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"The market deals out profits and losses" – How Standard Economic Textbooks Promote Uncritical Thinking in Metaphors

- Standard economic textbooks exhibit a massive and implicit use of metaphors.
- This tacit use of metaphors may deceive the student reader and encourage uncritical thinking.
- Critical reflection in economic education can encourage and enable a responsible use of metaphors.

Purpose: Cognitive Linguistics has repeatedly pointed out the major significance of metaphors. In particular, metaphors are highly effective in the context of political and economic discourse. We analyze the as yet ignored use of metaphors in standard economic textbooks as exemplified by Paul A. Samuelson and N. Gregory Mankiw. The following will focus on the metaphorical semantic context surrounding the abstract concept of „the market".
Design: Using textual analysis and drawing from Conceptual Metaphor Theory the authors examine how the concept of „the market" is introduced as an abstract and primarily empty concept, (re-)interpreted with the help of entity metaphors, personifications and orientational metaphors, and linked to ideological and political value judgments. In addition the analysis illustrates how the use of metaphors in textbooks is not made transparent, nor is a critical reflection of the metaphorical rhetoric encouraged.
Findings: In conclusion, based on their own teaching experience, the authors, addressing both teachers and students, outline possibilities of promoting the critical and conscious use of metaphors, not only in textbooks but also in public discourse.

Keywords:
Economic textbooks, Paul A. Samuelson, N. Gregory Mankiw, metaphors in economic discourse, conceptual metaphor theory, economic education

1 Introduction[1]

> The market economy "should leave the market forces sufficient leeway, to unfold free and powerful. This was the driving force of growth before the crisis and will be the driving force of growth after the crisis".
> (Angela Merkel, WEF 2009)[2]

> "The market is currently only oriented on surviving and not making profits."
> (Josef Ackermann, Spiegel 2008)[3]

> "A market is a mechanism. […] Prices are the balance wheel of the market mechanism."
> (Samuelson & Nordhaus, 2010, p. 26f)

Recent research has focused on the preeminent signify-cance of market metaphors in current political thought and discourse (e.g., Pühringer, 2015; Lakoff & Wehling, 2016). Pühringer for example, who examines the type of argumentation used by the German Chancellor Angela Merkel as cited above to push through her economic policies of austerity after the economic, financial and monetary crises of 2008/2009, summarizes his research in the following manner: "Dominant conceptual metaphors in Merkel's crisis narrative subordinate policy-making to superior 'market mechanisms', which are attributed with human and natural characteristics. Moral focus of crisis narrative of 'living-beyond-ones-means' forces austerity policies" (Pühringer, 2015, p. 246). Many of us are familiar with how markets are understood metaphorically through the day-to-day use of language. Who has not heard of "the market" and its *driving forces*, of market *forces* and market *mechanisms,* which we are not only called upon to place our trust in but which are apparently conditional for things to *run smoothly*? It may be that the kind of metaphoric imagery used in public discourse has become so familiar to us that we no longer question its validity and instead hold it to be literally true and capable of guiding the debate on economic issues. Yet no one has ever been able to actually see or literally touch "the market *mechanism"* in the way one would touch the motor of a car, for instance. The term carries only metaphorical meaning. Stated simply, this means that concepts have been taken from an area of experi-ence, such as the use of machinery, which, while bearing little or no relationship to economics, are yet utilized to bring meaning to it.

Using metaphors does not make the discourse about "the market" as a mechanism less effective, on the con-trary. For example, cognitive linguists Georg Lakoff and Elisabeth Wehling speak explicitly of "the market" as a "myth", a metaphor used by political conservatives to

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dominate the political discourse by influencing language use on an unconscious level (Lakoff & Wehling, 2016, p. 45).

> "Political and economic ideologies are framed in metaphorical terms. Like all other metaphors, political and economic metaphors can hide aspects of reality. But in the area of politics and economics, metaphors matter more, because they constrain our lives. A metaphor in a political or economic system, by virtue of what it hides, can lead to human degradation." (Lakoff & Johnson, 1980, p. 236)

Based on this assessment it seems appropriate to expect that economics, as a scientific discipline, would take a particularly careful approach to the use of metaphors in describing the economy, including their implied ideas and concepts. It should be plausible to assume that economics as an academic discipline would encourage skills in recognizing and critically evaluating the use of metaphors, and offer methodologically substantiated alternatives when metaphors are used in the public discourse to describe abstract concepts such as "the market" or "price". Particularly since important repre-senttatives of economics have, despite their other differ-rences, acknowledged the power of (abstract) ideas for decades. Friedrich August Hayek (1899–1992), advocate of a social order based on "free markets", for instance remarked:

> "The power of abstract ideas is largely based on the simple fact that they are not consciously perceived as theories, but that most people understand them as immediately evident truths, which act as tacitly accepted presuppositions." (Transl. from Hayek, 1980, p. 100)[4]

Hayek's assessment shows that abstract ideas tend to be easily internalized and become the unquestioned basis for thought and action.[5] This is because they generate meaning based on specific assumptions and interpretations which are hardly ever subject to conscious reflection, while inversely maintaining a determinative effect on all conscious decisions as well as habitual behavior. Recent studies in Cognitive Linguistics have shown that abstract ideas particularly turn into "immediately evident truths" when metaphors are uncritically applied as a means of interpretation (cf. Wehling, 2016, p. 68; Gibbs, 1996, p. 309; Jamrozik et al., 2016). This is because through metaphors it is possible to make a connection to a mostly unconscious framework of interpretive structures of thought described by cognitive scientists as *frames*, which lend ideas, concepts and terms immediate and persuasive interpretative power. In this manner metaphors implicitly create an image of reality which, in uncritically perceived political and economic contexts of discourse, has a profound effect.

The epistemic significance of metaphors for the discipline of economics has meanwhile been acknow-ledged (e.g., McCloskey 1983 and 1994; Klamer & Leonard, 1994). Brodbeck points out that this discipline's specific and mostly unreflected metaphoric rhetoric, in particular with regards to mechanical metaphors, can be considered its very trademark:

> "Economic mechanics agree on one point extensively: Eugen von Böhm-Bawerk [for instance] [...] lends his voice equally to the choir of economic mechanics – he speaks of a 'mechanics of exchangeable value accumulation' – as does Leon Walras, the father of modern general equilibrium theory, who speaks of the 'mechanics of competition'. Even Schumpeter concedes a 'mechanism of trade', and even describes the 'dynamic entrepreneur' in terms of a machine: 'Even the entrepreneur is not a factor of change here but the vehicle of a change mechanism.' In another example, Keynes speaks of a 'monetary machine'. Furthermore, authors who do not trust the tendency of 'economic forces' towards general equilibrium still continue to be spellbound by the concept of mechanics despite their opposition to equilibrium theory: 'The system', Gunnar Myrdal explains with regard to the issue of underdevelopment, 'does not of itself gravitate towards some form of equilibrium of forces but on the contrary, moves far away from it.'." (Transl. from Brodbeck, 1996, pp. 41-42)[6]

