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Non-human Welfare

– Well-being, Health and Longevity in the Animal Context

ABSTRACT

This thesis aims to answer the question of what quality of life is constituted of in a non-human context. Or differently put, 'what is it that makes an animal's life worth living?' In the procedure of reviewing this question other concepts and issues are addressed. One of these being the composite concept of 'animal welfare', mainly due to its popularity and frequent use in discussions and referrals to the goodness or badness of animal lives. For instance, it appears as if animal welfare may encompass concepts like quality of life, health, good production or the necessary conditions for the above. The other issue being dealt with, apart from quality of life and health, is the inquiry whether, all other things being equal, a longer life is preferable or not.

Thus, the first problem presented is the concept of health and its place and definition in a non-human context. After considering three main theories of health from the human context and one animal-oriented concept of health, this thesis argues for a multi-factorial and holistic approach. On this view animal health is defined as being constituted by both biomedical health, functioning and subjective well-being.

The second, and main, issue to be addressed is the one concerning animal quality of life, i.e. what has final positive or negative value for an animal. These are the components of quality of life, as opposed to instrumental values or means to quality of life. After presenting a large variety of theories of well-being they are all criticized. In the end a pure hedonistic approach is proposed, where it is claimed that what ultimately is in the interest of an animal is to have pleasurable feelings and to avoid suffering. However, the importance of instrumental values in the practical realm is emphasized (for examples see below).

The third issue to be dealt with is longevity. This is to a large extent an unaddressed issue in the animal sciences and in discussions of animal welfare. This thesis defends a view where, given a decent level of well-being, a longer life is preferable to a shorter one and in the interest of the animal.

Lastly, the relationships between the concepts of health, longevity and QoL as proposed are sorted out along with an illustration of how these approaches may support one another in a more practical sense, taking into consideration also states of seemingly important instrumental values like preference satisfaction, the meeting of innate needs and the realization of strongly motivated behaviours.

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1. INTRODUCTION

Ever since the days of Aristotle the issue of human happiness, health and quality of life (also referred to as well-being) have been important matters to us. How is one to live to lead a good life? What kind of elements has to be present in your life if you strive to increase your quality of life (QoL)? Does a happy life require a certain moral conduct? And how does one promote health and avoid disease? These questions, and many more along with them, have been of great interest not only to philosophers but later on also in disciplines such as medicine, psychology and of course in non-academic contexts as well.

In the last decades there has been a blossoming of interest for the issue of happiness and happiness research. Numerous books have been written on the subject, conferences are held and, most importantly, strategic advice on how to increase one's happiness level is construed from the research.

Unfortunately though, the question has been limited to our own species. It is the happiness, welfare, health and QoL of *homo sapiens* that all of the examples mentioned above are addressing. This means that the issue of what the good and healthy *non-human* life consists in is still a question that people, both professionals and others, relate to in a, if not always intuitive, yet inconsistent and possibly ungrounded manner. This leads to distinct approaches depending on what knowledge one has and also what discipline one belongs to.

The good animal life is viewed very differently depending on the spectator. Some think that animals living in the wild are the happiest ones while others seem sure that the warmth and safety of a barn is superior in providing the necessities of a good animal life. In contrast to the issue of QoL or welfare, the concept of animal health has rarely been addressed. Swedish veterinarian Stefan Gunnarsson has reviewed 500 text books addressing animal medicine. He found out that only 39, about 8 percent, contained any pronounced definition of health (*Gunnarsson, 2005, pp.105-109*).

But is there really any problem involved here? Why not just apply the theories about human QoL and health to non-human animals? Is a specifically animal-oriented approach to these issues really necessary? And in what ways does QoL, health and welfare differ from one another?

1.1 Problem

The primary purpose of this thesis is to find an answer to the question 'what is a good life for a non-human animal?'. Or differently formulated, 'what does ultimately make an animal's life worth

living?'. To do this one has to identify what things are of final value (positive or negative) for non-human animals, i.e. what things are good or bad for them as ends.

Because animal welfare may encompass health, and because concepts of health appear to sometimes be confused as being theories of QoL, a second purpose is to propose a definition of health in the animal context. To do this, the question 'what is health?' or 'what does an animal's health consist in?' has to be addressed.

A central assumption will be that only sentient or conscious beings can possess interests and thus have QoL. This even though health, as a separate concept, appears to be applicable to animals and even other organisms in general. Sentient beings include the vertebrates, but also some invertebrates like the cephalopods¹. This rules out non-sentient animals, plants, fungi and inanimate entities. One must however bear in mind that not much research has been done to determine the sentience of other invertebrates. The group of animals labeled as conscious may therefore widen with time.

1.2 Structure

After this introduction there will be a section on background issues like common concepts of animal health and welfare in 2.1, followed by a section arguing for the need for a definition of animal health and animal well-being in 2.2.

The third section deals with the issue of animal health, and what that means conceptually and in relation to the good animal life. Some main theories of health will be presented in 3.1 and discussed followed by a proposal of a definition in the animal context in 3.2.

The fourth section is about what ultimately makes an animal life worth living. It starts with a brief introduction to the issue of QoL, which is followed by a description of the major theories in 4.1. After that, each theory is reviewed, and my own theory of what has final positive and negative value for animals is presented in 4.2.

The fifth section deals with the issue of length of life and sorts out how the length of a life may affect the value of that life, given a certain level of well-being.

In section 6 the conclusions of section 3-5 will be applied to some concrete cases, in order to improve our understanding of the relation between the different concepts and final and instrumental values in practical contexts.

2. BACKGROUND

2.1. Common concepts

To begin with, one might wonder why one would want to formulate a theory of non-human QoL, and propose a definition of animal health. To make this point clearer, some contemporary ideas of the good animal life will be presented, and I will argue that there is a need for a uniform approach to animal well-being. The following are not well-defined theories of QoL or health but rather common conceptions of 'animal welfare' found in different scientific disciplines, commercial sectors and political movements.

Animal Farming

In the agricultural sector of animal farming, animal welfare is often viewed as being expressed and thereby measurable by physiological indicators. These indicators are often related to productivity, like coat quality, appetite, growth rate, egg-laying and milk production. An animal that has her basic physiological needs met, i.e. who is not hungry, freezing or thirsty and who is producing well is, on this view, considered to have a good life. A cow that has a good appetite and who gives a reasonable amount of milk in relation to her breed and lactation² is, on this view, showing at least some important features of being healthy and/or having high well-being. A pig that grows considerably fast in relation to her age and breed and who eats the food that is given to her is, by the same line of thought, showing vital indicators of a high QoL. These are just two examples of a very common way of viewing and evaluating the welfare of animals within the area of animal farming. It is a notion of welfare that is quite narrow and focused on 'biological function'. More on this idea in section 3, about health theories.

Ethology

Within the domain of *ethology*, the focus lies on natural behaviour and cognition. A cow, hen or salmon that have their basic physiological needs met but that are kept in a way that prevents them from performing strongly motivated behaviors like pecking, hunting for smaller fish, grazing and so on, are not living very good lives. This view, then, stands in stark contrast to the view commonly found in the area of animal farming and partly also within veterinary medicine (accounted for below). According to this view, an animal needs more than to have her basic bodily needs met in order to lead a good life. Animals held in captivity, commonly used for human consumption,

entertainment or research, have been shown to sometimes express abnormal behaviors, called stereotypies (Blood and Studdert, 1999, p. 797). These are regarded as signs of frustration, stress and boredom, caused by artificial environments that do not meet the basic behavioural needs of the animal (See Down et al. 2004). Therefore, one has no reason to think that an animal has high degree of mental health and/or QoL just because she gets enough food, water and shelter. According to this approach, animals may show high productivity and at the same time possess a low degree of mental health and QoL.

Veterinary medicine

In *veterinary medicine* a lot of stress is of course put on the issue of health. An animal that is healthy is also thought to possess a high degree of welfare. Traditionally, having one's basic bodily needs satisfied has been viewed as a vital precondition for health and in the long run, for welfare. It is a common belief, for example illustrated by Abraham Maslows (1943) 'hierarchy of needs', that physiological needs have to be met before the individual is motivated to satisfy other, e.g. behavioral, or subjective, needs. The definition of health used within veterinary medicine appears to be narrow. If an animal is free from parasites, infections and other pathologies along with physical pain, she is regarded healthy and, in virtue of this, also thought to be living a good life. This is a traditional definition of health, where health is defined as being the absence of disease, and commonly does not give much room to the concept of mental health and well-being.

Organic farming

Organic farming is, in part, based on certain notions of what a good animal life consists in. A common idea is that an animal that is allowed to live as 'naturally' as possible has a better life. An animal that has the opportunity to wander around freely and to engage in social and other behaviours is therefore considered to live a better life than an animal that, other things being equal, is living indoors or in some other kind of artificial environment. Some of these lines of thought can be seen in the Swedish organic label KRAV's standards³.

The Animal Protection Movement

The *animal protection movement*⁴ is concerned with mainly two things, (1) with making sure laws concerning animal welfare are obeyed, for example by investigating and exposing animal cruelty and encouraging consumption of 'ethical' animal products, and (2) with advocating improvements of these laws. The view that is most predominant regarding animal welfare in these movements is that

animals should not only have their basic physiological needs satisfied, like appropriate food, water and shelter, but also the opportunity to perform innate behaviours like grazing or nesting.

