

Morality and Cognition: A Hayekian Perspective

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Abstract

This article brings together two strands of literature, based on two distinct contributions of F. A. von Hayek. I argue that Hayek's cognitive writings are the key to an understanding of his theory of cultural evolution.

Hayek's cognitive theory explains how individuals perceive and act in a given environment. Physical stimuli as well as the actions of other people undergo a process of classification. Hayek was puzzled by the fact that the same stimulus can evoke a different reaction at a different time. In short, individuals are inclined to act and perceive in particular ways, given experience and tradition.

This article considers moral rules as rules of perception and action, and explains these as dispositions that induce particular neuronal pathways. Following his fallible method, dispositions are subject to change. Moral rules, deeply embedded in traditional rules, are less prone to change since they are a tacit component of human knowledge.

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JEL Classification: A12; A13; B25; B53; D87

1 Introduction

Although his research into the roots of moral behavior is less well known than his highly acclaimed theory of the business cycle, Hayek always regarded it as his more important accomplishment. Tackling questions of moral behavior from a scholarly perspective led him into two distinct areas of investigation. The first is known as his cognitive theory, which he developed early in his career, the second is his theory of cultural evolution. This paper sees both these theories as complementary. This, at first, may appear counterintuitive, since we are accustomed to consider a cognitive perspective as a tool to explain individual perception and individual action, while a cultural viewpoint emphasizes group perception and action.

After serving in WWI Hayek returned to Vienna where he became deeply interested in the study of psychology but wasn't taught at the university at this time. A law student in 1920, Hayek began the research that later led to his monograph, "The Sensory Order," a work not accepted for publication until 1952. At this later stage a series of subsequent articles, such as "Rules, Perception and Intelligibility" (1962), "The Theory of Complex Phenomena" (1964), and "The Primacy of the Abstract" (1969) deepened his impact on the scientific world. Still, those writings are rarely included in any thorough consideration of Hayek's work.

Hayek's theory of cognition intertwines aspects of neurobiology with philosophy, which lead to an interchangeable usage of such terms as 'mind', 'brain', and 'sensory order', thus opening many questions as to how to classify his contributions.¹

The present paper undertakes the following task: it backs Hayek's early findings in "The Sensory Order" from the perspective of current neuroscience perspective to deliver a new understanding of moral behavior as used in his later writings on cultural evolution. Hayek's central argument in "The Sensory Order" is that human perception and action are purely subjective phenomena. Essentially, humans do not possess ultimate knowledge, but typically rely on a subjective form of knowledge. This idea is in line with the general Austrian acceptance of methodological individualism, which as a concept is commonly thought to be unapplicable to

¹ See in particular his final chapter of "*The Sensory Order*" in which he refers to 'Philosophical Consequences' of his cognitive findings.

cultural evolution. This paper sets out to clarify these issues and to deliver a new conceptual viewpoint toward a unified Hayekian theory.

Hayek's *Sensory Order* is a contribution to cognitive psychology which studies mental activity in the context of information processing. This branch of psychology is built on the assumption that humans do not directly perceive and respond. Instead, human perceptions, thoughts and actions are the result of internal transformations and computations that follow from processes repeatedly carried out by our minds. Raw information reaches the sense organs, but this information is then recognized and comprehended in the context of our previous experiences. The following response will be the result of a complex interplay of neuronal processes.²

At a physiological plane, the brain and the spinal cord form the basis of the central nervous system, whose duty is to transmit sensory information from the "outside" (e.g. noise, rain) or "inside" world (e.g. feelings of hunger or pain) of the organism and then react to it. An action following a stimulus is not simply a mechanical answer to this stimulus as proclaimed by behaviorists, the leading psychological school of the 1950s, which emphasized observable behavior and opposed any method of "introspection" in the study of mental processes.³ Although he did not adhere to it, Hayek was strongly influenced by Gestalt psychology, which stresses that mental processes of perception and action involve the personality of the individual.⁴ Adding this psychological notion to the description of biological events leads him directly to the problem of the dichotomy between mind and body. "What part of our knowledge can properly be described as knowledge of mental events as distinguished from our knowledge of physical events?"⁵ Hayek asks in an early, unpublished manuscript of "The Sensory Order" from 1920 as De Vecchi (2003) found out. Hayek's line of argument in all his subsequent and better known works is derived from this insight that knowledge is neither absolute nor objective.

Further, Hayek argues that we live in two worlds, a physical one and a phenomenal one, both closely related to, but not identical with the individual.⁶ Some events occur in both worlds, and some, such as illusions and imagination, pertain only to the phenomenal world. Current

² See Gazzaniga et al. (1997).

³ Hayek (1952:25-30) and ([1952a]1979:78).

⁴ For a thorough exposition of Hayek's affinity to Gestalt psychology see De Vecchi (2003).

⁵ Hayek (1952:1).

