul the entire human existence is concentrated as the spiritual unity; in the body this same total existence is broken through time, as through a prism, into a diversity of functions and individuality-structures” (Dooyeweerd, 2011:139).

For this reason Dooyeweerd does not view the soul as a “*part* of human nature, no more than the body can be characterized as such”. He writes:

The soul constitutes the inner totality of a person, which differentiates itself in the body within the horizon of time. It can be such a totality only because it is a spiritual unity beyond all temporal diversity, which is the reason why it also transcends our conceptualization. If it were merely a structural unity, a unity within temporal diversity, or a part of such a unity, it could never lay down the body nor continue the existence of a person beyond the grave. However, because it is of an entirely different order, of a spiritual or religious order, it simply cannot be approached by the traditional “dichotomy”. If we wish to keep speaking of a “dichotomy” from a Scriptural viewpoint, then this word must assume an entirely different sense than it possessed in scholastic theology (Dooyeweerd, 2011:139).

Vollenhoven states that the biblical sense of “immortality” means “not being subject to the power of death – in the Scriptural sense of this term”; that before the first death human immortality is not mentioned; that the Bible never speaks of an immortal *part* of a person (it does not know the expressions “immortal soul” and “immortal spirit”) and that the Bible solely knows of immortality of those who, after their death, are in Christ. Immortality means more than “continue to exist” while “being subject to death” does not mean annihilation (Vollenhoven, 1933, *Separate Appendix* with the footnotes, pages 5-6, note 40).

In passing it should be noted that there is an element of ambiguity in Dooyeweerd’s thought regarding the idea of the “supra-temporality” of the human heart.

In his extensive reaction to the critical “marginal” remarks made by Van Peursen (on *A New Critique of Theoretical Thought*) Dooyeweerd relativized his initial designation of the central religious dimension as “supra-temporal”. In his response Dooyeweerd refers

to the sense in which we “do transcend time in the center of our existence even though at the same time we are enclosed within time” (Dooyeweerd, 1960:103) and later on in this article he explains that he is not wedded to the term “supra-temporal” for in response to the objection raised by Van Peursen to the term “supra-temporal” he says:

Now I am not once more going to enter into a discussion regarding the question if it is desirable to call the heart, as the religious centre of human existence, supra-temporal. It is sufficiently known that amongst the adherents of the *Philosophy of the Cosmonomic Idea* there is no consensus in this regard. Probably the term supra-temporal, with which I never meant a static condition but merely intended to capture a central direction of consciousness transcending cosmic time, can best be replaced by another one (Dooyeweerd, 1960:137).

Note the difference between “supra-temporal” and “a central direction of consciousness transcending cosmic time” – in the latter case the (temporal) human self-hood reveals a “central direction of consciousness transcending cosmic time”.

7. Human bodily actions: the normative structure

In view of the fact that typical human actions are always guided by one or another normative point of view, it may be preferable to designate the act-structure as the normative structure, because it directly captures what is characteristic of this structure, namely enabling human actions to live out the normativity of life.

Dooyeweerd distinguishes between three basic directions (*grondrichtingen*) of the act-structure, namely *knowing*, *willing* and *imagining*. Although the terms knowing, willing and imagining appears to be, if anything, *activities*, the idea of a *basic direction* suggests the steadiness of a *path*. Perhaps we may discern a connection between *willing* and the sensitive mode, *knowing* and the analytical mode and *imagining* and the cultural-historical mode, keeping in mind that every possible human act (or: action) exceeds the modal boundaries of any and all aspects in which such an act functions. It also exceeds any and all normative aspects guiding such acts. This means that the depth-layer of every human act exceeds any single modal aspect and therefore can only be approximated in terms of concept-transcending knowledge.

The term “knowing” may be used in a concept-transcending way. Then it does not imply that the original conceptual context of thinking (analysis = identifying and distinguishing) is left behind. Likewise, human willing (originally referring to the sensitive-psychic aspect where human desires, feelings, emotions and strivings have their modal seat) and human imagining (to my mind originally referring to the free formative fantasy of human beings and perhaps reflecting a mode of knowing directed at the entities within reality) could be appreciated in their close connection to the modal aspects of reality.