'Unnecessary suffering' should be eliminated but little or no attention is given to the issues of length of life and autonomy (for example see *Our beliefs* (2011) and *Ideologi* (2011)).

The Animal Rights Movement

The *animal rights movement* is primarily concerned with changing society's attitudes and laws as to guarantee animals basic rights. These rights often include a right to life, but also the right to live for one's own sake and not primarily as a means or property to fulfill human interests in terms of e.g. labour. (see *All About PETA* (2011) and *Om Djurens Rätt* (2011))

It seems that the animal rights movements are concerned with ethical questions rather than the issue of animal QoL per se. But this would be too hasty a conclusion, since this movement wants to make sure that animals kept for human interests live as good lives as possible. For instance, the biggest animal rights organisations both in Sweden (Djurens Rätt) and abroad (PETA) spend a lot of time and effort on animal protection or animal welfarism. One central aim is to ease the suffering of farm animals and other animals used for human interests, and another is to make it less profitable to make a living of animal products and animal labour.

So it seems that these movements attribute value to factors such as autonomy, life and moral status as key instruments for animals to be able to live good lives in human society.

2.2. The Point of Defining Animal Health and Quality of Life

As the common ideas presented above are showing, there seems to be a division about what the good animal life consists in. There is also different ideas on the constituents of health, along with different views on the importance of health for QoL.

The main reason for investigating and proposing a theory of animal QoL is to make sure that one is actually addressing the question of what is in fact of final value for an animal, i.e. good for her as an end. It goes without saying that everyone who is concerned with improving or protecting animal health or well-being should know what these things are. All activities that aim at improving health and well-being of animals should be based on a well-founded view of what health and QoL consist in.

The main reason for defining animal health is because it often, as some of the common views on the good animal life accorded for, appears to be viewed as a constituent of animal welfare. A well grounded definition of animal health would regard all relevant aspects into account, and not just traditionally important dimensions of health. This is an aim which has practical relevance within

animal health care. Depending on what things one identifies as the components of QoL and health, one's view will influence the practical measures taken. Ideas about what ultimately or instrumentally is in the interest of animals not only may affect everyday ideals and notions about how to keep animals but play an important role in the animal-related policies, laws, rules and recommendations, adopted by politicians and governmental institutions.

As shown above, voices within the area of animal farming often give consideration to physical health and productivity. The fact that a cow gives a certain amount of milk is seen as one of many markers that she is living a good life. Her high milk production may however actually cause her to develop mastitis, inflammation of the udder, and lead to pain and discomfort. It also appears as if such statements are reducing welfare to a narrow biomedical definition of health.

The narrow notion of health within veterinary medicine has brought about a situation where many veterinarians seem to have adopted the same concept of animal welfare as the one used in animal farming. Within human medicine, health defined as the absence of disease has for a long time been considered as being too restricted to biological function. For instance, the WHO definition of health from 1948 states that 'Health is a state of complete physical, mental and social well-being and not merely the absence of disease' (*WHO, 1948, p. 100*). Furthermore, although related, health is not synonymous to QoL. More on this distinction in the next chapter.

A possible problem with the view found among advocates for organic animal husbandry is that it appears to favour a 'natural life' over health and comfort in a way that could harm animals. For instance, this view seems to imply that a wild boar or a feral pig (a domesticated pig that has returned to the wild) is living a more natural, and thus better, life than a pet pig slumbering in front of the TV set. However the life of the feral pig may be a natural but harsh life that may have negative effects on her health and in the long run also on her well-being. For example, she may suffer from parasites, disease, starvation and cold, things that do not affect the well-groomed pot bellied pig living in the second floor apartment just a few miles away from her forest. Animals kept at organic farms are of course not let to survive on their own like this. However, there are formalized rules one has to follow to get certified, and one of these is a rule against the preemptive and perfunctory use of medicinal drugs and chemical pesticides (for example see *KRAV standards January 2011*). This includes chemically synthesized drugs, like analgesic drugs, antibiotics and anti-parasitic drugs. These regulations thus appear to actualize a conflict between physical health, on the one hand, and mental health and well-being, on the other.

To further illustrate the problems of not identifying a well-founded theory of animal QoL when dealing with animal well-being, it is worth noting that some of the more recognized concepts of animal welfare have been developed in an agricultural context (two of these will be accounted for in

the next section). A foundation of these theories is therefore that the animal is thus regarded as a component of a productive apparatus. This assumption seems to take more interests than that of the animal into account, but also risks to make the concept straggling. This is an issue, because it could lead to a situation where the question of what is good for the animal becomes but one of many considerations. However, that an animal is living a good life does not mean that her life is good for others, that it is aesthetically appealing or that it is good in a moral sense. A good animal life is a life that is good *for* the animal.

2.3. Some Important Distinctions

Before proceeding and reviewing different theories of health and QoL, there are some important distinctions and demarcations that need to be made. As seen by the description of some of the common concepts of the good animal life, they seem to address different issues when speaking of welfare. The farmer and the ethologist may in fact not be talking about the same thing when claiming to see *signs* of good or poor animal husbandry. Similarly, the veterinarian and the spokesperson for organic farming appear to be concerned about different things even though they may both refer to 'animal welfare'.

To make the discussion and implementation of conditions that lie in the interest of animals easier, it is useful to make some distinctions. The following paragraphs deal with pinning out the often used definitions of 'animal welfare', namely QoL, health and favourable external conditions.

Welfare

The term 'animal welfare' is sometimes used as a synonym for QoL or health. This is the case for some of the theories accounted for in the next section. But 'animal welfare' may also refer to *practical measures* and *external conditions* that are regarded as favourable to animals. As such, 'animal welfare' is a somewhat imprecise term that may encompass ideas on the constituents of both QoL and health but also the means of ensuring the above.

Saunders Comprehensive Veterinary Dictionary defines 'animal welfare' as concerning practical measures by stating that welfare is "the avoidance of abuse and exploitation of animals by humans by maintaining appropriate standards of accommodation, feeding and general care, the prevention and treatment of disease and the assurance of freedom from harassment, and unnecessary discomfort and pain" (*Blood and Studdert, 1999, p. 63*).

This is a definition that can also be seen in some of the popular concepts of animal welfare, for example, in The Five Freedoms and the Four Principles and 12 criteria of animal welfare, which are both listed below. It is important to notice that these are not *theories* of QoL or health but rather a

kind of checklists to ensure a certain degree of physical and mental health for animals. As such they could also be said to ensure some degree of QoL, depending on which principles or criteria below one regards as having positive or negative final value.

Five Freedoms of animal welfare	
1. Freedom from Hunger and Thirst - by ready access to fresh water and a diet to maintain full health and vigour.	
2. Freedom from Discomfort - by providing an appropriate environment including shelter and a comfortable resting area.	
3. Freedom from Pain, Injury or Disease - by prevention or rapid diagnosis and treatment.	
4. Freedom to Express Normal Behaviour - by providing sufficient space, proper facilities and company of the animal's own kind.	
5. Freedom from Fear and Distress - by ensuring conditions and treatment which avoid mental suffering.	

Table 1. (FAWC, 2009)

Four principles and 12 criteria of animal welfare

Welfare Principles	Welfare Criteria
Good feeding	1 Absence of prolonged hunger
	2 Absence of prolonged thirst
Good housing	3 Comfort around resting
	4 Thermal comfort
	5 Ease of movement
Good health	6 Absence of injuries
	7 Absence of disease
	8 Absence of pain induced by management procedures
Appropriate behaviour	9 Expression of social behaviours
	10 Expression of other behaviours

Welfare Principles	Welfare Criteria
	11 Good human-animal relationship
	12 Positive emotional state

Table 2. (*Welfare Quality, 2009*)

As visible, these concepts of animal welfare both describe means for attaining better health or QoL but also appear to include states that are of final value for the animal. Examples of the latter are welfare criteria 8 and 12 of the Four principles and 12 criteria of animal welfare.

Quality of Life or Well-being

A theory of QoL aims to answer three main questions: What is of final value for someone? How is one to decide how good or bad a certain state of affair is for a being? And how is one to decide how good an individual's life is as a whole? (see Brülde , 1998, 2003 and 2007) Apart from these three central issues, it is important to understand the difference between the evaluative components of an individual's QoL and the empirical correlations that exist between these values and other things.

The first question could also be formulated as 'What does ultimately make a life worth living?'. Something that is of final value is valuable as an *end* for the being in question. Something has instrumental value, on the other hand, if it is good as means for attaining some other good. The kind of value spoken of when discussing QoL differs from others also in specifically being good *for someone*. Such values are called *prudential*. Prudential values could also be defined as being the things that ultimately are in the *interest* of the individual. To have a high QoL is to have a lot of final value and little or no negative final value. Apart from prudential value there is a wide array of other value-categories, like aesthetical, functional and absolute values, but these are not relevant for the issue of QoL.

The second question deals with how good or bad different possible conditions are for the individual. How is one for instance to compare and decide which of two states of affairs has more prudential value?

The third question is about how to place a being on a scale of QoL to asses her total well-being. To do this, one needs to know how good her life is at a certain moment. This is an issue that mainly is about finding out how good an individual's life is as a *whole* by summing up the value of the *parts*.

