

Cover Page

Approaching ‘value’ from a second order cybernetic perspective

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Abstract:

Purpose

Value is in the center of service and marketing. The discussion is still continuing on what we talk about when we talk about value. The purpose of the paper is to contribute to an understanding of value from a second order cybernetics perspective. What does the word ‘value’ refer to when it is used? Does it refer to something outside language or is its use restricted to language? Second order cybernetics (Foerster, 1981a, 2003b) offers a new perspective of understanding the meaning of terms particularly ‘value’ as eigenforms which are stable states of recursive operations.

Design/Methodology/approach

This paper will approach value or more precise the meaning of value from a second order cybernetics perspective. If one describes the sentence ‘this car is red’ as ‘a short sentence’, the latter is a description of the sentence ‘this car is red’ which is a description in itself. From descriptions of descriptions so-called ‘eigenforms’ (Kauffman, 2003, 2005a) can emerge. These eigenforms emerge not only from linguistic recursions but also from any kind of recursive processes. In the paper recursive operations in language use are identified by using Merriam Webster’s dictionary, where words are explained by other words which may refer back to the original word forming recursive relationships.

Findings

Usually abstract terms like “value” are described either by other abstract terms or by activities. However, we found that “value” firstly refers to other terms, secondly to practices and thirdly to “objects”. Hence, the term ‘value’ refers to things outside of language challenging Baudrillard’s claim that “the sign no longer designates anything at all. It approaches its true structural limit which is to refer back only to other signs” (Baudrillard, 1975, p. 128). Furthermore, the use of the term “value” creates many different eigenforms.

Research limitations/implications

The word ‘value’ refers to many different other words, practices and only a few objects from very different areas of life indicating that the term ‘value’ is not only used context specific but also has a very broad range of different meanings. Further research has to be aware of the different contexts in which the term value is analyzed.

Practical implications

To understand meaning as eigenforms offers a new way of approaching communication and meaning of words.

Originality/value

The theory of eigenforms has not been used in connection to the meaning of ‘value’. Neither in marketing research nor in service research.

Key words

Value, eigenforms, second order cybernetics, meaning.

Paper type – Conceptual paper with exemplified findings.

1. Introduction

Value is in the center of service and marketing. The discussion is still continuing on what we talk about when we talk about value. What does the word 'value' refer to when it is used?

Value is one of the most important goals, experiences, processes, phenomena, ends and alike for marketing managers, scholars, customers, and others. Although the term describes different experiences for different people, people are not always of these differences. Service-dominant logic (S-D logic), with its notion of value-in-context (Chandler and Vargo, 2011; Vargo and Lusch, 2008), has revived this discussion (Lindgreen and Wynstra, 2005; Ramaswamy, 2011; Vargo *et al.*, 2008; Woodruff and Flint, 2006). There are different concepts of value in the marketing literature (for an overview see e.g. Macdonald *et al.*, 2011), where some of them are linked to S-D logic (Vargo and Lusch, 2004, 2008, 2011).

Gummerus and Pihlström (2011) analyze mobile services' value-in-use using the critical incident technique. Macdonald *et al.* (2011) offer a goal-oriented concept of value-in-use concluding with further research directions including scale development for both usage process quality and value-in-use.

Sheth, Newman, and Gross (1991) proposed five dimensions for consumption values: functional value, conditional value, social value, emotional value, and epistemic value. These dimensions are used to predict different choices of smoking and nonsmoking, as well as choices of different brands. Babin, Darden, and Griffin (1994) analyze shopping value using a two-dimensional concept (utilitarian value and hedonic value). In the same vein Chandon, Wansink, and Laurent (2000) used these dimensions to measure sales promotion value. Mathwick, Malhotra, and Rigdon (2001) adopted two dimensions of Holbrook's concept of the experiential value of internet shopping. Sweeney and Soutar (2001) developed a scale for measuring the value of durable goods in line with a goods-dominant logic. Rintamäki, Kanto, Kuusela, and Spence (2006) conceptualized value with three dimensions (utilitarian, hedonic, and social) without any reference to S-D logic, whereas they limited the measurement scale to shopping experiences.

Another area of research on value is neither connected to S-D logic, nor does it develop a measurement scale (e.g., (Anderson and Narus, 1998; Butz and Goodstein, 1996; Gale, 1994; Holbrook, 1994, 1999; Ramaswamy, 2011; Ravald and Grönroos, 1996; Zeithaml, 1988). Helkkula, Pihlström, and Kelleher (2012) focus on value-in-context experiences whereby they do not refer to the context conceptualization of S-D logic (Chandler and Vargo, 2011).

Helkkula et al. (2012) as well as Helkkula (2011) clearly state that value is a complex phenomenon.

Like the other research Helkkula et al. seem to 'assume' that value refers to a kind of phenomenon that is described by the term 'value'. The word value can either refer to an (abstract) idea in a person's mind or to something outside the mind – called the 'referent' (Ogden and Richards, 1946) - which is described by the word. The word 'tree', for example, refers to an idea in the readers mind, as well as to an object outside the reader's mind which is the 'tree'. This triadic relationship is described in the so called semiotic triangle. This triadic relation was introduced by Peirce (1991) and further developed by Ogden and Richards, (1946) in the context of meaning and is now one perspective in semiotics. However, an object like 'tree' has not (yet) been identified in connection to the word 'value'. One of our research question is therefore, whether or not value refers to an object outside of language use.

Another approach in semiotics was introduced by Saussure (1959), who proposed a dyadic relationship between signifier and the signified (Saussure, 1959, p. 67). According to Saussure, the signifier is the word in question, here value. The signifier is related to the signified which is in Saussure's sense the concept or idea behind the word (Smith, 2005, p. 228). It is what people have in mind when hearing or reading the word. However, an observer does not have access to the thoughts of other peoples' mind. He/she cannot identify a signified which is not part of his/her own relation between the signifier and signified.

A third perspective negates that a signifier refers to something else than signifiers. Poststructuralists roughly say that words do not refer to something outside of language, but only to other words (Baudrillard, 1994, 2005; Deleuze, 1994; Derrida, 2004, 1978). Hence, they negate the triadic and the dyadic relationship of signs. They argue that whenever words or technical terms are explained, this explanation is given by other words. There is no escape from using words. In marketing, Cherrier and Murray (Cherrieri and Murray, 2004, p. 513) conclude from a similar perspective: "In the post-modern era, there is no longer an attempt to refer back to nature or ground the representamen." This perspective is used by Venkatesh et al. (2006a, p. 251) in their emphasis on "(re)considering the starting point of our disciplinary analysis to be the market [...] as opposed to marketing [...]", where they considered the "market as a sign system" (2006a, p. 258). Following this perspective, it would mean that 'value' only refers back to other words and not to a world outside language. If so, how then

does it become a meaningful word, suggesting that it refers to a world outside of language? How can we explain that most people use the word value, as if it is related to a referent that can be clearly identified?