⁶ Hayek (1952:4) He distinguishes two orders or two worlds, a "subjective, sensory, sensible, perceptual, familiar, behavioural or phenomenal world on the one hand, and ...the objective, scientific, 'geographical', physical, or sometimes 'constructional' on the other".

cognitive psychology stresses that human behavior takes part in both worlds, putting more emphasis on the importance of the sensory (phenomenal) world. Hayek's early findings are similar. He recognizes that the same stimuli, when reaching our mind at different times, are usually perceived in the same way but lead to different responses. This is not a matter of reality and appearance as he points out, but it follows from the relation that this particular stimulus has to a different stimulus of the same order. Therefore, human behavior cannot be explained with methods used in science. Social science does not follow the laws of physics, and Hayek likewise refuses to use the tools and methods of physical science in exploring social science. In *The Counterrevolution of Science* he further explains his concerns.⁷

2 The two worlds

Our device for connecting the physical and the phenomenal worlds is the brain. Humans are endowed with more than 100 billion neuronal cells, most densely concentrated in the brain. These neurons communicate sensory information and control bodily functions. A neuron consists of a body cell, extensions that receive information, called dendrites, and extensions that send messages, called axons. Many neuronal functions are based on electrochemical processes. We know today that information is carried along dendrites and axons through changes in their electrical properties. Such a change is induced by a chemical messenger that attaches to the dendrite and excites the neuron. This messenger triggers an electrical signal inside the neuron, causing it to 'fire'. When the electrical signal reaches the end of the axon, another chemical neurotransmitter is released that triggers an electrical signal in another neuron. This process occurs repeatedly, causing a chain reaction that excites many neurons. Such a chain reaction connects certain neurons to form a neuronal pathway along which information about an event is transmitted that will induce a specific response in the human brain.

Behaviorists would argue that the same stimuli would always excite the same neurons and therefore build the same pathways. This viewpoint essentially reduces the differences between the physical world and the phenomenal world to zero. Hayek disagrees with this view, and so

⁷ A related issue is his position in the Lange-Hayek debate against the possibility of central planning.

does modern neuroscience. The same stimulus does not always evoke the same pattern of reaction; the same stimulus does not travel every time along the same neuronal pathways. Different or similar stimuli can evoke the same impulses and travel the same pathway. Importantly, stimuli that occur simultaneously will be perceived as related, which establishes a connection among the corresponding neurons. Thus, it is not the similarity of a stimulus that leads to its perception as such; it is the position of the neuron excited in the neuronal pathway. Even if stimuli differ from each other, they are typically perceived as similar or even identical when found on the same neuronal pathway.⁸

3 The map as tool to interpret the environment

Pathways and connections among neurons now form a map, which provides the individual with an “inventory of the kind of things of which the world is built up, a theory of how the world works rather than a picture of it.”⁹ The essential question that emerges is how the relationship between stimuli are determined. Hayek refers to a phylogenetic and ontogenetic development of these relations. Some stimuli will be perceived as connected when this proves be useful to the species. The phylogenetic aspect can be seen as the ‘hard wired’ part of the map. It refers to stimuli that tell us things such as ‘darkness is dangerous’ or ‘fire is dangerous’, or ‘red fruit is good’. The ontogenetic component of the map is determined by subjective experiences of the organism at a particular time, and is therefore prone to be altered.¹⁰

Such a map provides a tool for classifying incoming stimuli. It is built upon categories which bear similarities to the Kantian categories, differing from Kant insofar as Hayek's categories are not static but modifiable. Because of their characteristics the map displays semi-permanent properties, which change in the course of individual development and are modified through individual experience. Although categories change with individual experience, they

⁸ Hayek (1952:10) “Impulses in a particular sensory nerve fibre may thus be set up by any one of a group of stimuli which physically may be similar or altogether different. But if a given fibre responds to any of those stimuli, the character of the impulse transmitted will always be the same, irrespective of the nature of the stimulus.”

⁹ Hayek (1952:131)

¹⁰ Hayek (1952:53) Hayek explains the difference between the ontogenetic and phylogenetic part of the map as follows: “That this system of connexions is acquired in the course of the development of the species and the individual by a kind of ‘experience’ or ‘learning’; and that it reproduces therefore at every stage of its development certain relationships existing in the physical environment between the stimuli evoking the impulses.”

have very stable, genetic and racially-specific roots, which resemble the experience of past generations. Experience is therefore an important factor in perception, that is: New impulses are compared, brought into relation with past experience, and then perceived as such.¹¹ Categories build therefore a framework within which individuals interpret their own world.

Hayek compares categories with grids or filters that channel incoming stimuli, bring those stimuli into relation with others that occurred in the past. The map is a reproduction of the relations in the physical world that happened in the past, in which the “past” refers to the experience both of the species *and* of the single individual living now, since the map has a phylogenetic and an ontogenetic background. This map exists independently of the environment of the organism; it represents the “kind of events which the organism has met during its whole past”¹².

The map, a system of connections which registers when certain impulses occur simultaneously, is formed by experience.¹³ We know that perception is connected to memory: we recognize stimuli by bringing them into relation with stimuli perceived in the past. For example, people who have suffered brain damage in a certain region of the brain, although able to perceive objects and their features, are typically unable to recognize an object because it has no connection in their memory.¹⁴ In turn, slight variations in incoming impulses that permit us to bring them into relation to past experience build up new neuronal connections. For this reason the sensory order of an older individual is more sophisticated than the sensory order of a newborn.¹⁵ This implies also that an impulse per se can never be perceived but only a bundle of impulses; any single impulse will immediately be brought into relation with other, similar impulses that have occurred in the past. Impulses and combinations of impulses are identified as belonging to a certain group of impulses.¹⁶ Therefore, new impulses can be classified only so long as they share something with the perception of past impulses. If no such similarity can be

¹¹ Hayek (1952:166) “It is only insofar as the nervous system has learnt...to treat a particular stimulus as a member of a certain class of events..., that an event can be perceived at all...”

¹² Hayek (1952:115)

¹³ Hayek (1952:64)

¹⁴ Gazzaniga (2002:193) “Object recognition is more than linking features to form a coherent whole. That whole triggers memories.”

