

Metaphors in climate discourse: An analysis of Swedish farm magazines

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Abstract: *Climate change and communication of climate change are recognized as crucial components influencing agricultural development. The aim of this paper is to explore metaphors and values in media reports on climate change. Through a critical discourse analysis of the two largest Swedish farm magazines over the period 2000-2008 this study identifies that 1) greenhouse, war, game and motion metaphors were the most frequently used metaphors in the data corpus 2) the metaphors highlight certain perspectives while hiding others. The paper concludes with a discussion on how metaphors and values may be related with agricultural adaptation and mitigation.*

Keywords: *Metaphor(s), unconscious system, agriculture, climate change, communication*

Introduction

Much is said and written about how we understand the world around us and the partly unconscious systems we use for this purpose. Our language is argued to constitute a foundation for our perceptions, our interpretations and descriptions of our surrounding world (Lakoff & Johnson, 1980; Ricoeur, 1993) and changes in language use are further argued to be linked to wider social and cultural processes (Fairclough, 1992). In our daily life we use words and expressions that make our language perhaps a bit more poetic to explain things in a way that is impossible in literal sense. Love may for example be described as with the expression *It's been a long bumpy road*, but we probably don't mean that in a literal sense. As these expressions or representations symbolize certain characteristics we find relevant; we use them to transform abstract and conceptual ideas into more accessible and concrete knowledge (Moscovici, 1984).

Over the past years, mitigation of and adaptation to climate variability and change has gained top priority at the global political agenda. Although climate change affects all sectors, the agricultural sector is among the most vulnerable and sensitive ones, as changes in temperature and precipitation patterns will have a direct influence on the quantity and quality of agricultural production and the daily life of farmers (FAO, 2008; IPCC, 2007). Furthermore, while there is a common assumption in climate science and policy that access to information would increase adaptive capacity (Parry, 2007), communication studies have identified a number of challenging traits that make climate change a tough issue for communication (Moser, 2010). 'Virtual risks', invisible causes, distant impacts, complexity and uncertainty are just a few of these climate change traits (Moser, 2010; Nerlich, Koteyko & Brown, 2010). It is argued that communicative tools, e.g., analogies, distinctions, and metaphors, are often used to conventionalize complex phenomena hence rendering them more concrete and easy to grasp (Marková, 2007; Wibeck, 2002).

The aim with this paper is to analyze how climate change is communicated in farm magazines. I focus the analysis on the use of metaphors and values attached to metaphorical representations of climate change. The paper concludes by discussing how metaphors and values may link to agricultural response to climate change.

Metaphors and values

It is argued that there are differences in the way people learn about abstract or complex phenomena (Moscovici, 1984; Weber, 2010). While scientists are explained as learning from analytic processing, non-scientists are explained as learning from personal experience. Thus, nonscientists typically rely

more on the more readily available associative and affective processing of climate-related information. Our thoughts are further expressed through our language and conceptualizing is realized in many different linguistic expressions. In expressing ourselves, we may use what Marková (2007) calls “discursive figures”, e.g. analogies and distinctions, stories, metaphors, prototypical examples for developing matters of content. Especially metaphors are argued to structure how we perceive, how we think and what we do (Lakoff & Johnson, 1980). By experience one thing in terms of another, metaphors are explained as both providing an understanding to abstract phenomenon that are not so familiar to us (Lakoff & Johnson, 1980) as well as bring new understanding to what is already known (Brown, 1976). By linking two conceptual domains, the ‘source’ domain and the ‘target’ domain (Katz & Taylor, 2008; Nerlich, 2004; Lakoff, 1993), metaphors allows us to use what we know to provide an understanding of other subjects. The source domain typically consists of concrete entities that explain a more abstract target domain. Thus, the locus of metaphor is in the way we conceptualize one mental domain in terms of another (Lakoff, 1993).