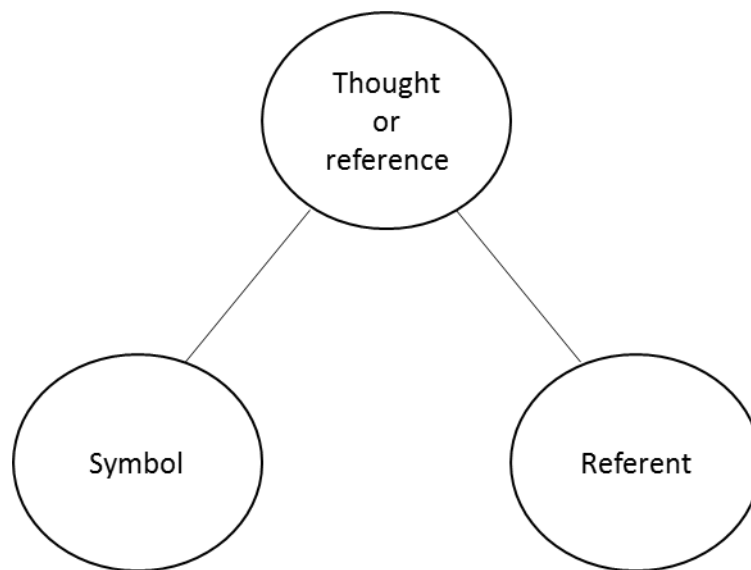
In this paper, we apply second order cybernetics to semiotics and hence do not need to discuss whether a word has two or three referents or only refer back to words. Instead, we follow a new and more promising way to understand how meaning emerges in societal arrangements by using language. The approach we follow is a second order cybernetic logic that was introduced by von Foerster (1981a) and has been extended by Kauffman (2003, 2005a, 2005b) and applied by Füllsack (2012) and Löbner and Wloka (2015).

The paper is structured as follows: We start by looking at the options semiotic offers. We then discuss why we will use a second order cybernetic approach. Thereby, we will explain it. Hereafter, this approach is applied to the word 'value'. The results are presented and discussed.

2. To what does a word refer to?

To approach the meaning of the word 'value' through semiotics seems promising as semiotics is "the study of signs and symbols and their use or interpretation" (English Oxford Living Dictionary, 2017). A well-known tool in semiotics is the so called semiotic triangle, which was shortly described above and which is shown in the following figure 1 (Ogden and Richards, 1946, p. 11).

Figure 1: Semiotic triangle



The symbol, word or sign is what we see (it is perceivable) and which we identify as something with meaning. The thought or reference is what comes to our mind, when we hear or read a word, symbol or sign. When we hear or read the word ‘value’, something appears in our mind, which is the reference. There is, however, no direct access to the reference, the mental states or operations. It is a totally subjective ‘feeling’ or thought. The referent is a thing, to which our thought or ‘feeling’ refers to. The referent is not the symbol, in a colloquial language, but rather, what is meant by the word. The referent may be easy to identify if it is a physical object like a tree to which we can point to and say ‘this is a tree’. But this is not possible with value.

Furthermore, “between the symbol and the referent there is no relevant relation other than the indirect one, which consists in its being used by someone to stand for a referent. Symbol and referent, that is to say, are not connected directly” (Ogden and Richards, 1946, p. 11).

Nevertheless, we have a strong feeling that the word value means something apart from just the word itself. Helkkula et al. (2012) as well as Helkkula (2011) describe the referent of the word value as a ‘phenomenon’ without specifying what they mean by ‘phenomenon’.

Probably they use the word phenomenon in a colloquial way. The word ‘phenomenon’ stems from the Greek word ‘φαινόμενον’, which means something that is perceivable. In the same vein, dictionaries explain: “Phenomenon: an event or situation that can be seen to happen or exist” (Macmillan dictionary). Furthermore, we find in Merriam Webster:

- 1) plural phenomena : an observable fact or event
- 2) plural phenomena
 - a: an object or aspect known through the senses rather than by thought or intuition.

b: a temporal or spatiotemporal object of sensory experience.

In this colloquial sense, value is not a phenomenon as it is not observable or seeable. On the other hand, one could argue that value can be experienced somehow as an inner feeling or mental state or process, which is obviously the way Helkkula et al. (2012) and Helkkula (2011) understand the word. This understanding would be in line with Brentano's idea of "psychology as the science of mental phenomena" (Brentano, 1973, p. 14).

According to Brentano, (i) mental phenomena are the exclusive object of inner perception, (ii) they always appear as a unity, and (iii) they are always intentionally directed towards an object. "Another characteristic which all mental phenomena have in common is the fact that they are only perceived in inner consciousness, while in the case of physical phenomena only external perception is possible" (Brentano, 1973, p. 70).

Interpreting Helkkula in this way would mean that value is totally subjective. However, they say: "Value in the experience is individually intrasubjective and socially intersubjective" (Helkkula *et al.*, 2012, p. 61). How can the phenomenon of value be intersubjective, if it is subjectively experienced? They explain:

"According to the phenomenological approach, the intersubjective nature of value in the experience acknowledges service customers' individual and collective relational engagement with the world and how they seek to make sense of this both at an individual and at a collective level" (Helkkula *et al.*, 2012, p. 61).

How can our intersubjective coexistence create a strong feeling of an intersubjective referent?

Here, Wittgenstein's approach suggests another way of looking at the meaning of a word. In looking for a referent, he reminds us that "the meaning of a word is its use in the language" (Wittgenstein, 2008, § 43). Wittgenstein suggests that meaning emerges throughout the process of language use in social situation. According to the social situation in which a word is used, or according to the community using a word, the same word can have very different meanings.

