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SEMIOTIC ANALYSIS OF GEOMETRIC SIGNS AND THEIR PERCEPTION IN LATVIAN BRANDS

ĢEOMETRISKO ZĪMJU UN TO UZTVERES SEMIOTISKA ANALĪZE LATVIJAS ZĪMOLOS

MASTER THESIS

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ANOTĀCIJA

Ģeometriskās zīmes bieži tiek izmantotas zīmolvedībā un šķiet esam daļa no arhetipiska koda kultūras mantojuma pamatā, kas veido identitāti, tādēļ šī pētījuma mērķis ir izpētīt ģeometriskā raksta lomu valodas fenomenoloģijā, aprakstīt to kā zīmju sistēmu un veikt kvalitatīvu desmit Latvijas zīmolu, kuru logotipos ietvertas ģeometriskas zīmes, uztveres analīzi, lai noteiktu, ciktāl grafiskās zīmes iemieso zīmola vēstījumu saskaņā ar zīmolvedības, apziņas un modelēšanas sistēmu, kā arī ģeometriskā raksta un krāsu koda teorijām un interpretācijām. Zīmolu un pilotaptaujā iegūto datu semiotiska analīze liecina, ka ģeometriskās zīmes rosina daudzslāņainu sarunu par zīmola vēstījumu balstītu zīmes un apziņas trejādajā dabā.

Atslēgas vārdi: ģeometriskais kods, modelēšanas sistēma, zīmolvedības semioze, valodas fenomenoloģija, kognitīvā semiotika, universālā gramatika, semiosfēra

ABSTRACT

Geometric signs, often used in branding seem to be based on an archetypal code at the basis of cultural heritage that impacts identity. Thus, the purpose of this research is to analyze the role of geometric signs and patterns in the hierarchy of the phenomenology of language, describe them as a semiotic system, and to conduct qualitative case studies of the perception of ten Latvian brands with geometric logotypes in order to see to what extent graphic signs represent brand equity based on comparative analysis of theories on branding, cognitive and modeling systems, and interpretations of geometric ornamentation and color codes. Semiotic analysis of brands and results obtained via a pilot questionnaire indicate that geometric signs constitute a hierarchical discourse on brand messages based on the triadic nature of sign and cognition.

Key words: geometric code, modeling system, semiosis of branding, phenomenology of language, cognitive semiotics, Universal Grammar, semiosphere

CONTENTS

INTRODUCTION

The processes of globalization that are leading to increasing multilingualism and the current refugee crisis in Europe are re-illuminating the question of identity. In *National Identity: Identities of Brands and Consumers*, the authors argue that consumption is a communicative process with the aim to narrate identities, so that identities of brands and individual consumers are interlinked in an incessant process of meaning generation, where brands serve as culture codes that help customers demonstrate their personalities, which in turn impact the market and define brand perception (Bērziņa, L. and Bērziņš, D., 2012: 8-15). The survey on *Latvian Souvenirs as Creators of Identity and Brand* shows that, second to sceneries of nature, respondents would want the souvenirs to depict Latvian ornamentation (Lāce, Stašāne and Zitmane, 2012: 33). Moreover, geometric signs and patterns are an important part of Baltic cultural heritage and are closely linked with mythopoetic images prevalent in folklore (Celms, 2007; Tumėnas, 2014). According to Celms, '[o]rnaments organize and structure not only all plastic processes in time and space but also human cognition. […] Similar to spoken language, ornament is both a natural phenomenon and a cultural product' (Celms, 2007: 16, translation here and elsewhere mine). Though ornament has been studied from the perspective of various separate disciplines such as mythology, ethnography, etc. (ibid.: 12), as Tumėnas emphasizes, '[g]eometric […] ornament has more than just national and technical aesthetic values' and should be investigated from a semiotic perspective as 'a sign system' (Tumėnas, 2014: 220). Consequently, the goal of this research is, firstly, to explore the phenomenology of language in order to see how geometric signs might function as a modeling system and, secondly, to investigate the perception of geometric ornaments in Latvian brands based on theories on the geometric code and branding.

Thus, the study has posed the following research questions**:**

1) What is the role of geometric signs in the phenomenology of language?
2) How are geometric signs interpreted as a semiotic system and what is their role in branding?
3) How are geometric signs of Latvian brands perceived and to what extent do they communicate brand messages?

The enabling objectives are:

1) to carry out a literature review on the phenomenology of language, geometric signs and branding;
2) to describe geometric signs as a semiotic system;
3) to collect brands to be analyzed;

4) to carry out a questionnaire on the perception of geometric signs used in brands under analysis;
5) to analyze the data collected on the basis of the theoretical background in the empirical part;
6) to draw relevant conclusions.

Thus, the following research methods have been selected:

1) comparative analysis of theoretical literature;
2) qualitative analysis of the brands collected and data gathered via questionnaire;
3) comparative content analysis and interpretation.

The corpus of brands analyzed comprises NicePlace, Lido, Mádara, Zib, Hotel Jūrmala Spa, Saneribox, Purpurs, Riija, Tīne, and IR Wood. Chapter 1 analyzes theoretical literature on the classification of sign systems and their processing by Jurij Lotman (1967 and 1984), Fodor (1987), Merrell (2001), Jackendoff (2001), Favareau (2002), Deacon (2003), Nöth (2006), Aydede (2010), Sonesson (2011 and 2012), Mihhail Lotman (2012), Chien (2014), Trettenbrein (2015), and Issajeva (2015), in order to understand the role of geometric patterns in the phenomenology of language. Chapter 2 reviews works by Trilling (2001), Celms (2007), Nozedar (2010), *The Archive for Research in Archetypal Symbolism* (2010), Abraham (2011), Carey (2011), Harari (2011), George (2013), Tumėnas (2014), and Krūmiņa (2015) in order to summarize the historical setting, characteristics, and interpretation of geometric signs relevant for the current research and to describe geometric signs as a semiotic system and their relation to colors. Chapter 3 explores theories on the semiosis of branding in order to find out how graphic signs communicate brand messages based on works by Bouchet (n. d.), Celms (2007), Wheeler (2009), Liene Bērziņa and Didzis Bērziņš (2012), Feldmane and Lauberte (2012), Rampazzo Gambarato (2013), Singer (2013), Bruni and Baceviciute (2014), del Rosario Restrepo Boada (2014), and Williams (2016). Chapter 4 provides a qualitative case analysis of ten Latvian brands with geometric logotypes based on the theoretical background of previous chapters and compares the results to the responses on brand perception obtained via questionnaire.

1. SEMIOTIC ANALYSIS OF THE PHENOMENOLOGY OF LANGUAGE

Semiotics appeared at the beginning of the 20th century as 'the study of signs' founded by Saussure and Peirce and evolved into modern research on 'semiotic "sign-systems"' that investigates 'how meanings are made and how reality is represented' (Chandler, 2002: 2). As Chandler notes, 'Semiotics is not widely institutionalized as an academic discipline […and] is a field of study involving many different theoretical stances and methodological tools' (ibid.: 4). Consequently, sign systems have been approached from various perspectives that relate semiotics to studies of cognition and culture, leading to different interpretations and models of sign, language and human perception. Moreover, mathematical notation has been introduced as a descriptive tool of semiotic insights (see, for example, M. Lotman (2012) and Deacon (2003)). In order to understand sign perception and the semiotic role of geometric ornaments in cognitive processes, first, classifications of sign systems as modeling and cognitive systems will be analyzed based on works by J. Lotman (1967, 1984), Fodor (1987), Merrell (2001), Jackendoff (2001), Nöth (2006), Aydede (2010), Sonesson (2011, 2012), Kalnbērziņa (2012), M. Lotman (2012), Chien (2014), and Issajeva (2015), and, secondly, a semiotic model of the phenomenology of language will be drawn and the notions of language and related semiotic terms will be clarified, adding conclusions drawn by Favareau (2002), Deacon (2003), and Trettenbrein (2015).

1.1. Modeling systems

In 1967, J. Lotman defined modeling system as 'a structure of elements and rules of their combination, existing in a state of analogy to the whole sphere of the object of perception, cognition, or organization' which therefore 'may be treated as a *language*' because both languages and models are representations of objects perceived (1967: 250). Given that 'natural language' serves as a foundation for further semiotic systems derived, he made the seminal distinction between primary and secondary modeling systems (ibid.) that became the central focus of Moscow-Tartu school of semiotics. J. Lotman initially applied his framework of modeling systems to the analysis of *art as a secondary modeling system* based on the primary modeling system of natural language (ibid.). However, M. Lotman clarifies that 'the treatment of primary and secondary modeling systems' should be seen as 'purely relative: a primary sign system is primary only in respect [to] a given secondary system' so that 'natural language can[…] be secondary to some other system' (2012: 21). Thus, he confirms Nöth's

observation that the dichotomy of modeling systems 'is never a categorical but always a relational opposition' where, 'from the perspective of a lower level', primary systems like natural languages might, in fact, appear to be 'twice secondary' (2006: 259) or tertiary semiotic systems.

Consequently, M. Lotman proposes a further development of J. Lotman's theory on modeling systems, suggesting that 'language' should be distinguished from 'sign system' (2012: 18) as being only a part of 'every semiotic system [where the] other mandatory component is field' (ibid.: 21). He provides two formulas in set notation to illustrate his idea, designating *semiotic* or *sign system* as *S*, *field* as *F*, and *language* as *L*, where *language* is constituted by 'the pair "lexicon [alphabet or signs] and grammar [rules]"' marked as *A* and *G* respectively: 'S = {L, F}'; 'L = {A, G}' (ibid.). Thus, according to M. Lotman, '*Text* [or semiotic/sign system] is the realization of one or several sentences […] in a particular substance […] on a particular *field* (background)', which correspond to Saussure's *parole* and *langue* (ibid.: 22). Although, following Saussure, M. Lotman offers chess as an example 'to illustrate the principles of language' (ibid.), text can also be visualized as a certain pattern created in an artistic technique on a given background (see Figure 1.1).

<table>
<tr><td colspan="2">S = {L, F} = {A, G, F}, where</td></tr>
<tr><td> 
A = pieces
G = moves
F = board
(Lotman, M., 2012: 22)
(Chess game by Kasparov - Topalov, 1999)</td><td>A = thread
G = stitches
F = cloth
 
(Pattern from Celms, 2007: 162)</td></tr>
</table>

Figure 1.1 **Chess and pattern as semiotic texts**

As M. Lotman notes, written text production necessitates the contrast of colors used for letters and their background (2012: 22). Moreover, the background field that must differ from the language of expression can be 'both abstract and material' depending on the medium of communication (ibid.). Thus, using chess notation, chess can be played without any materials as speech (ibid.) and likewise patterns can be danced.

Analyzing the chess analogy, M. Lotman observes that 'field itself can be described as an utterance in a language': the chess board is structured according to the rules of a checked pattern using 'the lexicon of […] two elements (a black and a white square)' (2012: 22) and can be used as a background field for both chess and checkers, each with a separate distinct lexicon (pieces) and grammar (rules of moves). Thus, formula S = {L, F} can be further derived as S = {L, F} = {A, G, F} = {A_1, G_1, A_2, G_2} where both language and field are seen

by M. Lotman as semiotic *languages*. As a result, the difference between language, field and a semiotic/sign system rests upon the relationship between the three *languages* so that a '[n]on-autonomous language' such as 'verse metre' has to be expressed via 'the medium of other languages' (ibid.: 26), see Figure 1.2.

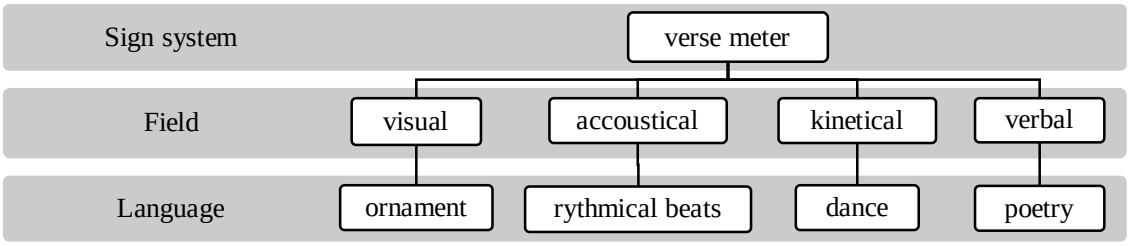


Figure 1.2 **Model of semiotic languages (based on Lotman, M., 2012: 26)**

As M. Lotman writes, '[b]oth narrative and verse metre are languages in the semiotic sense of the word' and 'are at least context-sensitive languages, [with…] both surface and deep structures' (ibid.). But such an application of the term *language* leads to a circular definition of *sign system*: $L_1 = \{L_2, L_3\}$. Thus, M. Lotman contradicts his own insistence on the distinction between *language* and *semiotic system*. A similar 'paradox' is pointed out by Nöth, in regard to '[J.] Lotman's description of the semiosphere' which is 'a self-referential system […] where [s]emiospheres create their own metasemiosphere in a self-generative and self-referential way' (2006: 261).

Next, M. Lotman emphasizes that text is created by someone (which I will designate as C), therefore another variable is to be added to the formula, indicating whether the speech act is a monolog (M) or dialog (D), which can further be seen as *cooperative* (c) or *antagonistic* (a), depending on the context and speaker/s' intents (2012: 24). As a result, sign system is, in fact, defined as S = {L, F, C} where C = M or D and D = c or a. Consequently, $S_{chess} = \{A_1, G_1, A_2, G_2, a\}$ and $S_{pattern} = \{A_1, G_1, A_2, G_2, M\}$ whereas $S_{brand} = \{A_1, G_1, A_2, G_2, D\}$ where D is the dialog between the company and its potential customers therefore D should be equal to c for the brand to be successful.