While plenty of profound research has been done in order to identify, historically contextualize and epistemologically analyze metaphors used in economic theories, economic scholarship has done little to critically reflect their use in economic education and its main medium, the textbook.[7] Therefore in the following we will try to contribute to closing this research gap and address the specific application of abstract concepts central to the discipline, such as "the market", "prices", "supply", etc., in economic education. In the following we will inquire how these concepts are metaphorically interpreted, or rather re-interpreted, particularly with regard to the manner they become emotionally as well as politically and ideologically supercharged. Our analysis is based on two textbooks, which have been chosen not only because they exemplify the standard genre of economic textbooks, but also because their global distribution and application makes them highly successful textbooks: *Economics* by Paul A. Samuelson (since 1985 co-authored by William D. Nordhaus, in the following simply Samuelson) and *Economics* by N. Gregory Mankiw. Samuelson's textbook is widely recognized as the archetype of the modern Economics textbook and serves as a role model in content and style for the majority of currently published textbooks (cf. Walstad et al., 1998; Pearce & Hoover, 1995; Smith, 2000). We consider Mankiw's textbook as relevant for our inquiry, since it is distributed on a global scale and is one of the most used textbooks in Germany (cf. v. Treeck & Urban, 2016, 9; in case of Germany see: Beckenbach et al., 2016, 214; Rebhan, 2017, pp. 85ff.)[8]. Methodology and content of this analysis will in particular build upon a recent study on elements of persuasion in economics education (Graupe, 2017). It will be shown that the application of metaphors in, and its consequences for standard economic education has not been made transparent in the analyzed textbooks nor has a (critical) reflection of the rhetoric been encouraged.

In our article we will proceed as follows: Section two will provide a summary of the most essential interdisciplinary findings on the significance, application and, most importantly, cognitive effect of metaphors, primarily drawn from *Conceptual Metaphor Theory* as principally formulated by George Lakoff and Mark Johnson (Lakoff & Johnson, 1980, 1999 and 2003). After this short theoretical introduction section three will describe how abstract concepts are initially established in the introductory chapters of the textbooks in question. Subsequently we will focus on the concept of "the market". In section four we will show how these abstract concepts, largely devoid of everyday and experience-based meaning, are metaphorically transformed to carry new semantic meaning. This will be exemplified by showing what role ontological metaphors, personifications and the application of orientational metaphors play in this process. Section five will be devoted to providing examples of how these textbooks, once the metaphors have been introduced, subsequently incorporate them into an entire network of cognitive patterns of interpretation, in cognitive science known as semantic frames, and as a consequence largely become implicitly tethered to political-ideological values. In section six we will conclude with suggestions of how this inducement of uncritical thinking in standard economic textbooks may be countered in the classroom and how economic education can promote students' critical judgment and epistemic abilities.

2. The significance and impact of metaphors: A short introduction

"Metaphors frame our thinking" (Jamrozik et al., 2016)

The study of metaphors is as old as philosophy itself. The understanding of metaphors and their significance for human beings differ throughout this tradition enormously (for the following cf. Huber, 2005). Common to all interpretations of metaphors is the fundamental etymological meaning of the Greek word *metaphorá* as transference or transposition. The starting point of the reflection on metaphors is often said to be marked by Aristotle, who understood metaphors as a rhetorical means (cf. Aristotle, 1818, pp. 329f.). In his perception, metaphors are words, which have a meaning different from their original meaning transferred to them based on the similarity of the two words.

> "But a metaphor is the transposition of a noun to a signify-cation different from its original import, either from the genus to the species, or from the species to the genus; or from the species to species, or according to the analogous. […] Again, evening has a similar relation to day, that old age has to life. It may therefore be said that evening is the old age of the day, and that the old age is the evening of life. (Aristotle, 1818, pp. 329ff.)"

He introduced, what is commonly called the substitutive function of metaphors: "evening of life" can be substituted by the literal expression "end of life" or the category "age". Metaphors in this sense are a reduced comparison. This means that it is possible to say "the lion is the king of the animals" and dismiss words signaling a comparison or analogy, such as "like". It was Aristotle himself, but also influential philosophers such as Hobbes or Locke, who, based on the understanding of metaphors as figures of speech and rhetorical decor, heavily criticized the use of metaphor especially in philosophical and scientific contexts (cf. Hobbes, 1992, pp. 43 and 45f)[9]:

> "This is a way of proceeding quite contrary to metaphor and allusion, wherein for the most part lies that entertainment and pleasantry of wit, which strikes so lively on the fancy, and therefore is so acceptable to all people: because its beauty appears at first sight, and there is required no labour of thought to examine what truth or reason there is in it." (Locke, 1967, p. 123f)

It is the cognitive turn in linguistics which led to a fundamental shift in the understanding of metaphors from a primarily rhetorical and linguistic interpretation of metaphors as figurative speech to a broader comprehension of metaphors as being the fundamental basis of human cognition, judgment and action (cf. Cassirer, 1983, p. 154; Black, 1996b, p. 398, cited in Huber, 2005, pp. 15 and 23):

> "The traditional theory noticed only a few of the modes of metaphor; and limited its application of the term *metaphor* to a few of them only. And thereby it made metaphor seem to be a verbal matter, a shifting and displacement of words, whereas fundamentally it is a borrowing between and intercourse of *thoughts,* a transaction between contexts, *Thought* is metaphoric, and proceeds by comparison, and the metaphors of language derive therefrom." (Richards, 1936, p. 94; author's emphasis)

Metaphorical language is the result of metaphorically structured thought; this is the basic statement of cognitive linguistics. Although the discipline maintains the fundamental understanding of metaphors as the transference of meaning, it focuses on an analytical step prior to the rhetorical and linguistic analysis of metaphors and thus asks for the necessary preconditions for metaphorical language use. The philosophers Ivor Richards (1936) and Max Black (1954), who are understood to be the early revolutionaries in the cognitive turn of metaphor theory, point to the creative and interactive quality of the metaphorical process of transference (for the following cf. Black 1996a, pp. 75f. and 1996b, pp. 391f. cited in Huber, 2005, p. 20). Not only is there an interaction of meaning between the source ("king") and the target of the metaphor ("lion"), which creates new meanings, the cognitive interaction in the process of transference is understood as a mode of human action. This new interpretation of metaphors surpasses the traditional, especially since it points to the interpretative contexts of the metaphorical source and target. That there is a whole range of meaning and normative implication attached to each concept used in metaphorical thinking and expression is one cornerstone of this modern cognitive approach to metaphors: someone who employs metaphors interacts with meaning. She engages with these fields of meaning by selecting and thereby hiding and highlighting certain elements includeed in these fields. The Interaction Metaphor Theory (IMT) formulated by Black is understood to be the prelude to the much more recognized Conceptual Metaphor Theory (CMT) as put forward by George Lakoff and Mark Johnson (cf. Jäkel, 1997; Liebert, 1992). The following will summarize our short introduction in metaphor theory by outlining the mode of cognition, by which this cognitive approach and the performative quality of metaphors is underpinned, to illustrate the profound significance of metaphorical thought for human action.[10]

> "Metaphor is for most people a device of the poetic imagination and the rhetorical flourish - a matter of extraordinary rather than ordinary language. Moreover, metaphor is typically viewed as characteristic of language alone, a matter of words rather than thought or action. For this reason, most people think they can get along perfectly well without metaphor. We have found, on the contrary, that metaphor is pervasive in everyday life, not just in language but in thought and action. Our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature." (Lakoff & Johnson, 1980, p. 3)