¹⁵ Hayek ([1969] 1978: 44)

¹⁶ Hayek (1952: 64) “Each individual impulse or group of impulses will on its occurrence evoke other impulses which correspond to the other stimuli which in the past have usually accompanied its occurrence.”

established, the new impulse cannot be perceived by an individual.¹⁷ Even if those impulses would occur regularly they would not be relevant for the neuronal system; they would not alter the map of neuronal connections.

4 **Categorization of incoming stimuli**

The nervous system pictured by Hayek resembles a hierarchical order. Stimuli that always evoke the same response are generally categorized at a lower level. Instinctive reactions or reflexes are good examples of such a predictable categorization. With the gradual evolution of the species on the one hand, and on the other the gradual accumulation of experience in the lifetime of a single individual, “the original direct connexions between particular stimuli and particular responses are being preserved, but ... control mechanism are being superimposed capable of inhibiting or modifying these direct responses when they are inappropriate in view of other simultaneously acting stimuli.”¹⁸ As a result, a more complex categorization, or in Hayek's words "multiple classification," is to be expected when stimuli can be connected in many ways and responses become less predictable.

The same complex classification happens when stimuli pass from a lower level to higher levels within the nervous system. In this case not only the stimuli but also the reactions of the body to those stimuli at every given level will be transferred to the next level of categorization.¹⁹ Essentially, the higher the level, the less predictable a response will be since such an impulse “will send out more and more branches which will potentially be capable of reinforcing or inhibiting an ever-increasing range of other impulses.”²⁰

¹⁷ Hayek (1952: 64) “An event of an entirely new kind which has never occurred before, and which sets up impulses which arrive at the brain for the first time, could not be perceived at all.”

¹⁸ Hayek (1952:85). This line of thought will be further developed and applied in Hayek’s theory of cultural evolution.

¹⁹ Hayek (1952:92) “While it is on the whole more likely that responses *via* the lowest centers will be innate for the individual, that is, acquired by the race in the course of evolution, while the responses effected by the higher centres will be largely based on individual experience, this cannot be regarded as a universal rule. Probably some learned responses are effected on fairly high levels, while some learned responses may, after sufficient repetition, become almost completely automatic and be effected at low levels.”

²⁰ Hayek (1952:112)

At the lowest level of the nervous system we have a classification²¹ that is simple, fast, and basic. Hayek illustrates the lowest level of the process of multiple classification with the example of a machine that sorts different balls according to their size.²² When applying the concept of multiple classification to higher levels of categorization this machine clearly needs to accomplish more than simple sorting. In a thought experiment, the machine can be connected to two lights, say a green and a red that will illuminate when certain balls are placed into the machine. The machine will sort the balls into classes of balls that evoke a green light and classes that evoke a red light.²³

A higher level of multiple classification is reached when the machine must classify balls that initially trigger a green light but after a different event will trigger a blue light. This third type of multiple classification can be thought to operate on different levels of the neural system. Classified stimuli of one level will become the object of a new classification at a different level. The resulting response to stimuli classified in so many ways may not be predictable in the same way as stimuli classified at lower levels that do not travel to higher levels.

That stimuli undergo a multiple classification has been proven by Michael Posner in an experiment in 1986. Posner shows that all individual perception will undergo a hierarchical categorization process, a multiple representation of stimuli.²⁴

We thus can understand the process of classification as one that with the help of filters is sorting out stimuli and channeling information. Categories operate like filters between an impulse and a particular action (see fig.1). Because of these filters, the original stimulus can

²¹ Other terms used by Hayek for 'classification' are 'categorization', 'discrimination', 'sorting', 'sorting-out', or 'grouping'. (see Hayek 1952:48)

²² Balls with a diameter of 16,18,28,31,32 and 40 mm will be placed in a receptacle marked A, the balls with a diameter of 17,22,30, and 35 are placed into a receptacle marked B. The balls in receptacle A belong to one class and all the balls of receptacle B belong to another class. (see Hayek 1952:49)

²³ Hayek (1952:50)

²⁴ Gazzaniga et al. (2002:97-99) A test person was given two letters simultaneously. The task was to press the 'SAME' button if the two letters represented both vowels or both consonants. If the letters presented were from a different category, such as one vowel and one consonant, the individual had to press the 'DIFFERENT' button. Posner measured the reaction time as an indicator for the categories the test person uses. He discovered four categories: a) physical identity such as AA; b) phonetic identity such as Aa; c) same category such as SC or AU; and d) different category such as AS. The test person responded fastest when encountering the physical identity, than the phonetic identity, followed by the different category and slowest to the same category. Posner implied that the different response times reflect the degree of processing required to the task. In other words, individuals have no problems in categorizing a stimulus when presented in a certain form but need to find another category when presented differently. Gazzaniga et al. (2002:98) stresses "This experiment provides a powerful demonstration that even with simple stimuli, the mind derives multiple representations."

never be perceived by the individual in its pure form, but in a categorized, classified, or abstract form only.²⁵ Categories interpret stimuli, add values or importance to them, and bring them into relation to other stimuli that have already occurred.