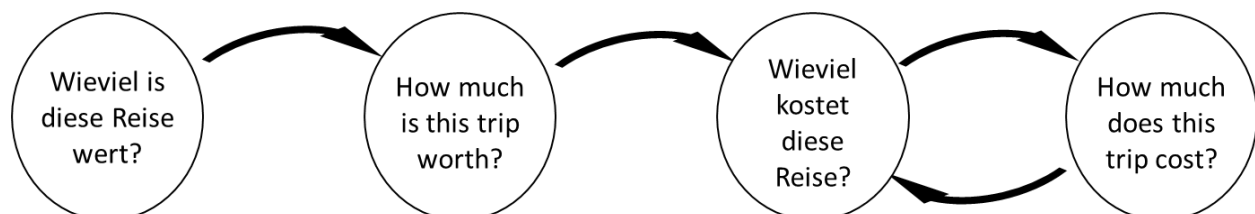
In a community of therapists, for example, the word 'regression' is related to the process or activity of reversion to an earlier mental or behavioral level. In the community of statisticians, the word 'regression' is related to the process or activity of making a functional relationship between two or more correlated variables. It is often empirically determined from data and is used especially to predict values of one variable when given values of the others.

Here, the word ‘regression’ is described by different words, which may be understood in relation to some referents. How does this happen? When using a language one first has to learn this language, whether it is a foreign language, a technical language or even the mother tongue which has to be learned. This learning process usually has two important parts: One part is trying or using a new word and the second part is some kind of reaction to this trail. This reaction comes either from parents, when we learn our mother tongue, or from teachers when we learn a foreign or technical language. The reaction can either be an implicit or explicit approval of our use of the word or it can be some kind of correction of our use. The reaction refers to our trail and the (next) trail refers to the parents’ or teacher’s reaction. This double related process is known in second order cybernetics as a recursive operation. We, therefore, now explain and use recursive operations to come closer to the meaning of value.

(3) Recursive Operations and eigenforms

Although the paper is not about translation, the example elucidates the concept of recursive operations in an appropriate way. Let’s assume you use a translator like google translator. If you put in the German sentence: „Wieviel ist diese Reise wert?“, you get out the English sentence: “How much is this trip worth?”. Now if you type in the English version you just received and translate it back to German, you get out the sentence: “Wie viel kostet diese Reise?” The initial German sentence with the word ‘wert’ has been changed into a new German sentence with ‘kostet’. Now if you put in the German sentence: “Wie viel kostet diese Reise?” and let it translate back to English, you receive the sentence: “How much does this trip cost?” A repetition of this process shows that now the translations do not change anymore. (see figure 2)

Figure 2: Translation of Translation



The process of “back translation” is well known in the translators’ world (Collins, 2005; Paegelow, 2008). Usually translations are accepted by a user when the translation combined with its back translation leads to the original text. However, the user can not figure out what “worth” or “cost” “really” means. Generally we can say that an operation is recursive, when it is applied to its own result again. Here, the operation is ‘translation’ and the translation is applied to its own result which could be repeated over and over again. If the repetition leads

to the same translation again, the process reaches a stable state. This stable state is called an 'eigenform'. "The notion of an eigenform is inextricably linked with second-order cybernetics." (Kaufmann, 2006, 130). Second order cybernetic plays a role when we think about translations of translations, descriptions of descriptions, operations of operations, meaning of meaning etc.

In the example above, the translations finally do not change anymore and it can thus be said that the recursive translation has reached a stable state which is an eigenform of the recursive process according to second order cybernetics (Kauffman, 2003, 2005b, 2005a).

This example illustrates a recursive operation which is performed inside the sphere of language. For performing the translation, there is no need to step outside of language. The process moves between two different languages (German and English), but not outside language in general. Hence, in the above example, words only refer to other words. It is therefore necessary to extend the process to establish a relation to a referent outside of language. Here, we use the work of von Foerster (Foerster, 1981a, 1981b, 2003b).

For von Foerster objects are tokens of eigen-behavior. They appear in recursive operations of actions and observations. In this sense the appearance of an object is an eigenvalue or an eigenform of a stable recursive operation. Interpreting von Foerster, Kauffman explains:

"If we take Heinz's suggestion to heart that objects are tokens for eigen-behaviors, then an object in itself is an entity, participating in a network of interactions, taking on its apparent solidity and stability from these interactions. An object in this view is an amphibian between the symbolic and imaginary world of the mind and the complex world of personal experience. The object when viewed as process is a dialogue between these worlds. The object when seen as a sign for itself, or in and of itself, is as imaginary as a pure eigenform. We, identify the world in terms of how we shape it. We shape the world in response to how it changes us. We change the world and the world changes us. Objects arise as tokens of that behavior that leads to seemingly unchanging forms. Forms are seen to be unchanging through their invariance under our attempts to change, to shape them. Can you conceive of an object independent of your ability to perceive it? I did not say an object independent of your perception" (Kauffman, 2003, p. 74).

He continues:

"Why are objects only apparently solid? Of course you cannot walk through a brick wall even if you think about it differently. I do not mean apparent in the sense of thought alone. I mean apparent in the sense of appearance. The wall appears solid to me because of the actions that I can perform. The wall is quite transparent to a neutrino, and will not even be an eigenform for that neutrino. This example shows quite sharply how the nature of an object is entailed in the properties of its observer" (Kauffman, 2003, p. 78).

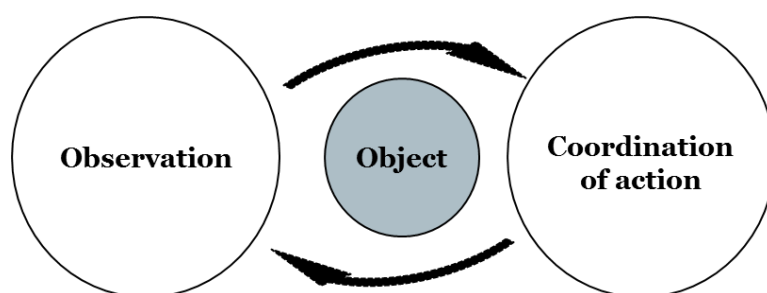
The action of an observer is applied to the observation and the observation is applied to the action, the action is observed. Hence, both form a recursive operation through which the object appears as an object.

These ongoing recursive operation may reach a stable state, an eigenform, which according to von Foerster is ontologically not distinguishable from an object: (see figure 3).