Metaphors are often so common in our daily life that we do not think of them as metaphors. They are usually taken as self evident and are in general not reflected upon. They are a part of an unconscious system of thought, what might be called socially shared knowledge (Marková, 2007). Such knowledge may be socially shared within a culture, such as “the western culture”, a nation, a working place, a family or in the readership of a news paper and tend to confuse those unfamiliar with them. Hamington (2009) is concerned with what he calls “the metaphoric fallacy”, that is the moral ramifications of metaphorical superstructures. Hamington argues that when a metaphor is so pervasive that people forget that a metaphor is employed at all and metaphors become equivalent to that for which they help to describe, an element of misunderstanding is introduced. The significance of aspects of the terms that are not alike starts to grow and what is originally metaphorically hidden are now ascribed to the target domain. Values and underlying normative assumptions are attached to such unreflected socially shared knowledge. Lakoff & Johnson’s (1980) suggestion that metaphorical concepts are partial —meaning that *parts* of another concept are used in the metaphor—also indicates that there are certain aspects that are illuminated and others shadowed over. In this sense, there is in metaphorical reference also an element of valuing what perspective to bring forward.

Climate change

A commonly used definition on climate change, acknowledged by Intergovernmental Panel on Climate Change, refers to “a change in the state of the climate that can be identified (e.g. using statistical tests) by changes in mean and/or the variability of its properties and that persists for an extended period, typically decades or longer.” (IPCC, 2007). Thus, “climate change” is in climate science discourse understood as changes in climate over time. On a general level, impacts of climate change on global agriculture are projected to result in both an increase and a decrease in crop productivity. While warmer temperatures are expected to result in increased yields in colder environments, warmer days and nights are expected to decreased yields in warmer environments (Parry, 2007). Changes in precipitation patterns are projected to cause damage to crops, soil erosion, inability to cultivate land due to waterlogging of soils and overall land degradation. For live-stock production, it is concluded that heat stress reduces productivity, conception rates and is potentially life-threatening to livestock. In responding to climate change, mitigation of, and adaptation to climate change are two central concepts in climate change discourse. Mitigation is explained as reducing the sources or enhancing the sinks of greenhouse gases¹ while adaptation is seen as adjustments in response to actual and expected climatic stimuli or their effects (IPCC, 2001). There is a range of current and potential mitigation and adaptation options for agricultural response to climate change, such as development of heat- and drought resistant varieties (Parry, 2007) and

¹ Water vapor (H₂O), carbon dioxide (CO₂), nitrous oxide (N₂O), methane (CH₄) and ozone (O₃) are the primary greenhouse gases (GHGs) in the Earth’s atmosphere (Solomon, 2007)

improved crop and grazing management to increase soil carbon storage and reduce CH₄ and N₂O emissions (Metz, 2007).

Agricultural mitigation of, and adaptation to climate change and variability are on the international climate science agenda. However, communicating the issue of climate change is embedded with certain challenges. Traits that make climate change a challenging issue to engage with are for example invisible causes and distant impacts (Moser, 2010). According to the author, the lack of immediacy has several dimensions: first—the greenhouse gases are literally invisible and secondly—there is often a temporal and geographical distance between cause and effect; that is, emitting greenhouse gases does not lead immediately to a noticeable, visible impact. Furthermore, climate change is usually ascribed characteristics such as uncertainty and complexity which may be referred to such different aspects as lack of data, inadequacy of representing nature's and human's complexity in models and limitations in the capacity of computers (Moser, 2010). With these insights at hand, this paper seeks to explore how climate change is communicated to Swedish farmers.

Method

Information conveyed in farm magazines represents a central component in agricultural decision making and is even argued to be “the most important source of information for farmers” (Brunn & Raitz, 1978). The analyses presented here focus on Swedish farm magazines and in particular those with the largest national circulation - ATL- Lantbrukets affärstidning, and Land Lantbruk.