M. Lotman also draws attention to the fact that '[b]oth semiotics and theory of formal grammar [established by Chomsky] have not paid enough attention to field' (2012: 22) although Alan Turing had already applied it in creating 'the Turing machine, which […] consists of three main components: alphabet, rules and an infinite segmented tape' where the tape serves as a field (ibid.: 23). M. Lotman points out that this construct is viewed as the 'most general type […] of languages [in Chomsky's hierarchy]' (ibid.) and offers his own 'universal' taxonomy of sign systems based on the criteria of A, G, and F (ibid.: 26) that distinguish three types of sign systems:

1) ‘S1’ that consists of ‘just one element’ which either does or does not appear on ‘a spot [of a] unidimensional field [that] is countably infinite’ so that ‘an infinite number of texts’ (T) can be created (Lotman, M., 2012: 27);
2) ‘S2’ with infinite (n) elements projected onto a field that ‘consists of only one, two-dimensional spot’ according to uncountable ‘grammar rules’;
3) ‘S3’ with restricted ‘lexicon and grammar’ (A and G limited) and a ‘finite or countably infinite’ field (ibid.: 27-8), see Table 1.1.

Table 1.1 **Classification of sign systems (based on Lotman, M., 2012: 27-8)**

S1 = {A = 1, G = {0, 1}, F = n} T = ∞	S2 = {A = n, G = n, F = 1}	S3 = {A=lim, G=lim, F=lim/n}
e.g. ornament, verse meter, etc.	e.g. visual arts	e.g. artificial and natural languages
indexical	iconic	symbolic

According to M. Lotman, ‘the world-view of a given system’ is defined by its ‘rule set [G]’ (ibid.: 27). Consequently, due to its indexicality, S1 affects ‘other semiotic systems’ and ‘stimulates and organizes thinking’, offering ‘the perception of infinity’, whereas ‘S2 condenses infinity into limited framework’ and S3 provides ‘logic of construction’ (ibid.: 28). However, as M. Lotman points out, texts are ‘complex sign system[s]’ that consist of a combination of different systems so that primary modeling systems serve as fields for secondary modeling systems (ibid.: 28). Thus, for example, both S2 and S3 can be used to generate ‘an ornament at the expense of ‘part of their (both internal and external) meaning’ (ibid.).

Verse, on the other hand, ‘is a far more complicated construction of different sign systems’ surpassing even ‘natural language’ used ‘as their field’ because it makes the most of all available ‘resources’: indexicality, iconicity and symbolicity (Lotman, M., 2012: 47; 46). Moreover, poetry is realized via ‘three different types of codes’, using ‘verse metre [S1]’ and ‘rhetorical structures [S2]’ as secondary modeling systems based on ‘natural language [S3]’ (ibid.: 35). As a result, ‘visual information’ is encoded in a verbal language producing symbolic images expressed via tropes, mostly metaphors (ibid.: 44), see Figure 1.3.

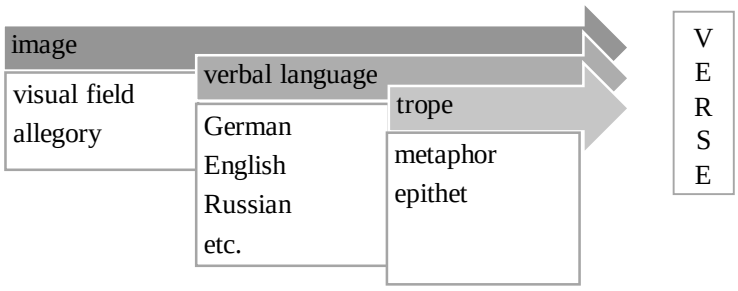


Figure 1.3 **Poetic text as an allegory (based on Lotman, M., 2012: 44)**

So, M. Lotman observes that ‘compared to prose, verse speech is much more conventional’ (2012: 47).

M. Lotman concludes his study of *verse as a semiotic system*, stating that, analyzed from the perspective of culture, ‘[t]he theory of the three semiotic systems (S1, S2 and S3)’ reveals ‘cognitive’ insights into the ‘modes of receiving and processing information’, which might aid in solving the problem of ‘modelling artificial intellect’ (2012: 47). M. Lotman also suggests that, since the dominance of a type of semiotic system varies across cultures, his classification of sign systems might improve understanding of different cultures (ibid.: 47-8). Consequently, his work relates also to issues of psycholinguistics and intercultural communication.

But verse is a form of art that due to its rhythmical and evocative economy was used in oral cultures also as a mnemonic strategy. According to Hutton, ‘[t]he mnemonist’s task was to attach the facts he wished to recall to images’ which in turn were arranged ‘in an architectural design of places with which he was readily familiar’ (1987: 371), creating a network of metaphors (ibid.: 377) that can be observed also in ‘the art’s intimate association with model-building’ (ibid.: 373). As J. Lotman writes, the purpose of art is ‘storing information and developing new meanings’ therefore ‘art means mastering [modeling] the world’ (1967: 265). So, by providing different perspectives that outline the probabilities of associations, art expands awareness, deepens understanding and enhances memory. Consequently, J. Lotman sees art as ‘a unique combination of scientific and play-type models’ (ibid.: 269), which employs layers of semiotic *languages*, instigating an infinite semiosis via associations across sign systems (ibid.: 267). As a result, ‘[t]he principle of play becomes the basis of semantic organization’ (1967: 261) where instead of ‘a strictly deterministic actualization of a given principle’ (ibid.: 267) art plays with ‘different meanings of the same element’, mapping out a variety of simultaneous paths of interpretation (ibid.: 264) so that divergent associations are additive not mutually exclusive (ibid.: 261), expanding from the initial event as a tree diagram of indexical likelihoods.

This correlates with Merrell’s (2001) view on sign perception based on Peirce’s categories of *Firstness*, *Secondness* and *Thirdness* in the cultural-cognitive context of *semiosphere* defined by J. Lotman as ‘the semiotic space, outside of which semiosis cannot exist’ (1984: 205) because ‘the ensemble of semiotic formations precedes (not heuristically but functionally) the singular isolated language and becomes a condition for the existence of the latter’ both giving rise to meaning and storing it (ibid.: 218-19). According to Merrell, ‘we have what we might call a triadically flowing “biosemiosphere”’ (2001: 387), where, on Nöth’s view, ‘semiosis begins with life, if not in the physical world before life appears’

(2006: 258). Consequently, 'sign processing […] is a dialogic community affair' (Merrell, 2001: 405) characterized by a 'general movement […] from signs of vagueness toward acknowledgement of classical logic and "styles of reasoning" and then to the construction of perpetually incomplete generalities, universals, taxonomies, and hierarchies' (Merrell, 2001: 405). As Nöth puts it, '[t]he higher levels are unifications but never mere translations of the lower ones' (2006: 259).

Thus, cognition of the triadic sign evolves through cycles of 'Firstness, wholeness […,] the continuum of all that is possible' (Merrell, 2001: 408) experienced as 'the world of [immediate] feelings and sensations' (ibid.: 389) that are cognized via the focus of 'Secondness' that becomes aware of 'its other, the object with which it interdependently interrelates' (ibid.) and finds expression in 'Thirdness, the interpretant […] as sets of actualized terms' (ibid.: 390-1). According to Merrell, the three stages of sign processing are inherent in Peirce's model of sign constituted by the relationship among *representamen*, *object* and *interpretant*, which lead to the division of the homogeneous semiosphere, the 'union of complementary contradictories' (ibid.: 390), into hegemonic fluctuations of different signifiers for a common though ambivalent signified resulting in the heterogeny of semiotic formations (ibid.: 389-90), see Table 1.2.

Table 1.2 **Merrell's stages of sign processing based on Peirce (Merrell, 2001: 389)**

representamen	object	interpretant
Firstness	Secondness	Thirdness
iconicity	indexicality	symbolicity
homogeny	hegemony	heterogeny

So, the iconic 'experienced world' of *Firstness* defined as a homogenous 'overdetermination, inconsistency' is opposed to the heterogenic 'incompleteness, underdetermination' of *Thirdness* characterized by 'symbolicity' (Merrell, 2001: 390). As Nöth explains, '[i]n contrast to physical space, which is homogeneous, the semiosphere is thus characterized by the *heterogeneity* of its loci' especially when they 'are described by means of complementary opposites [that] do not admit grading but require either-or decisions' (2006: 255). However, Merrell sees the very border between the two sides of Secondness as the empty in-between where a new, unexpected alternative can arise from Firstness as a result of the interpretive semiosis (2001: 392; 394). Nevertheless, as Nöth points out, each choice results in a further segmentation of the semiosphere into a hierarchy of interdependent modeling systems (2006: 256). As a result, Nöth concludes that '[t]he distinction between primary and secondary semiotic modeling indicates 'a logical [reasoning] not an evolutionary primacy' (ibid.: 258-9). Merrell, on the other hand, notes that the three categories appear as

'multiple Borromean knots of interrelations' (2001: 387) where the possibilities of Firstness coexist and coalesce with the 'opposition' of Secondness 'as a matter of dialogic exchange, renegotiation, and at times of happy consensus' of Thirdness (ibid.: 390), creating a 'resonance' (ibid.: 404) that correlates with the rules of quantum physics such as 'Bohr's *complementary*' and 'Heisenberg's *uncertainty principle*' (ibid.: 393).

So, both M. Lotman and Merrell offer a classification of modeling systems, albeit from different perspectives. While M. Lotman focuses on types of semiotic systems that model the world via different expressive means defined by the limits of their lexicon, grammar, and field, Merrell describes the modeling system of sign processing from a phenomenological point of view. Thus, M. Lotman's modeling systems can be combined in relative hierarchies of primary-secondary relationships whereas Merrell's model suggests a bidirectional infinite semiosis at every point of sign processing, which is a modeling activity that leads to varied interpretations, views and cultures. What both studies have in common is their contribution to a better understanding of sign processing.

1.2. Cognitive systems

Cognitive phenomena have been studied by phenomenologists, semioticians, and psycholinguists. According to Kalnbērziņa, several models of information processing have been proposed, such as 'Pylyshyn['s] (1984) […hypothesis] that our experience is stored in the form of images and symbols', known as *analogous representations*, 'Fodor['s… abstract] language of thought […or] *propositional representation form*' and 'Bartlett's Schema Theory […] (1932)', according to which information is 'organised in larger units' (2012: 59), later developed into 'Rumelhart's Schema Theory' where incoming data are processed like jigsaw pieces that have to match prior models of world knowledge for the communication to be successful (ibid.: 60-1). However, as Issajeva indicates, there still exists no unifying model that could account for the variety of cognitive systems: *pictorial*, *propositional* and *verbal* (2015: 584-5). Fodor argues that 'the philosophical disagreement about whether there [i]s a Language of Thought corresponds […] to the disagreement […] about the appropriate architecture for mental models' that would account for the 'fundamental relation among mental states' because the models of 'Turing/Von Neumann architectures, which can compute in a language whose formulas have transportable parts' are seen as incompatible with 'associative networks, which by definition cannot' (1987: 285). As Aydede explains, 'the hypothesis that the brain is a kind of computer trafficking in representations in virtue of their syntactic properties is the basic idea of LOTH [Language of Thought Hypothesis]' which

does not necessitate a 'conscious' awareness of 'every symbolic activity' (2010: 5.2) contrary to the 'image-like representational medium' (ibid.: 3).

But, on Issajeva's view, the root of the problem lies in an altogether 'misguided' perspective: '[i]nstead of the format of mental imagery [MI], one ought to look at the *functions* of mental imagery, the *variety of* [their] *properties* […and] the *relations* between [them…], and [their] subject' (2015: 586). Thus, in line with the Moscow-Tartu school of modeling theory, Issajeva proposes to approach the cognitive system of information processing from a semiotic perspective 'as a *complex system of signs and their properties* [for example, iconicity, indexicality and symbolicity], which can be combined and detached from one another, [and] associated and manipulated voluntarily by our mind' (ibid.: 587) much like M. Lotman's (2012) three types of semiotic systems. As Issajeva emphasizes, the most important distinction from previous models here is the recognition of the '*dynamic, continuous and changing*' character of signs as opposed to the previously '*stable*, more or less *fixed*' view of representations (ibid.: 588). Although she demonstrates that 'mental imagery can legitimately be interpreted in terms of Peirce's theory of signs' (ibid.: 594), which correlates with Merrell's (2001) framework, she admits that 'a further investigation of […] MI as a sign system is needed' (2015: 594). Consequently, this subchapter explores various aspects of cognition and sign processing from a semiotic point of view.

The central issue of cognitive semiotics is the phenomenology of language: the relations among thoughts, language, and sign processing. According to Jackendoff, 'modern cognitive science has come to use the term mind […] for the "functional activity" of the brain, some of which is conscious and much of which is not' whereas 'the brain comprises a large number of specialized systems that interact in parallel to build up our understanding of the world' (Jackendoff, 2001: 52). He argues that language likewise consists of an external and internal dimension – the *expressions* perceived via bodily functions versus *messages* intended to be conveyed (ibid.: 53). Moreover, '[t]he mental representations involved in language […] must be neutral between perception and production' (ibid.: 54), where '*mental representation*' is understood as any '"data structure" […], admitting the possibility of "unconscious mental representations"' (ibid.: 53). Thus, analyzing the structure of 'word' in line with Saussure's model of the structure of sign, though without reference to the semiotic terms (ibid.: 55), Jackendoff concludes that 'the role of words [i.e. signs] in the system of language is not just as static bits of data in the mind, but rather as associations that are actively used in mapping back and forth between messages and expressions' (ibid.).