While all four of the human bodily structures have, apart from their enkapctic interweaving, a characteristic internal functional sphere of operation, it is impossible to delimit any one of them *morphologically*, that is to say, to localize them in a particular part of the human body. The foot, hand, leg or the brain of a human being is never purely physical, biotic or sensitive-psychic. The whole human personality, in all four of its enkapctically interwoven substructures, is expressed in every part of the body. At the same time the traditional dualism of a material body (substance) and a rational soul (substance) is now clearly superseded: “The human being is not a ‘unity of soul and body’, but the body, as the form of one’s entire temporal existence, only arrives at its intrinsic unity in its religious root, in the soul or spirit of a person” (Dooyeweerd, 2011:139).

8. Enkapctic interlacement: an example of ramifications for all four bodily structures

The presence or absence of particular chemical bonds undoubtedly may have important implications for normal human functioning. Think of the important role of iodine in the nature and function of the thyroid gland. The thyroid gland (glandulathyreoidea) is placed around the lower part of the human larynx and the beginning of the wind pipe. It is responsible for the secretion of the important thyroid gland hormone (thyroxine) which, probably via an influence on the process of oxidation (oxidative phosphorylation) in the mitochondria initiates the exchange of substances throughout the body’s cells. This is essential for normal biotic growth as well as emotional and psychic health. Iodine itself is qualified physically-chemically in terms of its own inner structure. While retaining this inner structure it is, however, enkapctically bound into the biotic functioning of the thyroid gland.

Only the thyroid gland functions subjectively in the biotic aspect of reality (it is alive) while it depends on the enkaptically bound iodine for the production (internal secretion) of the thyroid gland hormone. This biotic function – with its influence on the physical-chemical substructure in the human body – is itself foundationally enkaptically interwoven with the psychic-sensitive substructure and qualifying normative structure of the human being – as proven by its importance for the healthy emotional and normative life of a human being. A hyperactive thyroid gland causes excessive energy-use which can lead to a faster heartbeat and a general unease, with accompanying heightened nervous sensitivity. It is clear that the interwoven iodine and thyroid gland plays a role within the integrated functioning of the entire human being. The theory of enkaptic structural wholes attempts to understand this enkaptic functioning of a human being as a whole, keeping in view the complex substructural interweaving also present in the structure of our bodies.

Our initial discussion of the relation between animals and human beings was focused on aspects of nature in which both have *subject* functions. However, this similarity does not conceal the *typical differences* which are still present when animals and humans are compared, as we have shown with reference to the physical, biotic and sensitive modes of reality. When we now proceed and briefly look at the post-sensory aspects, that is, from the logical-analytical aspect up to the certitudinal aspect, it is no longer possible to compare *subject* functions because animals do not function as subjects within these normative aspects. What human and animals *share* in this regard is merely the fact that they are both functioning within these normative aspects, albeit as subjects or objects.

However, when one proceeds from the *a priori* faith in the continuity postulate of the modern humanistic science ideal, then the temptation is strong to attempt to ascribe normative subject functions to animals – just consider the recent call for acknowledging animal rights and even the rights of plants (see Strauss, 2009:388-391). Of course the strongest attack on the discontinuity between animals and human beings normally comes from the claim that animals, like humans, are capable of obtaining concepts, that they do make and use tools, and that they do have language.

9. The functioning of animals and humans within the normative aspects

In a relatively simplistic way we have become accustomed to the distinction between nature and culture. The former encompasses material things, plants, animals and what they can produce (such as the web of the spider, the nest of birds, and so on). Owing to the so-called linguistic turn it often happens that a pretty reduced understanding of culture is advanced, such as found in the thought of Dikovitskaya who circumscribes culture as a “representational, symbolic and linguistic system” (Dikovitskaya, 2005:48). Znaniecki captures much more in his employment of the term culture: “the concept which this term symbolizes includes religion, language, literature, art, customs, mores, laws, social organization, technical production, economic exchange, and also philosophy and science” (Znaniecki, 1963:9, cf. p.374). Although this definition practically touches upon every normative aspect of reality, from the logical-analytical up to the fiduciary or certitudinal aspect, it may be wise to avoid making culture just another basket-term for all forms of normativity, similar to what happened to the ethical.