The choice of news stories for a qualitative analysis was made through an identification of climate change keywords (climate* change/issue/science/threat, e.g., global warming, greenhouse, carbon dioxide*) at front pages of the two magazines in the years 2000-2008. Articles related to the front page coverage were selected for further analyzing. In total, 56 items, from 2000 until 2008, were studied. Metaphors and value-laden words were searched for in the headline and the opening paragraph of each news story as these, in order to attract readers, often can be ambiguous or confusing and with a range of linguistic devices (Reah, 1998). In the metaphor analysis, all words that may indicate an explanation of climate change by another concept are analyzed which means that I have paid attention to adjectives, verbs, nouns as well as to the overall context. When identifying the metaphors, I have focused on recurrent and similar expressions that are commonly used in other contexts, whether these are its origin or not. To make explicit the implicit values contained with many of the metaphors and expressions used to describe climate change, attention is paid to the choice of words used to name climate change. First, the explicit uses of words like good/bad, positive/negative, were noticed. Second, words that have synonyms that are more value laden e.g. scent, fragrance, odour for smell (Melin & Lange, 2000).

The identified metaphors are presented in the following analysis where headlines and first paragraphs are cited. Headlines are underscored and words indicating the discussed metaphor are italicized.

Metaphors in farm magazines' coverage of climate change

The farm magazines reporting on climate change were rich in their metaphorical use and value statements. This study identifies greenhouse, war, game and motion metaphors as the most frequently used metaphors. I also suggest that these metaphors emphasize certain perspectives while neglecting others.

Greenhouse metaphor

The greenhouse metaphor is recognized as a common metaphor within climate discourse. Examples on the use of the greenhouse metaphor in farm magazines show that the meaning of the metaphor is assumed to be understood as no explanations of the meaning of “greenhouse” are provided:

"More peas and less soya. The well-informed pig farmer can reduce the *greenhouse effect*."

The environmentally aware pig farmer does not mix soya in feed. More peas in the feed bowl reduce the *greenhouse effect*." ATL 2004

"The *greenhouse gases* rise to EUs head."

The emissions increase. EU has a hard time bringing emissions of *greenhouse gases* under control. Much point to that the Union will not be able to reach international commitments." Land Lantbruk 2002

The word 'reduce' appears together with the greenhouse gas metaphor in the first example and contextualizing 'reduce' with descriptions of farmers as 'well-informed' and 'environmentally aware' implies the ideological standpoint of the magazine. As 'well-informed' and 'environmentally aware' give a favorable picture of farmers, in contrast to be addressed as stupid or non-caring, this form of naming appeals to farmers' willingness to emit less GHGs. The second example is accompanied with the Swedish idiom "stiga åt huvudet" (the English expression: go to somebody's head) with the possible negative meaning that someone is not managing something, and the idiom "få bukt med", that is, bring something under control. The metaphor accompanied with these idioms construct the perception of global warming, difficulties in managing goals of reducing greenhouse gases and normative statements that climate change is controllable by humans, also recognized by Carolan (2006). As in the first example, the ascribed responsibility of reducing greenhouse gases indicates that farmers are expected to operate, to take action and reduce the greenhouse effect. What is described as a 'failure' in the second example, may also serve as an example of not only human responsibility, but also as an example of the possibility to act as human operators. Thus, the greenhouse metaphor may foster a perception of climate change as being manageable and controllable for humans.

