The Visual Memory of Grammar:
Iconographical and Metaphorical Insights*

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Abstract

This study represents an interdisciplinary attempt to trace the origins of metaphorical expressions as they are found in English grammatical terminology. The perspective chosen combines cognitive and art-historical approaches to the meaning of abstract concepts: cognitive semantics and iconography. It takes into account the historical dimension of the media which have served, over the course of centuries, to render abstract concepts graspable: figurative language, visual images, and the printed page. By taking a close look at examples from an iconography of grammar created for the purpose of this study (which includes personifications, allegories and memory buildings from the early Modern period), I shall discuss the visual traditions and patterns in the representation of abstract concepts and structures. In the second part of this paper, the theory of conceptual metaphor is applied to one of these educational and mnemonic illustrations, whereby the metaphorical concepts underlying expressions in both media are presented and linguistic metaphors are related to their visual counterparts. The aim is to provide insights into the conventional repertoire of images of grammar as a discipline and as a symbolic system.

Dieser Beitrag ist ein interdisziplinärer Versuch, die medienhistorische Dimension von metaphorischen Ausdrücken in der englischen Grammatikterminologie aufzuzeigen. Um bedeutungsstiftende Prozesse in der Konzeptualisierung von abstrakten Konzepten sichtbar zu machen, bringt die hier gewählte Perspektive kognitiv-linguistische und kunsthistorische Ansätze zusammen, nämlich kognitive Semantik und Ikonographie. Die historische Verankerung bildhafter Ausdrücke wird anhand des Zusammenwirkens der Medien aufgezeigt, die seit Jahrhunderten dazu dienen, abstrakte Konzepte greifbar zu machen: bildhafte Sprache, bildliche Darstellungen und das sie transportierende Druckmedium. In einem ersten Schritt werden Einsichten in die für diese Arbeit erstellte Grammatik-Ikonographie gegeben. Dann wird die von Lakoff und Johnson entwickelte Metapherntheorie auf das Bildmaterial (vorwiegend Personifikationen und Wissenschaftstürme aus der frühen Neuzeit) angewandt, wobei die medienübergreifenden Metaphorisierungsprozesse sowie entsprechenden sprachlichen Ausdrücke herausgearbeitet werden. Auf diese Weise wird ein Eindruck von konventionellen Vorstellungen von Grammatik als Disziplin und symbolisches System gegeben.

0. Introduction

Grammar is an elaborate symbolic system. It belongs to the group of abstract concepts and intangible entities that we treat in our thinking and speech as objects with certain properties, sub-categories, and relations to other concepts. In doing so, we seem to rely on certain mental representations of grammar and a figurative vocabulary to seize its structures and mechanisms. The aim of this study is to make out the metaphorical concepts underlying grammatical terms such as 'construction of a sentence', 'word classes', or 'hierarchy of constituents' by investigating how the corresponding mental models might have been imprinted in the collective memory of speakers. In order to get a grasp on such a process of cultural mediation, I will take into account not only the metaphorical language, but also pictorial representations which have remained prominent throughout the academic history of grammar as one of the seven liberal arts. If we assume that both linguistic expressions and visual images reflect human conceptualization, it seems plausible that they can illuminate as well as complement each other. When we consider, for instance, the fact that metaphors, personifications, and allegories can take shape by linguistic and pictorial means of expression, it makes it seem worthwhile to explore not only *linguistic*, but also *visual* evidence.

1. Approach: Combining iconography and cognitive linguistics

To account for the specific properties of both linguistic and visual media, an innovative approach combining linguistic and art-historical perspectives was chosen. Principles of the theory of conceptual metaphor developed by Lakoff and Johnson (1980, 1999; Lakoff, 1987, 1990, 1993; Johnson 1987, 1992, Sweetser 1987, 1990) were applied to images of grammar, collected in the iconographic tradition founded by Aby Warburg and Erwin Panofsky (1955; 1979). Lakoff and Johnson (1980) state that "our ordinary conceptual system, in terms we both think and act, is fundamentally metaphorical in nature" (p. 3) and define the essence of metaphor as "understanding and experiencing one kind of thing in terms of another" (p. 5). They further posit that "meaning and value are grounded in the nature of our bodies and brains, and in our physical, social, and cultural environments" (Johnson 1992:346) and place the bodily, or sensorial perception in the center of their theory claiming that embodied image-schemas conceptualize our experience at a non-propositional level (Johnson 1992:349). This study is based on the assumption that these image-schemas underlie both linguistic and pictorial expressions, and that our perceptual system and image-based reasoning is grounded not only in *direct* experience, but

also conditioned by *indirect* experience mediated through cultural artifacts such as printed words and pictures.[1]

In light of the growing attention cognitive linguists have given to metonymy (see contributions in Panther&Radden (1999) and Barcelona (2000)), the interaction of metaphorical and metonymic conceptualization will be taken into account, for spatial structures figure prominently in the context of this study. Despite the different views of what metonymy affords, there seems to be a consensus, that whereas metaphor is based on cross-domain mappings, metonymy consists of mappings within the same experiential domain.[2] As will be exemplified below, metaphorical and metonymic mappings that are reflected by today's grammatical meta-language can be made out in visualizations of the concept 'grammar' dating from the early Modern period.[3]

As far as the interpretation of printed illustrations is concerned, the school of Iconography and Iconology is particularly suitable, since it does not degrade them as a minor art form, but rather focuses on the meaning expressed by the media. It aims to trace the representational history of motifs and to establish explanatory links between images and their literary sources as well as their socio-historical context. According to Panofsky, the ultimate goal is to make out the mental concepts, mentality, or worldview ("Weltanschauungs-Energie", Panofsky 1979:200) of a given period in history, translated by the specific display of the respective motif. Recurring patterns in the representation of motifs evidence conventionalized perceptions and cultural concepts which are, as is proposed in this paper, comparable to metaphorical concepts posited by Lakoff and Johnson (1999:511). Both approaches investigate the interrelation between meaning, mental images, and what Gombrich called cultural conventions:

> Cultural conventions react back on their users, they are handed down by tradition as the potential instruments of the minds – which sometimes determine not only what can be said but also what can be thought or felt. (Gombrich 1971:257)

With this in view, I will argue that cognitive semantics and iconography can be seen as complementing each other in the sense that the latter allows us to trace the visual memory and representational traditions of concepts, thus providing a counterbalance to the linguistic rhtoric of metaphor and metonymy. The present study attempts to provide insights into the cultural history

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[1] Referring to Lakoff and Johnson (1980:156-158), Barcelona (2000a:5) stresses the fact that "both metaphor and metonymy are regarded in cognitive linguistics as *conventional mental mechanisms*, not confused with their expression, linguistic or otherwise. Metaphors and metonymies are often not verbalized, but can be expressed through gestures or other non-verbal communicative devices, or not communicated at all and simply motivate our behavior" (italics in the original).