“Ontologically, Eigenvalues and objects, and likewise, ontogenetically, stable behavior and the manifestation of a subject’s “grasp” of an object cannot be distinguished. In both cases “objects” appear to reside exclusively in the subject’s own experience of his sensori-motor coordinations; that is, “objects” appear to be exclusively subjective!” (Foerster, 2003b, p. 266)

Under which conditions, then, do objects assume “objectivity?” So far, this recursive operations have nothing to do with a sign or a signifying operation, because the focus was on a single observer; an individual. If we now extend this recursive operations from one to two or more individuals, referents emerge that are not necessarily objects. Foerster uses the terms Eigen-Value, Eigen-Functions, Eigen-Operators, Eigen-Algorithms, Eigen-Behaviors, etc., depending on the domain in which recursive operations occur (Foerster, 2003a). We use the term eigen-form as it is discussed in (Kauffman, 2003, 2005b; Füllsack, 2012; Löbler and Wloka, 2015) to indicate the tacit notion of meaning emerging from recursive operations.

Figure 3: Objects as token of eigenbehavior



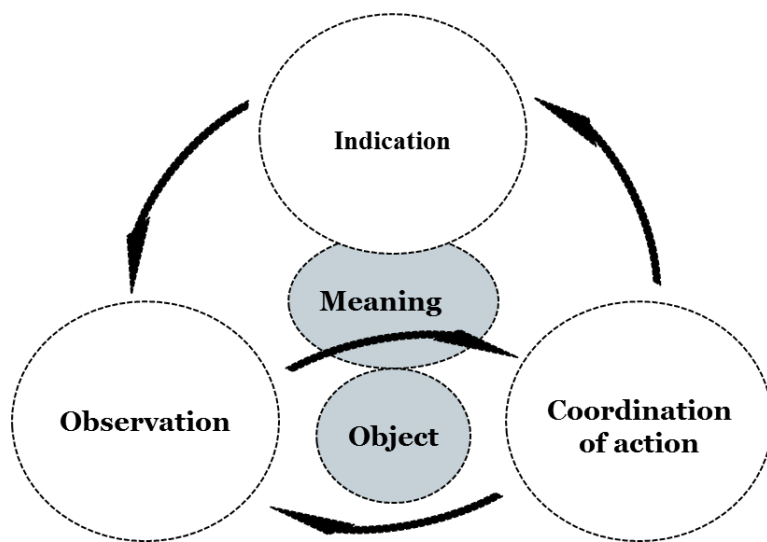
What now happens when more than one individual coexist?

“In this atomical social context (two individuals, the authors) each subject’s (observer’s) experience of his own sensori-motor coordination can now be referred to by a token of this experience, the “object,” which, at the same time, may be taken as a token for the externality of communal space.” (von Foerster, 2003, 267).

In the social realm the referent and the indication of it (creating a sign, symbol or word) emerge simultaneously. By using a sign for an unknown referent, this referent emerges as if known throughout the recursive interaction between the individuals and their signification. When this process reaches a stable state (= eigenform), the sign can be used as if it refers to a real referent. To give an example: When a girl tells her mother that she has this strange good

feeling when meeting Bob, her mother might say: “Oh baby this is love; you fell in love”. The mother, however, has no access to the daughter’s feeling. She simply describes a description. The daughter, to whom the word ‘love’ was introduced, now may use this word when the described feelings come up. Neither the mother, nor the daughter know the feeling of the other through direct access; they only know the description of each other. The ongoing usage of the word ‘love’ in combination with described interaction (here meeting somebody) creates an imagination of a ‘real’ referent; the referent to the word ‘love’. Whereas an object emerges throughout the recursive operation of observing and acting, a referent of a sign emerges throughout the recursive operation of observing, signifying and acting (see figure 4a and 4b).

Figure 4a: The recursive operation Observation/Indication/Coordination of action

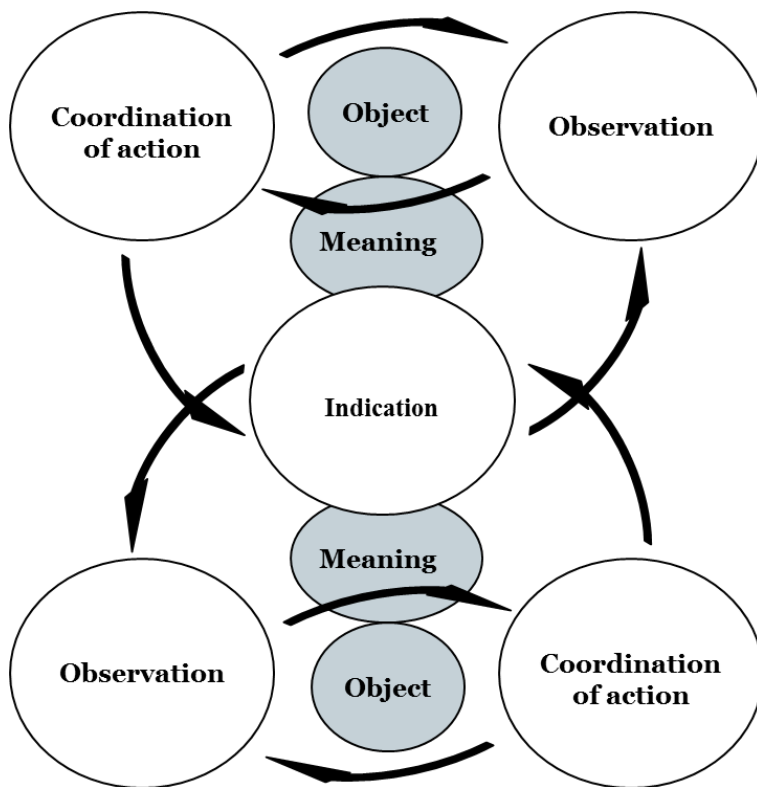


And furthermore, if the indication is an abstract term like ‘love’, the object and the meaning coincide. There is no “real” referent to an abstract term. Hence, if objects are an eigenform of recursive operations and if indication is part of this recursive operation, then words refer either to other words or to activities. This holds for abstract term in particular. Hence, our main propositions are:

P1: Words refer either to other words or to activities (and their observations).

P2: Meaning is an imaginary eigenform which can be used as being real.

Figure 4b: Coordination of action/Observation/Indication/Observation/Coordination of action



How can we think of something imaginary as being real? And how can it appear in a real process of recursive operations?