As often is the case of metaphors, the comparing concept is something that is usually more familiar and conventionalized and therefore in no need to be explained. In the examples above, the target domain climate change is explained by and compared to perhaps more concrete domains of greenhouses. As the articles do not explicitly explain the concept of greenhouse, readers are supposed to be familiar to the meaning of, for example, *greenhouse effect* or *greenhouse gas*. Dictionaries refer to greenhouse effect as increased warmth in the atmosphere (Knowles, 2006; Nationalencyklopedin, 2010). Greenhouse gases are believed to, like the glass surrounding the greenhouse, increase the global mean temperature. A change in the atmospheric (glass) composition is expected to affect solar radiation and consequently the Earth (greenhouse) temperature. Consequently, dictionaries foster a perception of global warming. Like all metaphors, the greenhouse metaphor highlights some aspects of climate change while neglecting other climate science results. For example, the greenhouse metaphor hides aspects of precipitation which is an elementary feature of climate change (Solomon, 2007) and hence agricultural development. The metaphor has also been criticized for its comparison between atmosphere and glass, as the atmosphere, in contrast to glass, lets much of the solar radiation through but absorbs almost all the radiation coming from the surface of the earth which is then radiated back to the earth (Björkström & Tjernström, 2010). Other critics of terms such as global warming and greenhouse suggest that this terminology not necessarily leads to the idea of a warm place but equally can be interpreted as "Eden-like spaces", where almost anything can grow regardless of time and location (Carolan, 2006). As greenhouses are protected places where plant growth is luxuriant, the author argues that it makes it difficult to associate global warming with desertification, thus negative images such as cyclones, deep freezes, and excessive heat of climate change is hidden in the metaphor and excluded from the overall perception of climate change (Lake, 2001). Thus, a metaphoric fallacy may be introduced when the metaphor becomes equivalent to that which it helps to describe (Hamington, 2009). Consequently, the greenhouse metaphor is argued by some to be inappropriate as it may foster public apathy about the issue as well as closing our minds to alternative approaches to the problem.

Game metaphor

The farm magazines constructed climate change through words, sentences and language from the concept of game. The metaphor of game is sustained by words like raise, challenge, key roll, and winner:

A small *raise* may also help the climate.” ATL 2006

”Farmers are pointed out as *winner*s by the Climate Commission

In spite of flooding, storms and pests: the profits will be greater than the expenses for farm and forest industries as the climate changes. That is stated by the Commission on climate and vulnerability.” ATL 2007

”The climate threat requires a skilled agriculture. Farmers *challenge*: A more environmentally friendly food production.

Climate change may be a *winning ticket* for Swedish agriculture— in spite of methane burping cows and fields that leak nitrous oxide. But the agriculture has to be more climatically skilled in order not to be labeled as environmental criminals.” Land Lantbruk 2007

The word “raise”, used in the first example, is a term that is applied in game contexts, often referring to the size of a bet and consequently understood in economical terms. Framing climate change as “A small raise may also help the climate” suggests many value statements; firstly, the “raise” is valued as small thus indicating how large the size of the bet needs to be in order to win the game, understood as helping the climate. The reader is expected or rather begged to increase the engagement in the climate issue as implied by the use of ‘small’ and ‘also’. Secondly, the use of the word ‘help’ indicates a value-laden representation of a climate in need of help; thus climate change is not seen as a desirable situation and consequently activities to prevent climate change are most probably the effect of such a framing. It is a metaphor in which climate change is represented as a game where “stakes are low” to prevent climate change. Moreover, the words “help the climate” suggest that the game should be played, not for individual purposes but rather for more altruistic reasons of climate change. Usually a gambler enters a game to become a winner and not on the premises that someone else will win from your participation.

The second and third examples illustrate different perceptions on the uncertainty of climate change impact on agricultural practice. A text can express attitudes through the use of modal verbs such as can, will, shall, may, must, could, would, should, might and adverbs such as possibly, probably, likely (Reah, 1998), thus indicating the degree of uncertainty in a statement (Hellspong & Ledin, 1997). “Will” is for example used as one way of expressing the future, “might” another way but with different meaning, the former implies that there is a strong possibility that for example climate change will take place in the next century. When terms of game describe the concept of climate change, they are interlinked with both certain (second example) and less certain statements (third example) both suggesting that agriculture *will* gain from climate change and suggesting that “the game” *may* result in positive effects to farming practices. A certain statement is made when the magazines are referring to a national report on climate change and vulnerability. The reader may or may not share these views but they are presented as having factual status. To note is, that even though the game metaphor is used to highlight possibilities (“pointed out as winners”, “profits will be greater than the expenses”, “winning-ticket”) with climate change, it is sometimes framed with “even thoughts” and “buts” — agricultural practice may develop *even though* flooding and pests, *but* it is a challenge which in turn requires intelligent farmers. In the game metaphors used in farm magazines in the reporting on climate change, farming practices sometimes pointed out with quite a certainty as winners but the metaphors are presented with messages of doubts and constraints about farming practices as “winners” of climate change. Framing with such words produces doubts and reservations against chances for agricultural development generated by climate change.