Note that since perception is abstract, only those aspects of an event that can be brought into connection with the categories of past experience will be perceived. Abstract perception may not be accurate, but it resembles the ‘relevant aspects’ of an impulse at this time. In modern cognitive science this aspect is called object constancy. People are able to recognize a bicycle when seen from above or able to discern the essential features of objects that are otherwise strange: pink elephants for example, or striped apples.²⁶

5 Perception and action: the role of dispositions

Humans are complex and unpredictable creatures. When responding to a stimulus, they by no means all react in the same way. Some do not react at all. And even the same individual may react differently at different times. Why is it that the same stimulus can be categorized differently at different times? The answer lies in the ‘dispositions.’ In his short article, “The Sensory Order After 25 Years” Hayek regrets²⁷ not having already used this term in his book *The Sensory Order*, admitting that this would have made his work far easier to understand. In fact, he did not use this term until 1969 in his article “The Primacy of the Abstract”. A disposition, as Hayek stresses in this later article, describes an inclination of an organism to react in a certain way when exposed to certain stimuli.²⁸ The organism is not only prepared to react to a perceived stimulus in a certain way but is also prepared to receive a certain stimulus (see Fig.3). The key to understanding this term is to remember that categories are shaped by experience, and they in turn shape future perception. The organism thus expects to perceive

²⁵ Hayek ([1969] 1978)

²⁶ See also Gazzaniga et al. (2002:205)

²⁷ Hayek (1982:290)

²⁸ Hayek ([1969] 1978:40)

impulses that match impulses perceived earlier. The preparedness of an organism, or its disposition, can be observed at the level of perception and of action.²⁹

It is the dispositions that attribute a sensory quality to stimuli. Any interpretation of perceived stimuli – the classification of a perceived stimulus – is based upon *individual subjective* inclinations to do so. Hayek states that members of a group are able to predict *certain patterns of action, but never the exact action of an individual*.

The reason for this is that dispositions are in part inborn (in the sense of genetic material) and in part a product of individual experience, but are also built on the experience of the species.³⁰ The use of *specific* categories hence cannot be predicted; the subjective element of individual experience makes any prediction impossible. This impossibility is counteracted by the phylogenetic component of the dispositions.³¹ In the case of human evolution, the species acquired some hard-wired dispositions, such as helping one's kin or helping the old or the sick people.³² And some dispositions were developed during the cultural evolution of a society. These dispositions can be thought of as rules and values embodied by this society in past millennia that helped it to attain civilization. Keeping a promise, honoring a contract and most especially *moral rules and values* are examples of such dispositions that manifest cultural uniqueness. Hayek calls those dispositions that embody the values of a given society *primary dispositions*. These are dispositions that the individual will recur to in the first place. Moral rules are good examples of primary dispositions, illustrating the possibility of pattern prediction. In a particular situation an individual makes use of additional dispositions, which refer to the situation in question.³³ It is the

²⁹ Hayek (1952: 98) "This means that a great variety of external events, and also some conditions of the organism itself, may evoke one of several patterns of attitudes or dispositions which, while they last, will affect or 'colour' the perception of, and the responses to, any external event."

³⁰ See Rizzello (1999:28) and Hayek (1952:42)

³¹ See Gazzaniga et al (2002:547) "Choosing how to act does not simply require discriminating between incoming stimuli. When choosing how to act, we must integrate incoming stimuli with our values, current goals, emotional state, and social situation....The orbitofrontal cortex seems to be especially important for processing, evaluating, and filtering social and emotional information. The result is that damage to this region impairs the ability to make decisions that require feedback from social or emotional cues."

³² Rubin (2002:chapter 3)

³³ Hayek ([1969] 1978:40) gives a clarifying example: "The particular movement of, say, a lion jumping on the neck of his prey, will be one of a range of movements in the determination of which account will be taken not only of direction, distance and speed of movement of the prey, but also of the state of the ground (whether smooth or rough, hard or soft), whether it is covered or open territory, the state of fitness of the lion's various limbs-all being present as dispositions together with its disposition to jump."

combination of primary and these overlapping dispositions that influence the reaction of an individual to a stimulus.

6 Wrapping up: map and model

As we have shown earlier, the map builds the framework that determines every possible reaction to a stimulus. Hayek calls such a map a “frame of reference”³⁴ for perceiving the world and acting according to the needs of the organism in a particular situation. The map can be seen as a stable framework of how to perceive and act; all the possible neuronal pathways are given. Stimuli passing certain categories resemble the current ‘model’ of the world. The activated neuronal pathways form the model. It is the process of multiple classification that is shown in the current model, a representation of the world in a particular situation. As such, the model is built up by elements provided by the map.³⁵

The individual's action is the result of the model that he possesses at this given point in time. If the result of the action corresponds with the expectation of the individual, this action will most probably be repeated in future situations when stimuli of the same class are perceived. This positive feedback reinforces certain dispositions to perceive and to act.³⁶ There is always a chance however, that completely new dispositions can be developed. Hayek adheres to the idea that they are developed by accident and survive or die through natural selection.³⁷ These

³⁴ Hayek (1952:169)

³⁵ Hayek (1952:131) “Model building means adaptation: it selects some elements from a complex environment as relevant for the prediction of events which are important for the persistence of the structure, and it treats them as instances of classes of events.”

³⁶ Hayek (1952:95) “In the first instance, the sensory representation of the environment, and of the possible goal to be achieved in his environment, will evoke a movement pattern generally aimed at the achievement of the goal. But at first the pattern of movement initiated will not be fully successful. The current sensory reports about what is happening will be checked against expectations, and the difference between the two will act as a further stimulus indicating the required corrections. The result of every step in the course of actions will, as it were, be evaluated against the expected results, and any difference will serve as an indicator of the corrections required.”