There is no highest *genus* of normative aspects, such as the concept of culture, with the specific aspects as the various *species* of this *genus*. Dooyeweerd always pointed out that the sphere-sovereignty of the various modal aspects precludes an application of the traditional Aristotelian-Thomistic method of concept formation, namely that of a *genus proximum* with its *differentia specifica*.

The *a priori* continuity postulate of neo-Darwinism suggests that since animals and humans are basically “similar”, they ought to have comparable capacities in respect of thinking, tool-making and language. Yet even leading neo-Darwinists, such as Bernard Rensch (as we have noted⁸), had to admit that animals lack argumentative logical skills. Others maintain that animals are

8 Rensch holds that logical laws are valid for the entire universe (Rensch, 1991:223, 243). We would have said that the logical-analytical aspect displays *modal universality* entailing that whatever there is in principle also has a (subject- or object-) function within this aspect. The well-known German paleontologist, Otto Schindewolf, also emphasized the *universality* and *constancy* of “laws of nature”: “If one defines the laws of nature as rules according to which processes always take place in the same way everywhere, there can naturally be no question of mutability and development over time” (Schindewolf, 1993:5).

capable of forming *unnamed concepts* or of partaking in *unnamed thinking*. A simple test, refuting this entire enterprise, is to ask if animals and in particular the anthropoids (orangutan, gorilla, chimpanzee and gibbon) are capable of acquiring illogical concepts, such as that of a *square circle*? An attempt at Münster to get chimpanzees to copy drawings of squares and triangles lasted six months, and met with no success. How then could a chimpanzee be brought to acquire the concept of a “square circle”, or even to realize that it is *illogical*?!

This shows that the discontinuity between animals and humans is given in the normativity of the post-sensory modes of experience (aspects). By virtue of the normative structure of the logical and post-logical aspects subject functions within them presuppose an *accountable free will*, the *freedom to choose*. Accountability embodies a retrocipation within the logical sphere to the causal relation present in the foundational physical aspect. Contraries such as logical – illogical mark the irreducibility of the normed structure of human actions taking place under the guidance of any normative aspect.

We have pointed out that non-scientific concepts are actually *conceptual representations* and that animals lack the ability to form genuine (logical or illogical) concepts. In addition they lack the uniquely human capacity of imaginativity. Humans are even able to convert what is not visible into conceptual representations. Eibl-Eibesfeldt speaks of the *spatial intelligence* of human beings which, for him, highlights the ability to “grasp” spatial relationships in a centered way. He holds that our thinking is spatial, combined with the ability to translate invisible relationships into *conceptual representations* (Eibl-Eibesfeldt, 2004:747). This opens up the way to individuality. Mäckler mentions the following definition of art by Benedetto Croce: “Art is intuition, intuition is individuality and individuality does not repeat itself”⁹ (Mäckler, 2000:30). Human knowing appears to be co-conditioned by the two fundamental dimensions of reality, the *knowing* of modal aspects and *knowledge* of entities. The former is known through *functional relations* and the latter through *imaging* that takes on the shape of imagining in the

9 “Kunst ist Intuition, Intuition ist Individualität, und Individualität wiederholt sich nicht.”

uniquely human acquaintance with the world. These two legs of knowing – *modally directed* and *entitary directed* – imply each other and open the way to account for our knowledge of universality and what is individual. Just compare the conceptions of Croce. He states that knowledge has two forms:

. . . it is either *intuitive* knowledge or *logical* knowledge; knowledge obtained through the *imagination* or knowledge obtained through the intellect; knowledge of the *individual* or knowledge of the *universal*; of *individual* things or of the relations between them: it is, in fact, productive either of *images* or of *concepts* (the italics are mine – DFMS – Croce, 1953:1).

Surely imaginativity, as the manifestation of a specific directedness of human knowing towards the dimension of (individual) entities, extends across this entire dimension and cannot be restricted to aesthetic imaginativity only – as suggested by Seerveld (Seerveld, 1968:45, 1979:284, 1980:132, 2001:175). Eibel-Eibesfeldt mentions that Arnold Gehlen is justified in calling the human being a “Phantasiewesen”, a being characterized by the ability to imagine (Eibel-Eibesfeldt, 2004:755).¹⁰

In addition, the flexibility of human understanding allows for a cross-utilization of the two dimensions of human experience, since the modal aspects serve as points of entry to an understanding of entities whereas the nature of the modal aspects can only be explained with the aid of metaphors – the result of imaginatively relating different kinds of entities through predication (sometimes mediated by images depicting relationships between entities and aspects or aspects and entities).