War metaphor

War metaphors were common in Swedish farm magazines' coverage of climate change. Words such as "threat", "climate threat", "save" were used to conceptualize climate change:

"Greater increase in yield in the North as climate changes

Countries like Sweden can look forward to generous harvests and more tourists while countries like Spain and Italy are *hit* by *loss* in harvest and more *death* caused by the heat. All according to a new EU report." ATL 2007

"Time to choose the villain of the climate drama

The meat farmer or the motorist. The sugar cane worker or the wheat grower. Who should be *eliminated*? Who will *save* us from the climate *threat*? Eleven experts hand their climate advices to the government on Monday." ATL 2007

"He is working for a cleaner future

Farmers may become *spearheads* when Sweden will reduce the emissions of greenhouse gases to become a climate neutral society. Six farmers in Möklinta in Västmanland are helping to replace the village's oil dependency." Land Lantbruk 2007

The words "hit", "loss" and "death" (the first example) illustrate a war metaphor where climate change and its effects are described in terms of war. This example also illustrates metaphorical structures of "more is positive" and "less is negative" (Lakoff & Johnson, 1980). The positive, "looking forward to" is described in terms of "generous" and "more" while what is possibly negatively valued; "hit by" or "troubled by" are related to words of loss. The exception is death which comes with the adjective more and then should be perceived as more positive. However, since "death" in general is valued negatively, the word "more" emphasizes the already negative scenarios. Thus, the first example uses metaphorical structures of "more is positive" and "less is negative" to value climate change as negative to some countries and positive to other countries. Furthermore, war terms are used to emphasize negative, but not positive, impacts of climate change.

The second example conceptualizes climate change in terms of "threat". Describing climate change as a threat prescribe threat-related activities; we may undertake such different actions like "combat", "surrender" or as in the example, "be saved". All of these emotionally loaded words present different meanings to the reader. It is rather different to save, be saved or fight climate change. In the second example, the journalist is posing the question: Who will *save* us from the climate *threat*? indicating that climate change is a matter of saving rather than fighting. The implications of a framing with the emphasis on saving those who have been affected, are that most people are regarded as inactive actors meanwhile climate change is seemed to circulate around specific active actors. Metaphorical reference to war also included words such as "strategic", "settlement", "negotiations" and "battle". "Threat" and "battle" occur several times and are often accompanied by the word climate (such as climate threat), indicating that climate change needs to be combated. Such framing, in contrast to one where being saved is dominant, not only foster an idea of humans as active in the "climate war" but also direct the concerned activities. The partial structure of metaphor—that metaphors always highlight certain perspectives while hiding others of the same metaphor— may explain the farm magazines' use of different aspects of war. While the war metaphor sometimes highlight aspects of active agents to fight climate change and thereby hides aspects of inactive agents, the metaphor may at other times put emphasis on passive aspects and neglect aspects of "fighting". Not only climate change as a threat to agriculture, but the idea of the farm as a threat to climate change also occurred in the news stories. Hence, in such metaphorical reference, the "enemy of the war" shifts from climate change to agricultural production. However, the strong words associated with climate as a threat, e.g. "combating" or "be saved" are not used when agricultural production is understood as the enemy. Agricultural production as a threat is rather framed by words such as "mapped" and "evaluated". The use of such terms implies different meanings than "combat" and rather appeal to senses of planning the war. The underlying implication is that while climate change is seen as a threat that needs to be combated as an ongoing war, the

threat of agriculture is perceived as still under assessment and therefore not yet declared as a war. Thus, what has been identified as an “enemy”, implies, what actions may follow.