[2] "Metonymy is a conceptual projection whereby one experiential domain (the target) is partially understood in terms of another experiential domain (the source) included *in the same common experiential domain*" (Barcelona 2000a:4, italics in the original).

[3] It should be noted that the historical dimensions considered in this paper pertain to the visual history and representational traditions of concepts and not to aspects of semantic change. Sweetser (1987, 1990, 1992) presents evidence for metaphorical patterns in semantic change and argues for cognitive and experiential motivations for speech and thought metaphors as well as for modal verbs.

of metaphorical models for grammar under the assumption that the way we conceptualize abstract concepts relies, at least in part, on the interplay of conventionalized mental images, education, as well as on the representational media and traditions in a given culture. While acknowledging the experiential motivation (i.e. the physical grounding of how abstract concepts are conceptualized) the intention is to add a more holistic and culturally manifested dimension to the understanding of such phenomena.

2. Images of grammar

In order to sketch the history of the motif grammar, an iconography of grammar needed to be established. Most of the woodcuts and etchings I collected date from 16th and 17th century Western Europe and represent creative efforts to visualize abstract concepts in the form of personifications, allegories, and mnemonic illustrations.[4] Among these images, the *Tower of Grammar* (Zurich 1548) was the primary and most fruitful object of investigation (figure 1).[5] It displays a detailed image of Latin grammar as a discipline and as a complex system of categories. In the form of a printed flyer, this carefully crafted memory room represented a new vehicle for long existing concepts. The visual images presented in this section are thus "products of intentional human activity" (Carroll 1994:189); they are symbols whose perception is mediated by a certain code encapsulating a particular domain of knowledge.

2.1 Printed words and illustrations

As a printed flyer, containing pictorial and linguistic elements, the *Tower of Grammar* reflects the rising tendency among humanist scholars to add illustrations to theoretical, biblical, and all other text genres (Baigrie 1996; Giesecke 1991, 1992; Harms 1985). As the printing techniques became ever more and more sophisticated, visual displays were increasingly used to facilitate the digestion of books written in Latin as well as in the national languages emerging in Europe (Illich & Sanders 1988; Olson 1994; Reis 1997). The more information was put into print, the higher was the need for standardization of orthography and layout (Settekorn 1988:44ff.). The fact that vernacular grammars were established and taught in school, and that Latin, the classical language

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[4] The research center *Politische Ikonographie* at the *Warburg-Haus* in Hamburg was a valuable source in my search for visual material. Due to the limited space here, I can only discuss some examples of my collection. (Mittelberg, unpubl. M.A. thesis)

[5] Copy: National Galleries Berlin, Collection of Engravings, 46x24 cm. (Geisberg, 1974, No. 1430). This artwork has two authors, both well-known humanists: Heinrich Vogtherr the Elder did the woodcut; Valentin Boltz is responsible of the German text which has a dialectal coloring from the Alsatian region.

of instruction, was slowly replaced by national languages, is commonly seen as an act of emancipation from the Latin predominance in education.

It seems however, that the national languages first had to develop their own grammatical vocabularies as well as adequate structures to be able to compete with Latin (Giesecke 1992:388ff.). This also applies to rhetorical challenges created by linguistic descriptions of complex images (Warncke 1987:131ff.). The authors of the *Tower of Grammar* solved this problem with an elegant compromise: the German text describes only some of the pictorial elements (the grammatical categories are kept in Latin) and hierarchical and functional relations between categories are expressed by visual means.
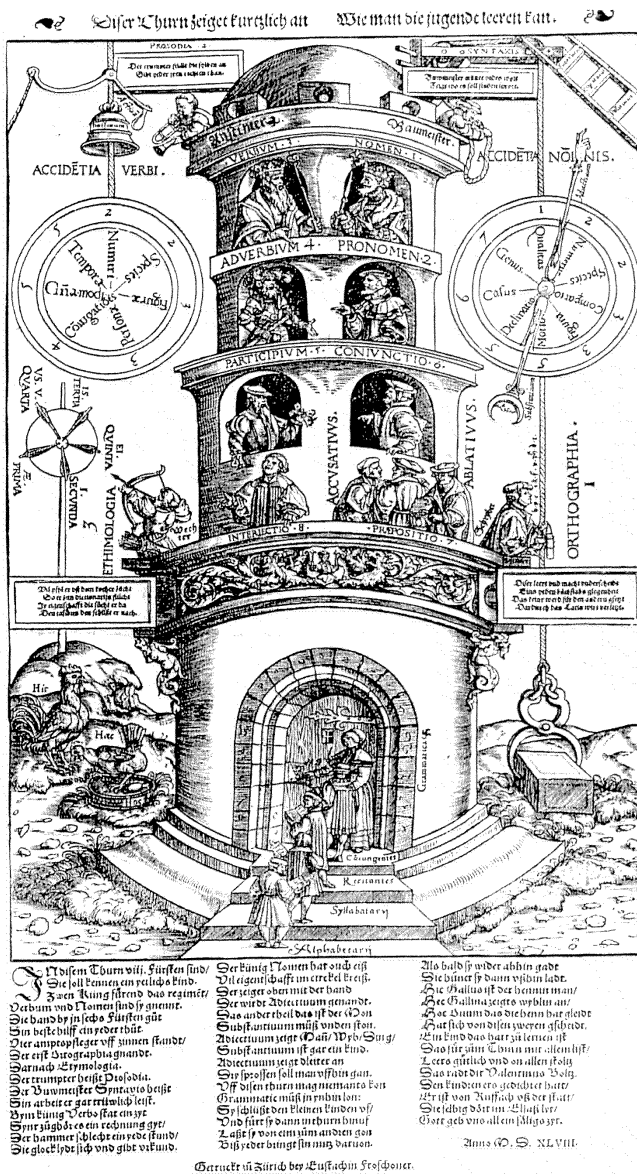

Figure 1: *The Tower of Grammar*, Heinrich Vogtherr the Elder, woodcut, Zurich 1548.

It should be pointed out though that the understanding of the visual data still relies on the given linguistic support, especially for the uneducated addressee who might not be familiar with the particular code (Vicari 1993:162). At the same time, the bilingual situation in schools and in scholarly activity (e.g. glossaries) is represented through the combination of Latin grammar and German commentary.