As Holdcroft indicates, Saussure mused over the same issues about a century earlier, making note of 'three terms, natural language – langage; a particular language – langue; and

speech – parole' (Holdcroft, 1991: 45), thus blurring the borderlines that define *langage*, i.e. natural language, which have not been made any clearer even by M. Lotman's (2012) attempt to elucidate the controversial issue by renaming Saussure's *langage* as *sign system*, *langue* as *field*, and *parole* as *language*. In his analysis of language as a sign system, Saussure introduced new semiotic terms to describe the phenomenology of language that later became one of the two foundational models of sign expressed by the formula *S/s*: 'I propose to retain the word sign [signe] to designate the whole and to replace concept and sound-image respectively by signified [signifie] and signifier [signifiant]' (Saussure, CLG, 99> 67, cited in Holdcroft, 1991: 51). Consequently, what Jackendoff denotes as *expressions*, 'the "public" aspect of language: the utterances, inscriptions, or gestures' (Jackendoff, 2001: 53), are in Saussure's terms a chain of signifiers identified by the brain whereas Jackendoff's *messages*, 'the "inner" or "private" aspect of language, […] thoughts (or concepts or meanings)' (ibid.), appear in the mind as Saussure's signifieds which must be either matched with corresponding signifiers during the mapping process of thinking in order to deliver the intended meaning across to its recipient or inferred from signifiers perceived in order to decode the message received (see Figure 1.4).

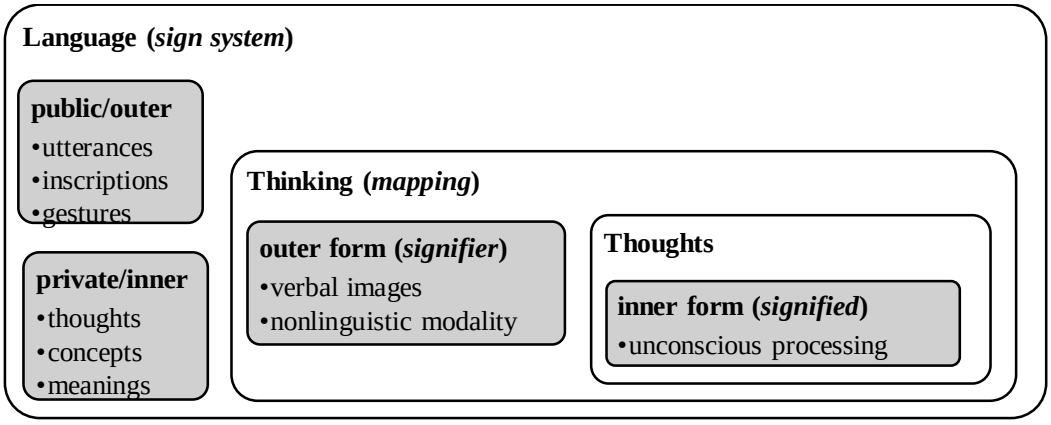


Figure 1.4 **Cognitive model of language (based on Jackendoff, 2001: 53; 62, and Saussure, 1916)**

Furthermore, Jackendoff states that such a *mentalist* model of language envisions an inherent necessity to map between *expressions* and *messages* (Jackendoff, 2001: 64), thus indicating that language is a modeling force which 'permits speakers to make reference to the world […] *as conceptualized* […], not the objective, "real real world"' (ibid.). This resonates with Rumelhart's Schema Theory where 'schemata are [seen as] the fundamental elements [cognitive structures] upon which all information processing depends' (Kalnbērziņa, 2012: 60). According to Rumelhart, 'the fundamental processes of comprehension are analogous to hypothesis testing. We can consider that we have understood a situation if we are able to find a configuration, which offers a coherent account for the various aspects of that

situation' (Rumelhart, 1984: 167 cited in Kalnbērziņa, 2012: 61). Thus, mind functions as an interpreter between the conscious and unconscious aspects of signs, pertaining to Merrell's (2001) heterogeny of Peirce's Thirdness and homogeny of Firstness respectively, and employs language to cross the hegemonic borderline of Secondness between Saussure's signifier and signified (see Figure 1.5).

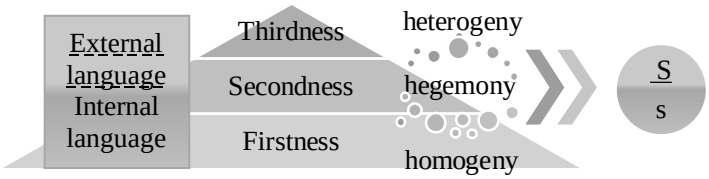


Figure 1.5 **Cognitive stages of signification (based on Jackendoff, 2001: 53, Merrell, 2001: 390, and Saussure, 1916)**

In Sapir's words, 'language [is] a medium […] that […] comprises two layers, the latent content of language – our intuitive record of experience – and the particular conformation of a given language – the specific how of our record of experience' (1921: 150).

As Pinker indicates, language 'helps to think in certain ways, [serving as] one more mental scratch pad […] to keep the ideas from fading' (1998). Thus, because 'we think in visual images, we think in auditory images, we think in abstract propositions about what is true about what' (ibid.), metaphors model the mental process of thinking that does not function according to 'any left-to-right linear order the way language does, but [displays] a web of connections between concepts […] connected with other aspects of experience' (ibid.). As a result, as Kovács concludes 'the way we think, what we experience and what we do every day is often a matter of metaphor' (2006), which verbalizes the conceptual ambivalence characteristic to the cognitive state of Firstness, the underlying mind map.

So, as Nöth suggests, '[i]f we reinterpret the idea of primary modeling' from the perspective of cognitive theories 'as referring to preverbal semiosis in a cognitive and an evolutionary sense' the idea of secondary modeling system such as metaphor can be significant (2006: 253). Nöth observes that, according to J. Lotman's theory of semiosphere elaborated in *The Universe of Mind* (1990), 'metaphors are the source of creative thinking' (Nöth, 2006: 251) because the links they form among spots of signification result in 'new semantic associations' (Lotman, J., 1990: 37, quoted in Nöth, ibid.), therefore 'a metaphor is more than a mere rhetorical ornament' (Nöth, 2006: 251). In J. Lotman's words, it is 'a mechanism for constructing a content […] born at the point of contact between two languages' (1990: 44, in Nöth, ibid.). Thus, as noted by Chien, the very 'idea that modeling can be based on nonverbal and nondiscrete entities suggests that schemata or geometrical shapes are entitled to function as the primary modelling systems as well – to model our

innermost feelings and sensations' (2014: 38). Therefore, already J. Lotman's first introduction of the concept of modeling systems had a significant influence on the studies of visual arts (ibid.).

However, as 'the mind does not manufacture abstract concepts out of thin air... it adapts machinery that is already there' (Jackendoff, 1983: 188, quoted in Casasanto, 2010: 457), 'each time we use a linguistic metaphor, we activate the corresponding conceptual mapping' (Casasanto, 2010: 471). As a result, according to Lakoff and Johnson's Metaphor Theory, '[d]ifferent cultures have different ways of comprehending experience via conceptual metaphors' (1980). As Pinker explains, though the language of mind is nonverbally universal – a mentalese of images, 'the contents of mentalese are supplied a lot by language' (1998). Thus, cognition of sign systems is a dynamic and reciprocal process between the coding spheres of Firstness and Thirdness that transforms the homogeneous LOT into heterogeneous images and verbal expressions according to the different hegemonic routes of metaphors followed.

But, as Nöth points out, according to J. Lotman's 'dualistic theory of the *Universe of the Mind* consisting of a semiotic and a nonsemiotic sphere […] based in […] Husserl's phenomenology' (2006: 254), culture is seen as a code, 'a *system of signs*' (ibid., in reference to Lotman and Uspenskij, 1978: 211) as opposed to the alien universe seen by the cultured self as meaningless nonculture of the other 'because it was [either] less valued, or because it was more difficult to understand' (Sonesson, 2012: 246). As J. Lotman states, '[o]utside the semiosphere, there can be neither communication, nor language' (1990: 124, in Nöth, 2006: 254). Consequently, the *nonsemiotic* world is like a foreign tongue yet to be learnt from the perspective of one's own culture, a different code that must be installed as referential schemata for the data to become meaningful. However, as Merrell reminds, according to the rule of infinite semiosis, culture undergoes changes, a 'dynamic interaction between subalterns and the dominant class' (2001: 407) that over a longer span of time might change even the very conventions of cultural communication systems (see Ong (1982) on the shift from orality to literacy and Mizrach (n. d.) on digital communication).

As Hodge and Kress point out, 'signs and texts are always socially produced. The structure of signifiers is itself the result of prior social processes of negotiation and contestation, so that the relation of signifiers to signifieds is not arbitrary but signifies the state of social relations at a particular time' (1988: 229). Thus, according to Verschueren, 'the choices that language users make in the course of producing and interpreting utterances derive from an infinite and ever-changing range of variable possibilities' (2001: 93) that depend upon 'many other codes […], including clothing codes, gestures, and so on, and others, such as architectural

codes, which establish not simply the status of a context but also what pattern of relationships will prevail in it' (Hodge and Kress, 1988: 45). Consequently, mind infers the sense of a message communicated via language not only by drawing upon internal and often unconscious schemata, which evolve along with information input, but also by assessing various modes of expression that constitute communication at a given instant, following Schema Theory that filters data in concordance with the cultural context that is part of M. Lotman's semiotic field.

As a result, individuals are faced with the incessant 'need for meaning negotiation, a need which is always there' (Verschueren, 2001: 93) because it is difficult not only to be fully aware of the meaning signified by the combination of co-present signifiers belonging to different genres of communication but also to tell the truth apart from lies which can be both unconscious and intentional. As Culler remarks, since 'meaning is determined by context [it] is open to alteration when further possibilities are mobilized' (1983: 124), therefore even what at the moment of reading the signs presented might seem as 'understanding is [in fact] a special case of misunderstanding, a particular deviation or determination of misunderstanding [as] misunderstanding whose misses do not matter' (ibid.: 176). Thus, according to Hodge and Kress, 'in the social definition of reality, "truth" is not what is right simply because it is right' but is rather 'bound up inextricably with issues of power and solidarity in a specific group', leading to 'different versions of reality to be resolved through semiosis, coalitions to be created, antagonisms to be overcome or prevented, or activated and declared' (ibid.: 151) characteristic of the indexical sphere of Secondness, the hegemonic bar of signification.

But as Lacan notes, combining insights from psychoanalysis with a semiotic perspective, the unconscious (or Peirce's Firstness) plays an important role in the generation of meaning as 'the discourse of the Other […] the beyond in which the recognition of desire is bound up with the desire of recognition' (1966: 83), thus affirming the immense impact of schemata as a modeling force of the indexical perception of the self as situated in Husserl's *Lebenswelt*, J. Lotman's semiosphere. He criticizes the linearity of Saussure's formula S/s, indicating that a signifier can lead to many signifieds rather than just one, each of which plays a part in the chain of signification as another signifier thus constituting a vertical dimension of possible interpretations (ibid.: 69), which correlate with Peirce's idea of infinite semiosis where each interpretant leads to another representamen. Commenting upon Jakobson's notions of metonymy as a syntagmatic and metaphor as a paradigmatic dimension of language, Lacan attributes the processes of selection and combination to unconscious impulses which contribute to the displacement and distortion of meaning (ibid.: 74-7). This corresponds to Merrell's depiction of Thirdness as a narrower representation of the initial idea conceived in the subconscious sphere of Firstness. So, similar to Hodge and Kress, Lacan concludes that 'the

dimension of truth emerges only with the appearance of language' (1966: 83) that creates the heterogeny of interpretations. As Dowerah observes, 'subjectivity is thus formed through a never-ending series of metonymic deferrals (misidentification) as opposed to metaphoric coherence (identification)' (2013: 4) which contribute to the deceptive nature of language as the result of 'the failure to fully communicate' (ibid.: 3). Consequently, it is the unconscious aspect of mind that contributes to the growth of the semiotic tree of meanings, and individual intentionality (thinking) determines which signifieds will be cognized when and if a signifier crosses the bar of signification as shown by the comparative analysis of Jackendoff's and Saussure's models of language as a sign system.

While Lacan focuses on the unconscious aspect of mind as a filter determining which signifiers and signifieds will develop a causal link, Sonesson explores the relation of mental images to picture signs as perceptive projections of mind. Analyzing the essence of sign, Sonesson indicates that 'there is meaning already in perception' (2011: 169) which resonates with Lacan's idea of the influence of the unconscious on the production of meaning and Merrell's elaboration of Peirce's Firstness. But Sonesson goes beyond Saussure, Peirce and Lacan and observes that, in order to understand what a sign is, the problem should be approached from a phenomenological perspective. Drawing upon insights about the sign expressed by Husserl and Piaget, Sonesson states that what the mind perceives is 'an appresentation, when one of the items is present and the other is not; and an appresentation becomes a *sign* when it is the absent item which is the theme' (ibid.). This leads back to the idea of displacement contrasted with a material presence of a sign: while a picture as a sign is simultaneously also a material object in the world, though possibly without an actual referent as in the case of a unicorn, and therefore is 'present here and now,' a verbal sign lacks the dimension of tangible reality (ibid.: 175-6). Similarly, according to Sonesson, mental images can be treated in terms of cognitive semiotics as 'mental pictures' generated by the human mind as projections of perception 'not images in a phenomenal sense' and consequently are to be approached, as presentifications – signs that are 'present in a modified mode: as imagined, as past, etc.' (ibid.: 177; 179).