As mentioned, another important distinction is that between the evaluative components of QoL, i.e. the things that are of prudential value, and those things that are empirically (e.g. causally) related to these things. When the farmer claims that her animals are living good lives by pointing

out a certain state of affairs, she is partly making an evaluative statement about certain conditions but also an empirical statement about how these conditions affect the animals. For instance the statement that it is good that all her cows are given enough food not to get hungry could in this case be a statement that contains an evaluation of hunger (along with other unpleasant feelings) as having negative final value for the cows. However the same judgment contains an empirical claim on how these conditions, i.e. the appropriate amount of food available, are empirically connected to the QoL of the cows, i.e. that cows are given enough food diminishes the risk of them feeling hungry. These empirical relations could for example be indicators, or signs, of good life. They could also be prerequisites for well-being, and thereby of instrumental value, like the appropriate feeding mentioned. An indicator is therefore something one measures in order to measure something else.

Health

The concept of health is related to QoL or well-being but differs in some respects, depending on which definition of health one favours. The basic question here is 'what is health?' or 'what does an individual's health consist in?'. As with the issue of QoL, it is vital to make a distinction between the conceptual issue and the empirical ones. This to ensure that one is able to make a distinction between conceptual and empirical (e.g. causal) *relations* (see *Brülde and Tengland, 2003*). Once the concept of health has been defined, there are however plenty of pragmatical and explanatory questions to ask. For example what conditions that determine whether an individual is healthy or not, and what one should do, to promote health. A defined theory of health would also likely make it easier to sort out the relation between health and QoL.

First of all we will see that some ideas and theories of health include components, like subjective well-being, that appear to play a significant role in the issue of QoL. However, and as will be clearer later on, an animal may be physically healthy and still possess a low QoL. For instance, pigs kept for large scale meat production are commonly regarded as healthy in a strict biomedical regard. Still, one could argue if such an environment provides enough mental stimulation for them not to develop stereotypies, apathy and other signs of mental illness or suffering. Later discussions will also prove that it appears possible for a being to have a good well-being without possessing perfect health. This can be illustrated by examples of animals suffering from stiff joints and diabetes, but who still appear to live good lives.

However, it is important to see that the two concepts of health and QoL overlap each other conceptually in some regards. As mentioned, one of these overlappings is the state of feeling well. This means that changes in one's subjective well-being may affect (conceptually) both one's degree

of health and QoL.

But the relationship between health and QoL is also empirical. An improvement of an individual's health appear to also be able to heighten her well-being, and an increased sense of well-being may in return have positive effects on one's health.

However, it is important not to exaggerate the effect of improved health on QoL. In the animal context, the issue whether good health, in a narrow biomedical sense, is enough when investigating the welfare and QoL of animals is often risen. As we shall see the views of the good animal life that are common within animal farming and also within parts of animal health care may not be conceptions of QoL at all, and thus may be insufficient in asking whether certain animals are living good lives or not.

3. ANIMALS AND HEALTH

A good theory of animal health should take common semantic use of 'health' and common intuition about good and bad health into account. Apart from this, a good theory of health should be defined in relation to the concept of QoL. This means that the differences and similarities, including the relationships, between the two concepts should be somewhat defined. This diminishes the risk of mistaking irrelevant elements of good or bad health for good or bad life and the job of taking on practical measures to improve the lives of other animals becomes easier.

The following paragraphs concisely account for and discuss the four different main theories of health found in the human context⁶. The first is a *reductionist* account of health, where the health of the whole (i.e. the individual) is seen as the sum of the health of its different parts. For example, the biomedical theory of health is reductionistic. The two following definitions are *holistic*, i. e. their central idea is that an individual's health is dependent of how she functions and/or feels as a whole. The last theory of health is pluralistic, i.e. multi-factorial. As such, it combines two or more of the constituents of health accounted for by the homogeneous theories above.

These accounts will each be followed by a short critical discussion, followed by a proposal for a definition of animal health.

3.1. Theories of Health

Health as Clinical Status

To define health as one's clinical status, or in biomedical terms, is to claim that good health is the same as absence of disease (given a biomedical definition of disease). On this view bad health is

defined as the existence of pathology in general. The more pathological conditions an individual suffers from, and the more severe these conditions are, the worse is her health. A cow, hen or salmon thus have good health if and only if their clinical statuses are good, and bad health if and only if their clinical statuses are bad.

Because this definition of health proceeds from an idea of bad health as pathology, it is important to define what pathology or disease actually consists in. This is often done in biomedical terms, where pathology is seen as structural or functional disturbances on the level of organs, tissues or cells. With this biomedical definition of bad health the definition of good health becomes one where there are no disturbances within organ systems, tissues or cells and where these are working normally or satisfactory or even above average. The health of the organism as a whole is thus conceived of as reducible to the "health" of its parts. (*Brülde and Tengland, 2003, p. 184*)

To regard health as clinical status has some benefits. For instance, it is a view that makes the practical issues quite simple. To know if a being has bad or good health one needs to have a look at her clinical status. If she does not have any dysfunctions on the level of organs, tissues or cells, she is healthy. If not, she has bad health. Furthermore, the biomedical definition seems in line with common usage in terms of regarding some dysfunctions as bad health even though they do not affect the individual's functioning or well-being. For example, when an animal has not yet suffered any effects from a malignant tumor growing in her body.

However, this biomedical definition of health faces some problems when it comes to grasping the wide array of qualities associated with health. For instance, it seems close at hand to regard health as a state where an organism functions well as a whole, something that seems probable even though she has minor dysfunctions at some level. Furthermore, even though biomedical dysfunctions may affect the well-being of an animal in a negative way, good health in this biomedical sense does not necessarily mean that an animal has a high level of well-being. Dairy cows are sometimes said to live good lives in virtue of the physiological (often production oriented) functioning of their bodies. i.e. they are showing signs of living good lives by producing a lot of milk and showing low mortality etc. This while a look at more subjective indicators of health and QoL, e.g. behavioural studies, may show that their subjective well-being is low. Thus this definition of health appears too narrow to be able to, on its one, grasp relevant elements of a reasonable theory of animal health. However, and which is argued for with the example of the not yet discovered malignant tumor, biomedical health appears to be a component of health, as well as being of instrumental value for QoL.

Health as Good Functioning

The concept of health as good functioning means that an individual's health is dependent on how well she is functioning on the whole, both physically and psychologically. That a being has full health, or is functioning in an optimal way, is sometimes taken to mean that she is capable of achieving and accomplishing certain *goals* under certain kinds of *conditions*.

The ideas on what these goals and conditions are, however, vary depending on what concept of full health one has. One can, for instance, believe that health is an issue of to what degree one is able to fulfill one's goals, or to what degree one is able to do what other individuals of the same species, breed or sex as oneself are capable of. (*Brülde and Tengland, 2003*) Reasonably though, the goals and conditions should be in the interest of the animal, e.g. it would be problematic to claim a high producing egg-laying hen to be healthy in virtue of her extreme capability to lay eggs.

Donald Broom and Dan Kirkden propose a functional-oriented theory of animal (and human) health which states that health is "an animal's state as regards its attempts to cope with pathology" (*Broom and Kirkden, 2004, p. 341*). Pathology is defined as above, i.e. as dysfunctions and abnormalities in the level of organs, tissues, cells and molecules. Disease or pathology is according to Broom (2004) further formulated as a state where bad health causes the body to have difficulty in attaining its main goals, which are survival and reproduction.

When it comes to this second definition of health, the content varies depending on one's idea and understanding of what 'good functioning' means. (see Brülde and Tengland, 2003, pp. 205-208).

A possible definition of this could be that one is functioning well if one is able to satisfy one's needs. Lennart Nordenfelt, among others, means that needs cannot be located to any specific area like a bodily state or a property. Instead need as such is a relational term, which means that a being "A needs Y in order to attain G" (*Nordenfelt, 2006, p. 107*). For instance the newborn calf needs colostrum, or first milk, to survive and stay healthy. The first milk contains antibodies that protect the newborn calf from disease as well as being rich in protein. This means that the calf being able to drink the first milk is a necessary condition for her to survive.

So need in this sense means something that is necessary for attaining a certain goal. Nordenfelt proposes a four-place predicate to define the concept of need: "y is a need for A in S to reach G. This is the four-place expansion of the locution. We can say that A is the *subject* of the need, y is the *object* of the need, S is the *situation* of the need and G is the *goal* of the need." (Nordenfelt, s.108). Instead of being some kind of bodily state, a need is thus a state or event which is a necessary condition for the subject to 'attain' a certain goal.

A second version of this theory claims that an individual's health is a function of the degree to

which she is able to fulfill her *actual* goals and plans. A third possible definition of what it means to have good functional ability is proposed by Lennart Nordenfelt (for example see Nordenfelt 1991, 1995 and 1997). He claims that an individual's level of health depends on the extent to which she is able to realize or satisfy vital needs, i.e. to achieve and sustain a minimum level of happiness.

The benefit with this view on health is that it clearly grasps the notion that the health of an individual to some degree is related to her capacity. Although, however best defined, the theory appears to exclude ideas of health where pathologies or disease do not affect an individual's functional ability. As such, a combination of the idea of health as good functioning with other factors might pose a better grounded theory of animal health.

Health as Feeling Well

Health can also be defined in terms of subjective well-being (not to be confused with the term well-being as a synonym to QoL). A cow, hen or salmon are thus healthy exclusively in regard to how good they feel. Thus, this definition of health does not contain any functional components at all. The WHO definition from 1948 is an example of this view.