2.2 The *Tower of Babel* and memory buildings

The theme *language* and the motif *tower* possess an abiding common tradition established through numerous images of the *Tower of Babel*. With the biblical content at their core, most of these images visualize the construction process and display similar devices as the *Tower of Grammar* (ladder, tread wheels, and hoists). An example of this representational heritage is given in Figure 2 (*Zurich World Chronic*, 1350, taken from Wegener 1995:207). Whereas *Tower of Babel* representations usually do not show a finished tower, the *Tower of Grammar* is complete. The former aim at visualizing the conflict between the overly ambitious goal to build a tower that would reach into the sky and God's opposition to such an ethereal structural aspiration. As will be shown below, the intervention from above, resulting in a partial destruction of the building and a state of linguistic confusion is not thematized in tower buildings that represent knowledge systems. The *Tower of Grammar* belongs to the latter category as a showcase for the grammatical system of Latin. This also applies to the tools, still visible, needed to use the system.

Fig. 2: *The Tower of Babel*, Zurich World Chronic, Rudolf v. Ems, 1350

Given the secular inhabitants of the tower and the fact that the work of humanist grammarians was often perceived as anti-Babel, the programmatic character of the completed tower, a self-sufficient system, becomes even more evident. Biblical aspects are replaced by intellectual and social aspects, and linguistic confusion (alluding to the wealth of upcoming vernacular languages) by systematicity and stability.

Because of its instructive character, the *Tower of Grammar* can clearly also be related to illustrations stemming from the *ars memorativa* tradition, a discipline which, since ancient times, provided elaborate techniques to structure and memorize complex speeches, concepts, and theories. After the invention of the printing press, the art of memory (Berns & Nauber 1993;

Volkmann 1929; Yates 1966) also faced new discourse conditions, while inner images could more easily become reified and standardized.

With the help of mnemonic devices, artificial memory could be trained to support the natural memory (*memoria artificiosa* and *naturalis*, cf. Ernst 1993:75) by imprinting images into people's minds. One can further distinguish between a memory for words (*memoria verborum*) and for things (*memoria rerum*). Ernst (1993:75) has pointed out that the two main components of artificial memory are memory places, *loci*, and memory images, *images agentes*.
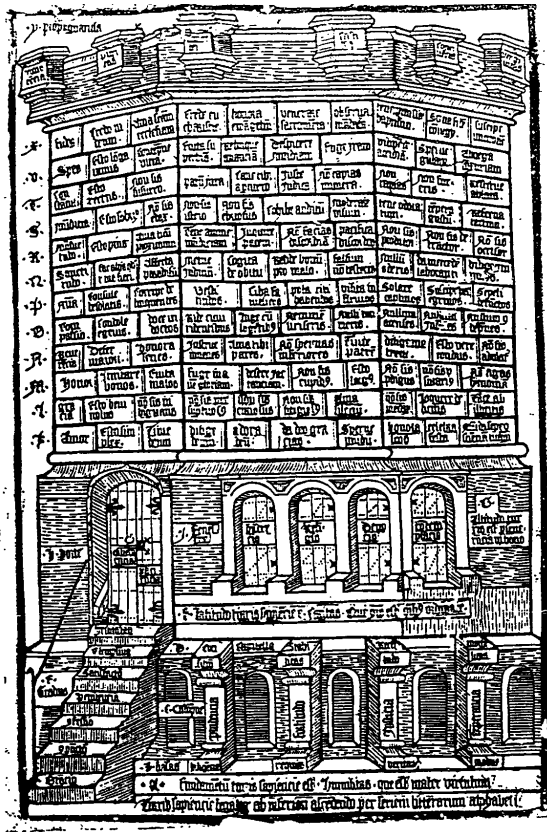
Fig. 3: *The Tower of Wisdom*, Nurnberg 1470

Fig. 4: *The Ladder of Ascent and Descent*, Ramon Lull, Valencia 1512

For the art of memory, it is viewed as essential that the human being calls up images of *verba* or *res* and assigns those to specific *loci* in a spatially ordered system, e.g. a building or some other construction with different levels and rooms. *The Tower of Wisdom* (Nuremberg 1470; taken from Reicke 1901:29; see Figure 3) and *The Ladder of Ascent and Descent* created by Ramon Lull (Valencia, 1512; taken from Yates 1966:182; see Figure 4) are only two of numerous examples for such combinations of logical objects and structures (Assmann 1991).

As for the visual memory of grammar, an array of different means has been used to remember grammatical material. Examples include playing cards that show word classes in the disguise of representatives of social classes like *The Eight Parts of Speech* (figure 5) and *The Noun* (figure 6) of the *Grammatica figurata* (both by Mathias Ringmann 1509; taken from Volkmann 1929:142).[6] Other pictorial motifs are figurative alphabets (displaying for each letter an object sharing its form) and human figures labeled with certain inscriptions and attributes that depict grammatical categories (Yates 1966:125ff.). Using human figures to illustrate the embodiment of certain properties, the two mnemonic images below provide a seque to the next section in which personifications as such will be discussed.

Fig. 5: *The Eight Parts of Speech, Grammatica Figurata*, Mathias Ringman,1509.

Fig. 6: *The Noun, Grammatica Figurata*, Mathias Ringman,1509.

2.3 Personifications and allegories

Since antiquity, personifications have been the classical way to visualize abstract concepts in paintings, churches, and public space. *Justice, abundantia, the four seasons*, and *the seven liberal arts* are popular examples. Human figures were a genuinely appropriate means for ascribing human qualities to non-human entities, exemplifying a sort of 'embodiment' or incorporation of values and wisdom. Grammar too was personified by women equipped with different combinations of attributes (Langner 1979:110ff.; Wittkower 1977), for example a hand tablet with the alphabet written on it, or a key signifying grammar's status as the key science opening the way to the study of other subject matters as illustrated in Figure 7 (Peter Corthys, 1566, taken from Strauss 1979: 534).

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[6] Note the similarity between this image and the *Tower of Grammar* in terms of the social hierarchy that is displayed. Volkmann (1929:144) indicates that to each of the eight parts of speech belongs a series of sub-categories (tempus, genus, etc.). As far as Figure 6 is concerned, it is interesting to observe that the small image inserted into the noun picture shows a person in free fall, probably alluding to the fact that nouns are declined in accordance with the case system.

Fig. 7: *Grammatica, The Key to Learning*,
Peter Corthys, 1566

Fig. 8: *Grammar*, Royal Portal,
Cathédrale de Chartres

Figure 8 shows grammar captured in the form of a sculpture on the Royal Portal of the Chartreuse Cathedral. The woman is holding a whip exhorting the students to study diligently. Other typical attributes include a file, signifying the intention to sharpen the mind, and a vase either with medication against errors or with water pouring from it onto plants. The latter example indicates that just as water nourishes plants, grammar may be said to prepare and ripen young minds to the attainment of other sciences. As opposed to spatial structures, personifications portray the functions grammar serves as a discipline or as a teacher; they do not depict the inner organization of the grammatical system.[7]

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[7] Most personifications of grammar appear either surrounded by the other liberal arts or as part of a teaching scene. In the context of a teaching scene, a female teacher represents 'grammatica', whereas a male teacher portrays one of grammar's proponents (for example Priscian).