In spite of negative associations of war metaphors, there are examples when war metaphors are used to put forward messages of positive character. The word “spearhead” is such a word, which in literal meaning may refer to the point of a spear but when used as a metaphor rather indicate “be the leader of”. “Spearhead” is usually associated in a positive way and is used in the metaphor to point to possibilities, and to emphasize an enterprising and active spirit. From the context it is given that “spearheads” are helping the community thus highlighting altruistic actions rather than individual incentive-driven actions. From the analysis of war metaphors in farm magazines reporting on climate change, I have concluded that war metaphors are used to, a) frame climate change as a possibility in the sense that it may stimulate initiatives, b) address negative impacts of climate change and c) address aspects of action, actors and affected. While there is little literature that explicitly study war metaphors in relation to climate change, many in the field of communication and media studies have concluded that climate change is often reported as a conflict and threat in media discourse (Boykoff, 2007b; Boykoff, 2008; Carvalho & Burgess, 2005; Hamblyn, 2009). The one-sided coverage of climate change has led to criticism of the journalistic norm of 'balanced' reporting (Boykoff, 2007a), that is equal coverage to both sides in any significant dispute and discussions on how these representations may influence perceptions on climate change. Fear-inducing representations of climate change are widely employed in media but studies suggest that “Fear won't Do It” (O'Neill & Nicholson-Cole, 2009) suggesting that fearful messages may be counterproductive. While such representations may attract people's attention, fear is said to generally be an ineffective tool for motivating personal engagement.

Motion metaphor

Not only concepts of greenhouse, game and war but also the language of motion was used in the farm magazines to explain climate change. Such terms add emphasis to the pace of climate change. Commonly used words within this metaphorical concept are break, clash and creep:

“Climate change increases the production.

With a *speed* of one meter per hour are the zones of crop production *creeping* north. It is with *slowness* that farmers will have the time to adapt, thinks [name], chief economist at the Swedish Board of Agriculture. ATL 2007

As in the example above, most motion metaphors concern the speed of climate change. The word ‘creep’ in the meaning of inching forward suggests that the process of climate change is perceived as somewhat slow rather than a process of full speed. The example further suggests that because of this “slowness”, farmers will have time to adapt their production to the effects of climate change. The explicit statement of adaptation activities suggest that how climate change is framed and perceived in terms of speed determine what actions should be taken. However, other examples of motion metaphors used in the farm magazines include sentences like “reduce the speed of global warming”. Such sentence implies that climate change is perceived as a fast process and in need of becoming slower—a perspective that contrasts the perception of climate change as slow.

The motion metaphors suggest differences in perceptions on the pace of climate change. While perceptions on the slowness of climate change are brought forward with perspectives on agricultural adaptation, representations of “fast” and “speed” are most probably accompanied by mitigation options such as reduce carbon emissions.

Concluding discussion

This paper has shown the importance of value-loaded metaphors for farm magazine coverage of climate change and the importance of metaphors as a communicative strategy to explore and make complex ideas such as climate change more concrete. Swedish farm magazines have reported on

climate change in terms of greenhouse, game, war and with words ascribing climate change a certain tempo. I intend in this section to briefly discuss how metaphorical images may be linked to agricultural response to climate change.