All improvements of subjective well-being are however not health related. If an animal's well-being is improved by some external event, it can hardly count as an improvement of her health. That is, health as well-being is only part of subjective well-being.

This theory has a benefit to it by defining health in a certain relation to QoL, where the degree of the former affects the latter. The major down-sides to this definition is that it implies that poor health results in decreased well-being. However, there is no necessary relation between health and e.g. suffering. For example, a cat can be developing cancer for months without her well-being decreasing. In the same way a Dalmatian dog may be born deaf without any suffering involved. So both biomedical dysfunctions and decreased functioning do not necessarily lead to decreased well-being. Thus, this theory does not appear to contain all the components necessary for a theory of health.

Pluralistic Theories of Health

Instead of keeping a theory of health homogeneous, one can also claim that a healthy individual should possess a wide array of qualities. The pluralistic view on health implies that the qualities associated with good health in fact form a heterogeneous category.

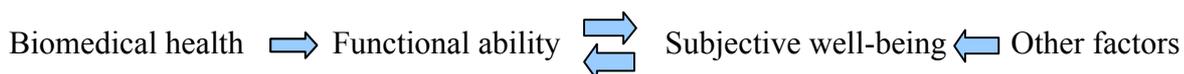
To be healthy, could in a pluralistic sense mean that one's body as well as one's mind are functioning well. The same definition could also include that well-being, related to the good functioning of one's body and mind, is a constituent of health.

This is an approach that appears more successful in evading the difficulties affecting the earlier theories. All three homogeneous theories of health appear to be more or less in line with common usage, yet to different degrees. A pluralistic theory that contains the ideas of how an individual functions as a whole, that includes her subjective well-being as well as some biomedical aspect of is better fit in explaining why we speak of health and disease as we do, i.e. as a state

3.2. Conclusion

To form a theory that seizes both the idea of health as good functioning, as something that includes well-being in a way that recognizes the possible effects of the latter on functioning and a view where biomedical dysfunctions may affect one's health, appears to have to be a pluralistic definition. A concept where both an animal's ability to cope and function in a reasonable environment and its level of biologically determined well-being are parts of its overall health.

The proposed holistic and multi-factorial definition can be illustrated by the following figure:



The relation of clinical status or biomedical health (i.e. the functions and structures of molecules, cells, tissues and organs) to one's functional ability and health-related well-being is causal. This meaning that the good or bad functioning and structure of molecules, cells, tissues and organs often result in an increase or decrease of one's functional ability and health related well-being. This while the relationship between functional ability and health-related well-being) is causal both ways. This meaning that both one's functional ability as one's health-related well-being on the on hand may affect each other causally. For example the physical ability to live in accordance with one's needs appears to promote subjective well-being. In the same sense, a healthy mind and a good mood seem may favour one's ability to function well. Other kinds of well-being (having other sources than strict functional abilities or biomedical health) may also affect one's functional ability and maybe even one's clinical status.

This definition of health implies that an animal cannot be fully healthy in virtue of her being healthy in a pure biomedical, or even functional, sense. Health as such is constituted by the animal's ability to cope with its environment and by its health related well-being, as well as her clinical status. Health may thus be a *means* to a good animal life.

In a practical sense, this pluralistic definition would mean that e.g. dairy cows can't be said to be healthy in virtue of producing excessive amounts of milk, as this is an expression of a *narrow biomedical or production-oriented functioning* view on health. Furthermore, a well-grounded

definition of good functioning surely needs to set clear that the capacities of the animal should be beneficial for *her*, and not for an unrelated third party.

4. ANIMALS AND QUALITY OF LIFE

QoL or well-being is, as mentioned, a matter of final positive and negative prudential values. The prudential value of a life depends on how much positive and negative final value that this life contains.

To determine what has final value, various theories of QoL have been formulated. These can be sorted into four different categories. Shelly Kagan claims that theories on the good life can be classified as *internalist* or *externalist*, on the one hand, and as *subjectivist* or *objectivist*, on the other (Kagan, 1992, pp.169-89). The difference between internalist and externalist theories of well-being lies in the *content* of prudential value. Internalist theories claim that an individual's QoL solely depends on facts that are internal to the individual, e.g. mental states, emotional properties etc. The externalist argues that at least some of the facts that have final value for an individual are external.

The distinction between a subjectivist and objectivist account of QoL is a difference regarding the *source* of well-being. While the subjectivist claims that the source of prudential value lies in the individual's own attitudes and desires, the objectivist argues that there are things that are finally good or bad for a being whether or not she wants or realizes it. (Brülde, 2007)

Kagan's distinctions can be illustrated as follows:

	Internalism	Externalism
Subjectivism	<i>Happiness as life satisfaction</i>	<i>Preferentialism,</i>
Objectivism	<i>Hedonism</i>	<i>Objective list theory,</i> <i>Need based theories,</i> <i>Natural behaviour</i> <i>Functionality</i>

Table 3. Classification of theories of QoL by Shelley Kagan.

The theories of QoL accounted for will all be placed in one of the quadrants above, reviewed and in the end a conclusion will be given regarding what or which theories that seem best fit in capturing a

well contemplated idea of what it is that makes an animal life worth living. Because theories regarding the good animal life often seem to contain objective values, objective list theories will be accounted for and reviewed first, followed by hedonism and preferentialism.

What then constitutes a good life for a non-human animal? Is it enough if she feels well? Is the most important state of affairs that her wishes and plans are fulfilled and realized? Is her QoL affected by the number of certain important objective factors present in her life? Or is a good animal life in fact constituted by a combination of two or more of these circumstances? And finally, what human theories are relevant in an animal context?

4.1. Theories of QoL

Objective List Theory

According to objective list theory there are kinds of state of affairs that have final prudential value. This makes this theory *pluralistic*, in contrast to the two *monistic* theories are accounted for below. At least some of these values are external or relational. In the human context examples of valuable states are creative work, intimate relationships and freedom. The QoL of a person thus depends on the extent to which these values are present in her life. The more of these objective values a person has, the better is her life.

While the objective values above are limited to the human context, there are some ideas of animal well-being that might be viewed as lists of objective prudential values. Both the Five Freedoms of animal welfare and the Four principles and 12 criteria can be regarded as lists of objective values rather than instrumental ones. If so, the QoL of an animal would be higher or lower depending on how many of these states of affairs are present in her life. A salmon that is not hungry, not thirsty, has thermal comfort, ease of movement, and so on, would then have a good life. Objective lists might differ, both in regard to the supposed valuable states, but also in regard with the number of conditions regarded as having final positive value.

This puts objective list theory in the lower-right quadrant of table 3, by being objective in valuing certain states as positive or negative regardless of what the subject thinks and feels about them, and externalist because it attributes prudential value to at least some external states. The following three theories are all different approaches to objective list theories of QoL.

- QoL in terms of functionality

Functionality oriented theories of QoL are theories which appeal to the concept of 'good function'. The concept of function is often a strict biological one, where the correct function of a feature of an

organism is to play the role which is given to it by evolution. When an organism displays good functionality she is also living a good life.

Biologist and professor of animal welfare, Donald Broom, proposes a theory of the good animal life that is based on the notion of 'coping'. An animal that copes well is an individual "having control of mental and bodily stability" (*Broom, 1993, p. 16*). Successful coping leads to stability, that in turn leads to biological fitness. The fitness of an animal is recognized by her growth, survival and reproduction. Broom's theory is functional in virtue of its focus on biological function. Even though subjective states like suffering are mentioned, Broom still states that "unpleasant subjective feelings will clearly affect the state of an individual as regards its attempts to cope with its environment. However, it could be that the state is affected without suffering occurring" (*Broom, 1991, p. 4168*). Thus Broom appears to be saying that although subjective states could lead to a change in the goodness of the life of an animal he does not regard pleasure and suffering as part of QoL. So although feelings and emotions are able to affect the animals capacity to cope, it is the degree of coping itself that constitutes the QoL of the animal. That is, he seems to attribute instrumental value to subjective states.

An even narrower function oriented idea of animal QoL can be found in the evolutionary standpoints taken by C.J Barnard and J.L. Hurst (1996). They claim that a theory of the good animal life must rely on what natural selection has designed an animal to be. This primarily appears to mean that a salmon, cow or hen live good lives if they are efficient in producing offspring. This theory then excludes mental states from QoL, like pleasure and suffering. It may even value suffering, disease and death, if these states play a necessary role in reproduction, "While the organism may experience negative subjective states associated with these costs (e.g. fatigue, pain, hunger, nausea, fear), they are part of the mechanism of naturally selected regulatory processes that optimize its activities during its life-time rather than a reflection of circumstances in which it is not designed to be." (*Barnard and Hurst, 1996, pp. 410-411*)

Both of these function-oriented theories are externalist in at least partly valuing the fitness of the animal in relation to her environment, and objectivist.

- Need-Satisfaction

If interests are something held by sentient beings, needs are things common to at least all biological organisms. Need-based theories of QoL mean that the value of a creature's life depends on to what extent her needs are satisfied.

According to this version of the objective list theory, the type and number of valuable states will vary depending on what set of needs one identifies. This set can vary depending on the goal, the

situation and the subject. One of the most popular need-based theories is Abraham Maslow's theory of human needs (1968). Maslow claims that human beings have a certain set of needs, and that there exists a hierarchy between them. For the subject to get an interest in satisfying "higher" or more complex needs, like self-actualization, she has to get her more basic, physiological, needs met first.