Carrying a combination of attributes mentioned above, grammar is symbolized, in Figure 9, in her frequently cited function as gatekeeper; *Nicostrata*, the inventor of the alphabet, is guiding a young student into a building, again a tower, where grammar is being taught on the lower levels (Donate and Priscian) and all other sciences on the upper levels with theology gracing the top.
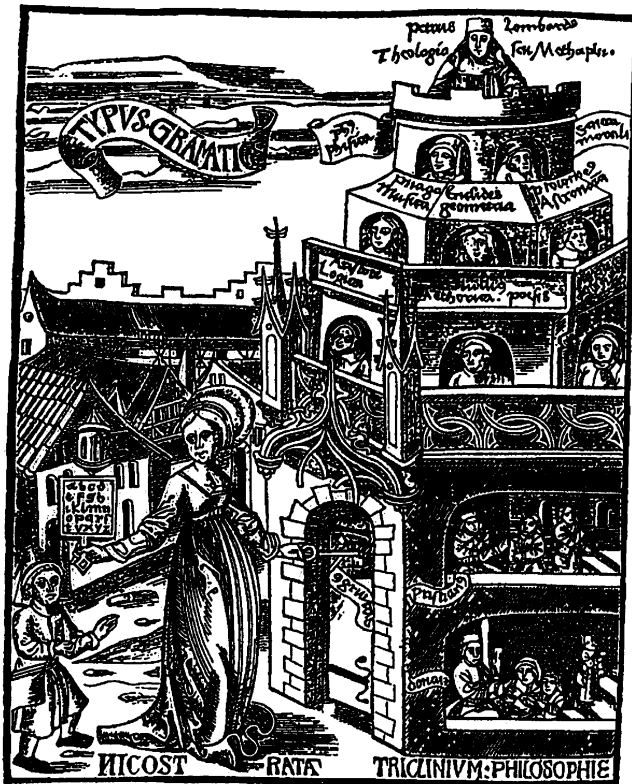
This allegoric illustration decorates the first page of the grammar chapter of an important 16th century Latin textbook, the *Margarita Philosophica* (by Gregor Reisch, Bale 1517*)*, comprising the canonical wisdom of the seven liberal arts taught at universities at the time. A few decades later, *grammatica* is at last assigned her own building: the *Tower of Grammar*.

Fig. 9: *Typus Grammaticae*, Gregor Reisch, *Margarita Philosophica*, Bale 1517

2.4 *The Tower of Grammar* – a brief sketch

The *Tower of Grammar* can be described as a memory building with remarkably elaborate features, spaces (*loci*), and personnel (*images agentes*) distributed to the different floors. A woman personifying *grammatica* is unlocking the portal for school children who already know their alphabet and conjugations (see the 'first steps' leading to the door) and are about to advance in acquisition of grammatical knowledge by walking up through the different levels. Representatives of the eight parts of speech occupy the balcony as well as the window openings of the three upper floors. Each of them is identified by an inscription (*verba*) referring to the grammatical categories (*res*) respectively. Also, these personifications are distinguished by different outfits indicating their rank in the feudal hierarchy: on the balcony INTERIECTIO (priest) and PREPOSITIO (scholar), on the second floor PARTICIPIUM (citizen/bourgeois), CONIUNCTIO (merchant), one floor higher ADVERBIUM (knight) and PRONOMEN (count), and at the highest level VERBUM (king) and NOMEN (emperor). The man representing PREPOSITIO is interacting with ACCUSATIVUS and ABLATIVUS. On the outer sides of the lower and upper balcony, four men are involved in various activities: On the left, a guard with a

bow, ETHIMOLOGIA, is shooting an arrow into a target with declension classes. On the right, a writer, ORTHOGRAPHIA, is helping the construction master, SYNTAXIS, to lift a building block with a hoist. On the upper left, a trumpeter is taking care of PROSODIA. Moreover, there are some interesting objects involved in the construction of sentences. On both sides of the tower, we see two large circles which remind us of clock faces or wheels. The left one contains the properties of verbs (number, person, tense, etc.), the right one, those of nouns (case, gender, declension, etc.). In the upper right corner, a ladder with three rungs symbolizes the three degrees of comparison (positive, comparative, and superlative).

As for the text added to the pictorial elements, it only refers to some of them. The title announces instructions as to how to teach the youth the principles of grammar. The text below the woodcut is written in verse form; the four labels set next to the tower describe the duties of the four officers (SYNTAXIS, etc.). It is mentioned in the main text that two kings are in charge of the regiment of the empire, and it is left to the audience to decide whether this pertains only to the empire itself or also, correspondingly, to the sentence. As a matter of fact, Charles V. and his brother Ferdinand I. shared royal duties at the time when this flyer was created. Obviously, such symbolically laden visual metaphors compensate for the lack of linguistic explanation by visibly rendering the meanings of terms. In a similar fashion, the figure representing PARTICIPIUM, holding two parts of two different crowns, signifies the unification of features of the noun (gender, case) and the verb (tense, meaning). By blending several semantic domains into one token of expression, visual metaphors can thus simultaneously allude to a variety of theoretical, historical, and social aspects.[8]

3. Metaphors for grammar

Figurative expressions allow us to view and understand abstract phenomena in terms of more concrete experiences and objects, or even through other abstract notions. Lakoff and Johnson stress the fact that the way we assign meaning to abstract concepts is not only based on bodily experience, but also on mental imagery.[9] Moreover, certain source domains are assumed to be particularly apt for structuring abstract notions, i.e. those which "primarily involve bodily interactions such as perception, spatial and temporal orientation, manipulations of objects, and movement through space" (Johnson 1992:362). In this respect, personifications represent a

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[8] Furthermore, the number of noun and verb properties displayed in the 'wheels' suggests that it is the above mentioned *Margarita Philosophica* and not Donatus' traditional grammar *Ars minor* that acts as a textual basis for this illustration. That is, the humanist textbook probably served as theoretical and artistic model alike.

[9] Lakoff (1987:XIV): "Thought is imaginative, in that those concepts which are not directly grounded in experience employ metaphor, metonymy, and mental imagery - all of which go beyond the literal mirroring, or representation, of external reality. It is this imaginative capacity that allows for the 'abstract' thought and takes the mind beyond what we can see and feel."

particularly versatile model, notably because the human being seems to function in various respects as a source for *image-schemas* - physically and socially.

