

# Approach to Ethical Issues Based on Fundamental Informatics: *School Days with a Pig* as a Clue <sup>†</sup>

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**Abstract:** This paper explores the difference between companion animals and domestic livestock from the viewpoint of neo-cybernetical informatics, referring to an educational trial which was to raise a young pig for eating. The problem in this trial is based on an informatic difference between seeing a pig as a friend and as food in daily lives. Our behavior as being a communicational actor should be distinguished from just being a non-communicational sign interpreter because we can assume ethical norms as long as a communication system continuously operates. This argument can be a starting point for developing a new discussion on ethical issues, not in terms of the difference of intelligence or the importance of lives, but in terms of the possibility of construction of a communication system with us.

**Keywords:** communication system; ethical norms; fundamental informatics; second-order cybernetics; autopoiesis theory

## 1. Introduction—*School Days with a Pig*

From 1990 to 1992, there had been a practical educational trial in an elementary school in Japan which was to raise a young pig for eating. The aim of this trial was to have children realize the importance of life or food, but the method which confused domestic livestock with companion animals caused an ethical sensation. The trial was also made into a movie named *Buta ga ita kyôshitsu/School Days with a Pig* in 2008.

In this article, we would like to discuss *School Days with a Pig* and explore the difference between companion animals and domestic livestock from the viewpoint of Fundamental Informatics (FI) [1–3]. FI is the information theory proposed by Toru Nishigaki based on neo-cybernetics which is a developed version of cybernetics originated with second-order cybernetics by Heinz von Foerster [4] and superimposed on autopoiesis theory of Maturana and Varela [5,6].

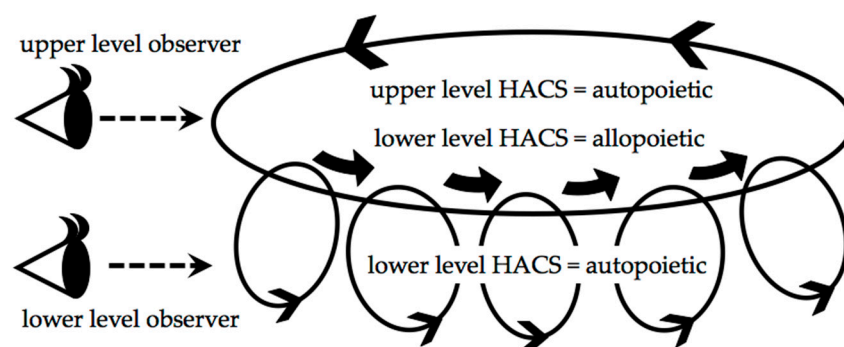
## 2. A System Composed of Communications between Children and a Pig

In the beginning of *School Days with a Pig*, children treated a pig as a pet, and soon became friends or classmates with the pig. We can say with fair certainty that communications between the children and the pig composed a communication system.

From the viewpoint of FI, this communication system can be seen not only an autopoietic system (APS), but also an upper level HACS (Hierarchical Autonomous Communication System). In this case, the systems of lower level HACS are mental systems of the children and the pig. Even though they are also autonomous (autopoietic) systems, they can be seen as heteronomous (allopoietic)

systems from the viewpoint of the upper level HACS. As Figure 1 represents, this hierarchical view is derived from a shift of the viewpoint of an observer.

Information transmission can be understood by this HACS model. Although each APS is closed system and cannot transmit information in principle, information *seems to be* transmitted as long as an upper level HACS works continuously. In FI, all kinds of information transmission are understood as this kind of fiction. Therefore, there is no need to say whether the *real* information transmission between the children and the pig exist or not.



**Figure 1.** An observer is essential for neo-cybernetics. Maturana expressed this as “Anything said is said by an observer” [5] (p. 8). By noticing this point, the hierarchical view of HACS (Hierarchical Autonomous Communication System) in FI is derived from a shift of the viewpoint of an observer. The upper level observer recognizes the upper level HACS as autopoietic and the lower level HACS as allopoietic because it is found that lower level HACS is performing certain functions in upper level HACS. Nevertheless, the lower level observer can recognize the lower level HACS as autopoietic. From the viewpoint of the lower level, the upper level HACS remains a tacit or implicit entity (the environment).

### 3. Communication System and Ethical Norms

In FI, ethical norms are understood as a kind of *media* which guides the continuance of communications [2]. For example, academic communications are regulated by ethical norms like “as a scholar, set up a theory for truth, not for money, power, love, etc.”. Communication systems operate smoothly by virtue of these kinds of media. A sense of ethics is generated when the members of the community share the ethical norms consciously and practically.

Note that information content itself is not primarily connected to ethical problems. From neo-cybernetic point of view, information is self-generated inside a system, for each system is operationally closed. We cannot say whether the information itself is ethical or not as if it exists objectively.

What is important here is the continuance of communications. It is not likely that the communication system composed of communications between the children and the pig has as clear ethical norms as those of human-social systems. However, as long as the communication system continuously operates, we can assume that there are some ethical norms like “behave as a classmate” which work with the system. At least, from the viewpoint of upper level HACS, lower systems can be seen as ethically expected actors that contribute equally to the operation of the upper level HACS. In this sense, each of the lower systems can be seen even as a moral actor.

### 4. Conversion into Non-Communicational Sign Interpreter and Abandonment of Ethical Norms

The problem which the children faced in discussions about a treatment of a grown pig is based on an informatic difference between seeing the pig still as a classmate and as food (pork) in daily lives. We usually do not construct a communication system together with pork. From informatic viewpoint, pork is generally regarded just as *signs*, and humans are just *sign interpreter*. There is no ethical relationship between humans and pork.

Therefore, if the children decide to eat the pig as pork, they must abandon the ethical norms related to the pig which have been held until then. They must stop to be a moral actor as a classmate

and kill the pig *who* has been an equal existence to themselves. The children would understand this situation as *unethical*, which is even equal to *murder*.

Livestock breeder generally do not construct a communication system like classmates with livestock. They treat many animals at the same time, they don't give them names, and a period of relationship is limited at a minimum, in the case of pigs, for about six months or one year at the longest. In this way, it seems they protect themselves ethically. In contrast, the children in this trial communicated to the only one animal, gave it a unique name, and had raised it for 900 days long.

In the end, the grown pig in this trial was sent to a meat treatment center. Although each APS is closed and the external world can only give some stimuli to trigger the activities of APS, this ending could be observed as giving particular stimuli because it goes with the destruction of a communicational actor. Because of this particularity, the trial can be criticized as *unethical*. However, this is originally intended by teacher-side. It is *sacrifice* from the viewpoint of the children and *self-victim* from the viewpoint of the pig. This situation seems to cause the children to have feelings of the unavoidable tragedy concerning life and eating and a kind of sacredness within the lives which are to be eaten.

## 5. Conclusions

Considering on ethical issues, being a communicational actor or to be a lower system of HACS should be distinguished from just being a non-communicational sign interpreter. When we see the living things as companion animals, we are in the former style, while we see them as food or domestic livestock, we are in the latter style.

We can assume ethical norms when a higher system of HACS continuously works as a communication system. This argument based on informatics can be a starting point for developing a new discussion on ethical issues, not in terms of the difference of intelligence or the importance of lives, but in terms of the possibility of construction of a communication system with us.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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