Once again the popular concepts of animal welfare accounted for earlier can be used to illustrate an animal based counterpart. The Five freedoms of animal welfare could be said to list, not five freedoms, but rather five vital needs. In virtue of this the good animal life would be an existence where these needs are satisfied.

As in Maslow's model, objects of need in the animal context seem possible to divide into more basic ones, i.e. those necessary for survival, and those that are necessary to avoid suffering. A hen that successfully gets her physiological needs met (proper food, water, shelter etc.) will survive. For her not to suffer, though, she needs to get *enough* food and water not to get hungry or thirsty, a shelter that is *good enough* for her not to freeze and an environment that permits her to express highly motivated behaviours like pecking, sand-bathing and living in a small group with other hens (Jensen, 1993). The issue of final prudential values in the context of needs seems to lie in the satisfaction of the need itself. Not being hungry would thus be a state of affairs that is of positive final value, while an unsatisfied need, like being hungry, is of negative final value.

All need-based theories of QoL in the animal context (Dawkins, 1983, Hurnik and Lehman, 1985 and Curtis, 1987) are objectivist and externalist.

- Natural Behaviour

Although need based theories of animal QoL often include the need to perform certain behaviours, natural behaviour is sometimes regarded as a separate prudential value. Swedish veterinarian Bo Algers defines natural behaviour as "the behaviour that is normal for an animal in its normal biotope given the stimuli that are occurring" (Algers, 1990, pp. 517-19). That an animal is able to behave in the way it would when living in its natural or native environment, is given much weight in checklists and ideas regarding animal welfare, health and QoL. Even though this behaviour might be regarded as an indicator of other prudential values, like fulfillment of intrinsic preferences or high hedonic level, there are those who regard the performing the behaviours as objective values.

This objective theory thus values the state of affairs that an animal is behaving in a natural way, as having final positive value. This while the inability, and thus lack of or replacement of natural behaviour with unnatural behaviour, is seen as having final negative value. A salmon that behaves naturally and appropriately, and who does not show any unwanted behaviours (e.g. repetitive behaviours like stereotyped movements) is according to this view, living a good life.

Like all other objective list theories, this theory belongs in the lower right quadrant.

- Discussion

The different versions of objective list theory share some similar claims. Functionality oriented theories, as the one of Broom and the one of Hurst and Barnard both appear to grasp some important components of what the good animal life consists in. For instance, they emphasize the importance of biological functionality. The need-satisfaction theories also appear to value some states as being of final value for the animal in a way that much coincides with common intuition. It seems natural to claim that a salmon has a certain set of needs whose satisfaction is necessary for her to live a good life. As with the translation of the Five Freedoms of animal welfare into needs, they seem good in addressing a general set of needs common to most animals. Both cows, hens and salmon need food, a roomy housing and other conditions that satisfy both physiological and psychological needs. Such a set thus appears as well suited in addressing prudential values. When it comes to the concept of natural behaviour, both the advantages and the downsides of the theory seem related to the need-based ones. The theory appeals to a line of thought that is quite common in the context of welfare as it appears in Swedish animal welfare law⁵ and in the rules and regulations of organic certificates (for example see *KRAV 2011*).

In regarding good function as being of final positive value, the functionality-oriented theories do not appear to address the issue of prudential values. Instead they seem to either be atomistic theories of health or theories addressing functional value. As such they are not relevant in the context of finding out what the good animal life consists in, as they are not theories of QoL at all. Also, regardless of the role that pain and suffering may play in securing the survival of one's species, it seems odd to claim that pain and suffering in general aren't bad *for* the individual experiencing it.

When it comes to natural behaviour, it is again doubtful whether this theory really identifies any final values, or if it is merely about the empirical relationship between the expression of natural behaviour and well-being. That an animal exhibits natural behaviour, and no unnatural ones, may be regarded as some sort of condition or indicator. Depending on what behaviour as one defines as being natural, the indicators will give different kinds of information. However it appears at odds with common intuition to claim that the expression of natural behaviour should be regarded as good in itself. An animal may express natural behaviour even when living under harsh conditions. Such a life seems difficult to label as good for the individual herself. The conclusion would therefore be that conditions that allow animals to perform strongly motivated behaviours, such as nesting, foraging etc. are causally related to the well-being of the animal because it causes, e.g. contentment.

When it comes to the need satisfaction theory one should ask whether the supposed objects of

need are state of affairs that are good or bad in themselves or if they are of *instrumental* value? A quick look at some needs common thought of, may pose an answer to the question: water, food, good housing, expressing natural behaviour, interacting with con-specifics etc. The needs mentioned all seem to be either a number of *conditions for* or *indicators of* good well-being or health. As such they are merely empirical in their relation to the QoL of the animal. Thus, a need based theory of animal QoL may act as a valuable list of instrumental values, but are ill suited when identifying what is of final value for a being.

In virtue of these conclusions, these candidates for an animal oriented objective list theory do not seem fit as theories of animal QoL. They address state of affairs that are of an instrumental, rather than final, sort and some state of affairs may in some cases not even be that.

Happiness Theories

Happiness theories of QoL are a type of theories that answer the question of what the good animal life consists in by pointing out positive emotions and feelings or happiness as the one thing having final positive value. The one thing that has final negative value, and that can lower the QoL of someone, is negative feelings and emotions, i.e. suffering. A cow, hen or salmon that experience positive emotions, feelings or being happy are then, according to this approach, in possession of a high QoL.

The happiness theories of QoL are of two kinds depending on what definition of happiness they appeal to. *Hedonists* claim that happiness is synonymous with a high hedonic level, while *life satisfaction theorists* claim that the conscious evaluation of one's life as a whole should be regarded as central.

- Happiness As Hedonic Level

Hedonists argue that only pleasant and unpleasant experiences can be finally good or bad for an animal. This means that all pleasant experiences are finally good for her and that all unpleasant ones are bad for her regardless of other properties of these experiences. The positive and negative value of an experience only depends on how pleasurable or displeasurable it is. A hen's QoL at a certain moment only depends on how she feels at that moment. Positive and negative mental states or experiences then seem to be about feelings. Feeling is a term that may refer to bodily sensations, emotions and mood-states (*Brülde, 1998*).

An example of a pleasurable sensation is the pleasurable feelings a calf feels when being licked by its mother, drinking her milk or feeling the warmth of the sun on her skin. Examples of unpleasant sensations are when the same calf is feeling hungry, an itch, pain or nausea.

Emotions are intentional mental states, i.e. directed at objects. This means that emotions have cognitive content, for instance an idea about, or attitude towards, the object of the emotion. When a cow is let outside to graze she may feel happy about the prospect of eating fresh grass. This is an emotion of happiness or liking *about* eating fresh grass. When the hen feels afraid of a human who approaches her, she is afraid *of* that human. She conceives of the human as a threat. This means that emotions always involve some sort of cognition.

Mood-states differ from emotions in that they lack intentional objects. Instead a mood is when one feels low-spirited, annoyed, excited or high in general and not about anything specific. Mood-states in the human context seem to be constituted by certain outlooks accompanied by a diffuse feeling. Examples of pleasurable mood-states are when one is feeling energetic, happy or harmonious. Unpleasant mood-states can for example be when one is feeling anxiety, depression or apathy.

The hedonist thus claims that all these feelings have final value, and that nothing else than these can affect the QoL of a sentient being. The theory is thus internalist in that it attributes value to mental states like sensations, feelings and moods, and objectivist because it evaluates these feelings as bad or good for the individual regardless of her own wants and evaluations. This places hedonism in the lower-left quadrant of table 3.

- Happiness As Life Satisfaction

The life satisfaction version of the happiness theory of QoL is also focused on mental states, but it appeals to a different notion of happiness. Here happiness refers to one's evaluation of life as a whole. Such an evaluation for instance occurs when an individual thinks about her situation and finds that she is quite content with most things in her life, or when a bullied child evaluates her life as miserable.

The life satisfaction theory of QoL can be placed in the upper-left quadrant in table 3. It is internalist in virtue of attributing value to a kind of mental state, and subjectivist in that the object of value depends on the subject's own evaluation.

- Discussion

Although the level of an animal's QoL is often thought to at least partly be constituted by her level of positive and negative feelings, the proponent of hedonism needs to argue for a stronger claim than that. The hedonist needs to show that nothing else than positive and negative feelings do affect the well-being of an individual. The pure form of hedonism denies that any situation that does not contain pleasure or suffering can be good or bad for a being. It is for instance not bad for a human

to be betrayed and ridiculed by close friends as long as she does not find out or is in any other way affected by these actions.

Even if one would think that this may be an implausible consequence when it comes to our own species, the issue of whether non-experiential states of affairs can be of final or negative value seems to have a place in common intuition. If comparing the lives of two people where the first have genuine friends while the friend of the other are staying with her only for her money, we think that the first life is the better one. And as the following examples show, the appeal to external, or simply other internal factors than hedonic level, may pose a threat to pure hedonism as well in the case of other species as well.