Moreover, creative works of art can evoke fresh associations and allow one to establish connections between things and thoughts not previously 'figured' or thought possible, thus inspiring an imaginative play with categories (Carroll 1994:235). With regard to the notion of aesthetic experience, Lakoff and Johnson (1980) argue that, for example, poetic metaphor can create new understanding and new realities. Thereby the close relationship between metaphors used in ordinary and poetic language needs to be highlighted, for it has been shown that creative metaphors and metonymies rely on more basic ones (Sweetser 1992:708, Turner 1996:26ff.). This is crucial for imaginative and associative processes, which can be assumed to be triggered also by pictorial metaphor. Sensorial experiences play a key role:

> […] color, shape, texture, sound, etc., these dimensions structure not only mundane experience but aesthetic experience as well. Each art medium picks out certain dimensions of our experience and excludes others. […] Works of art provide new experiential gestalts and, therefore new coherences. (Lakoff & Johnson 1980: 235)

I will continue by extracting linguistic metaphors of grammar from the *Tower of Grammar* that foster both an intellectual and aesthetic experience.

3.1 Spatial concepts

The *Tower of Grammar* is a metaphor in and of itself: the concept of 'tower' is mapped onto the concept 'grammar' and provides a spatial macro-structure which is composed of additional concepts. Due to its verticality the tower has the shape of a CONTAINER with an UP-DOWN ORIENTATION. Given this spatial, syntagmatic dimension, we can say, with recourse to Roman Jakobson (1990) that metonymical processes (based on spatial contiguity and combination) interact with metaphorical processes (based on similarity and selection): the two forces that are, according to Jakobson, at the root of every process of signification. The assumption that some metaphors are grounded in metonymy (Barcelona 2000b:33; Radden 2000:93) seems to hold with respect to the tower which embodies the metaphorical concept THEORIES ARE BUILDINGS or, put in more general terms, ABSTRACT STRUCTURE IS PHYSICAL STRUCTURE and COMPLEX SYSTEMS ARE BUILDINGS (Kövecses 2000:83). This, at the same time, reflects a metonymic relationship as a support between the different parts of the architecture (levels, windows, etc.) and for the building as a whole (just like the memory rooms discussed earlier).[10]

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[10] Johnson (1987:106) points out that there are typically 'used' and 'unused' parts of the THEORIES ARE BUILDINGS metaphor. Examples for the former would be 'foundation' and 'construct', of the latter 'staircases' and 'facades'. For thorough accounts of the THEORIES ARE BUILDINGS metaphor see Grady (1997) and Kövecses (2000). Jäkel (1997:259ff.) discusses Kant's understanding of science as the building of an edifice, whereby the

Expressions such as 'foundations of grammar', 'grammatical framework', 'pillars of grammatical theory', and 'a window on grammar' are likely to be based on these concepts. Relatively many different parts of the tower are put to work, yet the interior of the building remains undisclosed. Even though the tower is completed, the construction tools are still visible. However, it is not shown exactly how the building blocks have to be combined; guidelines on how to apply the framework are thus left out. One can, nevertheless, imagine the scenario with the help of the visual context and in particular metonymic inferences which rely on one's knowledge of relationships between instruments and their purposes, activities and the resulting products, and on our knowledge, in terms of grammar, of what is needed to put a sentence together. Syntax and orthography seem to play important roles in such a process: they are busy lifting up building material (words) and may finally join them in the end construction (sentence), thereby respecting certain construction rules (syntax, morphology, etc.) as well as demands on the outer material form (orthography) and sound shape (prosody). The following expressions can be derived from the metaphorical concepts GRAMMAR PROVIDES CONSTRUCTION COMPONENTS and SENTENCE STRUCTURE IS ARCHITECTURAL STRUCUTRE: 'the construction of a sentence/clause', 'sentence structure', 'skeleton of a sentence', 'compound', 'building blocks of a sentence', 'constituents', 'gap' (missing component), and 'inner architecture of a sentence'.[11]

As has been pointed out earlier, *Grammatica* is leading the students into the interior of the tower, which is indirectly visible in that the content is practically externalized. However, the students are to go on a tour throughout the building, moving through space and following a prescribed, contiguous route which can be sketched with the SOURCE-PATH-GOAL schema: the point of departure (SOURCE) is the portal, the destination (GOAL) is stepping out upon the successful acquisition of the subject matter. Along the way (PATH), one is supposed to make certain steps and thereby progress. Consequently, the metaphorical concept LEARNING THE PRINCIPLES OF GRAMMAR IS FOLLOWING A PATH WITH A SOURCE AND A GOAL can be assumed to underlie again interacting with a metonymic sense of contiguity, rather general expressions such as 'introduction to grammar', 'first steps', 'levels of instruction', 'progress in learning', 'grammar course', and 'advanced learners'.[12]

It is further commonly assumed that linguistic form is understood metaphorically in spatial terms, e.g. in linear order, and that form (CONTAINERS) and content (SUBSTANCES) are viewed in relationship to one another; thus "the form of a word can metonymically stand for its content"

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scientist is the architect and or the builder, the architecture reveals the method deployed, and the completion of the edifice is seen as scientific progress.

[11] The lists of expressions provided here and in the following sections do of course not claim to be exhaustive. While the language under consideration in this paper is English, I found corresponding expressions in German and it seems worthwhile to look at other, especially non-western, languages.

[12] The path schema generally plays an important role in the conceptualization of scientific activity, as Jäkel (1997: 252ff.) demonstrates in his discussion of Rene Descartes' theory of science based on the SCIENCE IS A JOURNEY metaphor.

(Radden 2000:103).[13] In this regard, the tower can be perceived as a 'sentence room' with different sections and levels: fixed locations within the tower container are filled with (grammatical) categories which are themselves containers being instilled with content, e.g. meaning, during the construction process.