Although neo-Darwinists claim that animals and humans are similar because animals not only use tools but make them as well, archeologists emphasize the human formative imagination which is capable to invent something different from what is presented to the senses (see Narr, 1976). This view is complementary to Kant, who

10 Just as little as willing and thinking could be identified, respectively with the sensory and logical modes, is it possible to identify *imagining* with the cultural-historical aspect. Yet we may suggest that *willing*, *thinking* and *imagining* are intimately related to these three aspects.

defines the *Einbildungskraft* (imagination) as the capacity to have a representation of an object without its presence to the senses (Kant, 1787-B:151). This enables human beings to have a historical awareness: memory (historical past) and expectations or planning (historical future) – while animals are said to live in the present, the *now*.

From the fact that animals not only use tools but also “manufacture” them it may look as if animals actively function within the cultural-historical aspect. The distinct way in which human tool-making differs from animal tool-making follows from a second meaning attached to the word *imagination*, namely the ability to imagine something that is present to the senses *different* from the way in which it is given. Both forms of the imagination have their foundation in the typical human free formative fantasy. Applied to the problem of tool-making the archaeologist, Narr, specified three distinct criteria in order to highlight what is typical human in respect of human tool-making. The *form*, *function* and *manner of production* ought not to be suggested by what is given – like stripping the leaves from a branch (cf. Narr, 1988:280-281).¹¹

9.1 Is language uniquely human?

It is commonly assumed that because animals have different forms of communication they actually use language. Suppose a magnet is used to make a non-magnetic piece of iron magnetic? In this case the magnetism of the magnet is communicated to another piece of iron. Does this mean that two physical subjects employed language? Likewise, when the genetic code is duplicated to offspring, does it mean that we may here identify a kind of biotic language between different living entities? And what about the dance of the bees? The latter is indeed quite remarkable, because by means of the (i) tempo, (ii) direction and (iii) angle of the figure eight performed, the (i) distance, (ii) location, and (iii) direction of the source is depicted (see Eibl-Eibesfeldt, 2004:258 ff.). Eibl-Eibesfeldt does provide an additional explanation. The speed of the

11 For a discussion of problems exceeding our current discussion, see Strauss, 2009:110-121; 130-136. Chapter 4 of this work also contains a more extensive assessment of the uniqueness of being human.

wind is incorporated in the dance tempo – if the bees have to fly against the wind the dance is slower, indicating a larger distance. The distance-indication is neither related to the real distance, nor to the duration of the flight, but to the effort (force) needed to achieve the goal (Eibl-Eibesfeldt, 2004:259).

The first point to be observed is that in the communication between bees the elements of the dance are always identical, they always have the same “meaning”. All human utterances, by contrast, can signify a number of *different* things, depending on the context, intention, or even, in the case of written language, the punctuation.

Language therefore presupposes responsible and free human activities, it requires accountable choices between multiple options. This is absent amongst animals. Eibl-Eibesfeldt states that that “which, by contrast, regarding animals, is generally designated as ‘language’, exclusively moves within ... the domain of interjection, of the expression of moods lacking insight”.¹² He also categorically affirms that “the capacity of lingual communication is specifically human” and that “nothing really comparable is found in the realm of animals” (Eibl-Eibesfeldt, 2004:214).

Eibl-Eibesfeldt also holds that the sharing of emotional conditions does not need a word-language, but that *speaking* presupposes a certain distancing from emotions (Eibl-Eibesfeldt, 2004:753).

9.2 Structural limitations barring animal speech

Post-mortem studies of the upper respiratory tract in mammals, as well as cineradiographic studies, have shown that the position of the larynx is crucial in determining the way in which an individual breathes, swallows and vocalizes (Laitman, 1985:281). This implies that there are certain anatomical peculiarities that go hand in hand with the contribution of brain functioning in the production of human speech; in particular the gradual descent of the larynx after the post-natal period (cf. Portmann, 1973:423).

12 “Das, was man beim Tier dagegen als ‘Sprache’ zu bezeichnen pflegt, bewegt sich, von den letzt genannten Beispielen abgesehen, ausschließlich auf dem Gebiet der Interjektion, der uneinsichtigen Stimmungsäußerung.” (Eibl-Eibesfeldt, 2004:214).