From the point of view of the linguist Lakoff and the philosopher Johnson, metaphors help to clarify the meaning of concepts through the use of others, by transferring a particular semantic content, and the basic cultural and sensorimotor experiences associated with it, from the source domain of the concept the metaphor refers to the target domain, that is to the concept in need of explanation (cf. Lakoff & Johnson, 1980, p. 5). Lakoff and Johnson call this process "Mapping" (cf. Lakoff & Johnson, 1980, p. 14; Lakoff, 1993, p. 244, cited in Huber, 2005, p. 28). According to conceptual metaphor theory, metaphors are central not only to structuring human language and thought, but also human action (cf. Lakoff & Johnson, 1980, p. 4; Schmitt, 2004). Thereby this stance emphasizes metaphors' performative character, transcending the classical Aristotelian understanding that they are merely rhetorical stylistic devices, hence only significant as decorative rhetorical tools (cf. Kirby, 1997, p. 532). Following Lakoff and Johnson's account, metaphors shed light on cognitive interpretive *frames* with which people perceive and judge the world and upon which they act (Wehling, 2016, 17f.). Wehling points to the relevance of these frames for human actions by indicating that "frames, not facts, determine our decisions" (Transl. from Wehling, 2016, p. 45)[11]. In this way frames have a highly selective effect on the range of thought, judgment and action:

> "Frames determine how easily facts and information are grasped, independently of whether these seem to be 'objectively factual' or not. In fact, there are no more 'objective' facts easier to understand once framing comes in to play. There are only facts which are easier to frame than others, or those which cannot be framed at all… ." (Transl. from Wehling, 2016, p. 36)[12]

The dominant role played by interpretive frameworks is more clearly understood once it has been viewed as an essential component or even constitutive element of our cognitive unconscious that is not only systematically different from all conscious (and thus controllable) thought but principally anticipates, thereby systematically informs, reflective thought (cf. e.g., Lakoff & Wehling, 2016, p. 22; Kahneman, 2012; Thaler & Sunstein, 2009, p. 22):

> Our unconscious conceptual system functions like a 'hidden hand' that shapes how we conceptualize all aspects of our experience. This hidden hand gives form to the metaphysics that is built into our ordinary conceptual systems. It creates the entities that inhabit the cognitive unconscious – abstract entities like friendships, bargains, failures, and lies – that we use in ordinary unconscious reasoning. It thus shapes how we automatically and unconsciously comprehend what we experience. It constitutes our unreflective common sense. (Lakoff & Johnson, 1999, p. 13)

In this point of view the cognitive unconscious works intuitively, spontaneously, effortlessly, quasi automatically and thus is uncontrollable to conscious thought (cf. Kahneman, 2002, pp. 450f; Lakoff, 2001). Hence, with regard to how the cognitive unconscious functions, metaphors play a central role. More precisely, they must be considered an essential structural element of cognitive interpretive frameworks. In order to deepen our understanding of this, it is important to know that interpretive frameworks do not just appear from out of nowhere. Rather, they are established from tangible, often recurring individual as well as collective human experiences, which essentially become thereby embodied (cf. Lakoff & Johnson, 1999):

> "The content and structure of a frame, thus its individual semantic frame, emerge from our experiences with the world. These include also bodily experiences, e.g. motion sequences, space, time and emotions, as well as for instance from experiences with language and culture." (Transl. from Wehling, 2016, p. 28)[13]

Since abstract concepts essentially lack reference to concrete experience, metaphors play a significant role in interpreting these, as indicated above, by linking them to other concepts which are less abstract and refer more directly to tangible experience. Yet, the original context in which they are embedded does not need to bear much relation to the new context in which they are being linked to, a fact the use of metaphors conceals. A specific example of this is represented by the European Union's and its Eurozone members' creation of a highly complex package of measures to avoid insolvency among its individual member states, metaphorically titled as a "rescue umbrella" ("Rettungsschirm" in German). The highly complex structure they created, its concrete legal, political and financial consequences, extend way beyond the possible range of experience on the part of a majority of EU citizens. Referring to this package as a "rescue umbrella" engenders a metaphorical interpretation of its implications. In this way it becomes possible to trigger a primarily unconscious, thus seemingly effortless understanding of complex political decision-making processes within the (limited) scope of a semantic frame, i.e. the metaphor's original context or source domain. Because it refers to a readily understood and familiar physical experience, it does not require any real knowledge of the metaphor's target area (those very legal, political and financial processes mentioned above). The term "rescue umbrella" connotes that the resolutions passed by the European Union and Eurozone member states are geared toward "protection", "security" and providing a "bulwark" against the inconvenience of natural and thus uncontrollable forces. Essentially, the metaphor triggers similar connotations for most people, irrespective of whether its associations adequately represent the kind of political measures involved or not. Said differently: beyond appearing not only highly selective, metaphors also can also be deceptive. Respective to the metaphor involved, an entire semantic framework and its underlying cultural and sensorimotor experiences become activated, whereby some are more prominently emphasized than others. The metaphor not only allows or restricts certain possibilities of perceiving reality but moreover, as Lakoff and Johnson emphasize, it also promotes certain ways of dealing with reality (cf. Jamrozik et al., 2016).[14]

> "Metaphors may create realities for us, especially social realities. A metaphor may thus be a guide for future action. Such actions will, of course, fit the metaphor. This will, in turn reinforce the power of the metaphor to make experience coherent. In this sense metaphors can be self-fulfilling prophecies." (Lakoff & Johnson, 1980, p. 156)

We already mentioned that according to Cognitive Linguistics metaphors play an important role in explaining abstract concepts (cf. Gibbs, 1996, p. 309; Jamrozik et al., 2016), their distinguishing characteristic being that they lack reference to the kind of human experience which must be simulated in order to understand them: "Through metaphors we connect abstract ideas to physical experience, which allows them to be 'thought' (Transl. from Wehling, 2016, p. 68).[15] In the words of Lakoff and Johnson: "[W]e typically conceptualize the nonphysical in terms of the physical – that is, we conceptualize the less clearly delineated in terms of the more clearly delineated" (Lakoff & Johnson, 1980, p. 59). Cognitive Linguistics shows that this form of meta-phoric conceptualization often slips under the radar of rational thought and thus escapes its conscious control:

> "For the same reasons that schemas and metaphors give us power to conceptualize and reason, so they have power over us. Anything that we rely on constantly, unconsciously, and automatically is so much part of us that it cannot be easily resisted, in large measure because it is barely even noticed. To the extent that we use a conceptual schema or a conceptual metaphor, we accept its validity. Consequently, when someone else uses it, we are predisposed to accept its validity. For this reason, conventionalized schemas and metaphors have persuasive power over us." (Lakoff & Turner, 1989, p. 66)

3 Introducing the abstract concept of "the market"

Metaphors such as "the market is a mechanism" are only effective when specific modes of expression are lacking to delineate a target domain (here: economic activity in the form of monetary exchange), so that one is forced to draw from the mostly implicit basic concepts existing in the source domain to approximate understanding. However, the following quote by Mankiw illustrates that, in economics education, the specific economic language people do indeed acquire in their everyday experience is to be superseded by abstract concepts:

> "One of the challenges facing students of economics is that many terms used are also used in everyday language. In economics, however, these terms mean specific things. The challenge, therefore, is to set aside that everyday understanding and think of the term or concept as economists do. Many of the concepts you will come across in this book are abstract. Abstract concepts are ones which are not concrete or real – they have no tangible qualities. We will talk about markets, efficiency, comparative advantage and equilibrium, for example, but it is not easily to physically see these concepts. There are also some concepts that are fundamental to the subject – if you master these concepts they act as a portal which enables you to think like an economist. Once you have mastered these concepts you will never think in the same way again and you will never look at an issue in the same way. These concepts are referred to as threshold concepts." (Mankiw & Taylor, 2014, p. 17)

According to Mankiw's reasoning, economic education is geared toward abandoning an everyday understanding of economic processes and replacing it by abstract concepts which have little to do with the former or other common economic concepts familiar to the students. This essentially involves loosening or even dissolving existing interpretive structures of the cognitive un-conscious in a process of *unlearning*. Metaphorically we can speak of uprooting thought from its original soil. Persuasion research speaks in this regard of *depatterning*, change management respectively of *unfreezing* or *moving* thought from established patterns and structures of thought (cf. Lewin, 1947; Schein, 2006).[16]

However, is it possible to unequivocally identify such processes in standard economic textbooks? According to our analysis of Samuelson's *Economics* und Mankiw's *Economics* the answer would have to be yes. To illustrate this, let us take a closer look at Samuelson's *Economics* and how the concept of "the market" is introduced in the second chapter:

> "The market looks as a jumble of sellers and buyers. It seems almost a miracle that food is produced in suitable amounts, gets transported to the right place, and arrives in a palatable form at the dinner table. But a close look at New York or other economies is convincing proof that a market system is neither chaos nor miracle. It is a system with its own internal logic. And it works." (Samuelson/ Nordhaus, 2010, p. 26)

The above describes "the market" as a miraculous "jumble" which (purportedly) successfully guarantees our food supply.[17] The authors claim that "a close look" will unmask the miracle. Yet the question who exactly will be looking "closer", what "a closer" look entails and what "closer" means precisely, remains unclear. The text simply suggests that there are two ways of perceiving "the market": one that allows it to generally appear as a wondrous chaos, and a "closer" one that sees beyond appearances into a "system" that "works".

The above exemplifies how the text's language maneuvers students into a state of uncertainty, since their pre-existing cognitive interpretive structures we said to provide little or no knowledge of the subject. This state is implicitly reinforced by phrases such as "you may be surprised to learn" or "see how remarkable this is" (2010, 26). In addition, the authors promise a situation in which at some point all the confusing, chaotic and astounding characteristics will make surprising sense. This is specifically conjured by introducing the metaphor of the "unseen hand", which Samuelson introduces as a "paradox" (2005, 28-30): The kind of economic insight transmitted thus involves information which, to the beginner, simply appears surprising and unexpected, shocking the reader into questioning his or her own conventional wisdom. At the same time a peek into a new, intellectual understanding of the subject is conjured, which students can behold with awe from their perspective of non-comprehension: "One of our goals in this book is to understand how Smith's invisible hand works its magic", Mankiw writes (2014, p. 8). The implication here is, whatever is shrouded in the fog of conventional understanding will at some future point be more clearly understood by the students.

In our opinion this state of uncertainty is reinforced by a further tactic: Every student at the beginning of their study of economics has likely already acquired a broad network of interpretive structures, i.e. a complex frame semantic, in which different economic terms and concepts have been cognitively intertwined with implicit experience-based references. What is striking is how quickly these economic textbooks succeed in encouraging students to ignore most of their acquired semantic frames. This has been identified as a strategy of concealment which can lead to a phenomenon called hypocognition:

> "Hypocognition means the non-existence or loss of ideas through a lack of language describing these ideas. Stated more casually: What discourses don't mention is simply not being thought. Where there is a lack of words ideas cannot become established or be maintained over time. Our brain circuits do not become fired, they shrivel." (Transl. from Wehling, 2016, pp. 64-65)[18]

The strategy of concealment identified in both textbook analyses is based in particular on focusing economic language and its description of complex economic phenomena solely on the term "the market" without any clear justification from the very first chapter on. In this manner Samuelson claims in his introductory chapter: "Most economic activity in most high-income countries take place in private markets – through the market mechanism – so we begin our systematic study there" (2010, 26). "The economy" is subsequently reduced to "the market", first by being transformed into a "system of prices and markets", from which point it is exclusively referred to as "market system", or even further abridged to just "markets" or even "the market" (cf. Samuelson & Nordhaus, 2005, p. 26). The manner in which conceptualization is narrowed to where much of the previously acquired knowledge of economics is suspended can also be found in Mankiw. While subsuming his last six principles of his *ten principles of economics* under the general heading "how people interact", Mankiw frames every form of human inter-action directly within terms of "trade", then in terms of "market economy" and ultimately in terms of "the market", the latter being directly linked with the concept of the invisible hand mentioned above. It is within this linguistic context that all other issues are embedded. The following reads, for instance:

> "If the invisible hand of the market is so wonderful, why do we need government? […] Although the invisible hand often leads markets to allocate resources efficiently, that is not always the case. Economists use the term market failure to refer to a situation in which the market on its own fails to produce an efficient allocation of resources." (Mankiw & Taylor, 2014, p. 8)

The above exemplifies how descriptions of the economy are reduced to "the market", a term which on the one hand is imbued with the aura of novelty, incomeprehensibility as well as wonder, while on the other is also promoted to one of the core concepttualizations students must understand in order to advance in their studies. The introduction of "the market" concept therefore takes place at a moment of cognitive uncertainty where previous semantic connections are dissolved in horror (over one's apparent ignorance) and awe (over the apparent magic of "the market"). In the sense intended by Mankiw, therefore, the term "the market" is to be considered a *threshold concept* (cf. the quote of Mankiw cited above): a "conceptual gateway" or "portal" where the student must leave her old conceptualizations behind in order to break through to a new, and until yet, unattainable understanding: "a new way of understanding, interpreting, or viewing something may thus emerge – a transformed internal view of subject matter, subject landscape, or even world view" (Meyer & Land, 2005, p. 373)˙ The promise that, through their textbook study, students would become economists proficient in the seemingly magical workings of "the market" may also function as a respective invitation to cross the threshold.

4 The metaphoric rhetoric of "the market"

How is it possible for students to not only reach but also pass through this *conceptual gateway*? Formulated in terms of persuasion research, once *depatterning* has occurred, how does *repatterning* happen? How are previous cognitive structures dissolved, new structures created, or "moved", then permanently established, or "refrozen"? To clarify this issue we now would like to analyze the two standard economic textbooks in greater detail with regard to how different kinds of metaphors are introduced and used.

4.1 Ontological metaphors

In general, metaphors play a highly significant role in the context of dissolving and restructuring the way the economy is conceptualized, whereby ontological (or entity) metaphors play a particularly important role. Ontological metaphors ascribe terms meaning as if they were self-contained, discrete entities or things in order to make them easier to conceptualize (cf. Lakoff & Johnson, 1980, p. 25). Samuelson's textbook stands clearly in the tradition of economic scholarship in its use of entity metaphors drawn from the field of mechanics or from common knowledge of machinery (cf. the previous quotation by Brodbeck). In this manner in his textbook chapter "What is a market?" one finds, after the economy is reduced to "markets" or just "the market" as quoted and discussed above, the following "definition": "It is a system with its own internal logic. And it works" (2010, p. 26). The key to this new, transformed perspective is to be found in a purely metaphorical description, the source domain of which – systems encompassing self-organizing components that can guarantee their own functioning – is not gone into in any detail whatsoever but, rather, uncritically accepted as the departure point for metaphorical mapping. As a result, students' concepttualizations are being implicitly guided to reinterpret "the market" – originally a place of social exchange and infinite human interaction – into a discrete, self-contained uniform entity. The great "jumble" of complex social processes characteristic of economic activity is no longer described in its genuinely social context but exclusively reformulated as a "system with its own internal logic". Moreover, its reformulation occurs with-out conscious reflection on the transformation process it has been subjected to.