The conduit metaphor (Reddy 1993; Grady 1998) encapsulates the understanding of ideas as objects placed into containers for communicative exchange. Sweetser (1987) points out that the 'ideas are objects' metaphor can be regarded as a 'meta-metaphor' underlying many metaphorical schemata reflected by verbs for speech and thought acts, whereby reasoning can be seen as object manipulation or the construction of a logical object (i.e. a building) and speech-exchange as the exchange of objects (ideas) packaged in linguistic form. Considering that linguistic form is tied to grammatical functions and that the construction of a sentence (a logical object) involves manipulation of grammatical categories, the following metaphorical concepts seem to be crucial: LINGUISTIC EXPRESSIONS ARE CONTAINERS; GRAMMATICAL CATEGORIES ARE CONTAINERS; SENTENCES ARE CONTAINERS. Corresponding expressions are 'a word belongs to / falls in a certain grammatical category', 'a lexical item changes category', 'empty categories' 'functional elements in a sentence', 'embedded clauses', 'insertion', etc. Spatial concepts are thus heavily exploited in metaphorical and metonymical mappings that underlie the vocabulary referring to meta-linguistic and meta-grammatical activities. Generativist theories obviously make ample use of spatial metaphors, based primarily on tree-structures and inferences thereof (constituents move through space, up the tree, from one node to another). The motif 'tree' does not occur in the images of grammar discussed here. It should be noted, however, that in both the tree-structures and the *Tower of Grammar* the most powerful categories are placed at the highest level. This observation may account for those metaphorical expressions listed below that evoke the generative framework.[14]

3.2 Personifications and social hierarchies

The tower represents a locus for a communicative network consisting of representatives of the feudal class system. Apart from *grammatica* herself, all personifications are males and are displayed as 'functional' members of a social hierarchy. A look at their gaze and gestures reveals

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[13] Lakoff & Johnson (1980:126): "Since speaking is correlated with time and time is metaphorically conceptualized in terms of space, it is natural for us to conceptualize language metaphorically in terms of space. Our writing system reinforces this conceptualization."

[14] Wirth (1983) traces the representational history of the motif 'tree' in scientific contexts. Interestingly, there are cases of such trees where the most important element constitutes the trunk and the minor members being placed above them, namely on branches growing out of the base. Kövecses (2000:84) discusses the COMPLEX SYSTEMS ARE PLANTS metaphor as an alternative to COMPLEX SYSTEMS ARE BUILDINGS.

that the persons placed on the same level interact in a dynamic way. The eight word classes and additional grammatical categories thus appear in an appealing disguise and are put in social and spatial relationship to one another, allowing for multiple associations and creating a sense of coherence. Thereby it is conceptual metonymy, the spatial contiguity and the systematic character of a social system that supports and links the different parts of the hierarchy (A GROUP IS A BUILDING, SOCIETY IS A BUILDING, Kövecses 2000:90). The metaphorical concept GRAMMAR IS A PERSON is not elaborated as such; solely grammar's introductory function is illustrated. However, the idea that grammatical categories can take on human appearances, behavior and motivations (A GRAMMATICAL CATEGORY IS A PERSON) is exploited here.

The function of each category thus results from its relation to the other categories and from the hierarchical structures manifested in spatial terms (levels) and social classes (clothes and attributes). Verb and noun, the two governors of the sentence domain, dominate the structure from the top floor of the building. All other parts of speech appear subordinated. For obvious reasons, the pronoun is situated below the noun and the adverb below the verb. And this occurs despite the fact that the pronoun, and not the verb, is number two in the order of the eight parts of speech. It is important to point out that the sequential and spatial orders of the parts of speech conflict. Here the adverb is directly bound to the verb it modifies and the pronoun to the noun it stands in for. Also, the fact that the verb is assigned the spot next to the noun reflects its prominent grammatical function in the sentence (and could also hint at the required subject-verb agreement).[15]

With respect to Lakoff and Johnson (1980:15f.), the following metaphorical concepts seem to hold: HAVING CONTROL or FORCE IS UP; BEING SUBJECT TO CONTROL or FORCE IS DOWN; HIGH STATUS IS UP; LOW STATUS IS DOWN. That is to say, the conceptualization of abstract concepts relies on experiences with the physical and social environment. According to Johnson (1992:358), experiences with social norms, institutions, and regimes are related to "our social character of imagination" as well as to the way we perceive ourselves as members of society.[16] With this in view, metaphorical concepts such as A GRAMMATICAL CATEGORY IS A PERSON; GRAMMAR IS A HIERARCHICAL SYSTEM or A CLASS SYSTEM; A NOUN IS AN EMPEROR, or A VERB IS A GOVERNOR can be derived. From these spatial and social hierarchies, the following expressions seem to result: 'a category behaves/acts/moves', 'agent/patient', 'head of a phrase', 'grouping', 'clause mates', 'word classes', 'syntactic

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[15] A close look at the facial traits of the figures shows that the same figure stands for the noun, pronoun, and conjunction collectively on the right side and another one for the verb, adverb and participle on the left side, each time in a different disguise. It is also noteworthy that the person representing 'interjection' has a striking resemblance to Martin Luther.

[16] Johnson (1992:347): "[H]uman being is a process of organism-environment interactions, in which both the organism and its complex environment mutually co-evolve. These ongoing interactions are at once biological, social, cultural, economic, moral, and political. "

relations', 'syntactic functions', 'hierarchy of constituents', 'government', 'command', 'control', and 'dominance', 'agreement', etc. Instilling grammatical categories with human properties and social functions thus helps to refer to them and consequently understand their roles and behaviors.

By incorporating well-established motifs such as buildings (as the *Tower of Babel*, the *Tower of Wisdom*, and the *Typus Grammaticae*, Figures 2, 3 and 9 respectively) and personifications (as in Figures 5-9), the *Tower of Grammar* constitutes an image of grammar using spatial and social structures, in addition to human qualities to make the meaning of abstract notions accessible. As pointed out earlier, the construct derives its coherence through, to use Jakobson's terms again, both paradigmatic (metaphoric) and syntagmatic (metonymic) processes. Personifications, social hierarchies and the building as such stand in a metaphoric sense for the notions they depict (A GRAMMATICAL CATEGORY IS A PERSON, A GROUP IS A BUILDING, A SOCIAL SYSTEM IS A BUILDING, THEORIES ARE BUILDINGS, ABSTRACT STRUCTURE IS PHYSICAL STRUCTURE; Kövecses 2000:90). At the same time, the transposition of human qualities and the relationship between members of a social system rely on their metonymic projection (i.e. "relations between a PERSON AND AN OBJECT, AN INDIVIDUAL AND A GROUP, A WHOLE AND ITS PARTS and AN ACTIVITY AND RELATED PHENOMENA" (Blank 1999:177, referring to Duchàcek and Ullmann) and INDIVIDUAL REPRESENTATIVES of a COLLECTIVE BODY, Blank 1999:179). In other words, the conceptual relations between the categories portrayed here, the structures that undergirt this image of grammar, rest on spatial and conceptual contiguity that is to say on metonymy.[17] From this angle, there is an obvious interaction between metaphor and metonymy; personifications and their attributes are metaphors selected and combined in a meaningful way; they fill the slots provided by an architecture with a specific inner organization that genuinely ascribes relational functions to its inhabitants. The result is an remarquably coherent and appealing allegory that offers visible, and thus graspable, material to the minds of students and teachers of grammar. Also, due to the portrayal of the socio-political and scholarly situation at the time of its creation, the tower allowed its clientele to identify with the visibly tangible figures. The subject matter was thus made relevant to them.