As a result, spatial representation can be distinguished from temporal presentification of an immaterial object of phenomenological attention such as 'anticipation, memory, and phantasy,' clarifying the phenomenological difference between 'signs and enactments' (ibid.: 179-80). So, due to the creative aspect of mind, both pictures and mental images appear to the mind's eye of perception as signs in the forms of either representations or presentifications. But as the moment of presence dissolves into past, former representations can

be later recalled only as presentifications evoked like specters by external signifiers or become a part of the unconscious as branches of the tree of latent signifieds.

In a similar fashion, thoughts arise from the sphere of Firstness, the unconscious, in the shape of mental images much like memories of past impressions. As Jackendoff states, 'when one experiences oneself thinking, it is most often in terms of verbal images' (2001: 62). In Sonesson's terms this would mean that thoughts are yet another form of presentification of something that is not actually real but instead belongs to the plane of the imaginary. However, such a phenomenological definition does not fully elucidate the relations between thoughts and language. According to Jackendoff, thoughts as verbal images or '"talking to oneself" […] have the *form* of public expressions; but they are *not* the "inner" form in which the actual thought takes place' (ibid.). Thus, drawing parallels with Saussure's model of sign, thought, in likeness to a pictorial sign, also consists of the two dimensions of a signifier and a signified where the form of the mental/verbal image corresponds to the external level of the signifier, or rather a stream of signifiers that course before the mind's eye as the process of thinking, but which is not the signified level of thought as the meaning/idea residing in the unconscious sphere of mind to be cognized. Therefore, Jackendoff concludes that '"inner forms", i.e. thoughts, are *never* conscious *per se*. Rather, what appears in consciousness are the "outer forms" that are linked with thoughts [as] an image in some nonlinguistic modality' (ibid.), a mentalese, an ornament of indexical relations among iconic signs.

So, it is through language that abstract ideas arising within an individual gain shape and, in the form of verbal signs as opposed to silent mental images, can be contained, memorized and passed over to other members of the community. Consequently, confirming Pinker's (1998) conviction, Jackendoff states that 'although language is not *necessary* for thought, it significantly enhances the character and power of thought – it helps us think *better*' (2001: 62). As Verschueren remarks, 'language is the most powerful tool to construct the desired meanings' (2001: 91), a modeling system. And this is true both in the process of employing language to send an encoded message that will manipulate reality and in the process of decoding signs according to either conscious or subconscious intentions.

1.3. Semiotic model of the phenomenology of language

Fodor notes that in order to understand how 'mental processes preserve semantic properties […] the problems about content and the problems about process [have to be examined] *at the same time*' (1987: 297). So, in this subchapter, I will apply the principles of mathematical analysis in order to clarify the definition of the phenomenology of language and examine the

role of geometric patterns in human cognition based on the semiotic and psycholinguistic correlations drawn from subchapters 1.1 and 1.2 before comparing them to the conclusions made by Trettenbrein (2015), Deacon (2003), and Favareau (2002) on the controversial topic of Universal Grammar.

As Jackendoff admits, confusion about the language faculty exists due to the 'broad sense' of the term where language stands for 'almost any structured system' and 'the narrower sense used by linguists' where language refers to 'natural spoken languages of the world' and their sign language counterparts (2001: 53). But semioticians like Saussure and Lotman tend to stretch the term to encompass both senses of language as defining features of sign systems. Thus, for Saussure, *langage* or sign system is comprised of *parole* and *langue*, constituted by the external layer of *signifier* and its internal dimension *signified*, which M. Lotman reinterprets as the expressive form of any given *language* on the foundational level of *field*, defined by *alphabet* and *grammar*. However, while Saussure's formula S/s focuses on sign processing that links concepts and forms, M. Lotman's dyad of language as {A, G} concentrates on the external level of language production and the syntax of semiotic systems.

Moreover, in his definition of semiotic system, M. Lotman applies a set notation, which, according to Sadler and Thorning, 'can be useful when considering a number of different events that may occur in a given trial' and denotes a 'universal set [that…] contains a number of subsets' (1987: 236). But, although the use of set notation in semiotic context does sketch the constituents of sign systems and implies the probabilistic nature of the tree of infinite semiosis, M. Lotman's definitions of sign system as 'S = {L, F}' and language as 'L = {A, G}' (2012: 21) shed little light on the phenomenology of language because, due to the hierarchy of interconnected modeling systems, they result in the self-referential formula $L_1 = \{L_2, L_3\}$. So, in the context of sign systems, the mathematical relations of the elements within the universal set are not entirely clear. As Holdcroft indicates, '[i]t is unclear precisely what totality of linguistic facts is meant to be included in langage, given the inherent vagueness of the term linguistic fact' (1991: 45).

But, analyzing semiotic and psycholinguistic correlations, language seems to be a multi-layered sign phenomenon comprising various views on sign systems as compatible facets of the object of phenomenological attention co-created by the self and other. Thus, via shifting between the cognitive phases of Firstness and Thirdness, indexical mappings between the concept of representamen and its interpretant are created, constituting hegemonic projections perceived as analogous presentifications where the dialog between the self and other takes place and determines the object/sign by approximating the signifier and the meaning signified. As a result, in the process of language production, the iconic homogeny of preverbal

proposition, best perceived in the shape of dynamic geometric schemata, is first indexically sketched as a visual metaphor before being matched to symbolic verbal expressions or communicated via nonverbal artistic media, for example, a kinetic projection or a static artwork. Likewise, linguistic information input is decoded, constructing an analogous presentification that must fit in with subconscious schemata for the text to make sense (see Table 1.3).

Table 1.3 **Semiotic and psycholinguistic correlations (based on aforementioned theories)**

Peirce's sign	Cognitive modeling system	Cultural implications	Layers of language	Mode of perception	Saussure's sign
representamen	Firstness S1	iconic homogeny	preverbal proposition	geometric schemata	signified (s)
object	Secondness S2	indexical hegemony	visual metaphor	analogous presentification	$\updownarrow \frac{S}{s}$
interpretant	Thirdness S3	symbolic heterogeny	verbal expression	linguistic interpretation	signifier (S)

Consequently, expressed in a mathematical notation combining insights provided by Saussure (1916), Jackendoff (2001), and M. Lotman (2012) and taking into account Peirce's interpretant, the phenomenology of language ($L\varphi$) can be defined as the function of cognition $f(C)$, the creator (C) of the text that arises as either a cooperative or an antagonistic dialog between the self (σ) and other (ω). Accounting for both the external (L_e) and internal (L_i) dimension of language, the language phenomenon can be viewed as a semiotic system of the language of the self ($L\sigma$) and the language of the other ($L\omega$): $L\varphi = f(C) = \begin{cases} L\sigma \\ L\omega \end{cases} = \updownarrow \frac{Le}{Li}$ where language production (encoding) equals M. Lotman's definition of sign system: $Le = Ln + F$ and language perception (decoding) can be expressed as Saussure's formula: $Li = S/s$. Thus, $L\varphi = \begin{cases} L\sigma = \frac{Li}{Le} = \frac{\frac{S}{s}}{Ln+F} = \frac{S\,(Ln+F)}{s} \\ L\omega = \frac{Le}{Li} = \frac{Ln+F}{\frac{S}{s}} = \frac{s\,(Ln+F)}{S} \end{cases}$ where L_n is the language medium selected, *F* stands for field, and *S/s* is Saussure's formula of sign constituted by the division of signifier (*S*) and signified (*s*). Since $s > S$, also $L\sigma > L\omega$, thus the inequality between language perception and production renders understanding of communication limited and necessitates an incessant dialogue to approximate the signifier and signified. As a result, the significant other (ω) seems to serve as a catalyst that instigates the biochemical chain of infinite semiosis via vector geometry between α and β points of signification.

But, according to Jackendoff, information storage and language acquisition raise the question of Universal Grammar (2001: 56-58), the cognitive 'precursors [that] must be present in the […] mind in order for the linguistic system to develop' (ibid.: 57). However,

contrasting views exist in regard to the extent and nature of Universal Grammar (UG). While Chomsky's generative grammar envisions syntax as the foundation of further derivations of 'phonological and semantic organizations' (Jackendoff, 2001: 57), on Jackendoff's view, it rather serves 'as an intermediary mechanism that helps map between' other semiotic representations (ibid.). Although Jackendoff notes that 'Universal Grammar is by definition unlearned [and therefore] must be transmitted to the infant genetically' (ibid.: 58), he contradicts himself by stating that 'this system is not present at birth' because language develops along with 'the child's effort to understand and model adult linguistic behavior' (ibid.: 57).

In addition, as Jackendoff reports, contrary to considerable 'evidence for some degree of' the innateness of UG (2001: 60), 'no mechanism is presently known for instantiating free combinatoriality in a system of neurons' (ibid.: 56). Also Trettenbrein admits that, although '[f]rom a biolinguistic perspective, UG is not a hypothesis by any rational epistemological standard, but an axiom' (2015: 1), as yet, no progress has been made in detecting 'the "atoms" of neural computation' (ibid.: 5). As a result, referring to Boeckx and Leivada (2014), Trettenbrein suggests that 'genocentric conception of UG might' be misleading, in spite of the uniqueness of 'human language (and thus genome and brain)' (2015: 6). As Favareau, points out, the reasons for failing to develop a functioning model of the phenomenology of language are, firstly, lack of an 'explicitly semiotic approach to neural information processing' (2002: 60), and, secondly, while explaining 'biological *sign transmission*', the current theories do not account for 'biological *sign meaning*' (ibid.: 61).

Consequently, Favareau suggests a biosemiotic approach as a solution to the enigma of cognitive communication. Firstly, he points out that, on the neuron level, meaning is transferred via 'code-duality' where '*analog representation* […] is constituted by whatever unique configurational state […] environment is in at the moment of synaptic ([…] quantal) release' (2002: 65). Thus, Favareau emphasizes that, contrary to the computational model, the biological mechanism of infinite semiosis is realized via a chain of '*analog synaptic potentials* [that] *generate digital action potentials which generate analog synaptic potentials which generate digital action potentials*' (ibid.). Secondly, Favareau attests that from a semiotic point of view, 'the self [or cognition…] is *at once* iconic, dialogic [i.e. indexical] and triadic' (ibid.: 68) so that 'the neural systems […can be conceived as] a living, interactive, massively re-entrant semiotic *web*' (ibid.: 68-9). As a result, everything beginning with 'visual images' and ending with self-perception is constructed 'from pre-given incoming photon impulses as they are semiotically […] "built" across heterogeneous and massively

intercommunicating brain areas', thus eroding semiotic boundaries between 'the sub-systemic distinctions of brain, body and world' (ibid.: 72).

However, along with Lacan, Favareau criticizes 'the Sausserian dyadism underlying the assumptions of much contemporary neuroscience' that still insists on the distinction of mental and neural levels of sign processing (2002: 69). On his view, the problem with such reasoning is a 'dichotic and discrete' interpretation of the formula of sign as *S/s* (ibid.) which leads to the misapprehension of body and mind as separate entities (ibid.: 80-1). But, as Favareau insists, sign processing is a 'cascade of interneuronal activity' (ibid.: 81) where 'a sign [in Deely's words] is neither a thing nor an object but *the pattern* [my emphasis] according to which things and objects interweave to make up the fabric of experience' (Deely, 1990: 55 quoted in Favareau, 2002: 81). Thus, Favareau concludes that the self and other are 'dialogic signs' (Favareau, 2002: 84) pertaining to 'the uppermost *symbol* level of our "biological inner semiosphere"' constructed by '*iconic* and *indexical* levels of the never-ending sign exchange' (ibid.). As Favareau argues, the hierarchy of iconic, indexical and symbolic sign systems constitutes 'a complement which may be formalized ontologically as *being*, *relation* and *law*' perceived as the 'concepts of "self" *and* "other" in their fullest, subjective phenomenological senses (ibid.: 84-5).

But, as shown by semiotic correlations summarized in Table 1.3., Peirce's triadic sign and categories actually correspond to Saussure's model of sign if interpreted as an exponential relation between the signifier and signified, Favareau's *analog* and *digital potentials*. However, this idea might be clearer if instead of the division *S/s*, it were viewed as a logarithm: $\log_s S = x$, which equals $s^x = S$, where *x* stands for the potential mappings that constitute the power of the signified expressed as the base value of the signifier. Continuing the chess analogy, according to a legend about the origins of the game, the inventor of chess tricked the Indian king into paying him for the invention more than he could afford by expressing the price as an exponential growth of grains: 2^{64} which tends to infinity (Elwes, 2011: 107-8). Likewise, the initial idea signified (*s*) in the cognitive stage of Firstness gains shape in Secondness via the multiplication of probable mappings (*x*) before it is manifested as a magnified external signifier (*S*).

Acknowledging that historic debates over the type of Universal Grammar indeed have centered around the dichotomy of biological versus cultural constructs, Deacon, like Favareau, argues that 'the ultimate origins of design principles in language' stem from '*semiotic* constraints, inherent in the requirements for producing symbolic reference itself' (Deacon, 2003: 111-2). Drawing upon the example of mathematics as a universal code that in spite of its arbitrary notation conveys 'non-arbitrary combinatorial consequences' (ibid.: 112-

3), he proposes to regard UG as ‘a kind of multidimensional vector coordinate system defining a schematic space of potential reference’ (ibid.: 119). As Deacon indicates, ‘[s]ymbols point to each other by virtue of patterns of replacement, alternation, co-occurrence’ (ibid.) and are themselves a construct of ‘systemic relationships among indices’ connecting icons arising from Firstness (ibid.: 118), thus constituting ‘a closed systematically reciprocal network of sign positions and relationships […] built up by the learner’ (ibid.: 119). Thus, language can be viewed as a transcript of indexical patterns created by links between various signs, geometric schemata that unite points of reference.