Nonhuman animals are often portrayed as less complex beings and living far simpler lives than that of humans. But although the life of a hen may not contain as many or as differentiated elements as those of the life of a typical modern human adult, this does not mean that she lacks an inner life or that a good life, for her does not require more than just the experience of positive feelings. The fact that a hen may not feel worse if her newly hatched chickens are taken away from her and frozen to death, just to be replaced by new eggs when she is away from the nest, seems to make sense. That her QoL however would remain unaffected is not self-evident. Certainly one has to disregard normative claims about such an occurrence and instead ask whether its is bad *for* the hen that her chickens are taken away from her every time they hatch and put into a freezer. Apart from possible negative instrumental values like exhaustion or frustration about not witnessing the eggs hatching, it can be argued that this situation has negative final value for the hen. After all, she is deprived of the prospect of feeding and nurturing her own young. This is a line of thought common to the different externalist views described earlier. It may also be the case that the intuition above stems from the thought that the stealing the eggs frustrates a preference of the hen.

Regarding the issue of non-experienced factors of a state of affairs, consider a restricted version of a thought experiment called the experience machine, presented by Robert Nozick (1974). A calf is from the day she is born, put into a machine that keeps her alive. She is regularly supplied with all the nourishment she needs and is also injected with certain chemical compounds that keep her state of well-being on a constant high level. Is the life of this calf as good as if she, experiencing the same amount of pleasure, was let to live on a field along with her mother and the rest of her bovine family? It appears to be a reasonable to claim that it is better for the calf to be able to prance around on a wide and lush field than floating in a tank, and this regardless of her pleasure level. There are simply other properties of the life on the field that makes that life better for her, for instance the taste of grass, the sensation of sunlight on her skin and the familiar smell of her mother.

The issue here though is to ask whether such a intuition is based on relevant reasons or not. The

hedonist could namely object that one is confusing instrumental values with final ones. Despite the premises set up in the example, i.e. that the calf is feeling perfectly well floating around in the tank, the hedonist means that most people have a difficulty in ignoring the intuition that the green field, given the assumptions made, can not make the calf's life a happier one. If one readily argues that her life, irrespectively of the unchanged happiness-level, is a better one when consideration is taken to her interests or to some idea of valuable components of experience, one may be guilty of making another kind of value-oriented mistake. Namely the mistake of mixing the issue of 'value for' with other kinds of values, like aesthetical or absolute value. The notion that the field is the better alternative despite the fact that the calf is not experiencing it as such, is consequently due to one finding the idea of a family of cows grazing in the open air aesthetically more appealing than the morbid experience machine. Or one may think that a world where cows are allowed to move freely is a better world, no matter if it is better or not for the animals concerned. However, none of these positions are relevant for the issue of what is of final positive or negative value for the animal.

As mentioned earlier the issue of QoL belongs to the value category called 'value for'. Therefore objections aimed at the hedonist account of QoL has to be formulated as to point out in what ways an animal's life can be better or worse for her for other reasons than her feeling positive and negative feelings. When it comes to the calf the option of living on the green field seems to strongly apply to our intuition on what a good bovine life is like. However the life on the open field would be a lot harder to defend if it contained less pleasure than the life in the tank, which means that hedonic level at least plays an important part in the well-being of an animal. So the solution might be some sort of combination of different factors having final value.

Another, and possibly less problematic, way of interpreting this intuition would be to claim that it is not really an issue about internal or external factors at all, but that other qualities of an experience besides the hedonic one can have final value. A hen might need certain experiential properties, like smells, sights etc., to be present in her life to have a good QoL. These properties could be of final value because they are states that the hen have an intrinsic preference for, or they might be objectively good for her. This suggests that there may be two or more dimensions of experience that should be taken into account when considering an animal's QoL.

However, regarding the objectivist version of this view, i.e. that certain experiences are objectively good for an animal, it seems problematic in similar ways as do some of the earlier externalist objectivist views. First of all it appears to have to once again be grounded in some diffuse idea of the nature of the species (and sex) in mind. This would mean that it is important for a hen to e.g. experience certain hen-specific things during her life apart from happiness, to have high QoL. The difficulty here is that this internalist and objectivist view has a harder time arguing why

some objective states are good for an individual regardless of what she herself thinks and feels about them. Is it really good for the hen herself to experience certain states of mind, like feeling a sense of care for her young, even though this may not bring about a heightened level of positive affect? What if such hen-specific states of mind would actually make her feel bad?

One could think that this objection also applies to hedonism, but this is not really the case. Because by valuing positive affect (i.e. positive sensations, emotions and moods) one seem able to claim that happiness and suffering are states that every sentient creature strives to feel or to avoid. The hedonist can also argue that even though the animal does not strive towards a certain pleasurable state, or even if such a state represents an aversion of hers, that state will still bring about positive affect. This is an advantage not shared by the objectivist view, as it can only claim that even though the animal does not want to be in a certain state, she will benefit from it in fulfilling an ideal image of how her kind should live. This while the hedonist still may say that happiness is the ultimate value and feels good to every sentient creature whether that being thinks of it as important or not.

So hedonism appears to successfully capture common understanding on the good life, and this not in virtue of it always being intuitively appealing in all respects. Rather because of its ability to explain the eventual clashes it has with common intuition.

The other main version of happiness theories of QoL, namely happiness as life satisfaction needs to answer some questions: what kind of cognitive ability is necessary to make an evaluation of one's life as a whole? Well, to be able to evaluate one's life seems to require an ability of over-viewing one's life. This in turn appears to be an ability of those who are self-conscious in the sense that they are aware of themselves as entities existing over time. Since sentience only requires consciousness it is far from obvious that sentient animals in general possess self-consciousness. Therefore a lot of conscious species of animals may not be capable of the type of happiness accounted for here. Self-consciousness, appears to be restricted to a small number of nonhuman species, like the great apes, dolphins and magpies⁷.

But what does this mean if true? Well, it seems to imply that only typical human beings above a certain age, and possibly adult individuals of self-conscious animals of some species can experience happiness in this sense. In the animal context, doctor of veterinary medicine Franklin D. McMillan, challenges this view by arguing that at least mammals in general have the capacity to be capable of life satisfaction. Although the reasons he uses seem a bit vague. He writes

What is the evidence that true happiness exists in animals as a long-term mood state – different from the ups and downs of emotional experiences felt on a moment-to-moment

basis? ... Forming an evaluation of one's life overall as satisfactory or unsatisfactory would appear to require the cognitive capacity to conceptualize the future and the past ... if *unpleasant* mood states like helplessness and hopelessness can incorporate a life-as-a-whole view, it would seem logical to conclude that such a life view would be found in *pleasurable* mood states such as happiness. (McMillan, 2005, pp. 228-29)

So McMillan appears to confuse the idea of mood-state, which is hedonist, with life satisfaction. The former is a kind of happiness that does not seem to require any self-consciousness with regard to time, while the latter includes both emotion and the cognitive capacity of evaluation. A mood in this sense is a long term emotional state that does not appear to be necessarily connected to any evaluative ability at all. This leaves McMillan to argue for why the cognitive ability is important at all if what is of value are non-transitory mood-states. The issue of life satisfaction will be treated in the next section along with preferentialism. Because when treated solely as a cognitive ability it appears to be related to desire fulfillment theories of QoL, at least when speaking of global desires.

This kind of reasoning entails is that it implies something about conscious animals that may not be true. Do we really evaluate our lives as a whole? I.e. do people and other sentient animals stop now and then to contemplate their lives as a whole? Even in the human context, it is not hard to imagine persons that do not stop to think about their lives in this way. This may be even truer for children. To contemplate and evaluate one's life as a whole would mean that an individual stops to contemplate *all relevant aspects* of her life. The question is whether we actually do this, or if life evaluation when it occurs rather is applied to parts and pieces of one's life. It appears more likely that, at least humans above a certain age consciously judge smaller fractions of their existence. May it be a relationship, one's performance in school or a sport etc. Even when people claim such things as their lives being miserable or great, these evaluations seem to be based on the evaluation of a few components or states rather than a judgment of every relevant aspect of their life. In virtue of this, and because this is a theory of QoL that does not include more than maybe a fraction of all sentient animals (some groups of human beings are as mentioned also excluded) it is not a good candidate for telling us what it is that makes an animal's life worth living and will be regarded as implausible.

Preferentialism

Preferentialism, or the desire fulfillment theory, claims that the only thing having final positive value is to have one's intrinsic preferences fulfilled, and that the only thing having final negative value is when one's intrinsic aversions are realized. Intrinsic here means that the wish, plan or aversion is something that the individual wants, likes or dislikes for its own sake. The positive or

negative value of these realizations depend solely on the intensity of the preference or aversion.

The QoL of an individual depends on what preferences or aversion she has and whether these are realized or not. A hen who gets many preferences fulfilled and few or none of her aversions realized is, because of this, living a good life.

Two versions of preferentialism will be accounted for here. First the pure, or unrestricted, version followed by a restricted one (see Brülde, 2003). Both versions can be placed within the upper-right quadrant of table 3 in being externalist and subjectivist. The reason for this is that the theory also values state of affairs external to the subject and that the source of what is valuable is the individual's own attitude.

- Unrestricted Preferentialism

The unrestricted version of preferentialism is identical with the concept accounted for above. It states that the realization of intrinsic preferences always is of final positive value, while the fulfillment of intrinsic aversions always is of final negative value. It does not matter to what degree these wishes and aversions are rational, what they are about, or to what extent the subject has knowledge about the state of affairs that she wants or likes to avoid. However, the realization of unexpected negative side effects and consequences will of course be of final negative value if they involve the realization of any intrinsic aversions.