4. Conclusion

The present study was based on the assumption that cognitive semantics and iconography can complement each other in a way that allows us to trace conceptual correspondences between linguistic and visual expressions over time. By applying a metaphorical analysis to historical

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[17] Koch (1999:140ff.) provides an overview of how the notion of 'contiguity' has been used in different approaches to metonymy (from Aristotle, Kruszewski, Saussure, Roudet, and Jakobson to Ullmann). Of particular interest in this context are his elaborations on the role contiguity plays regarding conceptual relations (p. 144ff.).

visual data, this study has revealed metaphorical and metonymic processes underlying not only mnemonic images of abstract concepts dating from the early Modern period, but also figurative expressions as they are still part of English grammatical terminology in use today. The interdisciplinary account introduced here brought further evidence for the claim that the human body and its physical and social experiences condition, together with cultural conventions, how we imagine, structure and talk about abstract concepts. Thereby, the focus has been on how mental models of grammar have been transported across generations through representational traditions.

The findings demonstrate that spatial concepts (buildings, containers, spatial structures in general), the human being (with regard to its physical and social properties) and social hierarchies (feudal/social systems) are prominent source domains for the metaphorical and metonymical structuring of the concept 'grammar'. In the case of the *Tower of Grammar*, all these different concepts contribute to the creation of a complex image of grammar: a creative blend (Turner 1996: 57ff.) which gives metaphoric and metonymic coherence to a domain of knowledge not readily accessible to learners who are still developing abstract reasoning skills. By ascribing human motivations and basic spatial structures to grammatical phenomena, their organization, function and behavior can be imagined and comprehended more easily. As examples from the iconography of grammar evidence, the different motifs ('building/tower', 'hierarchy', 'society', 'personification', and the corresponding attributes) were not randomly selected, but reflect habitual patterns of bodily and social experiences plus, especially important in this context, cultural conventions - "potential instruments of the minds" (Gombrich 1971:257) - with a visual history of their own, attesting their ability and scholarly authority to represent abstract notions in general.

Given the cross-media correspondences presented in this study, it seems worthwhile to consider, in addition to the concrete experiential base of metaphors for abstract concepts, their visual memory, that is to say, to look at how they have been rendered visible in the form of words and images, materialized through a given medium (written language, painting, sculpture, printed page, etc.) or a combination of several media. Contemporary visual aids are admittedly more diagrammatic and schematic, however, the interplay between the linguistic and the visual is comparable to that in much older mnemonic devices. Educators have put multi-modality at the service of the mediation of knowledge already for centuries by offering the mind multiple semiotic modes to grasp and internalize the subject matter in question.

From a methodological point of view, this paper has shown that combining iconographical and metaphorical insights in the conceptualization of abstract notions can shed light on cognitive and cultural motivations underlying both linguistic and non-linguistic forms of expression. By taking a diachronic perspective, such interdisciplinary work can contribute to a more holistic picture of

the ways in which abstract concepts have been, and still are, imagined and handed down from one generation to the next.

References

Assmann, Aleida (1991): "Zur Metaphorik der Erinnerung", in Assman, Aleida/Harth, Dietrich (edd.): *Mnemosyne. Formen und Funktionen kultureller Erinnerung*. Frankfurt/M., 13-35.

Barcelona, Antonio (ed.) (2000): *Metaphor and Metonymy at the Crossroads: A Cognitive Perspective*. Berlin/New York.

Barcelona, Antonio (2000a): "The cognitive theory of metaphor and metonymy," introduction to: Barcelona, Antonio (ed.), 1-28.

Barcelona, Antonio (2000b): "On the plausibility of claiming a metonymic motivation for conceptual metaphor", in: Barcelona, Antonio (ed.), 33-58.

Baigrie, Brian. S. (ed.) (1996): *Picturing knowledge. Historical and philosophical problems concerning the use of art in science,* Toronto/Buffalo/London.

Berns, Jörg J./Nauber, Wolfgang (edd.) (1993): *Ars memorativa. Zur kulturgeschichtlichen Bedeutung der Gedächtniskunst 1400-1750*, Tübingen.

Blank, Andreas (1999): "Co-presence and succession", in: Panther, Klaus-Uwe/Radden, Günter (edd.), 169-191.

Carroll, Noël (1994): "Visual Metaphor", in: Hintikka, Jaako (ed.): *Aspects of Metaphor*, Boston, 189-218.

Ernst, Ulrich (1993): "Ars Memorativa und Ars Poetica im Mittelalter und Früher Neuzeit. Prolegomena zu einer mnemotechnischen Dichtungstheorie", in: Berns, Jörg J./Nauber, Wolfgang (edd.), 73-100.

Geisberg, Max (1974): *The German Single-Leaf Woodcut 1500-1550,* IV, New York.

Giesecke, Michael (1990): "Syntax für die Augen. Aspekte der beschreibenden Fachprosa in der Frühen Neuzeit", in: Betten, Anne (ed.): *Neuere Methoden der Syntaxforschung*, Tübingen, 336-351.

Giesecke, Michael (1991): *Der Buchdruck in der frühen Neuzeit. Eine historische Fallstudie über die Durchsetzung neuer Informations- und Kommunikationstechnologien,* Frankfurt/M.

Giesecke, Michael (1992): *Sinnenwandel – Sprachwandel – Kulturwandel. Studien zur Vorgeschichte der Informationsgesellschaft*, Frankfurt/M.

Gombrich, Ernst (1971): "Personification", in: Bolgar, R.R. (ed.): *Classical Influences on European Culture. A.D. 500-1500*, Cambridge, 247-257.

Grady, Joseph (1997): "THEORIES ARE BUILDINGS revisited", in: *Cognitive Linguistics* 8:4, 267-290.

Grady, Joseph (1998): "The 'Conduit Metaphor' revisited: a reassessment of metaphors for communication", in: Koenig, Jean-Pierre (ed.): *Discourse and Cognition: Bridging the gap*, Stanford, CA, 205-218.

Harms, Wolfgang (ed.) (1985): *Deutsche illustrierte Flugblätter des 16. und 17. Jahrhunderts, Band I: Die Sammlung der Herzog August Bibliothek in Wolfenbüttel*, Tübingen.

Huntsman, Jeffrey F. (1983): "Grammar", in: Wagner, David L. (ed.): *The Seven Liberal Arts*, Bloomington, 58-95.