In addition, the textbook semantically augments the entity metaphor of "the market is a system" by further embedding it in a broader field of metaphorical meanings. The essential source domain in this process is deriveed, as already mentioned, from the field of mechanics and conventional knowledge of machinery. The chapter provides a first definition of "the market" in the following manner: "*A market is a mechanism* through which buyers and sellers interact to determine prices and exchange goods and services" (2010, p. 26, authors' emphasis). The metaphor of "the market is a mechanism" is syntactically simple and semantically empty, whereby the word "is" functions merely as a copula carrying no further content determination. The text does not make conscious issue of whether more semantically precise metaphorical mappings are needed to answer questions such as: How can genuinely social processes of exchange be adequately compared to mechanisms or the way machines work? Or, what limits does this comparison have? Instead, in the course of the chapter, the metaphor of "the market is a mechanism" is repeatedly and implicitly established as an apparently ontological statement through the use of other equally uncritical mechanical metaphors such as "balance wheel", "market equilibrium", "balance", "elaborate mechanism", "supercomputer", "signal", "functioning" (Samuelson & Nordhaus, 2010, pp. 26-27). Because no indication for critical reflection is given on how a metaphorical understanding of mechanics can be applied to economics, it must be assumed that concepttualizations of economic relationships are to be established within new semantic frames unconsciously, where in particular conscious and critical reflection is circumvented and implicit knowledge of, and tacit experiences with machinery are used to replace other conceptualizations of economic experience.

4.2 Personification

Metaphorical mapping, however, does not end here. Particularly conspicuous is the fact that entity metaphors such as "the market is a machine" are often ascribed *anthropomorphic* characteristics and thus in the sense of Lakoff and Johnson they also function as personifications (cf. Lakoff & Johnson, 1980, p. 33f.). Making complex social processes and experiences appear to act as subjects additionally imbued with human characteristics and motivations helps concepts to become implicitly understandable. Importantly, the subject is not only identified as a person but is also imbued with particular characteristics. In order to exemplify what is meant by this, let us take a look at the metaphor "monarchs of the marketplace" used in Samuelson's *Economics* (2005, p. 28): Samuelson initially speaks metaphorically of "tastes and technology" as so-called "dual monarchs". In another example he speaks of "profits" as "rewards and punishments", which "guide" the market mechanism. He goes on to say: "Like a farmer using a carrot and a stick to coax a donkey forward, the market system deals out profits and losses to induce the firm to produce desired goods" (ibid.). To understand the complex metaphorical mapping involved one must look at their inherent logical ambiguities: Do *tastes* really guide the market mechanism or are they simply forces acting within it? Does "the market" deal out profits, or do profits coerce certain results in "the market"? Instead of providing clarity on these issues, the textbook continues to call up an abundance of similar metaphors which equally implicitly and diffusely create the image of an all-powerful, indistinctly delineated monarch no individual economic participant can withstand.

A further example of personification involves the concept of "the market" in Samuelsons *Economics* which is described not only as if it were a thing (ontological metaphor), hence as machine or mechanism, but also as an independently acting individual (personification) - a machine-like subject acting autonomously, guiding and regulating processes and operating according to predefined plans or in the context of fixed conditions: "Yet in the midst of all this turmoil, *markets are constantly solving* the what, how, and for whom. As they *balance* all the forces operating on the economy, markets are *finding* a market equilibrium of supply and demand" (Samuelson & Nordhaus, 2010, p. 27, our emphasis).

Combining entity metaphors with personifications allows an extensive interpretive framework to emerge – created by the combination of “the market” metaphor with others such as “system”, “mechanism” and “person” – to induce an implicit understanding of “the market” as a super actor with the qualities of a machine, i.e. with the regular, predictable calculations of a computer, for instance, coupled with the human ability to decide and act independently.

Mankiw’s use of entity metaphors and personifications to describe social processes in his *Economics* is, in our opinion, considerably more subtle than in Samuelson’s textbook. For example, Mankiw uses mechanical metaphors less frequently; instead, his use of the term “forces” is more common than that of “mechanism”. However the metaphor of the invisible hand and regulating player is used often in his introductory chapter (“the ‘invisible hand’ of the marketplace *guides* this self-interest into promoting general economic well-being”; 2014, p. 7, our emphasis; “one of our goals in this book is to understand how Smith’s invisible hand *works* its magic”; ibid., p. 8, our emphasis). In other ways, how-ever, “the market” (or other synonymously used terms) is just as ubiquitously and self-evidently ascribed qualities of an independent and sovereign player. In this manner market economies are described as *organizing* economic activity and *addressing* key issues of economics while price and self-interests *guide* economic decision-making (2014, p. 7).

4.3 Orientational metaphors

Mankiw’s *Economics* also offers a paradigmatic example of the subtle use of orientational metaphors in economics textbooks. Orientational metaphors rely on fundamental spatial and physical experiences, such as inside and outside, up and down, left and right, front and back (cf. Lakoff & Johnson, 1980, p. 14). In a striking example, Mankiw compares “the market” metaphorically to a container and thereby intimates a limiting boundary as well as an inner-outer orientation:

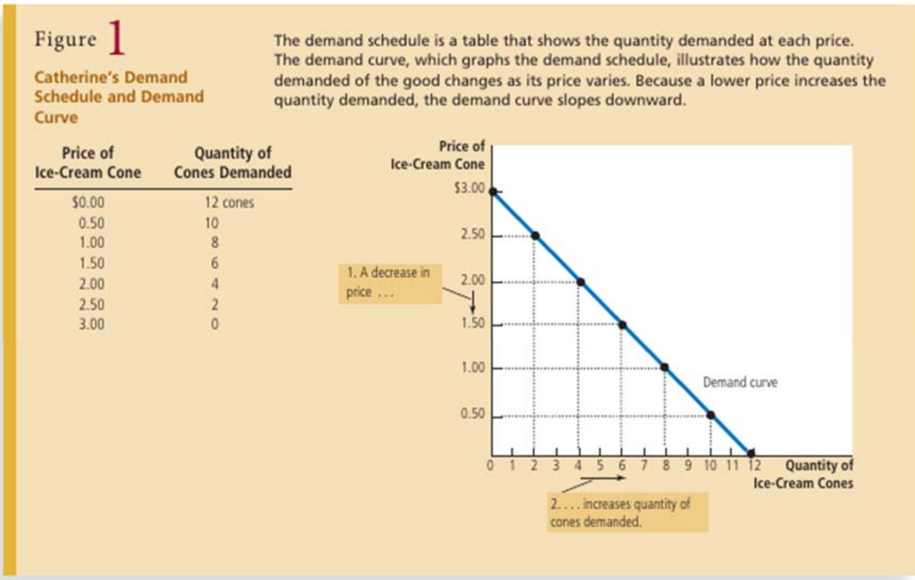
> “Free markets *contain* many buyers and sellers of numerous goods and services”. (Mankiw & Taylor, 2014, p. 7; our emphasis)

> “Competitive market. A market *in which* there are many buyers and sellers so that each has a negligible impact on the market price”. (Mankiw & Taylor, 2014, p. 42; our emphasis)

What these metaphors suggest is that “the market” is not made up of people but encompasses them, as a glass would water, and which is likewise not impacted by its qualities or characteristics. As such “the market”, understood as a container, remains in this type of framing impassive in the face of social processes taking place within it. The metaphor further suggests that economic processes cannot be delineated clearly outward; further, what lies ‘beyond’ or ‘outside’ it remains unclear. The suggestive power of this metaphor, however, lies in its ability to trigger more subtle and widely unconscious associations connected to common experiences in handling and dealing with containers and vessels such as buckets, cups and saucers etc..