We give an analogy: If we take the simple operation $4+5/x$ and use it in a recursive way and start e.g. with 10, we get: 4.5; 5.111...; and finally 5. The number 5 solves the equation $4+5/x = x$. Therefore, 5 is a stable state of the recursion. Now, if we change the operation into $4-5/x$, we cannot find a stable state in real numbers. However, we find a stable state in complex numbers, which is $2 \pm 1i$. We can now operate with this complex number, as if it were real (not saying it is a real number). Likewise, we operate with meanings as if it were real. What we are proposing is that meaning appears in ongoing recursive operations of observing, indicating and acting. However, the meaning is always beyond the observing, the indication and the acting. It is a transcendent idea. We do not have direct access to meaning but we use it as if it were real.

One consequence of this understanding is that meaning of abstract terms emerges as eigenform of recursive operations. These recursive operations give an interpretation of Wittgenstein's notion "the meaning of a word is its use in the language" (Wittgenstein, 2008, § 43).

Another consequence of this understanding is that we do not expect finding objects as referent when the term value is described, but we can expect to find other word that describe activities which can be observed. Löbler and Wloka showed that definitions of the word ‘loyalty’ refer either to other words (nouns) or to verbs describing activities (Löbler and Wloka, 2015).

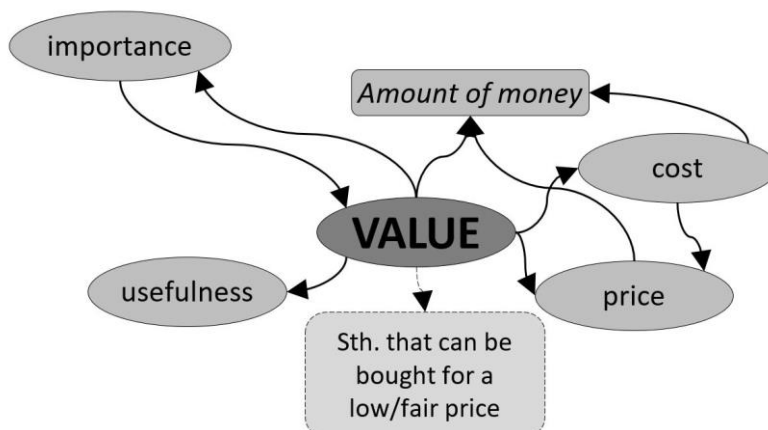
Looking up the nouns, they found that they were also explained by verbs describing activities.

3. The meaning of “value” as an eigenform

Following this logic explained above, in this section we describe a methodological approach in which we simulate the use of language through a research process with a dictionary. Our aim is to identify descriptions for ‘value’, for which we used the American online dictionary ‘Merriam Webster’. Our main hypothesis is that the term ‘value’ is described either by abstract nouns and/or verbs indicating an activity as referent. As discussed above, abstract nouns are results of intersubjective recursions, where the referent is not easy to identify. Verbs, however, indicate activity as referent which may be easier to imagine compared to abstract nouns’ referent.

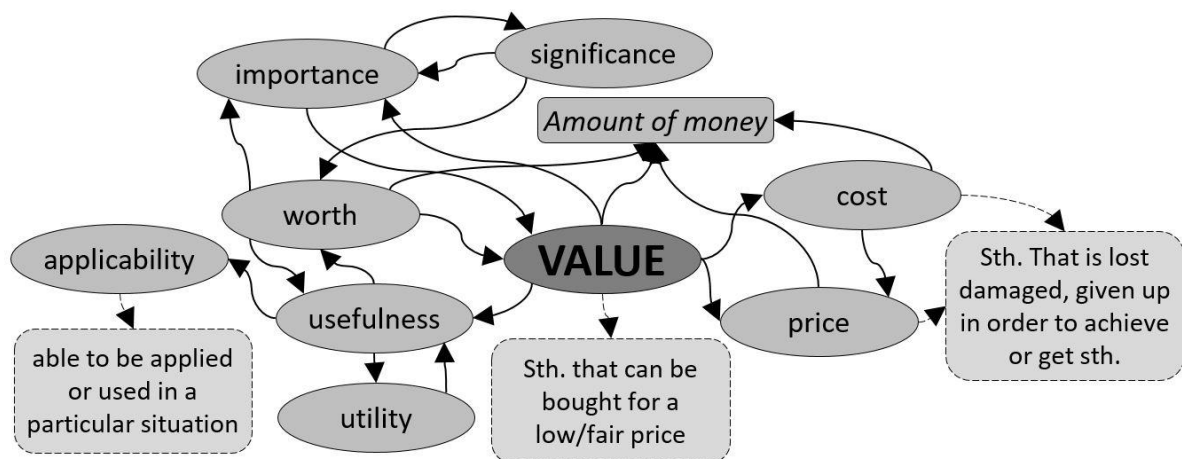
Merriam Webster’s dictionary provides two different kinds of definition for terms. First, the “simple definition” and second a “full definition”. The “simple definition” is a condensed version of the “full definition” describing the core of the term in question. Therefore, we used the simple definition. Looking up ‘value’, the simple definition includes the description “the amount of money that something is worth: the price or cost of something”, “something that can be bought for a low or fair price” as well as “usefulness or importance” (Merriam Webster, 2016). The terms, which constitute the definition of value, are “amount of money”, “price”, “cost”, “usefulness” and “importance”, which are visualized in the following figure 5a.

Figure 5a: References to other terms from the definition of ‘value’



Like the term ‘value’, these terms describing value are also looked up in the dictionary, which means that the defining word is not the word to be defined (definition of definition), turning the process into a recursive operation. The recursive process of looking up the constituted words of a definition, which brings new terms to be defined, sometimes created backlinks to terms already researched. Such backlinks produced infinite loops such as described above in the translation of “Wieviel ist die Reise wert?” For instance, as visualized in figure 5b, “value” refers to “usefulness”, “usefulness” amongst others refers to “worth”, which in turn links back to “value”.