A wide concept of preference includes all kinds of *pro- and con-attitudes*. This opposed to being *neutral* towards a certain state of affairs. A hen that likes to spend the night sitting on a stick or branch, or who prefers this to sleeping on the ground, is thus holding a preference whose fulfillment has positive final value. A salmon that dislikes a certain kind of food has an aversion, which, if realized, will have final negative value. The hen and salmon are thus living more or less good lives in relation to the number and strength of the preferences and aversions that are fulfilled.

- Restricted Preferentialism

Limited versions of preferentialism reject the idea that it is always good for a being to have her intrinsic preferences fulfilled, or that it is always bad when an individual gets her aversions realized.

The kind of desire and aversions that are relevant can be of several kinds. Some restricted versions are *rationality oriented* while others are *object oriented*. The former claim that a preference or aversion has to be rational to be relevant. Thus, it can only have value to have a desire satisfied if it is rational. The same goes for aversions.

An object oriented approach means that for a preference or aversion to be relevant, the object of the preference or aversion has to be of a certain kind. For instance, a defender of this view could

claim that only those pro- and con-attitudes that are about the subject's own life should be regarded as relevant. Therefore the realizations of preferences or aversions about states of affairs that are not related to the subject don't affect the QoL of the individual.

- Discussion

Preferentialism in the most restricted sense may be difficult to apply to all other sentient animal species because it assumes that the subject is conscious about her having a certain wish. A better version of preferentialism therefore should not deal with pronounced or conscious wishes or aversions, but rather with *pro- or con-attitudes* in general. Therefore it is enough that the being in question is conscious to be said to have preferences and aversions,

So all conscious animals can have *pro- or con-attitudes* towards certain states of affair. A calf which gets the opportunity to choose to live alone in a barn with small dirty windows and hard concrete floor or to live on a wide green field where her mother roams will presumably prefer the latter. If the hen gets to choose between two enclosures where one is empty and the other contains her newly hatched chicks she will probably try to get over to the latter. A salmon that gets the opportunity to hunt will most certainly prefer to do that rather than to live her life in a small cramped compartment. If the calf, the hen and the salmon get to choose they will therefore prefer some conditions over others. This is a definition of preference called 'hypothetical choice'. (Brülde, 1998 and 2003)

Shall the fulfillment of the wishes of the animal be considered as having final or instrumental value? In other words, is it good for her to get her preferences met because this tends to make her happier or bring about pleasure, or is the fulfillment good in itself? It seems good for the calf to be able to live with her mother instead of alone. It also seems good for the salmon to live in a larger compartment. The issue, though, is whether these states are good for the animals because they want them, or if their goodness lies in the positive affects they may result in? To be able to answer this question it seems useful to take a look at some examples where the fulfillment of preferences don't affect the hedonic level of the animal in a positive way.

A cow may have a prospective desire, e.g. a strong urge to eat something that appears as tasting good but that injures her mouth. The fulfillment of this preference thus leads to suffering and it seems unreasonable to claim that its realization leads to an increase of the animal's QoL. On the other hand, the preferentialist can argue that even though a preference realization that leads to more suffering can't be said to have final value, the same is not true for fulfillment of pro-attitudes that leave the animal's hedonic level unchanged. When comparing two lives where in the first one the cow is happy, but does not get her preference satisfied and in the second she is equally happy, but

also gets her preference realized, one could claim the latter to be the better one. The preferentialist can argue that even though the hedonic level of the cow remains the same, she is living a better life if her pro-attitudes are met (especially her now-for-now preferences, i.e. the preferences she has at the moment and whose object is the immediate realization of a state). However, the hedonist would still insist that this view is grounded in a hidden assumption, namely that the fulfillment of preferences tends to bring about positive affects. Because, how could one claim something to be good or better for someone if they don't experience it as such?

But what about aversions? Could the realization of an aversion be said to be of final negative value for an animal, even though it does not decrease her happiness? What about aversions whose realization actually make the animal happier? If a calf is afraid of or dislikes a certain state of affairs which does not bring about any suffering when realized, it does not seem reasonable to claim that it still was finally bad for her. In the same way it appears as even more implausible to claim that the realization of an aversion that actually makes the calf happier can be of final negative value for her.

A possible way of meeting these objections is to turn to a version of preferentialism put forward by Peter Singer (1975, 1979), where he argues that it is finally good for an animal to have her *interests* met. Interests are not preferences in a typical sense, as they are intimately connected to sentience. This means that all creatures that have the ability to feel pain, which is intrinsically bad, have an interest in avoiding e.g. suffering. In the same manner, all sentient beings have an interest in feeling pleasure. The meeting of interests is thus the meeting of preferences whose objects are *feelings*.

Regarding this idea one must make clear what the differences between interest and preference really are. It appears as if Singer's version does not allow the fulfillment of preferences or aversions, which are completely separated from feelings that the state will invoke, to be of final positive or negative value. When the interests of an animal are met, the final value lies in the positive experience, or the deletion of an unpleasant experience, and not in the mere fulfillment itself. This while a 'pure' preferentialist claims the fulfillment of preferences and aversions to be finally good or bad regardless of the pleasure or suffering they result in. As such, Singer's version of the desire fulfillment theory contains a hedonic component. This is actually a certain concept of attitude-oriented hedonism, sometimes called preference hedonism.

However, some of the objections made earlier seem relevant also in this case. Because once again, the hedonist can claim that the final value of the meeting of interests does not actually lie in the fact that an interest is met, but in that this tends to coincide with an increased hedonic level. Also, if an animal's different interest can be reduced to the single interest of experiencing positive affect and avoiding suffering, this only appears to be another way of putting forward the claims of

hedonism, i.e. that the only things that are finally good or bad for an animal are the experiences of positive and negative affect.

As in the section about hedonism it appears as if different states are instrumentally good in so far as they cause some sort of positive affect and bad when they lower the happiness-level of the animal. Preferences, plans and wishes that do contribute in some way to the subjective and physiological well-being of the animal so that she may also benefit from this through less suffering or more pleasure should thereby be given a position as being of instrumental value for her. Thus, it does not appear to be a plausible conclusion to claim that the fulfillment of preferences or aversions per se is of final positive or negative value.

4.2. Conclusion

The QoL of other animals thus appears to be constituted by their degree of hedonic level, i.e. how good they *feel*. This means that what ultimately lies in the interest of a cow, a hen or a salmon is to live a life where they are as happy as possible.

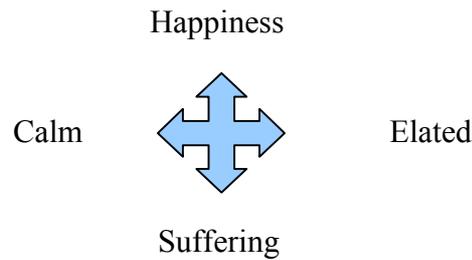
Different kinds of positive and negative affect

It is however important to understand that a pure hedonic standpoint does not mean that the QoL of animals are constituted solely by pleasant sensation.

As mentioned, positive and negative feelings can be sensations, emotions and moods. Also within each of these three ways of feeling there appears to be different 'tones' or 'shades' of feeling. A pleasurable feeling can come in many varieties. For example the satisfaction of running around playing with conspecifics and the contentment of lying in the sun seem to both be pleasurable activities. However they appear to *feel* good in different ways.

A way of understanding why pleasure (and displeasure) come in different tones likes this is by being attentive to a certain distinction. Differences in positive and negative affect need not only be a question of intensity. A scale that is used within happiness research in the human context distinguishes between one's degree of hedonic level and one's degree of arousal⁸.

This can be illustrated by the following figure:



The positive feeling of running around and playing on the one hand and lying in the sun on the other, thus seem to differ in how they are situated on the calm/elated-axis.

Instrumental value

The relationship between final and instrumental values is as mentioned earlier important. That the satisfaction of needs and the fulfillment of preferences of a being are not good in themselves, does not mean that these states are not valuable at all, only that they are good as means. This does not imply that instrumental values are less important. In a practical sense the case is quite the opposite. When the goal is defined the means for attaining it are essential. Without the conditions that are of instrumental value it would be impossible to realize final values and to improve the lives of other animals.

5. LONGEVITY

An aspect that is often absent in the discussions of animal welfare is the one concerning longevity. If a human dies at an early age, e.g. in childhood, it is regarded as a tragedy, not only for her family and friends but also for herself. We often think about all the things that death has deprived her, like plans and wishes that are never going to be fulfilled or realized. Or just the mere joy of being alive.

When it comes to sentient creatures of other species, the temporal aspect of one's life is however often neglected. Well-being in the animal context is thought of as a momentary issue, relevant only in a present tense. The good life of a cow, hen or salmon is something that matters as long as she is alive, but the length of her life is not considered a relevant factor in the matter. This has made for a situation where, in theory, the life of a chicken that is slaughtered at the age of a month or two can be regarded as equally good as that of a chicken being let to live for a few years. Animals farmed for consumption are in general killed at a relatively young age, most of them still being children or adolescents⁹. There is thus a remarkable contrast to the human case, which needs to be addressed.

Is it reasonable to claim that the length of an animal life does not affect the value of this life? Is

it reasonable to claim that it does not matter for a cow if she is killed at age four or let to live until her teens or twenties? A way of giving a positive answer to these questions is to claim that death is only bad for individuals having a sense of time. Because only beings that are self-conscious in the sense that they are aware of themselves as being entities extended over time, i.e. as having a past and a future, are deprived of the plans and wishes they intend to realize. This would exclude all animals lacking this ability including human children up to a certain age¹⁰ and adults suffering from mental impairments that prevent them from having this temporal consciousness.