We now would like to discuss one more example of orientational metaphor used by Mankiw, which we consider to play a significant role in standard economic textbooks. It concerns the implicit framing of the target domain in the context of spatial orientations such as “up”, “down”, “right”, “left” and “at the same place” and illustrated with the help of diagrams, yet without any conscious reflection on the context’s appropriateness.

Illustration 1 shows a diagram from Mankiw’s textbook:



Source: Mankiw, 2012, p. 68.

The diagram is described as follows: “Law of demand. The claim that, other things being equal, the quantity demanded of a good falls when the price of a good rises” (2012, p. 68, our emphasis). From the perspective of cognitive linguistics, by combining graphic and verbal descriptions, phenomena of quantity (demand becomes more) become metaphorically reinterpreted in terms of spatial expansion or movement: By being able to rise or fall, amounts and prices appear to move like spheres in physical space. More precisely: The sentence “demand falls” is a metaphor based on the orientation metaphor “less is down“, thus also on natural physical experiences such as a vertical build-up of building blocks. The metaphor “prices rise” derives in turn from the orientation metaphor “more is up” founded equally on basic experiences such as an increase of water levels when filling a glass.[19]

In this manner highly complex social phenomena such as economic demand become implicitly apprehensible because their interpretation is conceptually and intuittively reduced to not only tangible but also easily predictable and thus principally controllable physical conditions of everyday life. What the textbook neglects to do is to make its analogy to physics explicit and thus its connection to a different field of knowledge accessible to reason. As a result, readers are hardly capable of identifying these analogies as metaphors, if at all, because they tacitly draw upon fundamentally common physical experiences. Hence, knowledge appearing completely self-evident within the context of its source domain is uncritically used to augment knowledge in a target domain. Further research has to inquire, if and how the constant use of terms such as “rising” and “falling”, which because of their relation to and experience with gravity and its incontrovertible predictability in the context of their source domain, can actually lead to a completely uncritical understanding of “principles” in the economic sphere (cf. Mankiw’s example above), which becomes tacitly reinforced by the repetitive and consistent use of orientational metaphors in the sense of the mentioned ‘repatterning’ or ‘refreezing’.

5 Emotionally and ideologically charging the concept of “the market”

The example of orientation metaphors illustrates how standard economic textbooks embed metaphorically framed economic terms in what Cognitive Linguistics call deep seated frames to the point where students begin to grasp the economy without ever having to critically reflect on it. The fact that metaphors help complex economic phenomena appear more understandable simply by connecting them to physical experience does not mean, however, that these deep seated frames automatically also involve political-ideological value judgments (cf. Wehling, 2016, p. 61-62).[20] Yet both standard textbooks under analysis exhibited instances of implicit judgment which can be described as emotional or ideological framing. This type of framing not only makes a particular semantic interpretive framework accessible but also makes a moral judgment (cf. ibid). Again, following cognitive linguistics, this judgment does not take place on the level of rational thought but rather on the level of the unconscious.

Here, too, a few examples will help us illustrate the issue. Let us turn to the introductory chapter on “What is a market?” by Samuelson. A study of the phrasing in the chapter shows that it is consistently structured according to antagonistic dualisms in which “good” and “bad” confront each other. Illustration 2 provides an overview of the dualisms exhibited in this chapter.

Verge of starvation Mortal terror of a breakdown Coercion Centralized direction Government Control of economic activity Government intervention Central intelligence	High-Income countries Private markets Market mechanism Voluntary trade Improve own economic situation Invisibly coordinated Doing very well economically Sleep easily Elaborate economic processes Coordinated through the market Willingly Elaborate mechanism Communication device Functioning remarkably well

Source: Authors’ graphic depiction. Sample of dualisms from “The Market Mechanism” (cf. Samuelson & Nordhaus, 2010, p. 26).

In lieu of a clear definition of “the market”, Samuelson’s textbook structures the concept according to complimentary or positive aspects through direct connection to terms such as “well”, “elaborate”, and “voluntary”, seen on the right side of the list above. In comparison, “the market” is contrasted by qualities ascribed to government, exclusively associated with words carrying negative connotations such as “intervention”, “coercion”, and “starvation” without providing any explicit empirical, historical or other form of documentation and justification to back this view. This can be identified as a case of emotional framing, since both sides of the antagonistic polarity between “the market” and “the non-market” (Ötsch, 2009, p. 21) are each described in a manner triggering positive or negative feelings intuittively. Hence, everything not belonging to the “the market”, i.e. the “non-market”, is described in pejorative contexts in which terms such as “mortal terror” and “verge of starvation” appear, while everything to do with “the market” is explained according to positively connoted expressions such as “sleep easily”, “doing well”.

More striking examples of ideological framing of “the market” are to be found in both textbooks. Each is structured along a “Black and White Fallacy” (cf. Hill, 2015, 276). For instance, in Samuelson’s introduction on the significance of studying economics, one reads the following:

> “A word to the sovereign student: You have read in history books of revolutions that shake civilizations to their roots – religious conflicts, war for political liberation, struggles against colonialism and imperialism. Two decades ago, economic revolutions in Eastern Europe, in the former Soviet Union, in China, and elsewhere tore those societies apart. Young people battered down walls, overthrew established authority, and agitated for democracy and a market economy because of discontent with their centralized socialist governments. Students like yourselves were marching, and even going to jail, to win the right to study radical ideas and learn from Western textbooks like this one in the hope that they may enjoy the freedom and economic prosperity of

democratic market economies." (Samuelson & Nordhaus, 2010, p. xxii)

The significance of economics education is implicitly placed in the context of political struggles that have been ideologically interpreted in advance. The political semantic frame activated by Samuelson in the above quote could be outlined as follows: An enemy is building walls, thereby limiting freedom; the enemy is sustained by established powers identified as socialists and centralists who throw students into jail. The enemy makes young people unhappy. In contrast to this, there is a side that supports freedom, prosperity and democracy. The argumentation is clearly based on the following ideological model: (absolute) Evil against (absolute) Good (cf. Ötsch, 2009, 40-41), whereby "Good" is always associated with one's own side. This creates the idea of a "divided world in which there is a "WE" in a perennial battle with "THE OTHERS" (Transl. from Ötsch, 2002, p. 16-17).[21]

The passage sends the following implicit message: This handbook serves the good. By studying it you will belong to the good guys, THE WE. At the same time you will be drawn directly into the battle between ‚good' and ‚evil'. If others have sacrificed themselves for the struggle for "the good", who would selfishly close ranks with "THE OTHERS", the bad guys, by rejecting the kind of economics presented in the textbook, the right to which THE WE had to fight so fiercely for?