³⁷ Hayek ([1969] 1978:42) “It seems to me that the organism first develops new potentialities for actions and that only afterwards does experience select and confirm those which are useful as adaptations to typical characteristics of its environment. There will thus be gradually developed by natural selection a repertory of action types adapted to standard features of the environment.”

processes of trial and error are physiological; insofar as “corresponding structures of the nervous system ... will first appear experimentally and then either be retained or abandoned.”³⁸

Consequently, some specific categories need to be updated by the positive or negative results that the individual experiences in certain environments. The brain has a built-in safety device: the ‘representative’ model of the world. The brain is able to forecast the result of an action, meaning that the brain “can produce a representative model on which the alternative actions and their consequences can be tried out beforehand.”³⁹ We know from neuroscience that imagery and actual perception are closely connected; memory reactivates neuronal pathways.⁴⁰ The thought of a train ride taken in the past may trigger memories connected with experienced emotions and reactivate neuronal pathways that were activated during the original ride. This representation of the world is a very useful tool: if the brain “had to take that action before it was tried out on a model, it might discover its harmful effects only when it was too late and it might be destroyed as a result.”⁴¹ Thus, the representative model precedes an action. If the imagined feedback is positive, the individual will act accordingly; the activated neuronal pathways will form the ‘model’.

We can see that the map will incur a change through negative feedback indicating that stimuli were wrongly classified. Inconsistencies with the expectations, inconsistencies in the model “can be eliminated only if what formerly were treated as elements of the same class are now treated as elements of different classes.”⁴² New connections may be added and old connections may be revised in order to overcome those inconsistencies. As we shall see later, this is the first step to word cultural evolution, a development that starts in individual brains that may at a later point in time, when many individuals have changed their mental models, result in a change of certain societal rules.

³⁸ Hayek ([1969] 1978:43) and Hayek (1952:145) “We have seen that the classification of the stimuli performed by our senses will be based on a system of acquired connexions which reproduce, in a partial and imperfect manner, relations existing between the corresponding physical stimuli. The ‘model’ of the physical world which is thus formed will give only a very distorted reproduction of the relationships existing in that world...; and the classification of these events by our senses will often prove to be false, that is, give the rise to expectations which will not be borne out by events.

³⁹ Hayek ([1967a] 1967:73)

⁴⁰ Gazzaniga et al. (2002:239)

⁴¹ Hayek ([1967a] 1967:73) and Hayek (1952:121) “We must therefore conceive of the model as constantly trying out possible developments and determining action in the light of the consequences which from the representations of such actions would appear to follow from it.”

⁴² Hayek (1952:169) and see Edelman (1987) “Perceptual categorization must both precede and accompany learning.”

7 Knowledge and morality: the tacit dimension

Given the subjectivity of dispositions and categories, we may argue that all impulses or information an individual perceives are subjective phenomena. Knowledge is therefore the result of subjective interpretation of the environment (Rizzello, 1999).⁴³ Put differently: knowledge is the knowledge about the environment perceived by the individual that is embedded in the ‘model’. Since impulses can be put into different categories, which in turn trigger a set of possible dispositions of action, we may argue that knowledge manifests itself in rules or schemata of perception and action.⁴⁴ Rules of perception⁴⁵ and action influence each other: experience tells us that certain perceived stimuli will evoke a certain pattern of action. Experience tells us that these stimuli will evoke certain neuronal pathways on the neuronal map. We may perceive rules of perception and action when observing other people. From this observation it follows that certain rules belong to certain classes that other people perceive; they react in certain ways by following these rules. That is, when perceiving other people’s rules, we mainly perceive their *dispositions* and their mental structure. Since such an interpretation is the result of our own mental model, we perceive and explain other people’s behavior by applying our own classificatory system.⁴⁶

This capacity of individuals to perceive the behavior of other people as a result of certain rules comes close to Gestalt perception.⁴⁷ We expect people to respond in a certain way to certain stimuli not only because we explain behavior using our own mental tools, but also because we have learned in the past that certain rules of action are prevalent in the environment

⁴³ See also Loasby (2004:103) who stresses that the Austrian subjectivity has a psychological or even biological basis.

⁴⁴ Hayek ([1969] 1978:41) “What this amounts to is that all the ‘knowledge’ of the external world which such an organism possesses consists in the action patterns which the stimuli tend to evoke, or, with special reference to the human mind, that what we call knowledge is primarily a system of rules of action assisted and modified by rules indicating equivalences or differences or various combinations of stimuli.”

⁴⁵ Hayek ([1962] 1967:56) suggests to substitute the term ‘rule perception’ with ‘regularity perception’.

⁴⁶ Hayek ([1942] 1948:63) “...In discussing what we regard as other people’s conscious actions, we invariably interpret their action on the analogy of our own mind: that is, that we group their actions, and the objects of their actions, into classes or categories which we know solely from the knowledge of our mind.”

⁴⁷ Hayek ([1962] 1967:46) Modern neuroscience attests that humans are endowed with so called ‘mirror genes’ that enable them to be empathetic. When those genes are missing, individuals may suffer autism.

we know. It is therefore easier to expect a certain behavior in our own social environment than in an unfamiliar one. Certain sets of behavioral rules are universal and can be correctly interpreted in every society, for example, a mother rocking her baby to soothe it; but there are also many rules that are understood only by members of a given society. Take for example the custom of senilicide practiced by Inuits in the 18th. Hayek recognizes that we can explain human behavior easily in our own known environment. He emphasizes "...that the capacity to respond to signs of which we are not conscious decreases as we move from members of our own culture to those of different cultures..."⁴⁸

Rules that prevail in a society are not necessarily perceived or acted upon consciously. As stressed above, the mind is not a blank slate. Past experience accumulated by generations is a component of every mind.⁴⁹ It forms the basis for understanding and acting in a certain environment, but more importantly, it is the starting point of social evolution. Traditional rules can and will be changed as they adapt to new environmental necessities, a process through which some will be abandoned completely.