The 'humanlike' apes (anthropoids, i.e. the orangutan, gorilla, chimpanzee, and gibbon), are, as a result of anatomical shortcomings, born incapable of speech. In order to provide the newborn human suckling with a milk tract separate from the respiratory tract, the position of the human larynx at birth is the same as that of mammals. In the period between the first and second year, this highly positioned larynx starts its descent in the neck. This downward movement creates the pharynx cavity, necessary for the articulation of the richer voice disposition in human beings. Laitman declares that the precise time this shift occurs, as well as the physiologic mechanisms that underlie it, are still poorly understood (Laitman, 1985:282). As soon as the larynx reaches its destined low position, it can no longer lock into the nasopharynx. Consequently, the respiratory and digestive pathways cross above the larynx. This creates the possibility of suffocating, which surely is, evaluated in itself, something negative. However, it is precisely this expanded pharynx that provides human beings with the unique potential to produce a rich variety of speech sounds. The palate between the mouth and nose cavities serves as basis for the resonance of the sounds produced. Goerttler even mentions the fact that, in the third month after conception, a distinctively human structural element develops (the vocal chord 'blastem' – Goerttler, 1972:250).

It is interesting in this connection that Laitman informs us that the basicranial similarities between the australopithecines and extant apes suggest that their upper respiratory tract was also similar in appearance. Consequently, as with living non-human primates, the pharynx portion for sound modification in these early hominids would have been greatly restricted:

As a result, these early hominids probably had a very restricted vocal repertoire as compared with modern adult humans. For example, the high larynx would have made it impossible for them to produce some of the universal vowel sounds found in human speech patterns (Laitman, 1985:284).

If we define a *speech organ* as that bodily part which exists solely in service of the production of speech sounds, then a surprising fact is that there are no human speech organs. Let us enumerate possible candidates: the lungs, larynx, mouth cavity, palate, teeth, lips and nose cavity. Without exception, all these organs perform primary functions that would continue to function in their normal way

even if human beings never uttered a single word (Overhage, 1972:243)! Human language simply takes hold of all these different organs in the production of speech sounds (“body language” or “sign language” employs different parts of the body).

This highly developed and subtle cooperation, especially of three organs so heterogeneous in character as the mouth, the larynx and the brain, integrated in the production of human speech sounds, makes it rather difficult, if not hopeless, to provide us with a causal evolutionary explanation of this astonishing phenomenon. The question arises, what number of miraculous changes should have occurred to produce the articulation conditions necessary for truly human language formation? Overhage states:

Such an unfathomable process of change affecting so many differently structured organs and organ complexes, closely correlated with each other, should have proceeded harmoniously as a total change, if it was to come to the unprecedented perfection of human speech (Overhage, 1972:250).

Similar to the way in which Portmann has shown that from its inception the human being is human (see Portmann, 1990), Narr, in his assessment of language and early humans, rejects the dominant image of a wild, partly human early human, making a plea for a consistent¹³ more “human-like” image (Narr, 1988a:366). In following Herder¹³ and von Bertalanffy, Gipper still continues the idea that language actually made humanity is what it is: “What is certain, is that it is language that made us into what we are” (Gipper, 1988:388).¹⁴

We may proceed to investigate how human beings function in a multiplicity of social roles, but we have developed enough distinctions and brought forward sufficient factual data to formulate a concluding remark.

13 “Der Mensch ist ein freidenkendes, thätiges Wesen, dessen Kräfte in Progression fortwürken; darum sei er ein Geschöpf der Sprache!” (Herder, 1978:73). [“The human being is a freely thinking, acting being, whose forces operates progressively; therefore he is a creation of language.”]

14 “Daß es aber die Sprache war, die uns zum dem gemacht hat, was wir sind, ist sicher.”

10. Concluding remark

A systematic analysis of the uniqueness of the human person brought us now to the point where we can provide a provisional but encompassing characterization of being human.

The human being is indeed a religious personality, which, in its bodily shape, displays an interweaving of four interlaced substructures, qualified by the normative structure, which in itself is not qualified by any normative aspect, and centered in die human self-hood or I-ness (the “heart”).

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