In short, Samuelson's introduction immediately activates an ideological frame which meanwhile has probably become at least partially established in the unconscious minds of many Western readers, a frame associated not with scholarship but with political-ideological debates. In this frame Samuelson endeavors to extend the semantic frame ‚East versus West', ‚capitalism versus communism' to include "the market" or market economy. Without defining what "the market" or market economy actually is, Samuelson embeds the concept within the semantic frame of a divided, or bifurcated world view. This occurs in manner by which "the market" is automatically placed on a the ‚right', i.e. ‚good' side:

> "The bifurcated (dualistic) world is conveyed by a bifurcated language (a dual code). the market is only endowed with positive qualities. It is described […] as good, desirable, worthwhile. […] The non-market, however is attributed with everything that is bad. […] Language must therefore differentiate clearly between the two parts. A bifurcated language is the means through which a bifurcated world is conveyed." (Transl. from Ötsch, 2009, p. 21)[22]

Additionally, the study of economics itself becomes linguistically intertwined with the network of positively connoted concepts of freedom, prosperity, democracy, market economy. Samuelson's textbook appears on the side of THE WE, hence on the side of 'good'. What is essential is that the confrontation between 'freedom' and 'lack of freedom' as described by Samuelson is in no way substantiated by facts: No proof is given whether young men and women took to the streets or risked being imprisoned in the Soviet Union or anywhere else for the right to read Samuelson's textbook. Nor are references made to explicit historical places, persons or relevant literature. Samuelson's introductory text addresses political-ideological experiences and their corresponding emotions, not critical reasoning. It throws students immediately into a heated conflict where little opportunity is given to reflect on what side to take.

In Mankiw's textbook similarly politically charged, black/white, dualist conceptualizations take place with regard to the battle of systems between East and West, communism and capitalism, in which "the market" is also embedded, even if the emotional associations they engender are more subtle. A distinctive example of a politically charged conceptualization in Mankiw is found, for instance, in the formulation of his "Ten Principles", which seek to convey the condensed essence of economic thought. Concluding this section the passage is quoted in its entirety so that the reader can form her or his own opinion:

> "The collapse of Communism in the Soviet Union and Eastern Europe in the 1980s may be the most important change in the world during the past half century. Communist countries worked on the premise that central planners in the government were in the best position to guide economic activity and answer the three key questions of the economic problem. [...] The theory behind central planning was that only the government could organize economic activity in a way that promoted economic well-being for the country as a whole. Today, most countries that once had centrally planned economies […] have abandoned this system and are trying to develop market economies. In a market economy, the decisions of a central planner are replaced by the decisions of millions of firms and households. […] At a first glance, the success of market economies is puzzling. After all, in a market economy, no one is considering the economic well-being of society as a whole. Free markets contain many buyers and sellers of numerous goods and services, and all of them are interested primarily in their own well-being. Yet, despite decentralized decision making and self-interested decision makers, market economies have proven remarkably successful in organizing economic activity in a way that promotes overall economic well-being." (Mankiw & Taylor, 2014, pp. 6-7)

6 Conclusion

The above presented examples of how metaphors are tacitly used in standard economic textbooks, followed by a discussion whether this use could promote an unnoticed transformation of the conceptualization of the economy and hinder its critical reflection. There are, however, broader issues involved which must be addressed by future research, such as: 1) To what extent are metaphors used in standard economic textbooks? 2) What is the impact of this use, and how can it be verified? 3) To what extent is this impact intentional on the part of the authors and if so, why? 4) Is there a correlation between the use of metaphors in economic textbooks and economic theory and if so, how did this evolve?

We would like to address one last but important question: If we were to assume that the use of metaphors as discussed above promotes uncritical acceptance with regard to the conceptualization of “the market”, how can this impact be counteracted? We would like to point to Friestad and Wright (1984), who developed *persuasion knowledge models* by which the actual success of persuasion strategies cannot be measured solely by the quality of the methods used. Rather, each instance of persuasion is determined by the interplay between those intending to persuade and the recipients’ coping strategies. According to this reasoning, therefore, it would be important to recognize that every *single* effort to promote students’ critical reflection helps to attenuate the *effect* of persuasion strategies in standard economic textbooks through their uncritical use of metaphors – independent of whether persuasion was intended by the authors and publishers or not.

In this regard we would like to mention two successful examples of promoting students’ and teachers’ powers of critical reflection. First it must be noted that the use of metaphors is not rejected per se, which, according to cognitive linguistics, would be completely nonsensical. Instead, using metaphors provides students with a creative tool of human thought while offering an opportunity to learn how to use this tool critically. For example, let us look at the metaphor “free markets contain many buyers and sellers” (Mankiw/ Taylor, 2014, 7). Teachers can take this phrase and point students towards its foundational metaphor “markets are containers” – in a similar manner as in this paper – and discuss its advantages as well as disadvantages in application. They can also compare this metaphor to others used in different textbooks, for example those explicitly pursuing a different approach in contrast to Mankiw or Samuelson. Teachers can engage in discussion with their students concerning the following questions: Do the metaphors employed to explain abstract concepts such as “market” or “price” differ? Are the *ways* these metaphors are used different? A reflection on the kind of imagery they engender therefore becomes the catalyst for a process of interrogative thought: What actually encompasses people engaged in market activity? What do they become segregated from?, etc.. This process would allow for alternative metaphors to become generated. What happens, for instance, when students use an alternative metaphor, e.g. “money as barrier to market entrance”, coined by Brodbeck? In using metaphors it is important to recognize what is being high-lighted and concealed by them, to systematically uncover their deceptive and performative power and establish responsible connections to alternative source domains through critical reflection.

Finally, the uncritical transformation process of thought and language with regard to the economy, the strategy of *depatterning* and *repatterning* effectuated by inducing a cognitive state of shock and awe, can be countered by:

1) strengthening students’ reflection of their own interpretive structures and of the concomitant correlations between common experiences and econo-mic phenomena;
2) consistent historical, empirical and qualified documenttation and evaluation of unsubstantiated claims made in the textbooks, and
3) raising awareness of political-ideological discourses and power relations.

As a result we hope that students as well as teachers will become empowered to critically reflect on the use of – and find creative ways of dealing with – metaphors in standard economics teaching while being able to understand more in depth how the knowledge they engender, and behavior they influence, impact everyday life, not only with regard to common language use but also concrete social and economic policies. We hold the didactic elements put forward here to be an important, although not exhaustive, contribution towards establishing a form of academic economics education which meets the pedagogical standard established by the Beutelsbach Consensus with regard to schools, which prohibits political education from overwhelming the student.[23] Based on the research presented here, we conclude by recommending a reformulation and application of a new consensus on the standards of curricular and pedagogical ethics in economic education at schools and universities.