But even though many sentient animals, including groups of humans, appear to be living solely in the present moment there is still reason to regard their longevity as important, and this for two possible reasons. First of all, the tragedy of a child's death seems to mainly be due to the fact that she won't be able to see the different stages of life, i.e. she won't experience how life is like in different periods of the human life. She won't go to school, learn to read and write, get into puberty, fall in love, travel, get a family of her own and so on. In short, death will deprive a child of experiences that are available only through continued life.

In the same way, an animal that dies at an early age won't be able to live through the different stages or cycles of the life of her species. The broiler chicken who gets slaughtered after just a few months won't grow up to become a hen or rooster, and therefore won't be able to participate in the different behaviours that characterize e.g. nesting, egg-laying, fostering chicks or guarding a flock of hens. Therefore, in this view, the life of an animal that has had the opportunity to experience all or many of the stages that characterize the life of her species has had a better life than that of an individual that dies at an young age. Although, animals kept for meat-, milk-, and egg-production are rarely kept in such a way that would permit them to participate in the mentioned behaviours irrespective of the length of their life.

The second reason for regarding a longer animal life as better is more in line with the conclusions made regarding animal QoL. From a hedonic point of view the only thing that matters for an animal at a specific moment is her hedonic-level or happiness. This in turn includes different kinds of feelings, which are felt during a period of time, however short. Young infants and other non-persons certainly don't know that they have a past and a future, yet they have an interest in experiencing as much pleasure and as little suffering as possible. This is clearly a momentous interest, but the fact that the infant wants to live as happily as possible *right now* also means that she has an interest in the continuing of this pleasurable experience. When a cat gets her belly scratched and stretches out her body in sheer pleasure she too has an interest in that this experiencing goes on.

A premature death therefore deprives the individual of possible positive affect (unless the

individual is suffering from a cruel untreatable or hardly treatable disease). A dairy cow that is killed at the common industrial age of five is thus deprived of maybe ten or fifteen years of life during which she would have had many occasions for positive affect. This is a way of thought that is in line with the idea of deprivation; an idea that states that death is bad for an individual on the grounds that it involves a loss. When it comes to non-persons, this loss seems to consist in that they lose months, years and maybe even decades of pleasurable life time. It is however important to stress the significance of the actual well-being of the individual when discussing the value of a longer life. As mentioned, an animal with very poor QoL on the contrary appears to have an interest in improving her well-being or shortening her life.

Besides valuing the intensity of positive or negative feelings, one should thus address the time during which these are felt. All other things equal it seems better for a cow, hen or salmon to live for a longer time than a shorter.

In short, time can be regarded as a prerequisite to realize final values. Apart from this, time in itself appears to be a component constituting the value of states along with intensity. In a practical sense this, as mentioned, means that not only the strength of a pleasurable or unpleasant feeling have to be addressed when assessing an individual's well-being. One must also realize the importance and the fundament that time plays in the issue of QoL.

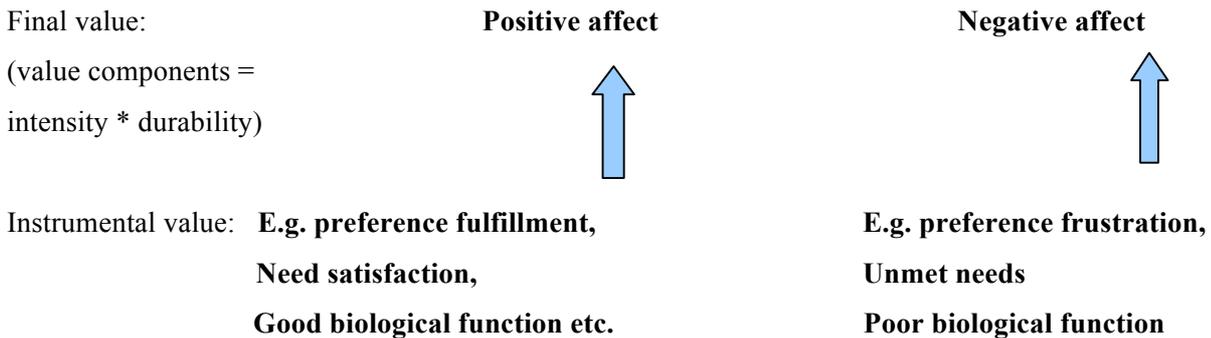
6. SUMMARY AND FINAL REMARKS

Finally the definitions of the concepts of animal health and QoL are formulated along with the value of longevity. According to the definition given in this thesis a healthy animal is a being that both enjoys a functional body and who has good subjective well-being related to her bodily functions. This is as mentioned a holistic and multi-factorial approach to the idea of health, where the concept of health is constituted by more than one component. This definition of health also is a holistic one, i.e. it defines health in terms of how the animal functions and feels as a whole.

The intensity of feelings, is on its own is not enough when comparing two positive or negative feelings. Their value depends on their durability. It may for example be better to feel quite well for a very long period of time than to experience a moment of very intensive pleasure. It also means that longevity should be considered as important when taking practical measures into consideration.

Given a positive level of QoL it is thus better for an animal to live longer than shorter.

Finally, an illustration depicting examples of how these conclusions may interact in a more practical sense is shown below. As mentioned in section 4 about instrumental values, these are all related to hedonic level. It seems reasonable that many of the disregarded theories of animal QoL actually provide knowledge of important instrumental values. For instance it appears as plausible to think that, in most cases, the preferences, strongly motivated behaviours etc. are means to attaining a high hedonic level.



In a practical sense this would mean that the life of a hen would be better or worse depending on a variety of instrumentally and finally valuable states present in her life. An example illustrating this is to picture the life of a hen living in a battery cage. The life in the cage is good in so far that it keeps her alive. She is provided with food, water and the warmth of her fellow hens. However the cage does not permit her to stretch her wings, to peck for food or to perform a variety of other strongly motivated behaviours. This results in stress, frustration and boredom.

Also her body is the result of intensive breeding programs aiming to create hens that produce as much eggs as possible while eating as little food as possible. This has resulted in a situation where the body of our hen is very strained. The extreme rate at which she produces eggs (a result of both selective breeding and certain light programs used in chicken coops) also makes her more susceptible to inflammation of the uterine tube (Jordan et al (2005)) which is a painful condition. All in all, the above is a life that neither provides much health or high hedonic level for the hen.

If however she was let to wander around freely or in a big enclosure along with her flock, many of the health issues and the suffering would not occur. This latter life would come with the possibility of stretching her wings out, flying, sleeping high up from the ground and pecking for food. These possibilities along with the natural setting and rising of the sun and the seasonal differences in daylight would result in a decrease of her egg production. This along with her being of a different, less unhealthy, breed would result in a body less prone to the health issues of modern battery hens.

All in all, the latter life contains states that promote the health, the QoL and the longevity of the hen. These states are instrumental but nevertheless vital for making the life of the hen a healthier one and a better one for her.

7. NOTES

1. Mather and Anderson (2007) and others have shown that cephalopods (members of the class cephalopoda, like different species of squid and octopus) are able to experience stress and pain.
2. Lactation here refers to "the period of weeks or months during which the dam (female) lactates." and should thus not be confused with the mere production of milk by the mammary glands. (*Blood, D.C. and Studdert, 1999, p. 647*)
3. See KRAV's standards from 2011.
4. There appears to exist a translation problem when dealing with the Swedish term 'djurskydd' on the one hand, and the English terms 'animal protection' and 'animal welfare' on the other. The Swedish term djurskydd may, depending on the context, denote both the meaning of animal protection and animal welfare, leading to a possible vagueness regarding the character of the movements described. This section deals with the political and ideological movements working to ensure and enhance the implementation of animal welfare laws and to heighten the awareness of animals as morally significant individuals (to a certain degree). These are also referred to as the animal welfare movement, and include international organisations like the *WSPCA* and Swedish ones like *Djurskyddet Sverige*.
5. The Swedish animal welfare law states that animals should be kept and looked for in ways that allows them to behave in a natural way. See *Djurskyddslag (1988)*.
6. The three first theories described for are roughly the main three monistic theories of health according to *Brülde and Tengland, 2003*.
7. For example see the studies of Prior et al (magpies), Gallup et al (chimpanzee), Swartz et al (orangutan), Shumaker et al. (gorilla) and Plotnik, Reiss and Marino (bottlenose dolphin) et al (asian elephant).
8. See http://worlddatabaseofhappiness.eur.nl/hap_bib/introtxts/introbib2.htm
9. In Sweden, pigs are killed at the age of 6 months, see Björklund, L. et al (2006), calves at the age of 18 months, see Jordbruksverkets statistikdatabas (2011)., broiler chickens at the age of 35 days, see Svensk Fågel (2010).
10. There seems to exist several levels of self-consciousness. These develop at different ages of the growing child. Children can for instance pass the mirror self recognition test at the early age of 14-18 months in the sense that they understand that the mirror is not an extension of the space or room. This level of self-consciousness is called "Identification" in the article below. But according to the same study the child will not have a sense of herself as a temporal being until she is about three years old. This level is called "Permanence". In total the article identifies five levels of self-consciousness. See the article of Philippe Rochat (2003).

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