Moreover, as Deacon points out, since nouns and verbs are the foundation of ‘a well-formed sentence’ (2003: 126), ‘[p]redicate-argument structure expresses the semiotic dependency of symbolic reference on indexical reference’ whereof the formula ‘Predicate (argument)’ (ibid.: 126) expressed by notation ‘*F(x)*’ (ibid.: 125) depicts the semiotic constraint of language as ‘Symbol (index)’ (ibid.: 126). Thus, Deacon mentions ‘pronominal and anaphoric reference’ as examples of ‘symbolic “triangulations” of reference’ underlying ‘the successive incorporation of additional information’ within the indexical ornament perceived as a sentence (ibid.: 124). As a result, the ‘double mapping [of physical to indexical to symbol token] binds the locus in semantic space and the indicated locus of the object space together’ (ibid.: 125).

So, Deacon’s definition of language as a *coordinate system*, where indexical references function as vectors that unite two tokens or signs that can be described either explicitly as indexical relations among icons or abbreviated as symbolic reference, correlates with Issajeva’s suggestion that UG underlying mental imagery must be based on sign properties and M. Lotman’s definition of sign system as a set of *language* and *field* or *alphabet* and *grammar*. Deacon, however, delves deeper in his search for UG, seeing the phenomenology of language in more semiotic terms as ‘the fundamental unit of grounded symbolic reference [designated by] semanticists [as] “predication”’ (2003: 125). Thus, M. Lotman’s *field*, upon which a select *language* is projected, is defined by Deacon as the physical plane of infinite tokens connected by associative indexical vectors (M. Lotman’s *grammar*) that constitute the metaphoric schemata (M. Lotman’s *language*) seen as symbols (M. Lotman’s *alphabet*). Consequently, M. Lotman’s $S = \{L, F\} = \{A_1, G_1, A_2, G_2\}$, where *S* stands for sign system, equals Deacon’s $L = S(i)$, where *S* designates symbol and *i* index, which means that, on Deacon’s view, UG consists, in M. Lotman’s terms, of the alphabet of symbols and grammar of indices: $UG = S(i)$. Therefore, as Deacon emphasizes, the circularity arising from infinite co-reference binds together ‘the physical tokens’, the symbolic web, and interpreter (ibid.: 126), which leads back to Peirce’s triad where the self is the fundamental field of

perception upon which the dyad of symbolic signifiers and indexical signifieds is inscribed, following Favareau's observation of the triad as *being*, *relation*, and *law*.

As a result, in contrast to the arbitrariness of mathematical notation, where the symbols used to denote the physical relations can be substituted and must be learnt in order to decode mathematical texts, Universal Grammar is archetypal and communicates directly on all three levels of the field of cognition via its simultaneously indexical, iconic, and symbolic form that models the world and appears on the field of consciousness as points and vectors in motion, known in quantum physics as 'the **wave-particle duality**' of light that is dynamic in nature and, according to Bohr's '**principle of complementarity** [can be visualized as] either the wave or the photon' (Giancoli, 1980: 835). As Giancoli explains, '[w]hen we try to conceive of what light really "is", we insist on a visual picture. Yet there is no reason why light should conform to these models (or visual images) taken from the macroscopic world. The "true" nature of light […] is not possible to visualize' (ibid.: 836). Thus, UG seems to be grounded in quantum physics and consist of what might best be cognized as the lexicon of geometric patterns that function as models per spot/point arranged according to the grammar of vectors and is amplified via cognitive stages of signification as various types of semiotic systems, including the symbolic level of expression known as the heterogeneous natural languages.

Thus, language arises as patterns of stimuli which can be perceived as iconic, indexical, and symbolic signs based on the Universal Grammar of vector geometry. Because information cannot be fully cognized on the cognitive level of *Firstness*, it is projected on the field of cognition as schematic models of heterogeneous mappings in the form of geometric signs and patterns. But, depending on the communicative medium selected, geometric schemata can be either translated as secondary modeling systems of iconic images or converted in a symbolic code of a natural language. Consequently, the self filters various presentifications according to select patterns that construct a given world view that delimits the scope of interpretations embedded in the triadic sign. Hence, different interpretants are likely to model different narrative versions of the same plot of geometric ornamentation based on the cognitive perspective of *Firstness*, *Secondness*, *Thirdness*, or the combination of all three modeling levels. Discussion of geometric signs and patterns as a semiotic system and possible interpretations of the geometric code are presented in the next chapter.

2. GEOMETRIC ORNAMENTATION AS A SEMIOTIC SYSTEM

As studies of the phenomenology of language indicate, language is a modeling force that constructs subjective reality via iconic, indexical, and symbolic reference. According to Harari, '[t]he immense diversity of imagined realities that Sapiens invented, and the resulting diversity of behaviour patterns, are the main components of what we call "cultures"' (2011: 41), the binding force of civilization, underlying human success over other species (ibid.: 42). Long before the invention of writing around 6,000 years ago (Ong, 1982: 2), people began to use different semiotic systems to narrate and share their stories, creating artefacts and elaborate ornaments. Although, as Harari reminds, 'we have only the haziest notions about the religions of ancient foragers […and] we don't know what stories they told' (2011: 62), relics and cave paintings bear traces of the earliest permanent signs left by our ancestors. According to Trilling, ornamentation has a long history but it evolved as 'a separate art' only in 'the Upper Paleolithic, approximately 35,000 to 12,000 years ago' when *representational* ornaments dominated over *geometric* ones (2001: 91), which flourished in the Neolithic age (ibid.: 94). However, George points out that '[d]iscoveries from around the world suggest abstract thinking emerged much earlier and perhaps even in other species […] as far back as 500,000 years in an ancestor like *H. erectus*' (2013: 39). Although she attests that, according to von Petzinger's research, 'the earliest symbols tend not to be configured in any particular way [until] around 20,000 years ago' (ibid.: 40), George emphasizes that the latest findings indicate that geometric signs might have been a 'Stone Age code' (ibid.: 36) with a deeper meaning than previously assigned (ibid.: 40). So, in this chapter, interpretations of the geometric code and basic types of geometric signs and patterns will be provided based on studies by Trilling (2001), Celms (2007), O'Connell and Airey (2007), Nozedar (2010), *The Archive for Research in Archetypal Symbolism* (2010), Abraham (2011), Tumėnas (2014), and Krūmiņa (2015).

2.1. The geometric code

According to Nöth, J. Lotman's coinage of *semiosphere* 'suggests that culture is a semiotic "space" of stellar extensions' (2006: 253). Its 'self-referential' metaphor (ibid.: 252) illustrates 'our spatial cognition' (ibid.: 253) that on J. Lotman's view 'is a universal law' (ibid.), following Kantian *a priori* of time and space (1781), because '[h]umanity, immersed in its cultural space, always creates around itself an organized spatial sphere […of] ideas and semiotic models, and people's recreative activity' (J. Lotman, 1990: 203, cited in Nöth,

2006: 253). A similar organization and modeling function is the hallmark of geometric ornamentation. As Celms states, the archaic net structure of geometric ornaments 'indicates that the world [is] a clearly multi-centric system with both static and dynamic features' (2007: 108), which resonates with J. Lotman's idea of semiosphere. As Nöth points out, '[J.] Lotman's concept of semiosphere is […] a synonym of [both] culture […] *and* its semiotic environment' (2006: 260). Consequently, since semiosphere is the sum total of 'all cultural codes and texts' (ibid.), some semiotic systems can be decoded only by drawing correlations across sign systems of a given culture, which, according to Celms, is the case of geometric signs and patterns embedded in folk mythology (2007: 36-7).

As indicated by Celms, 'geometric signs and numbers' are the earliest types of signs secondary only to the natural rhythm of energy (Celms, 2007: 34). Moreover, Tumėnas writes that [t]heir development was relatively independent from the technique' employed and should be regarded as 'magic signs or scripts' not ornaments for merely decorative purposes (2014: 231). Also Krūmiņa states that patterns are vested with meaning, therefore 'a code or system is needed in order to transfer information from graphic to binary and, finally, verbal information' (2015: 7). As she points out, Tenisons and Strazds have developed a system to transform symbolic information into a code of symmetrical red spots on a white field 'reminiscent of geometric patterns dominant in Latvian art both during the archeological and ethnographic epochs' (ibid.). However, since no system has been invented yet to convert iconic and indexical layers of information into 'precise and undisputable' verbal text, the key to geometric patterns must be sought in folklore (ibid.). But, as Abraham observes, the majority of signs discovered 'in the caves of France […] are abstract geometric signs' far surpassing representational ornamentation with the ratio of 70 to 30% (2011: 18), though 'Geometric Mentality [indeed settled only] in Neolithic times' (ibid.: 4). Thus, Celms suggests that, due to their archetypal universality, geometric signs are 'the primordial language in signs' that depicts 'the motion of cognition' towards a definite form, in other words, 'a language of thoughts' (2007: 35).

According to Celms, 'geometric signs' are 'a culture code' and 'a sign system' that models the world in human consciousness' (ibid.: 37; 49). On his view, patterns are 'an intuitive insight on the borderline between the conscious and the unconscious', therefore 'geometric signs', contrary to 'letters […and] words', are a part of 'a more ancient communication system based on signs, structures and deep states of consciousness' that transmits information via 'showing' rather than 'telling' and evokes certain vibrations (ibid.: 50). Tumėnas points out that, although 'from the 19th century onwards [they] began to be interpreted as a fundamental element in the national identities of many modern countries',

giving rise to 'regional subjectivism' (2014: 220), geometric patterns preserved in Baltic traditions were widespread in the Neolithic Age (ibid.: 219) and survive in '[t]he weaving tradition of […] Eurasian, Latin American and North African cultures' (ibid.: 220). As Abraham concludes, the universal reappearance of a limited number of geometric signs, listed by von Petzinger as twenty six sign types, might have 'evolved from shamanic (trance) practices' and served as 'archetypal patterns [which helped transform] an iconic language [into] a mathematical language (2011: 21). So, 'patterns combine both cognized and subconscious levels of information' (Celms, 2007: 51), conveying the signified alongside the signifier also via the symmetrical structure of geometric signs (ibid.: 56).

Next, Tumėnas draws attention to the fact that the geometric code 'is built of two types of interconnected patterns' where 'the foreground […] of light, mainly white patterns' is contrasted with 'the background […] generally of dark woven patterns that are mainly red, green, and blue' (2014: 222). Moreover, 'there exists a strong folk tradition' to link 'mythopoetic images' with certain pattern types (ibid.: 225), thus adding a symbolic layer to the otherwise iconic-indexical geometric code. As a result, Tumėnas suggests treating the iconic image of the ornament as a signifier for the symbolic image signified by the mythopoetic name of the sign (ibid.: 227): 'a pattern with its name is the minimal constituent meaning-carrying element in particular linear ornamentations' (ibid.: 225). So, he concludes that the homonymy of geometric signs where 'one pattern usually has several different names' and polysemy where '[t]he same name sometimes refers to different patterns' (ibid.: 229) is a documentation of 'archaic associative thinking' (ibid.) and resembles the 'structure [of] natural language' (ibid.: 228).

Consequently, contrary to M. Lotman's definition of ornament as an indexical sign system *S1*, both Celms and Tumėnas emphasize that geometric signs and patterns have distinct layers of signification on all three levels of the phenomenology of language. Although ornaments do 'impact the psyche' and thinking (Celms, 2007: 32) and offer a perspective of eternity as pointed out by M. Lotman (2012: 28), geometric signs, in fact, convey iconic, indexical, and symbolic meanings that interlace with one another, creating a complex semiotic text. As Tumėnas writes, 'the traditional ornament [is] a metalanguage […of] an archaic strategy of mythic codification' with three interpretive layers (2014: 236), see Table 2.4.

Table 2.4 **Geometric metalanguage (based on Tumėnas, 2014: 236, c.f. Lotman, M. 2012: 27)**

Sign	Tumėnas's layers of the geometric code	M. Lotman's type of sign system
iconic	patterns as representations of objects	S2
indexical	particular visual-poetic ideas evoked	S1
symbolic	ideograms of mythopoetic (cosmological) images	S3

Thus, the geometric code, like verse analyzed by M. Lotman, is a hierarchical sign system where the form of the ornament bears visual likeness to the graphic representation of the mythopoetic image embedded, linking iconic and symbolic layers of the phenomenology of language, while the indexicality of the structure of patterns as colored spots on the background of a contrasted field model the variety of intertextual readings evoked. As Heaton writes,

> mathematics is a product of human culture, which has co-evolved with our attempts to comprehend the world. Rather than picturing mathematics as the study of "abstract" objects, we can describe it as a poetry of patterns, in which our language brings about the truth that it proclaims (2015: 9).