Figure 5b: Recursive processes of the term “value”

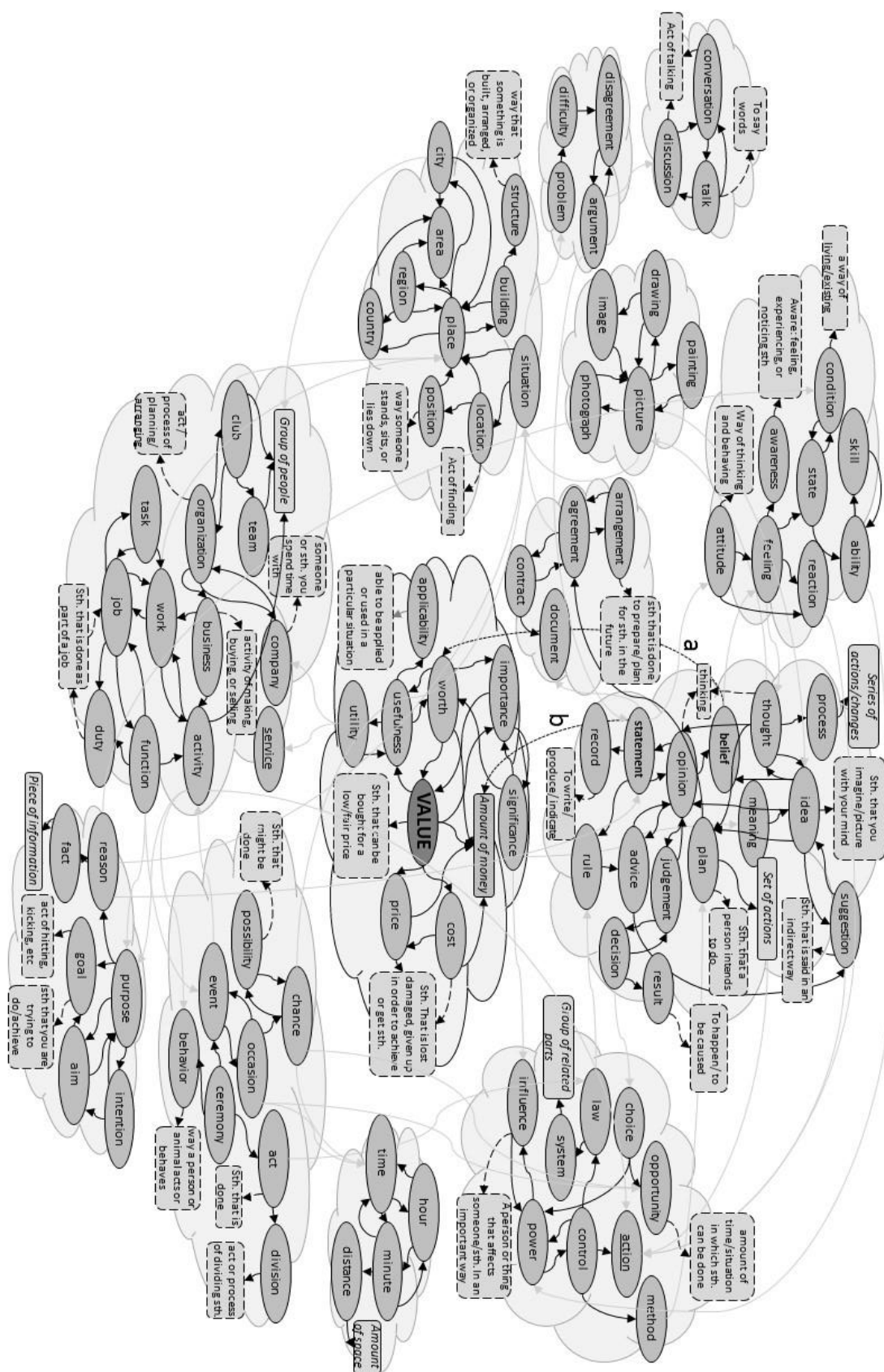


Such links and backlinks between the terms not only create infinite loops but also form groups of terms. We call each group a meaning-cloud (cf. Löbler and Wloka, 2015). Although the various meaning-clouds can be more or less connected with each other (see grey arrows in the following figure 5c), they still form separate meaning-clouds due to their partly one-sided references to each other.

Compared to the research of meaning-clouds of ‘loyalty’ (cf. Löbler and Wloka, 2015), where most clouds refer back to the originally ‘loyalty’-cloud, only one of all the meaning-clouds directly links back to the initial meaning-cloud for ‘value’ through the terms “belief” (see arrow a) and “statement” (see arrow b). Some meaning-clouds refer to other clouds uni-directional, other clouds have a bi-directional relationship. Furthermore, some clouds are connected to the original ‘value’ meaning-cloud indirectly via other meaning-clouds.

All connections to which the definitions refer to are summarized in the so-called “meaning-map” (cf. Löbner and Wloka, 2015) in figure 5c. All these connections are from the “simple definition”, except “service” and “action”, which were part of the definition of other terms, but were themselves not defined with a “simple definition”. Therefore, these two terms do not refer to other terms in our meaning-map (no arrows from “service” and “action” to other words). Furthermore, the full definition of “service” and “action” would create their own complex meaning-maps, which are not in the focus of the paper.

Figure 5c: Meaning-map for value



In this process three main things became apparent:

First, as assumed, the meaning-map confirms that ‘value’ refers to other abstract nouns, while links and backlinks between the nouns create infinite loops and meaning-clouds.

Second, the meaning-map confirms that the term ‘value’ refers also to verbs indicating that the referent of these verbs is an activity. For instance, the description “something that can be bought...”, where the verb “buying” indicated the activity of buying. In the figure, the indication of an activity is illustrated through rectangular shapes with a dotted outline.

Third, there are definitions referring to genitive constructions of two nouns like “amount of money”, indicating a concrete referent, instead an abstract one. Looking closer, such constructions refer to something concrete outside language, so that the referent is an object. In this sense, “amount of money” can refer to coins or banknotes.

Furthermore, this methodological approach of analyzing recursive operations as a kind of language use for ‘value’ shows that there are thirteen meaning-clouds for the term. Each of this meaning-cloud represent a certain eigenform, which is mainly implicit. The initial meaning-cloud of ‘value’ is mostly linked to terms connected in a way to money (“cost”, “price”, “sth. that can be bought for a low/fair price”) which shows that in the everyday usage of the term, it is strongly linked to a monetary referent. One meaning-cloud consists of terms such as “place”, “location”, “area” which all have rather a spatial connection, whereas another meaning-cloud is more linked to a temporal referent through terms such as “hour”, “time” and “minute”.

We identified the following thirteen meaning-clouds:

- monetary (price, cost, amount of money)
- spatial (place, location, area)
- temporal (hour, time, minute)
- emotional (feeling, awareness, attitude)
- cognitive (thought, idea, opinion)
- goal-oriented (aim, purpose, intention)
- conversational (talk, discussion, conversation)
- control-related (power, influence, control)
- agreement-related (document, arrangement, agreement)
- problem-oriented (difficulty, disagreement, problem)

- representational (image, picture, drawing)
- occurrence-related (event, chance, occasion)
- organizational (work, task, business)

Depending on the context in which 'value' is used, the term can have quite different connotations. The meaning of the term 'value' depends on these connotations and is mainly tacit and therefore described by eigenforms.