Response to climate change is often mentioned in terms of mitigation and adaptation (IPCC, 2007). Agricultural response may vary from mitigation options such as increasing soil carbon storage, improved live stock/manure management and improved nitrogen fertilizer application techniques (Metz, 2007), to adaptation options such as altering varieties and species as well as timing and location of cropping activities (Parry, 2007)). As it is suggested that our metaphorical system is central to our understanding of experience and to the way we act upon that understanding (Lakoff, 1993), it follows therefore, that the metaphorical references used to describe climate change direct a certain response behavior. Thus, the way in which a situation is viewed constrains the set of problem solutions (Schön, 1993). Although, it is a difficult task to decide on the relation between thinking and acting, I argue that it is likely that our understanding guide our actions. The two Swedish farm magazines ATL and Land Lantbruk have been describing climate change through picturing Earth like a greenhouse. The story of the greenhouse metaphor started nearly two centuries ago and was used to envision Earth as a giant greenhouse whose atmosphere traps the radiation heat from the sun, warming the planet and giving life to every plant and animal; a sign of nature's great benevolence (Christianson, 1999); an image of the Earth as a Eden-like space where anything can grow regardless of location and time (Carolan, 2006). However, in climate change discourse, the greenhouse metaphor highlights aspects of increased warmth in the atmosphere, thus stressing a perception of global warming and, as the farm magazines have indicated, also suggestions on responding to climate change by mitigation. Farm magazines may, in the same way, use war, game and motion metaphors to conventionalize climate change and thereby also a set of problem solutions and response behaviors. Were the studied farm magazines conceptualize climate change in terms of war, they tend to focus on aspects of threat and furthermore stressing response alternatives of both active ('combat') and inactive ('be saved') forms. The implication is that metaphorical references to war imply climate actions of not responding at all and responding through mitigation, e.g., reduction of greenhouse gas emissions. Consequently, when climate change is described in war terms, it is thus likely that many adaptation options for agricultural adaptation are neglected. Furthermore, by framing issues in language of violence, it is argued that this formulation of the problem can obscure recognition of shared interests (Rigney, 2001). When social actors define warfare as necessary and inevitable, and act on that understanding, it is assumed to block our capacity to imagine non-violent win-win alternatives such as agricultural adjustments in terms of altered crop management. Turning to the image of climate change as a game, focus the communication less on combating but adds more emphasis to stakes, winning and challenges. When ATL and Land Lantbruk frame climate change as a game played for altruistic reasons and as a call for collective action, mitigation options, e.g. reduction of greenhouse gas emissions, are the most probable response (Swart & Raes, 2007). On the other hand, game metaphors are also used to highlight opportunities of climate change to agricultural practice, as farmers are argued to be the winners of climate change, thus indicating individual benefits. In general, a game is often played for the purpose of winning and for the purpose to maximize our payoffs through cunning and strategic deception without much concern for the well-being of others (Rigney, 2001). Game metaphors generally assume that each player is rationally self-interested, and as such players seem less interested in understanding altruism—paradoxically the opposite to how farm magazine occasionally use the game metaphor. Thus, it can be argued that the game metaphor is not the best metaphor to employ for highlighting actions for altruistic reasons.

To use such different metaphorical images: as considering climate change like a greenhouse effect, a battlefield, a game or a motion, invites readers to see the world from more than one angle of vision. On a general level, the reader can view climate change through each of the metaphorical lenses but as they are presented to the reader, e.g. in a magazine article, they emphasize often one or a few perspectives. While each metaphor may yield important insight, no single metaphor can tell the whole story (Rigney, 2001). Metaphorical structuring is said to be partial (Lakoff & Johnson, 1980) meaning that when a source domain is applied to a target domain only some aspects are brought in to focus (Kövecses, 2002). Thus, every metaphoric model is selective, revealing only some aspects

while obscuring others (Rigney, 2001). Consequently, climate change may be understood in various ways and it may therefore be apt to say that metaphors play part not only in describing climate change, but also that they play a part in its construction. I would like to recall my first statement, that communication of climate change is a crucial component influencing agricultural development, and add to it that not only aspects of what we communicate but also how we communicate climate change is equally an important component influencing agricultural development.

Merits of analyzing metaphorical systems of thought in agricultural science

This paper has shown the importance of partly unconscious linguistic systems in general and the importance of metaphors in farm magazines' coverage of climate change in particular. In paying greater attention and research to the analysis of 'communicative tools', such as metaphors, we may find that underlying assumptions and values are indicators of the choice we make and the decisions we take. Like Hamington (2009), I suggest that being attentive to metaphors provide us with an indication of existing ethical practices and consequently values as drivers for agricultural development.

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