Traditional rules have no ostensible purpose but embody a knowledge which individuals do not know they have the knowledge of how to do things in a way best adapted to their environment. Hayek's assumption that individuals constantly use such rules without being able to formulate them goes back to Polanyi's definition of tacit knowledge.⁵⁰ This kind of knowledge exists in "formulas, symbols, and rules whose meaning we do not understand and through the use of which we avail ourselves of the assistance of knowledge which individually we do not possess."⁵¹ Tacit knowledge is therefore closely connected to tradition.⁵²

Tradition refers to a whole complex of rules of perception and action. Traditional rules are not considered stable in time because dispositions and categories are of semi permanent character. Moral rules may be seen as part of such customary or traditional rules⁵³ and manifest themselves in the mental models of individuals. Although those rules may usually be followed

⁴⁸ Hayek ([1962] 1967:46)

⁴⁹ Hayek (1979:157) "The mind is embedded in a traditional impersonal structure of learnt rules, and its capacity to order experience is an acquired replica of cultural patterns which every individual mind finds given."

⁵⁰ Polanyi (1966)

⁵¹ Hayek ([1954] 1948:88)

⁵² Hayek ([1962] 1967:56) "The unconscious rules which govern our action are often represented as 'customs' or 'habits'."

⁵³ Hayek (1982)

unconsciously, they can also be selected consciously. Although an individual follows traditional rules, this does not imply that he has no choice as to which rules he will obey. Since every individual is 'framed' by the society in which he was socialized, there will be a set of possible action patterns (dispositions to act) from which he may select in order to respond to a perceived stimulus. In fact, it is the range of choices that is limited. This is why "certain conceivable choices will not appear at all among the possibilities between which he chooses."⁵⁴

Traditional knowledge resembles abstract knowledge about the environment, it is categorized. It is practical knowledge insofar as it is stored in the rules of perception and action. As such, it has not been acquired by individual experience and yet it facilitates the process of individual decision making. Since traditional knowledge is tacit it is hard to criticize, because people are rarely aware that they are using it. In other words, rules that bear this kind of knowledge cannot be satisfactorily explained because they are linked to cognitive processes such as categorization, which have occurred in the past. Hayek rejects the possibility of criticizing abstract rules and revising them as a whole, arguing that the mind cannot explain complex phenomena at the same level.⁵⁵ Abstract rules may be changed given the semi-permanent nature of dispositions. However, such a change cannot be of a sudden nature, as it is accomplished piecemeal, based on the unsatisfactory results of an action. If the individual realizes an inconsistency between patterns of perception and action, tension will result (see Fig.2). Through piecemeal critique, divergences between expected factual results of an action can be detected and eliminated. This does not necessarily occur as part of a conscious process; many small violations of rules and practices have the same effect. Individuals who change their behavior only slightly change their dispositions as well, they alter and add knowledge stored in their dispositions. At a physiological level, we can expect that new connections between neurons will be established; the model and consequently the map of an individual will change. Because of the subjective limits of the mind, only a marginal discrepancy of the already known can be perceived. The mind, as already explained, cannot perceive completely new stimuli, which cannot be associated with already existing patterns of perceptions. When an only slightly different stimulus reaches the

⁵⁴ Hayek ([1962] 1967:56)

⁵⁵ Hayek (1952:185) "...the capacity of any explaining agent must be limited to objects with a structure possessing a degree of complexity lower than its own. If this is correct, it means that...the human brain can never fully explain its own operations." See also Sabooglu and Langlois (1995).

organism, the organism is able to categorize, and thus may reinforce old patterns of behavior or introduce new ones.

The generation of a new disposition cannot be planned, it is “always a discovery of something which already guides its (the mind’s E.G.) operation.”⁵⁶ To state it differently: even a new disposition needs to be brought into relation with stimuli that happened in the past and needs to be compared with an established pattern of action. The result of the alteration of an existing disposition or the development of a new one goes hand in hand with an alteration in the structure of the brain. New behavior is now subject to natural selection; it has to compete with other rules of perception and action.

The process of developing or altering a disposition or an abstract rule of perception and action includes the production and transmission of new knowledge. This process starts with birth. As we have said, an individual’s brain is not a blank slate; newborn babies already possess a certain number of pre-constructed neuronal circuits⁵⁷ and therefore of genetically fixed dispositions. Babies’ neuronal connections operate at a lower level of the neuronal hierarchy, they reflexively to suck, for example. Babies do not have a thinner net of neuronal connections compared to adults; instead their brains have redundant connections.⁵⁸ The human brain needs to mature: this process begins before birth and continues for more than a decade.⁵⁹ In this time many neuronal synapses are eliminated (pruning) and the neuronal connectivity will be fine-tuned.⁶⁰ Children will alter their dispositions accordingly to their experience as they enforce existing neuronal connections or build new ones. This occurs primarily through imitating their parents. Children tend to develop patterns of perception and action similar to their parents’, and therefore are a good fit to the social environment into which they were born. This mental process is one of unconscious learning; only when growing up is conscious learning added.⁶¹

⁵⁶ Hayek ([1969] 1978:46) and Hayek ([1969] 1978:44) “..the richness of the sensory world in which we live...is...the product of a great range of abstractions which the mind must possess in order to be capable of experiencing that richness of the particular.”