So, interpretations of the geometric code, where various signifiers are linked with a multitude of signifieds in a tree of infinite semiosis, can be regarded as the primordial roots of not only verbal language but also mathematical equations which in a poetic way morph into one another, illuminating different shades of meaning. As Celms writes, 'the meaning of signs arises from their structures […] which are universal', though tied to personal interpretations (2007: 146). Therefore, contrary to Tumėnas, Celms argues that interpretation of geometric signs does not depend on their names; in fact, 'linguistic terms' and interpretations are secondary to the 'images' evoked by 'the inner structure of geometric signs and their connections with analogous phenomena' (ibid.). As a result, geometric ornamentation as a semiotic system is both archetypal, having likeness to Universal Grammar, and simultaneously highly conventional due to the mythopoetic images signified, which depend on the outlook of given cultures.

2.2. Interpretation of geometric signs and patterns

According to Tumėnas, geometric signs and patterns have now become 'an important part of the national costume […] and folk craft souvenirs' with 'an aesthetic, social and cultural' value (2014: 234) as a modern 'interpretation of Baltic sacred geometry' (ibid.: 235). However, both Celms and Tumėnas observe that geometric signs are often misread in the modern context. According to Celms, this results from a narrow focus on geometric signs as pertaining to 'a separate study discipline', ignoring the interconnected nature of the geometric code (2007: 18). As Tumėnas writes, '[m]odern people reduce the associative character of ornaments to a narrowly defined mythologic or national symbol, or even transform it into contemporary alphabet' (Tumėnas, 2014: 235), thus denying 'denotational features and enforce[ing] a notational character on the ornament language' (ibid.). But, as Trilling indicates,

> An ornamental style is a choice of motifs or patterns, or a way of interpreting or combining them, that reflects the skills and the preferences of the maker and the tastes of the intended viewer. Some styles of ornament appear highly consistent, not because they lack imagination but because they are shaped by a strict conventional system (2001: 70).

Thus, interpretation of geometric signs is a dialog between their creator and viewer where any heterogeneous reading is a narrowing of the homogeneous code of geometric patterns, which encompasses at once all three layers of language. Consequently, because '[f]rom an ornamental point of view, how we look at these patterns is as important as what we look for' (Trilling, 2001: 71), this subchapter will give a brief overview based on interpretations provided by Celms (2007), Nozedar (2010), and Krūmiņa (2015) only of signs and colors relevant to Latvian brands analyzed in the empirical part of the research.

As Nozedar writes, the basic constituents of the geometric code are powerful semiotic signs (2010: 19). Moreover, 'the simpler the symbol, […] the more complex it becomes' resulting in infinite semiosis (ibid.). According to Tumėnas, the design elements of the geometric code are dots which constitute 'general line construction based […] on a vertical cross formed by five dots: +' that in turn serves as the quintessential foundation of basic geometric forms 'used to form different signs or patterns' (2014: 223). Therefore, as pointed out by Nozedar, 'dot is both an origination and a conclusion', the crossroads of all possibilities (2010: 20). Thus, while geometric ornamentation does evolve as an indexical sign system *S1* (as pointed out by M. Lotman), its *language* and *field* are more complex, leading to iconic and symbolic structures of signs and patterns, which can be treated also as *S2* and *S3*.

According to Nozedar, '[t]hese primary shapes transcend barriers of time, geography, and cultural context, part of a universal language that goes before, and beyond, words' (2010: 19). She begins her analysis of 'elemental structures' with the emphasis on 'space […which] is the most important symbol in the World' because 'emptiness' cannot be contained and is the foundation of all matter (ibid.). However, like M. Lotman, Celms indicates that the significance of *field* has so far been underestimated and consequently under-researched (Celms, 2007: 147). Contrary to M. Lotman, who sees *field* as a type of semiotic language (Saussure's *langue*), in agreement with Nozedar, Celms describes it as a 'sign' (ibid.). On his view, *field* can take three forms. First, there is 'an empty field that signifies the field of consciousness', a *tabula rasa*, a screen whereupon other signs are projected (ibid.). According to Celms, such a field is empty of thoughts represented as a second type of background: a checked or lined pattern (ibid.: 148). Thirdly, Celms distinguishes the three-dimensional cross in the shape of a six-pointed star that sketches the hierarchical nature of

spatial cognition (ibid.) and determines the meaning of a sign depending on its static or dynamic position and horizontal versus vertical direction 'in the coordinate system of spatial cross' (ibid.: 149).

The trinity of field, thus, serves as the foundation of more complex geometric signs elaborated as ornaments and linked together in strings of patterns. So, the geometric representation of *the Sun* evolves from a simple dot or circle into an ornate rosette (see Figure 2.6).

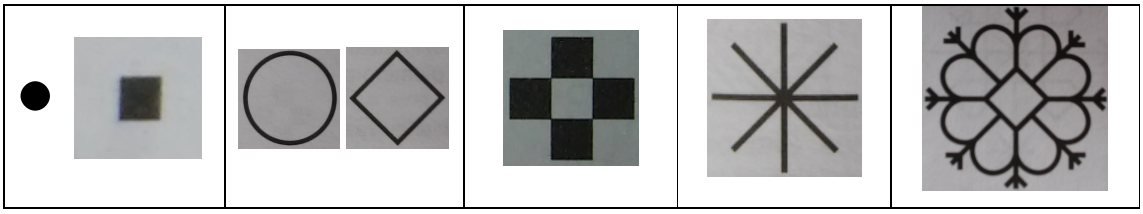


Figure 2.6 **Geometric representation of *the Sun* (based on Celms, 2007: 152-7)**

Besides, due to historically arisen technological restrictions, circle is often replaced by square, thus, emphasizing the symbolic meanings of number four (Celms, 2007: 154), which stand for the union of oppositions, the four cardinal points, and the seasons of both year and life (ibid.: 93). As Nozedar writes, 'the square represents the created Universe as opposed to the spiritual dimensions depicted by the circle' (2010: 22). While the circle represents, cyclic time and eternity (Celms, 2007: 154), static cross + designates 'blocked energy' contrary to the dynamic cross × which stands for 'life force, harmony, [and] creativity' (Celms, 2007: 87), representing 'movement […and] dance' ((Krūmiņa, 2015: 39). According to O'Connell and Airey, however, though 'an extremely old sign found in prehistoric caves', the diagonal cross now symbolizes also 'multiplication, confrontation, annulment, cancellation, opposition, obstruction, mistake and undecided' whereas the static cross signifies 'the for elements [and in mathematics] addition' (2007: 93-4). *The Sun Wheel* combines the two crosses and, therefore, signifies the sacral cycle of life and death (ibid.). Moreover, the symbol of *the Sun Wheel* is closely linked with the geometric representations of *the World Tree*, which here resembles an iconic sign of flower symbolic of rotation (ibid.: 156). But, as Celms reminds, every geometric sign begins with 'a dot and a cross and tends to end up in a new *World Net*' (ibid.: 151).

Consequently, *Sun* signs are related to signs representing *God*, who, according to Celms, creates the world and signifies 'thought' and 'light energy gradually manifested in the physical plane' (2007: 170). The geometric code depicts this process of transformation in the shape of 'dots, drops, [various] crosses, the Sun Wheel or star, the symbol of light and heaven' (ibid.), see Figure 2.7.

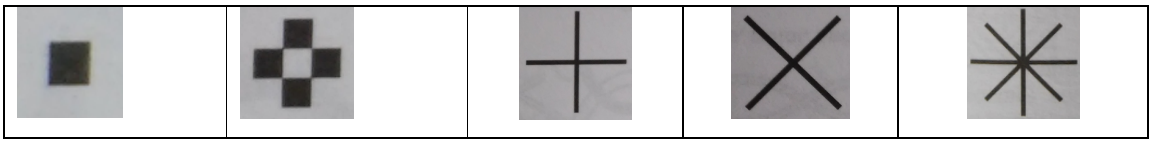


Figure 2.7 **Geometric representation of *God* (Celms, 2007: 170)**

So, 'the usual representation of God as a triangle or roof' (Krūmiņa, 2015: 29), can be seen in the shapes of cross, the meeting point of heaven and earth, present also in square and circle as the sum of male and female principles (Celms, 2007: 173). Besides, as Nozedar, indicates, 'the cross is said to "give birth to" the square' and serves as 'a geometric tool' of equal division of the circle (2010: 21) symbolic of union and infinity (ibid.: 20).

Similarly, the model of the world evolves from the circle that 'symbolizes […] unity, security, light […] and also all associations with zero and "emptiness"' (Celms, 2007: 154). Since hierarchy begins at the center with an expanding periphery, derivations of the world model morph into 'the image of the World Tree' (ibid.: 171), see Figure 2.8.

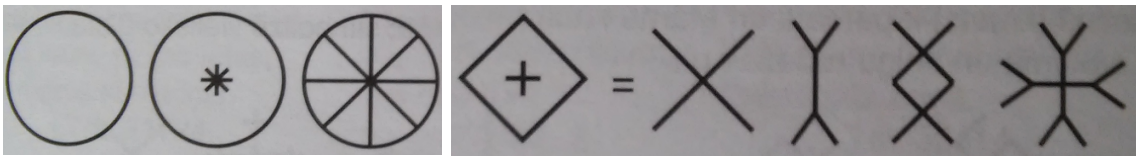


Figure 2.8 **Geometric representation of the model of the world (Celms, 2007: 171)**

Moreover, *the World Tree* is seen as indivisible from '*the Sun Tree* […and] *the Tree of Light*' at the basis of some star signs where the vertical dimension of growth is emphasized (ibid.: 93), see Figure 2.9.

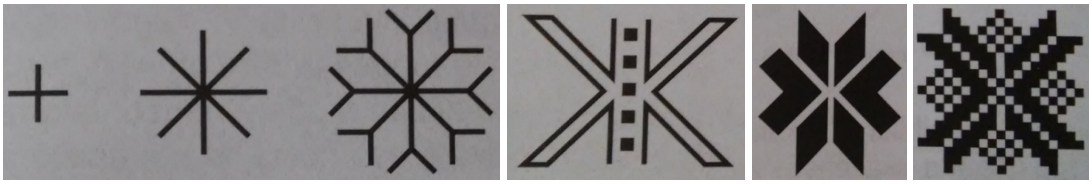


Figure 2.9 **Growth of *the World Tree* as *the Tree of Light* (Celms, 2007: 93)**

As Celms, writes, *the World Tree* consists of roots, trunk, and branches, which represent different levels of the trinity where the center symbolizes the world axis and the roots and foliage stand for a number of oppositions in nature, such as past versus future and physical versus mental reality (2007: 93; 171). Importantly, *the World Tree* 'grows from its center […], simultaneously expanding both its roots and branches' (ibid.: 99).

This resonates with Peirce's categories of Firstness, Secondness, and Thirdness and Merrell's (2001) analysis of the rise of heterogeny from original homogeny within the semiosphere, which Celms describes as a consequence of 'the expansion of the world from inherent unity in God and its hierarchical arrangement that appears as isolated forces'

(2007: 171). According to Celms, 'although there exists the dichotomy of "here" and "there", which divides spatial and temporal cognition in visible and invisible world, a triadic model of composition is emphasized, described in folklore as 'the symbolism of *the middle of the air*, *the middle of the field* and *the middle of the sea*' known since Stone Age (2007: 98). Although Celms notes that representations of *the World Tree* without its roots are frequent in Latvian heritage, he draws attention to the fact that in these cases the geometric sign should be analyzed in the wider context of the whole pattern, which reveals that a triadic composition is still observed, highlighting opposing principles and the cyclic symmetry of the timeline (2007: 96-9), see Figure 2.10.

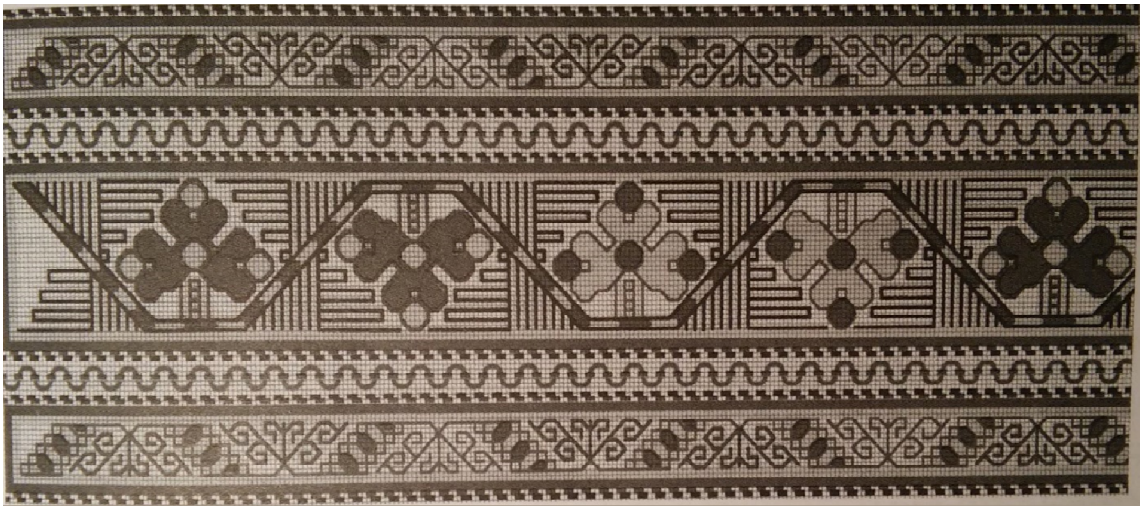


Figure 2.10 **Triadic composition of patterns (Celms, 2007: 99)**

Thus, geometric patterns confirm modern semiotic frameworks and incorporate Saussure's dyad of signifier and signified with Peirce's triadic model of the sign, where growth begins as communication, the interpretant engaged in a dialog with the world perceived as various schemata or patterns that mirror internal and external experiences. As Celms indicates, the triadic composition of geometric patterns 'is a mindset that has developed since the dawn of time' independently from semiotic technologies and prior to Christianity (ibid.: 100). Consequently, different aspects of the triad may be emphasized in the central signs while 'the Sun Tree corresponds to the overall vertical composition of geometric patterns' (ibid.: 97).