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Endnotes

[1] We would like to thank Madeline Ferretti and the anonymous referees for their help in revising and improving the article. The remaining errors are the authors’.
[2] cf. Pühringer, 2015.
[3] cf. Pühringer & Hirte, 2015, p. 609, author‘s emphasis.
[4] The original reads: “Die Macht abstrakter Ideen beruht in hohem Maße auf eben der Tatsache, daß sie nicht bewußt als Theorien aufgefaßt, sondern von den meisten Menschen als unmittelbar einleuchtende Wahrheiten angesehen werden, die als stillschweigend angenommene Voraussetzungen fungieren“ (Hayek, 1980, 100).
[5] Hayek`s rival, John Maynard Keynes, shared this opinion: “The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slave of some defunct economist“ (Keynes, 1936, 383).

[6] The original reads: "Die Wirtschafts-Mechaniker sind sich darin auf eine tiefe Weise einig: Eugen von Böhm-Bawerk [...] stimmt in diesen Chor der Wirtschaftsmechaniker ebenso ein – er spricht von einer 'Mechanik der Tauschwertbildung' – wie Leon Walras, der Vater der modernen Gleichgewichtstheorie, der von einem 'Mechanismus der Konkurrenz' spricht. Selbst Schumpeter kennt einen 'Mechanismus der Verkehrswirtschaft', und sogar sein 'dynamischer Unternehmer' wird von ihm als Maschine beschrieben. 'Auch der Unternehmer ist hier kein Veränderungsfaktor, sondern Träger des Veränderungsmechanismus.' Noch Keynes spricht von einer 'monetären Maschine'. Auch Autoren, die nicht auf eine Tendenz zum Gleichgewicht der 'ökonomischen Kräfte' vertrauen, verbleiben in ihrer Umkehrung der Gleichgewichtstheorie im Bann der Mechanik. 'Das System', sagt Gunnar Myrdal über das Problem der Unterentwicklung, bewegt sich von sich aus nicht in Richtung auf irgendein Gleichgewicht der Kräfte, sondern ganz im Gegenteil davon weg.'" (Brodbeck, 1996, 41-42).

[7] For examples of research concerning the use and significance of metaphors in economic theory c.f. Aho 1985, Brodbeck 1996, Büscher 1991, Lagueux 1990, Mirowski 1990, Ötsch 1990, Pribram 1992.

[8] Of course this exemplary study does not generate *automatic* conclusions for the entire body of textbooks. The following examination will illustrate to what extent uncritical thinking is encouraged by the implicit use of metaphors in the textbooks by Samuelson and Mankiw. We hope to provide readers with the ability to identify, judge and deal with metaphors through critical reflection.

[9]Buchholz (1998) demonstrates how the severest critics of metaphorical language themselves employ metaphors in the elaboration of their critique and in their thinking.

[10] For a critique of the Conceptual Metaphor Theory cf. Liebert, 1992 and Schmitt, 2011.

[11]The original reads: "Frames, nicht Fakten, bedingen unser Entscheidungsverhalten." (Wehling, 2016, 45).

[12] The original reads: "Frames bestimmen, mit welcher Leichtigkeit wir Fakten und Informationen begreifen, unabhängig davon, wie ‚objektiv' gut oder schlecht begreifbar diese Fakten vermeintlich sind. Tatsächlich gibt es keine ‚objektiv' leichter zugänglichen Fakten, sobald Frames ins Spiel kommen. Es gibt nur solche Fakten, die gut in den Frame passen und solche, die schlecht oder gar nicht in den Frame passen" (Wehling, 2016, 36).

[13] The original reads: "Inhalt und Strukturen eines Frames, also die jeweilige Frame-Semantik, speisen sich aus unseren Erfahrungen mit der Welt. Dazu gehört körperliche Erfahrung – wie etwa mit Bewegungsabläufen, Raum, Zeit und Emotionen – ebenso wie etwa Erfahrungen mit Sprache und Kultur" (Wehling, 2016, 28).

[14] An experiment carried out by Thibodeau and Boroditzki (2011) illustrates this in an exemplary manner: Participants are given texts on the increase of urban crime and described by various metaphors. Participants who were introduced to the issue of crime as a beast suggested criminals be caught and locked behind bars. Participants who were provided the description of crime as a virus infecting cities recommended that the causes of crime be investigated and the population "immunized" accordingly. The authors concluded that the metaphor's original domain influences not only how people perceive but also react to the situation. For further empirical research on Conceptual Metaphor Theory cf. Gibbs/ Colston 1995; Allbritton 1995; Liebert 1997 and for an overview Valenzuela/ Soriano 2005.

[15] The original reads: "Abstrakte Ideen werden von uns über Metaphern an körperliche Erfahrung angebunden und damit ‚denkbar' gemacht" (Wehling, 2016, 68).

[16] Empirical research concerning the conventional cognitive semantic framework acquired by high-school or first semester college students in the course of their young lives before commencing their studies in Economics is still a desideratum. The central questions could be: What is their more or less embodied understanding of concepts such as "market", "competition", "supply and demand" or more fundamental threshold concepts? How does it differ to the meaning given to them in economic textbooks? How does the process of de- and repatterning of concepts in economic textbooks with regard to these specific understandings occur? In our view it is furthermore important that this research especially focuses on the significance of the socio-cultural background of those students.

[17] The authors fail to provide statistical data to substantiate this claim.

[18] The original reads: "Hypokognition bedeutet die Nicht-Existenz oder den Wegfall von Ideen durch den Mangel an sprachlicher Umsetzung dieser Ideen. Etwas salopper gesagt: Was in Diskursen nicht gesagt wird, wird schlicht und ergreifend auch nicht gedacht. Denn wo die Worte fehlen, da können auch die Gedanken nicht etabliert werden oder langfristig bestehen. Die Schaltkreise in unserem Gehirn werden nicht angeworfen, sie verkümmern" (Wehling, 2016, 64-65).

[19] Cf. Lakoff/ Wehling (2016,16): "Prices *rise* only in our heads. What a price really does is become more. Prices are phenomena of quantity. We understand prices to *rise* and *fall* because we think in the metaphor *more* is *above*." (our translation, author's emphasis).

[20] The connection of metaphors, frames and ideology is quite complex and a promising field of research, as it is shown by the application of Critical Metaphor Theory in Critical Discourse Analysis. Hart (2011) not only gives an overview on the research fields concerned with this connection but also applies Critical Metaphor Analysis to discover ideological elements in the political discourse on immigration.

[21] The original reads: "zweigeteilten Welt, in der DIE WIR und DIE ANDEREN einander bekämpfen" (Ötsch, 2002, 16-17). Ötsch describes THE WE versus THE OTHERS as the core pattern underlying a demagogic world view. Cf. Ötsch, 2002, 15.

[22] The original reads: „Die zweigeteilte (duale) Welt wird durch eine zweigeteilte Sprache (ein dualer Code) transportiert. DER MARKT wird nur mit positiven Eigenschaften ausgestattet. Er wird als gut, wünschenswert, erstrebenswert, […] beschrieben. […] Dem NICHT-MARKT hingegen wird alles Üble zugeschrieben. […] Dazu müssen beide Teile sprachlich klar gekennzeichnet werden. Die zweigeteilte Sprache ist das Vehikel zum Transport der zweigeteilten Welt" (Ötsch, 2009, 21).

[23] The Beutelsbach Consensus is a result of a conference that took place in the 1970s in Germany to establish a form of minimal standard for civic and religious education with the goal of preserving students' ability to form independent judgment while attending to the dividing line between political education and indoctrination.