⁵⁷ Gazzaniga et al. (2002:628)

⁵⁸ Gazzaniga et al. (2002:627)

⁵⁹ Hayek ([1969] 1978:44) “The baby and the animal certainly do not live in the same sensory world in which we live. But this is so...because of the much thinner net of ordering relations which they possess-because the much smaller number of abstract classes under which they can subsume their impressions makes the qualities which their supposedly elementary sensations possess less rich.”

⁶⁰ Gazzaniga et al. (2002:642)

⁶¹ Rizzello (1999)

Through imitating his parents, an individual learns the different practices used in his environment that have proved successful for generations; in this way children acquire tacit knowledge. The main character of abstract cultural rules lies in the survival of the group that practices them. Abstract rules are embedded in patterns of perception of a particular group or society which lead to a certain pattern of actions.

Individuals living in the same group or society have all grown up in the same traditional framework. They were socialized the same way and because of that, exhibit similar – although not identical – patterns of perception and action. Because of this common endowment, members of a group are able to communicate easily with each other; that is, members of a group are literally "speaking the same language." Individuals lacking those common cognitive patterns have problems understanding one another and cannot communicate.⁶² One result of these findings is that although an individual action cannot be predicted, pattern prediction is possible. Another is that pattern prediction may be more difficult when individuals migrate between groups or societies.

This fact becomes important when focusing on deviators within a group and outsiders to the group. Outsiders, not being endowed with the same implicit knowledge, do not share the same cognitive patterns and will have a different model of the world. A deviator, however, with the same cultural background may alter rules, but is still able to adhere to most of the rules of his group.⁶³ Deviators can communicate and explain their deviation since other members possess similar brain structures.

It is essentially the task of a deviator to induce cultural evolution. When finding inconsistencies between expectation and model, when opposing certain rules of action, including moral rules, he is able to alter dispositions repeatedly that are prominent in his society. Since no disposition is permanent, moral rules cannot be stable in time either. Moral rules evolve in the minds of individuals and should be seen as an adjustment to environmental necessities. This evolutionary approach to ethics follows from Hayek's cognitive underpinning of social evolution. Cultural evolution, including the evolution of our moral system, starts in the minds of the members of a society. The result of new mental models prevailing in the majority of a society is a new stage of cultural evolution. Since moral rules follow the same cognitive process of

⁶² As Hayek ([1962] 1967:60) states, communication "rests on a partial similarity of mental structure".

⁶³ Hayek (1979: 204, fn 48)

perception and action, it is straightforward to argue that moral rules are deeply embedded in society. “Right” and “wrong” are dispositions that exist in the minds of individuals at a certain time and in a certain society. Therefore, contrary to Kant⁶⁴, there is no “objectively valid, self-evident ‘good’”.⁶⁵

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⁶⁴ See Gick (2003)

⁶⁵ Walker (1986:59)