4. Discussion

The simulation of language use through consulting the Merriam Webster dictionary as done in the paper showed, how stable states (infinite loops) of recursive operations emerge. We identified three forms of stable states: (1) closed loops between nouns only, (2) closed loops between nouns and verbs indicating descriptions of activities and (3) finally three reference to 'object like' referents indicated by two nouns connected by a genitive construction as in 'amount of money'. One has to be aware that the shown referents are all words as they were taken from a dictionary. The words all come from a dictionary and there are only words and nothing else. There cannot be direct relationships from these words to the world outside of language in a dictionary. Even the phrase 'amount of money' contains only words and the amount of money people might think of is not necessarily the same for different people. However, according to our suggestion that meaning emerges as eigenform from stable recursive operations, as described in figure 4a and 4b, these eigenforms are experienced or perceived as having 'real meanings' or are often associated with 'real things'. The eigenforms are used as if they were real things, giving them the appearance of such 'real things' through the way people deal with them. The embeddedness of language use in social 'realms' and the ongoing recursive operations of indication, observation and coordination create the meaning as an eigenform of these operations. Whereas von Foerster's operations created objects as tokens of eigen-behavior, indication is needed in the social realm as part of the recursive operations to create meaning by stable states of these recursive operations; the eigenforms.

Our research showed, furthermore, that value as used in colloquial language, has a lot of different associations as the meaning-clouds in figure 5c reflect. The word 'value' can be used in many contexts and therefore has neither a single nor a simple meaning. From an academic perspective, these contexts have to be considered when using the word. Academics may feel free to define the word 'value' as they think it is appropriate. However, if the context is not

considered, they may be misunderstood. The academic language use is not totally free from anything. The academic language in use has to be connectible to colloquial uses of the term in question or at least to those terms defining the term in question.

In addition, the simulation of the colloquial language use of 'value' showed, that Merriam Webster's dictionary did neither connect the word 'value' to wellbeing, nor to wealth. Consequently, it indicates that academics using the word in the (new) sense of wellbeing or wealth might not be understood by others, unless they establish recursive operations in the new use of the term, which then might lead to a stable state/ an eigenform of meaning. Language use in this sense is embedded in the individual as well as in social past. We learn the use of words from others and therefore the meaning of these words depend on the social community. This dependence of the meaning of the word of the social community has even been recognized by the famous physicist Werner Heisenberg (1971).

The concept of eigenforms helps to model the emergence of meaning in language use. It allows to understand the meaning of a word, here value, as an implicit form of recursive operations. This model deploys its full capacity when used for abstract terms in particular. Abstract terms have no 'real thing' as referent as it has, for example, been showed by Löbner and Wloka for the term 'loyalty' (2015). Abstract terms usually refer either to other nouns or to practices as the tacit form of doings and therefore, their meaning is mostly implicit than explicit. The more we use terms in a specific way as indicated by recursive operations, the more there is a change to reach a stable state. Such stable states, however, do not last forever since language is always under development and meaning of terms evolves. The idea of a single or simple referent seems not adequate when reflecting the meaning of abstract terms like 'loyalty' or 'value'.

References

- Anderson, J.C. and Narus, J.A. (1998), "Business marketing: Understanding what customers value", *Harvard Business Review*, Vol. 76, pp. 53–65.
- Babin, B.J., Darden, W.R. and Griffin, M. (1994), "Work and/or fun: Measuring hedonic and utilitarian shopping value", *Journal of Consumer Research*, Vol. 20 No. 4, pp. 644–656.
- Baudrillard, J. (1975), *The mirror of production*, Telos Press, St. Louis.
- Baudrillard, J. (1994), *Simulacra & Simulation*, The University of Michigan Press, Ann Arbor.
- Baudrillard, J. (2005), *The System of Objects*, Verso Books, London & New York.
- Brentano, F.C. (1973), *Psychology from an Empirical Standpoint*, Routledge, London.

- Butz, H.E. and Goodstein, L.D. (1996), "Measuring customer value. Gaining the strategic advantage", *Organizational Dynamics*, Vol. 24 No. 3, pp. 63–77.
- Chandler, J.D. and Vargo, S.L. (2011), "Contextualization and value-in-context. How context frames exchange", *Marketing Theory*, Vol. 11 No. 1, pp. 35–49.
- Chandon, P., Wansink, B. and Laurent, G. (2000), "A benefit congruency framework of sales promotion effectiveness", *The Journal of Marketing*, Vol. 64 No. 4, pp. 65–81.
- Cherrieri, H. and Murray, J.B. (2004), "The Sociology of Consumption: The Hidden Facet of Marketing", *Journal of Marketing Management*, Vol. 20, pp. 509–525.
- Collins, M. (2005), "Medical Back Translation: Strategies for Making it Work", *American Translators Association Cronicle*, No. August, pp. 19–24.
- Deleuze, G. (1994), *Differende & Repetition*, The Athlone Press, London.
- Derrida, J. (1978), *Writing and Difference*, Routledge, London.
- Derrida, J. (2004), *Die différance*, Reclam, Stuttgart.
- English Oxford Living Dictionary (2017), *English Oxford Living Dictionary*.
- Foerster, H.v. (1981a), "Objects: tokens for (eigen-) behaviors", in Foerster, H.v. (Ed.), *Observing systems, Systems inquiry series*, Intersystems Publications, Seaside, Calif., pp. 274–285.
- Foerster, H.v. (1981b), "On constructing a reality", in Foerster, H.v. (Ed.), *Observing systems, Systems inquiry series*, Intersystems Publications, Seaside, Calif., pp. 288–309.
- Foerster, H.v. (2003a), "Objects: Tokens for (E igen-)Behaviors", in Foerster, H.v. (Ed.), *Understanding understanding: essays on cybernetics and cognition.*, Springer, New York, pp. 261–271.
- Foerster, H.v. (Ed.) (2003b), *Understanding understanding: essays on cybernetics and cognition.*, Springer, New York.
- Füllsack, M. (2012), "Information, meaning and eigenforms: in the light of sociology, agent- based modeling and AI", *Information*, No. 3, pp. 331–343.
- Gale, B.T. (1994), *Managing customer value: Creating quality and service that customers can see*, The Free Press, New York, NY.
- Gummerus, J. and Pihlström, M. (2011), "Context and mobile services' value-in-use", *Journal of Retailing and Consumer Services*, Vol. 18 No. 6, pp. 521–533.
- Heisenberg, W. (1971), *Physics and beyond: Encounters and conversations*, G. Allen & Unwin, London.
- Helkkula, A. (2011), "Characterising the concept of service experience", *Journal of Service Management*, Vol. 22 No. 3, pp. 367–389.
- Helkkula, A., Kelleher, C. and Pihlström, M. (2012), "Characterizing Value as an Experience", *Journal of Service Research*, Vol. 15 No. 1, pp. 59–75.
- Holbrook, M.B. (1994), "The nature of customer value: An axiology of services in the consumption experience", in Rust, R.T. and Oliver, R.L. (Eds.), *Service quality. New directions in theory and practice*, Sage, Thousand Oaks, CA, pp. 21–71.
- Holbrook, M.B. (Ed.) (1999), *Holbrook, M. B. (1999). Introduction to consumer value. In (Ed.), Consumer value: A framework for analysis and research (pp. 1–28).*, Routledge Kegan Paul, London.
- Kauffman, L.H. (2003), "Eigenforms – objects as tokens of eigenbehaviour", *Cybernetics and Human Knowing*, Vol. 10 No. 3-4, pp. 73–89.
- Kauffman, L.H. (2005a), "EigenForm", *Kybernetes*, Vol. 34 No. 1/2, pp. 129–150.
- Kauffman, L.H. (2005b), "Formal Systems Eigenform", *Journal Kybernetes*, Vol. 34 No. 1-2, pp. 129–150.
- Lindgreen, A. and Wynstra, F. (2005), "Value in business markets. What do we know? Where are we going?", *Industrial Marketing Management*, Vol. 34 No. 7, pp. 732–748.
- Löbler, H. and Wloka, M. (2015), "Loyalty' Between Talk and Action – Meaning as Eigenforms of Recursive Operations", in Bartsch, S. and Blümelhuber, C. (Eds.), *Always ahead: Ideen für das Marketing*, Springer Gabler.