Next, Celms mentions the close relations between *the World Tree* and *the World Cloth* 'which are structurally identical' (2007: 110). As Celms writes, net structures that resemble honeycombs are a unification of 'different micro and macro worlds in a single, connected, and mutually embedded Universe [where] the number of worlds is infinite since they arise from the depth of the collective consciousness' (ibid.) like semiospheres of small and large cultures, see Figure 2.11.

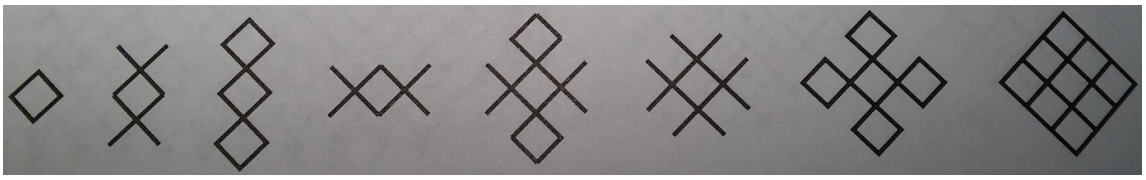


Figure 2.11 **Expansion of *the World Net* (Celms, 2007: 110)**

So, as Celms indicates, the expansion of the universe is represented also as a multiplication of *the octoloop* (Latvian *astoņnītis*) infinity sign ∞, or in a vertical position: *8* (2007: 224).

According to Celms, *the octoloop* combines the symbolic meanings of both circle and square, completeness and creation, and contains within it the sign of *the Serpent*: **3** and **2** or **6** (ibid.: 220). Krūmiņa points out that *the Serpent* stands for wisdom, intuition, past traditions, the World of the Dead, and the unconscious, therefore it is frequently used to adorn female belongings, emphasizing their creative role (2015: 34-6). *The Serpent* symbolizes also 'life energy and regeneration', colaboration and union, creative relations and sexuality (Celms, 2007: 213-4). As a sign of time, it represents the causal chain of events and the dynamics of life cycles (ibid.: 214). But, where the serpentine sign of the infinity is multiplied, a number of other geometric signs can be discerned in the new pattern, widening the interpretive meanings of the sign (ibid.: 225), see Figure 2.12.

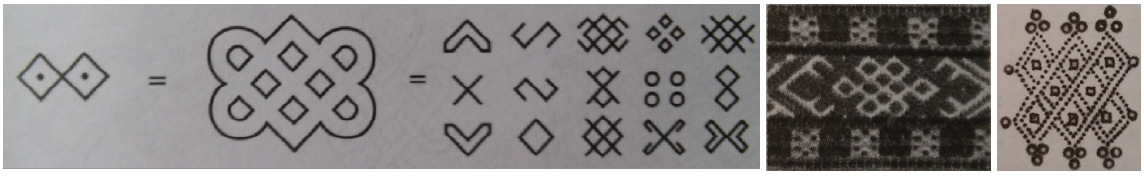


Figure 2.12 **Geometric patterns of infinity (Celms, 2007: 110; 225)**

However, Celms emphasizes that, contrary to *the World Net* and in spite of the richness of semiotic readings embedded, *the octoloop,* usually expanded to eight or ten loops and frequent in Latvian jewelry, represents 'the unity of time-space' and completed cycles of holistic action (2007: 226). But, among other geometric signs, it can also be seen on Buddhist temples (Celms, 2007: 39) and O'Connell and Airey point out that *the Celtic Knot* likewise signifies 'the universe, because it was drawn in a continuous line, and therefore used as a protective sign' (2007: 88), see Figure 2.13.

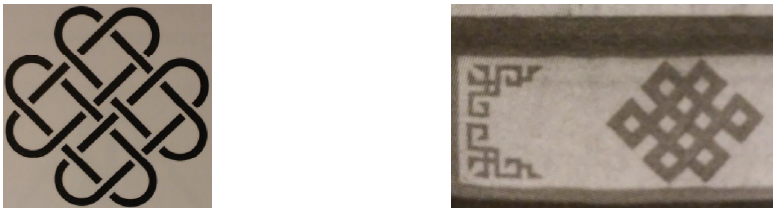


Figure 2.13 **Celtic Knot (O'Connell and Airey, 2007: 88) and a Buddhist sign (Celms, 2007: 39)**

As Nozedar writes, confirming universal associations, '[i]ntertwining shapes and lines […] generally point toward ideas of connectedness and the harmonious convergence of opposites', thus evoking 'strong protective associations' (2010: 47-8).

Similar to the unification of contrasts in variants of *the octoloop*, the sign of *the Magic Dragon* as a derivative of *the Serpent*, also called *the Winged Serpent*, represents the coexistence of opposite forces (Celms, 2007: 216-7). However, where *the octoloop* signifies peaceful harmony, *the Winged Serpent* has dual connotations. According to Celms, here 'the Serpent becomes a four-headed force sprung from the two oppositions, thus corresponding to the geometric representations of Thunder [Latvian *Pērkons*, marked by colors white and red (ibid.: 206)] and swastika, the cross of fire, also time tornados, and Happiness [Latvian *Laima*, bearing red and green (ibid.)] Cross' (ibid.: 216). As a result, these signs, especially Serpent signs with coiled ends, 'growing from the central circle (the Dragon's egg)', describe changes and untamable forces with both 'a creative and destructive potential' (ibid.: 217), see Figure 2.14.

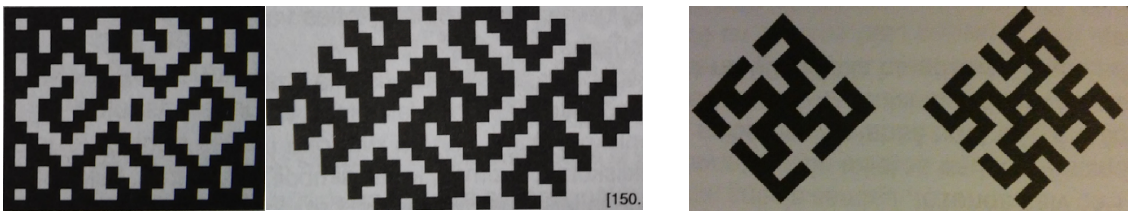


Figure 2.14 **Magic dragon and its egg (Celms, 2007: 217), c.f. Thunder (ibid.: 196-7)**

Given that the sign can be interpreted also as a 'multi-headed dragon' symbolic of 'the acceleration of time that leads to the consolidation of events and return to the beginning' (Celms, 2007: 217), Celms concludes that the ambivalent homonymy of the geometric sign can refer to any of the aforementioned aspects not always distinguished by color differences (ibid.: 196). Consequently, the meaning of the sign is to be deduced from the pragmatic context of the pattern and its function.

Thus, *Thunder* represents 'dominion over the four cardinal points' and, as Celms points out, according to mythopoetic readings, the center of the sign can be interpreted as the seaside where all 'cosmic' ends meet, emphasizing once again 'the vertical composition of the triadic sign' (2007: 196) and relating the central dot of the *Thunder* sign to the symbolic meanings of *the Sun* and its *Tree* (ibid.: 197). Although usually interpreted as a fire sign, Celms indicates that the cross of fire in reverse stands for water symbolized by the contrasting combinations of red and blue and can be read also as the flow of wind and water depicted by violet and white hues (ibid.: 206). The *Cross of Laima*, on the other hand, focuses on the iconic union of serpents, which symbolize 'happiness, prosperity, and holy brightness' and guard the crown

of wisdom and fertility (ibid.: 214). But, as *Swastika*, the cross of fire is known worldwide (Krūmiņa, 2015: 40), originally represents dynamic 'motion, growth, happiness, energy, fire, thunder' and, depending on the direction of its rotation, signifies either male (leftward) or female (rightward) forces (ibid.: 41), contrary to the Nazi corruption of the sign (ibid.: 40).

Another twin sign related to fertility and abundance is *Jumis,* 'found on antique tools and holy stones' (Krūmiņa, 2015: 31), see Figure 2.15.

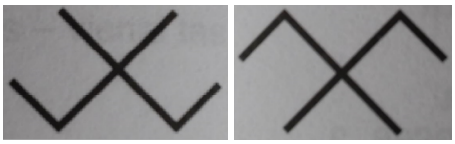


Figure 2.15 ***Jumis*** **(Celms, 2007: 181)**

According to Krūmiņa, its name comes from the ancient form *Jumalo* designating God, which is an iconic representation of a roof (Latvian *jumts*) in the shape of a triangle for *God* combined with the serpentine sign of *Māra*, therefore *Jumis* is a structural derivation of the sign of *God* (ibid.). As a union of male and female signs, Celms emphasizes that *Jumis* also stands for 'the secret of life': multiplication and the division of one into two and more, hence the symbolic meaning of infinite wealth and perfection in pairs (2007: 183) reminiscent of the dyad of signifier and signified, evolving in a chain reaction of semiosis. Thus, *Jumis* represents the colaboration of opposite principles 'conveyed via its symmetrical structure' not only in sexual terms but also as the meeting point of past and future (Krūmiņa, 2015: 33). Consequently, *Jumis* symbolizes harvest in various aspects of human life.

But, as Celms indicates, *Jumis* can be seen also as a derivation of a duplication of a simpler fertility sign, the representation of the masculine deity *Jānis* (2007: 181), see Figure 2.16.

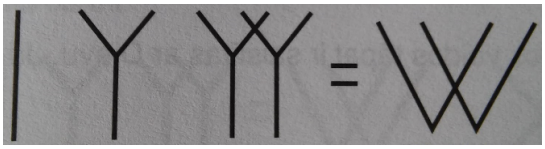


Figure 2.16 ***Jānis*** **as the origin of** ***Jumis*** **(Celms, 2007: 181)**

According to Celms, *Jānis* is constituted by a vertical line accompanied by circles, which signify *the Sun* (2007: 177), see Figure 2.17.

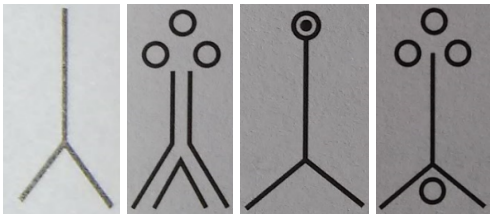


Figure 2.17 **Variations of the sign** ***Jānis*** **(Celms, 2007: 177)**

As ‘a sign of manhood, activity, and fertility’ symbolic of the summer solstice, variations of *Jānis* represent the cycle of the Sun (Celms, 2007: 177).

So, although different geometric signs or one and the same pattern can have various names and represent a range of mythopoetic images, due to their common origin in the cross as an expansion of the dot, geometric signs are indexically linked with one another, creating layers of iconic and symbolic interpretations. Moreover, interpretive analyses show that, in spite of the seeming hegemony of mythopoetic denotations, connotations signified by geometric signs are indeed embedded in the iconic-indexical code underlying symbolic readings based on common myths. As a result, a deeper contemplation of geometric signs reveals the hierarchical constitution of an ornament as a complex text where an isolated sign can be read also as a pattern of smaller schemata. As Trilling writes, ‘[g]eometric ornament is visually accessible, and moves easily between techniques or between cultures; it will always be with us, either in relatively traditional forms, or in new forms designed with the help of computers’ (2001: 213). Thus, active participation of its interpretant is required in order to access the full semiosphere of the geometric code, only partially restricted to the heterogeny of particular context and culture that provide the key to the symbolic layer intended by the creator of the geometric ornament.

2.3. Relations between the geometric and color codes

Although interpretations of colors may vary from culture to culture, human biological reaction to colors is considered to be universal, notwithstanding individual color preferences and regional connotations. Therefore, knowledge of the color code may aid interpretants in decoding the mappings intended by authors of geometric texts. According to Celms and *The Archive for Research in Archetypal Symbolism* (ARAS), this is due to color psychology based on the spectrum of light divided in different wavelengths (Celms, 2007: 121; ARAS, 2010: 636). Consequently, apart from the achromatic grayscale, four basic colors (red, yellow, green, and blue) and four basic transition hues are distinguished (Celms, 2007: 121). Like geometric signs, which arise from indexical emanations of the initial dot morphing into a cross and signs of *the Sun* and *the World Tree*, ‘colors are generated by the play of light’ (ARAS, 2010: 636) that depicts ‘feeling values, relationships and contrasts, dramas and tensions, the nature of matter and its processes and transmutations’ as well as evoke associations with ‘temperament, class, vocation and hierarchy’ (ibid.). But due to the limited scope of this research, this subchapter will focus only on colors used in brands to be analyzed in the empirical part based on works by Celms (2007) and ARAS (2010).