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Appendix

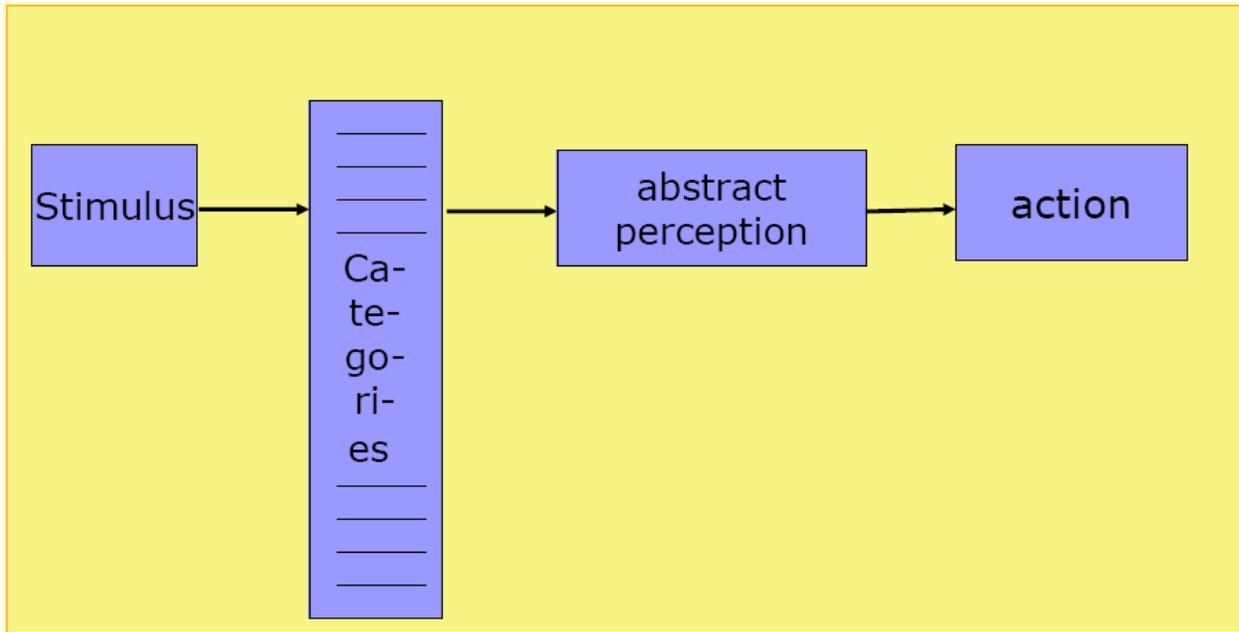


Fig.1

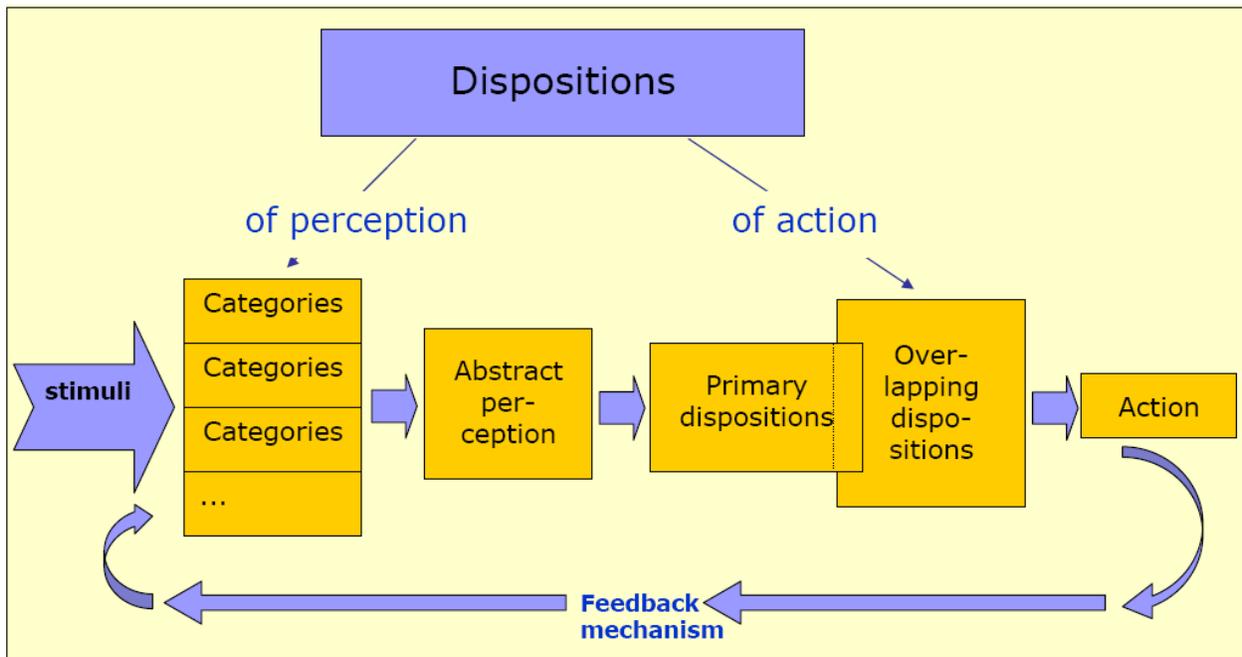


Fig. 2

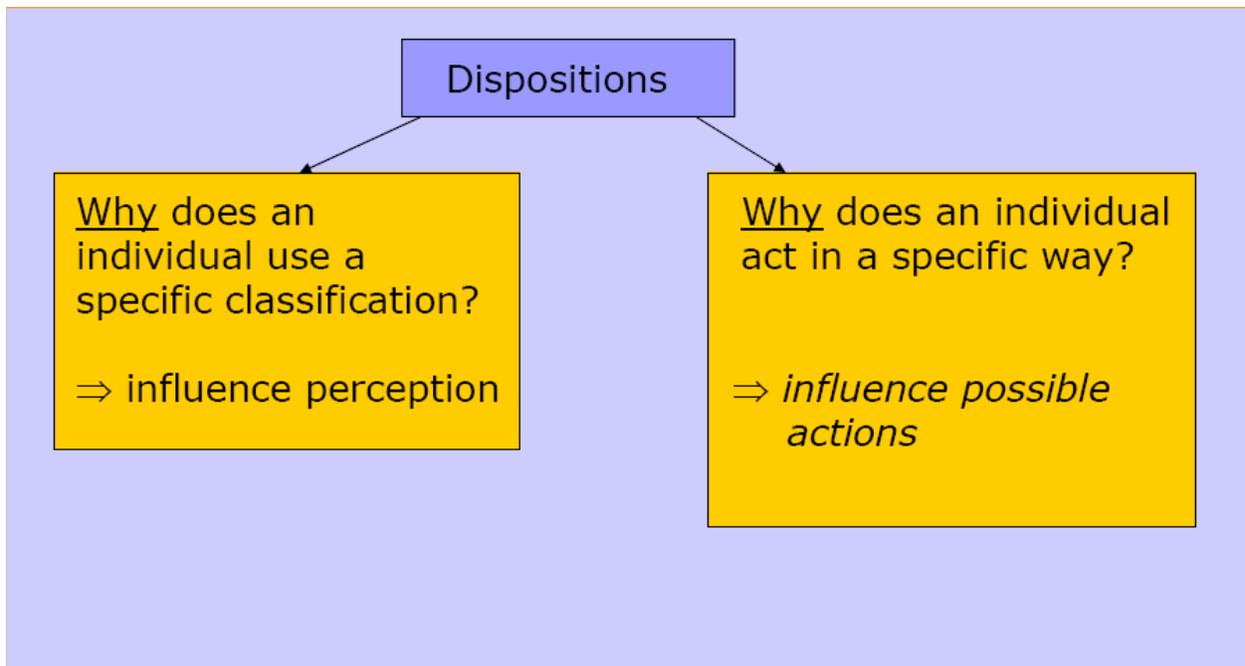


Fig.3