- Macdonald, E.K., Wilson, H., Martinez, V. and Toossi, A. (2011), "Assessing value-in-use. A conceptual framework and exploratory study", *Industrial Marketing Management*, Vol. 40 No. 5, pp. 671–682.
- Mathwick, C., Malhotra, N. and Rigdon, E. (2001), "Experiential value. Conceptualization, measurement and application in the catalog and Internet shopping environment☆11☆This article is based upon the first author's doctoral dissertation completed while at Georgia Institute of Technology", *Journal of Retailing*, Vol. 77 No. 1, pp. 39–56.
- Ogden, C.K. and Richards, I.A. (1946), *The Meaning of Meaning: A study of the influence of language upon thought and of the science of symbolism*, 8. Ed., Harcourt, Brace & World, Inc., New York.
- Paegelow, R.S. (2008), "Back Translation Revisited: Differences that Matter. (and Those that Do Not)", *American Translators Association Cronicle*, No. August, pp. 22–25.
- Peirce, C.S. (1991), "On the Nature of Signs", in Peirce, C.S. and Hoopes, J. (Eds.), *Peirce on signs: Writings on semiotic by Charles Sanders Peirce*, Univ. of North Carolina Press, Chapel Hill NC u.a., pp. 141–143.
- Ramaswamy, V. (2011), "It's about human experiences...and beyond, to co-creation", *Industrial Marketing Management, Special issue on service-dominant logic in business markets*, Vol. 40 No. 2, pp. 195–196.
- Ravald, A. and Grönroos, C. (1996), "The value concept and relationship marketing", *European Journal of Marketing*, Vol. 30 No. 2, pp. 19–30.
- Rintamäki, T., Kanto, A., Kuusela, H. and Spence, M.T. (2006), "Decomposing the value of department store shopping into utilitarian, hedonic and social dimensions", *International Journal of Retail & Distribution Management*, Vol. 34 No. 1, pp. 6–24.
- Saussure, F. de (1959), *Course in general linguistics (edited by C. Bally & A. Sechehaye, and translated by W. Baskin)*, McGraw-Hill., New York.
- Sheth, J.N., Newman, B.I. and Gross, B.L. (1991), "Why we buy what we buy. A theory of consumption values", *Journal of Business Research*, Vol. 22 No. 2, pp. 159–170.
- Smith, K. (2005), *Handbook of visual communication: Theory, methods, and media*, L. Erlbaum, Mahwah, N.J.
- Sweeney, J.C. and Soutar, G.N. (2001), "Consumer perceived value. The development of a multiple item scale", *Journal of Retailing*, Vol. 77 No. 2, pp. 203–220.
- Vargo, S.L. and Lusch, R.F. (2004), "Evolving to a New Dominant Logic for Marketing", *Journal of Marketing*, Vol. 68 No. 1, pp. 1–17.
- Vargo, S.L. and Lusch, R.F. (2008), "Service-dominant logic: Continuing the evolution", *Journal of the Academy of Marketing Science*, Vol. 36 No. 2, pp. 1–10.
- Vargo, S.L. and Lusch, R.F. (2011), "It's all Be2B...And beyond: Towards a systems perspective of the market", *Industrial Marketing Management*, Vol. 40 No. 2, pp. 181–187.
- Vargo, S.L., Maglio, P. and Akaka, M. (2008), "On Value and value co-creation: A service systems and service logic perspective", *European Journal of Management*, Vol. 26, pp. 145–152.
- Venkatesh, A., Penaloza, L. and Firat, A. (2006a), "The market as a sign system and the logic of the market", in Lusch, R.F. and Vargo, S.L. (Eds.), *The Service Dominant Logic of Marketing - Dialog, Debate, and Directions*, M.E.Sharpe, New York, pp. 251–265.
- Wittgenstein, L. (2008), *Philosophical investigations: The German text, with a revised English translation*, 3rd ed, Blackwell, Oxford, Malden, Mass.
- Woodruff, R.B. and Flint, D.J. (2006), "(2006). Marketing's service-dominant logic and customer value.", in Lusch, R.F. and Vargo, S.L. (Eds.), *The Service-Dominant Logic of Marketing*, M.E. Sharpe, Armonk, New York, pp. 189–195.

Zeithaml, V.A. (1988), "Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence", *Journal of Marketing*, Vol. 52 No. 3, pp. 2–22.