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## **Between Freedom and Rule – How can we understand German students' moral conceptions about livestock farming and meat consumption?**

### **Abstract**

Learners are regularly faced with moral decisions such as “is it allowed to slaughter animals to satisfy my needs for meat and if so, how should they be kept, so that I can eat meat without feeling guilty?”. Behind these decisions are diverse moral concepts that are also applied in biology class. If you ask Eva (15 y.) why animals can be eaten, she argues as follows: „The human being is on top of the world and can decide about everything and has continuously evolved. I think that puts humans above animals“. The aim of this research is (1) to empirically collect moral arguments and judgements of vegetarian and meat consuming students based on everyday issues (livestock farming and meat consumption), (2) then to analyse the genesis and structure of moral conceptions as well as (3) how such existing cognitive structures can be used in this theory of mind (Lakoff & Johnson, 1999) in order to encourage learning about moral conceptions in biology classes. In 1999 the philosophers and linguists George Lakoff and Mark Johnson already claimed that human thinking is based on experience and structured by metaphors. Based on this theory of mind, we will show that also moral conceptions are structured by metaphors. Based on this hypothesis, we have developed an evidence-based instrument to explore moral conceptions about livestock farming and meat consumption (Tramowsky, Paul & Groß, in press). The findings result from 15 interviews and 5 teaching experiments (Komorek & Duit, 2004) with students (11-16 y.) about livestock farming and consumption of meat. Consequently, we explored characteristic students' conceptions and examined metaphors within moral arguments and judgements by qualitative content analyses (Gropengießer, 2008). The results show how different moral arguments and judgements can be made by persons who eat meat and by those who do not. In this lecture, it is discussed how metaphors decide about moral thinking and how they can be helpful to create fruitful learning environments.

### ***Status quo***

Research on moral concepts in the area of biological and ecological ethics gained increasing importance with the introduction of the new educational standards in Germany (KMK, 2004). Research on ethical and moral conceptions is part of science education (e.g. Dittmer & Gebhard, 2012). Based on this, our research mainly focuses on students' moral conceptions about livestock farming and meat consumption. Previous studies show that students come with diverse students' concepts about animal ethics in biology classes (Hamann, 2004). However, this socially relevant subject takes a far subordinate priority in biology classes and

teacher training courses (Binngießer, 2013). One reason for this may be the insecurity of biology teachers to promote ethical review competence, a non-specialist area for which they are not adequately trained (Dittmer & Gebhard, 2012, p. 83).

### *Theoretical background*

From the perspective of a moderate constructivist we understand learners as self-directed, social and actively constructing subjects with previous experience (Gerstenmaier & Mandl, 1995). In order to understand fundamental ways of thinking we use a cognitive metaphor theory of understanding (Lakoff & Johnson, 1999). Because morality is an abstract idea, we can understand it best metaphorically (e.g. Lakoff & Johnson, 1999). Lakoff and Johnson understand metaphors as a system, which we are little conscious of. In this system we imaginatively transfer structures of an experiential idea (source domain) to another abstract idea (target domain), expressed by language. Like other ideas, morality grows on the basis of experiences which we have personally und socially acquired in our environment. Guided by these theory of mind and our empirical data, we developed an instrument in order to analyse students' moral conceptions (Tramowsky, Paul & Groß, in press). To identify moral metaphors, we have built up a cognitive metaphor theory-based frame, which we call Moral Metaphors System (Fig. 1).

### *Research design*

The research design is based on the Model of Educational Reconstruction (Niebert & Gropengießer, 2013). The following research tasks have been processed: (1) Clarification of scientific content, (2) investigating students' perspectives to understand the process of comprehension of students' conceptions and (3) construction of learning environments as a process-oriented design framework in which findings of the first und the second task are included. The comprehension of students' conceptions contains problem-oriented, structured interviews (n=15 students, 11-16 y.). Each time 3 students went into a video-taped teaching experiment (Komorek & Duit, 2004) in which they processed reconstructed interventions. The gained data was compiled and analysed by qualitative content analysis (Gropengießer, 2008) and the MMS.