Illich, Ivan/Sanders, Barry (1988): *ABC: The alphabetization of the popular mind*, San Francisco.

Jäkel, Olaf (1997): *Metaphern in abstrakten Diskursdomänen. Eine kognitiv-linguistische Untersuchung anhand der Bereiche Geistestätigkeit, Wirtschaft und Wissenschaft*. Frankfurt a.M.

Jakobson, Roman (1990): "Two Aspects of Language and Two Types of Aphasic Disturbances (first 1956)", in: Roman Jakobson, *On Language*. Waugh, Linda R./Monville-Burston, Monique (edd.), Cambridge/London, 115-133.

Johnson, Mark (1987): *The Body in the Mind. The Bodily Basis of Meaning, Imagination, and Reason*, Chicago.

Johnson, Mark (1992): "Philosophical implications of cognitive semantics.", in: *Cognitive Linguistics*, 3, 345-366.

Koch, Peter (1999): "Frame and contiguity: On the cognitive bases of metonymy and certain types of word formation", in: Panther, Klaus-Uwe/Radden, Günter (edd.), 139-167.

Kövecses, Zoltán (2000): "The scope of metaphor", in: Barcelona, Antonio (ed.), 79-92.

Lakoff, George (1987): *Women, Fire, and Dangerous Things. What Categories reveal about the Mind*, Chicago.

Lakoff, George (1990): "The Invariance Hypothesis: 'Is abstract Reason based on Image-Schema?'", in: *Cognitive Linguistics*, 1-1, 39-74.

Lakoff, George (1993): "The contemporary theory of metaphor", in: Ortony, Andrew (ed.), *Metaphor and Thought*. 2nd. ed., Cambridge, 202-251.

Lakoff, George/Johnson, Mark (1980): *Metaphors we live by*, Chicago.

Lakoff, George/Johnson, Mark (1999): *Philosophy in the Flesh. The embodied mind and its challenge to western thought,* New York.

Langner, Johannes (1979): "Die Erziehung der Maria von Medici. Zur Ikonographie eines Gemäldes von Rubens", in: *Münchner Jahrbuch*, 3. Folge, 30, 107-130.

Mittelberg, Irene (1999): "Grammatical Imaginations: a historical approach to linguistic and pictorial metaphor," in: *Proceedings of the AISB '99 Symposium on Metaphor, Artificial Intelligence, and Cognition,* The Society for the Study of Artificial Intelligence and Simulation of Behavior, Edinburgh, 79-86.

Mittelberg, Irene. *Metaphern der Grammatik. Untersuchungen zur medialen Geschichte bildhafter Ausdrücke*, unpublished M.A. Thesis, University of Hamburg.

Olson, David R. (1994): *The world on paper: The conceptual and cognitive implications of writing and reading,* Cambridge.

Panofsky, Erwin (1955): *Meaning in the Visual Arts*, New York.

Panofsky, Erwin (1979): "Zum Problem der Beschreibung und Inhaltsdeutung von Werken der bildenden Kunst", in: Kaemmerling, Ekkehard (ed.): *Bildende Kunst als Zeichensystem. Ikonographie und Ikonologie. Theorien-Entwicklung-Probleme*, Köln, 185-206.

Panther, Klaus-Uwe/Radden, Günter (edd.) (1999): *Metonymy in Language and Thought*, Amsterdam/Philadelphia.

Radden, Günter (2000): "How metonymic are metaphors?", in: Barcelona, Antonio (ed.), 93-108.

Reddy, Michael (1993): "The conduit metaphor: A case of frame conflict in our language about language", in: Ortony, Andrew (ed.), *Metaphor and Thought*. 2nd. ed., Cambridge, 164-201.

Reicke, Erich (1901): *Magister und Scholaren. Illustrierte Geschichte des Unterrichtswesens* (Facsimile (1971) of the original, Leipzig (1901)), Düsseldorf/Köln.

Reisch, Gregor (1517): *Margarita Philosophica*, Michael Furterius, Bale. Brown University, John-Hay-Library, Occult.-Collection.

Reiss, Timothy J. (1997): *Knowledge, discovery, and imagination in early Modern Europe*, Cambridge.

Settekorn, Wolfgang (1988): *Sprachnorm und Sprachnormierung in Frankreich. Einführung in die begrifflichen, historischen und materiellen Grundlagen*, Tübingen.

Settekorn, Wolfgang (2001): "Media and metaphors: the case of virtual wandering and stationary movement", in: *metaphorik.de* 1/2001, 87-99.

Strauss, Walther L. (1979): *The German Single-leaf Woodcut 1550-1600*, New York.

Sweetser, Eve (1987): "Metaphorical Models of Thought and Speech: a comparison of historical directions and metaphorical mappings in the two domains", in: Aske, Jon/Beery, Natasha/Michaelis, Laura/Filip, Hana (edd.): *Proceedings of the Thirteenth Annual Meeting of the Berkeley Linguistics Society*, Berkeley, 446-459.

Sweetser, Eve (1990): *From Etymology to Pragmatics: Metaphorical and Cultural Aspects of Semantic Structure*, Cambridge.

Sweetser, Eve (1992): "English Metaphors for Language: motivations, conventions, and creativity", in: *Poetics Today* 13:4, 705-724.

Sweetser, Eve (2001): "'The suburbs of your good pleasure:' Co-orientation of metaphorical mappings in literary and everyday language", in: *Zeitschrift für Semiotik*.

Turner, Mark (1996): *The literary mind*: *The Origins of Thought and Language*, Oxford.

Vicari, Patricia (1993): "Renaissance Emblematica", in: *Metaphor and Symbolic Activity*, 9, 153-168.

Volkmann, Ludwig (1929): "Ars memorativa", in: *Jahrbuch der kunsthistorischen Sammlungen in Wien*, Neue Folge, III, 111-200.

Warncke, Claus-Peter (1987): *Sprechende Bilder - sichtbare Worte. Das Bildverständnis in der frühen Neuzeit,* Wiesbaden.

Wegener, Ursula B. (1995): *"Die Faszination des Maßlosen. Der Turmbau zu Babel von Peter Bruegel bis Athanasius Kirchner*, Hildesheim/New York.

Wirth, Karl-August (1983): "Von mittelalterlichen Bildern und Lehrfiguren der Schule und des Unterrichts", in: Moeller, Bernd/Patze, Hans/Stackelmann, Karl (edd.): *Studien zum städtischen Bildungswesen des späten Mittelalters und der frühen Neuzeit,* Göttingen, 256-370.

Wittkower, Rudolf (1977): *Allegory and the migration of symbols*, London.

Yates, Francis A. (1966): *The Art of Memory*, London.