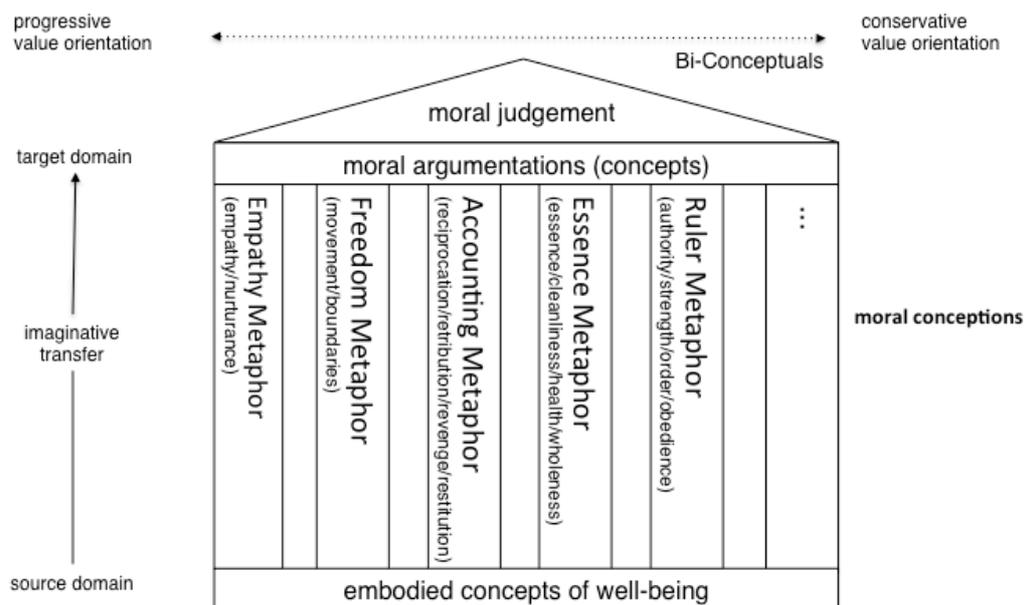


Figure 1. MMS about livestock farming and meat consumption.

### Results and Discussion

These metaphors are summarized under the MMS in five overarching moral conceptions: Ruler, Essence, Accounting, Freedom and Empathy Metaphor, which is characterized by various structures (see. Tab.1). For example we use the Ruler Metaphor for the interpretation of the data on the basis of our MMS. It comes from experiences with family hierarchies, power relations, obedience, physical strength, rules and their observance. „God is naturally more powerful than people. People are naturally more powerful than animals, plants, and natural objects. Adults are naturally more powerful than children. Men are naturally more powerful than women” and this natural order of hierarchies may be transferred to the moral order (Lakoff & Johnson, 1999, p. 303). When asked to justify why animals can be eaten, Eva (15 y.) gives us the explanation: “The human being stands on top of the world. There is God, but he is not directly on earth. The human being is on top of the world and can decide about everything and he has continuously evolved. I think that puts humans above animals.“ Eva uses terms such as “top” and “above” which shows us that she applies the Ruler Metaphor. By an imaginative transfer of experiences a concept develops in which it is moral, when God stands “above” the humans and man “above” animals as an authoritarian ruler.

### Conclusions

With regard to a reflecting process, new educational opportunities for biology are realisable. As described above, learners use moral concepts with different structures in their argumentations. Theory-based intervention, which allows students to recognise their moral concepts, can help them to reflect upon their moral arguments and to broaden their repertoire of metaphors (Bi-Conceptuals). Further outcomes from these interventions will be discussed in the presentation.

<b>Moral Metaphors</b>	<b>Moral conceptions</b>		
(1) Ruler Metaphor	human-animal relationship as equal order	human-animal relationship as hierarchical order	human-animal relationship as circulation
(2) Essence Metaphor	moral behaviour passes into essence		essence passes into moral behaviour
(3) Accounting Metaphor	justice by restitution	justice by exchange	justice by revenge
(4) Freedom Metaphor	moral is freedom of movement and action		moral is control
(5) Empathy Metaphor	egocentric empathy (anthropomorphic)		absolute empathy (anthropocentric)

Table 1: Structure of moral conceptions about livestock farming and meat consumption.

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