According to Celms, the four basic colors are the ones most commonly used in Latvian patterns, which indicates balanced energies and correlates with the four cardinal points of the world model and the four elements and personality types (2007: 122). Thus, *red* is a dynamic, arousing color that symbolizes 'fire, life, and health' and represents confidence and potential energy (ibid.: 127). However, it also 'warns of danger, calls for attention, says "stop!"' (ARAS, 2010: 638). Similarly, *yellow* is a regenerating color that represents 'sun light, warmth, open air and freedom' associated with transcendental motion (Celms, 2007: 127) whereas *golden* color stands for 'power, a mysterious force, protection and benevolence […], the culmination of creative force' (ibid.: 134). But, like red, yellow tones serve as warning signs and represent 'a transitional stage' on the way towards 'psychological wholeness and integration [with…] a returning interest in the outside world' (ARAS, 2010: 644). As a 'complementary [color] to red', *green* 'is often associated with fiery red' (ibid.: 646), hence it stands for 'perseverance and willpower' and 'enhances self-control' and strength to materialize thoughts (Celms, 2007: 128). As a symbol of earth (ibid.: 123), green color represents life force (ibid.: 128) as well as hope, growth, and fertility, symbolic of spring, beauty, and rejuvenation (ARAS, 2010: 646). Moreover, given the modern connotations with ecological lifestyle, it evokes associations with 'caring for the organic life of the planet' and freshness and youth (ibid.).

Blue, on the other hand, as the opposite color of yellow, 'symbolizes water […,] the ocean of consciousness' (Celms, 2007: 127). As Celms writes, hence color blue represents 'collection and codification of information', 'serenity and contentment' (ibid.: 127), 'the rational mind' and 'infinity' (ibid.: 131). According to ARAS, 'apart from sea and sky [, blue] is the rarest color in nature' therefore it is associated with 'supernatural beauty, […] the spiritual and mental' as well as 'the highest, the most valued' (2010: 650). The darker tones of blue inclining towards red to form *purple* likewise stand for the 'most sacred values' and represent the 'union of opposing energies' associated with regal powers (ibid.: 654). Because darker hues of blue prevail in patterns, *light blue* is a rarity and represents 'relaxation, regeneration, also absent-mindedness, […] compassion and openness to foreign thoughts' (Celms, 2007: 133).

Celms writes that these colors 'form six compatible color pairs' commonly used in geometric patterns (2007: 125), however, color combinations do not impact the effect each color has on its observer (ibid.: 127). On his view, colors correspond to certain geometric signs. For example, Celms claims that the dot and cross wherefrom other signs emerge are red, signifying the initial creative force that turns yellow in the diagonal dynamic cross (ibid.: 125). Moreover, colors *red* and *white* are considered to be the colors of *Thunder* (the

central God in Latvian mythology), representing ‘pure energy’ (ibid.: 130). But *white* is also the color of soul, the unifying force often used as the background field ‘symbolic of consciousness, eternity […and] spiritual values’ (ibid.: 123). White stands for ‘emptiness’ as well as light and complements other colors (ibid.). Thus, being the color that ‘contains within it the full spectrum of the color palette’ white is related with ‘birth, death, and rebirth’ and remains central in the geometric code prior to the emergence of other hues (ibid.: 124). Consequently, according to ARAS, associated with ‘mist, vapor and ether, and the fantasized emptiness and silence just preceding the first sound-colors of the discriminated world’, it ‘plays between opposites’ such as incandescent heat and frigid cold or a merging of fire and ice’ (2010: 660).

Black, on the other hand, is ‘a heavy color that evokes depressing feelings’ (Celms, 2007: 124). Being the exact opposite of white, black ‘devours all colors and thus also white, therefore black color stands apart from the color system and encloses it' (ibid.). Although black is associated with evil and chaos, Celms emphasizes that, like white, black has a double meaning and represents also ‘the creative source’ and highlights white light. Hence, it is a symbol of *the Black Serpent* responsible for recreating and restructuring the world via the power of time (ibid.). As pointed out by ARAS, ‘[b]lack envelops and swallows, is cave and abyss […] melancholy and death. […] But the black dirt can be the soil itself, the fertile covering of the earth from which life arises’ (2010: 658). Thus, black signifies also the ‘smiths […] in psyche’s fiery, creative depths’ and ‘is primary to many forms of transformation’ (ibid.).

Grey is the middle color of the achromatic scale and represents the initial, inert matter bereft of the colors of life signified in Latvian folklore by ‘the gray stone in “the middle of the sea”’ (Celms, 2007: 135). So, according to Celms, gray can likewise be considered as the color of the center of the world as the static color wherein the Sun and God rest, therefore it ‘serves as a good background for other colors’ (ibid.). Besides, gray ‘results [also] from mixing any of the color opposites: green and red, yellow and violet, blue and orange’, which emphasizes its central position full of latent possibilities and welcomes ‘differing meanings depending on one’s temperament’ (ibid.).

According to Celms, ‘color and psyche are closely related’ and subjected to fashion swings, therefore different periods favor various colors (2007: 136-7). Apart from the fundamental chromatic and achromatic colors, a number of intermediary hues arise as a combination of two or more colors. One of them is *pink* described by Nozedar as ‘flirty, girlish and innocent at the same time’, traditionally associated with femininity and symbolic of ‘universal, unconditional love’ (2010: 58). As a weaker color, pink was not used in

traditional Latvian craftwork and is not common in geometric patterns, which celebrate life and energy with rich colors and dynamic color pairings (Celms, 2007: 137). As Celms concludes, ‘the symbolic meanings of colors in the world model are more than a tradition […and] signify the essence of soul, the system of values and taste, the choice between divergent roads’ (2007: 138).

3. SEMIOSIS OF BRANDING

According to Bouchet, marketing can be likened to corporate storytelling (n.d. 1-4) where, similar to bardic tales in oral cultures, the audience plays a significant role, helping to determine and adjust the storyline (Rosenberg, 1987: 86). As Wheeler notes, '[a] strong brand stands out in a densely crowded marketplace' and 'its success' depends on a number of stakeholders, ranging from those pertaining to the company, such as shareholders and employees, to the potential customers and general public, but includes also competitors, media, suppliers and different institutions (Wheeler, 2009: 2; 9). Together, they respond to a company's performance determined by its '*corporate culture, identity* and *image*' (Bouchet, n. d.: 1), therefore L. Bērziņa and D. Bērziņš draw attention to the fact that, due to its impact on identities, consumption is 'a performative act' and an inevitable part of self-expression (2012: 10). Consequently, powerful brands evoke associations (ibid.: 13) via 'the power of symbols' (Wheeler, 2009: 32), inducing '[s]trategic designers [… to] listen deeply and synthesize vast amounts of business-critical information [… in order] to anticipate the future before it happens […] and spark meaningful dialogue' (ibid.). So, this chapter explores how brands are constructed to resonate with their audience based on works by Bouchet (n. d.), Celms (2007), Wheeler (2009), L. Bērziņa and D. Bērziņš (2012), Feldmane and Lauberte (2012), Rampazzo Gambarato (2013), Singer (2013), Bruni and Baceviciute (2014), and del Rosario Restrepo Boada (2014).

3.1. The constituents of a brand

Analyzing various definitions of brand, Feldmane and Lauberte conclude that instead of 'a unanimous opinion', different authors opt to emphasize various aspects of brand be it 'the idea of the brand' and 'emotional link' with consumers (Wheeler, 2003), 'the product or service' (Anholt, 2007), 'differentiation from competitors' (Chernatony, 2006), 'design' (Kotler, Armstrong, Wong and Saunders, 2008), or 'associations the consumers have' (Kapferer, 2004) (ibid.: 69-70). As L. Bērziņa and D. Bērziņš indicate, brand is the composite of semiosis between consumers, identity and the graphic sign (2012: 14), therefore two dimensions of brand are distinguished: *visual identity* and *image*, where the former represents the company via tangible and visually perceptible signs whereas the latter reflects the way the brand is perceived and rests outside of the control of the enterprise (Feldmane and Lauberte, 2012: 71). As a result, Wheeler indicates that '[a] brand, or a company's reputation, is considered to be one of the most valuable company assets' (2009: 11).

According to Bouchet, '[t]he foundation of a company is its culture. Leaning on its identity, it seeks to influence its image as much as possible' (n. d.: 4). Thus, as Bouchet notes, since it is the story that companies sell, *corporate culture*, *identity* and *image* are important in order to appeal not only to potential customers but also to prospective employees and the workforce already engaged (ibid.: 1). As defined by *Business Dictionary* (2015), *corporate identity* is a '[c]ombination of color schemes, designs, words, etc., that a firm employs to make a visual statement about itself and to communicate its business philosophy. It is an enduring symbol of how a firm views itself, how it wishes to be viewed by others, and how others recognize and remember it'. According to Feldmane and Lauberte, visual brand identity, on the other hand, consists of 'the graphic sign, colour and typographic style' which represent the values of the brand (2012: 69). Consequently, Williams (2016) emphasizes that '[b]randing is one of the most important aspects of any business […and] extends to every aspect of [it]'. But, because logo is what potential customers encounter first even in the absence of human representatives of the brand, the graphic sign serves as the narrator entrusted with the mission to deliver the story of 'added value intrinsic to brand equity [which] frequently comes in the form of perceived quality or emotional attachment' (ibid.).

3.2. The language of branding

Brand marketing transcends verbal communication channels and employs visual language to create enticing texts. Looking at business transactions from the perspective of the communicative model, Bouchet emphasizes that rather than attempting to distinguish between the sender and receiver, given that the market is full of other actors impacting the discourse, reciprocity should be the focus of analysis of the relationship between the market and company (n. d.: 2). As Wheeler observes, determined by a strong vision easy to share, '[t]he best brand strategies are so differentiated and powerful that they deflect the competition' (2009: 12). Thus, what matters are the *processes* of exchange that are dynamic in contrast to unnecessary binary oppositions such as 'company and market', 'internal and external communication', and 'true and artificial perceptions' (Bouchet, n. d.: 2).

According to Wheeler, the shortest way in establishing dynamic yet coherent relationship with customers is by use of 'symbols [which] are vessels for meaning […and] become more powerful with frequent use' facilitating meaning 'over time' (2009: 31; 34). Moreover, it is essential to communicate the signified embedded in the 'unique visual form' of the brand (ibid.: 35) so that everyone knows what the signifier stands for and is able to identify with it. As Harari writes, brands are 'a figment of our collective imagination'

(2011: 32), therefore their success 'lies not in telling the story, but in convincing everyone else to believe it' (ibid.: 35). This resonates with how search engine optimization (SEO) works. As indicated by Halligan and Shah, *Google* indexes and ranks webpages 'based on […their] *relevance* and *authority*' (2010: 60), which means that high scores depend not only on the added value of the product marketed but also on the number of powerful links generated (ibid.: 61; 73). So, for the network of the human mind to notice a brand and relate with it, '[i]t is central to show how the company contributes to the common universe of meaning […] offering opportunities for identification in an ever-changing market' (Bouchet, n. d.: 7).

Consequently, the language of branding must resonate with the semiosphere of the market, making the best use of all available resources. As Bruni and Baceviciute explain, 'psychological and cognitive processes […rely on] "prototypic" forms with [either] low levels of semiotic freedom, or as more developed manifestations, with increasing levels of semiotic freedom' (2014: 369-70). They state that, due to the 'triadic logic' underlying narrative communication, semiosis manifests as 'a continuous functional cycle from sensing/perception to integration/association/cognition to response/action/behaviour, involving concomitant heterarchically embedded processes' (ibid.: 370). Thus, on their view, 'the "threshold of narrativity"' is determined by two factors: firstly, 'the minimal requirements for a mental organization of events to count as a narrative; and, secondly, […] the minimal cognitive structures and functions that can afford that' (ibid.: 367), leading to the main question whether iconic images can convey symbolic meanings without the help of verbal structures (ibid.).

But, as Rampazzo Gambarato points out, design itself functions as a semiotic language, generating associative texts based on 'shape, function, colour, material, technique, technology, etc.' (2013: 429). Moreover, successful design entails 'promoting the ambiguity, promoting relativity, and removing the absolute sense of the sign' in order to allow the construction of a wider range of metaphorical mappings (ibid.: 430). Thus, according to Rampazzo Gambarato, design functions as an iconic sign, communicating directly on the cognitive level of Peirce's Firstness (ibid.: 429), with 'the objective of associating signs and generating new interpretants' (ibid.: 430). Also Singer emphasizes that 'graphic/visual language plays a significant role' in the dialogic construction of reality (2013: 363). Hence, design can either promote static conventions within a given culture or serve as a catalyst of change, instigating new meanings that surmount functionality and have the potential to affect 'philosophical discourse [by causing…] social and political involvement' (ibid.: 363-4).

Moreover, del Rosario Restrepo Boada writes that, according to Klinkenberg's 'model of the iconic sign', where a fourth factor *stimulus* is added to the triadic model (2014: 313),

iconic signs are seen as secondary modeling systems 'that work differently from the [natural] language system' (ibid.: 314) due to 'a tabular and nonlinear syntax, where the units and their relations offer their own dynamic relationships of significance' (ibid.: 315). Consequently, although developed as 'arbitrary' iconic signs in line with cultural conventions, 'graphic design production constantly proposes new conventions for traditional forms of representation' (ibid.: 317) where 'iconic and linguistic categories converge' (ibid.: 327) and are subjected to the filter of 'the context often […] expanded or modified to the viewer' (ibid.: 324).

This results in multimodal texts where associations trigger a hierarchical chain reaction of heterogeneous metaphoric mappings that integrate the brand within the discourse of its potential user/representative. Thus, Bouchet concludes that 'communicating with the market is, first and foremost, to communicate with oneself', creating 'discourses about their identity, their culture, their personality, their values, their traditions, […and] their way of creating and offering meaning' (n. d.: 6). But, as Celms points out, 'geometric symbolic signs are easy to perceive', therefore 'geometric code' is used to represent a wide variety of objects and models (2007: 31). Moreover, 'one and the same geometric sign stimulates the brain inducing set reactions which, even prior to being consciously assessed, grow around the sign a network of hierarchical associations, linking images, expanding symbolic meanings, and adapting perception' (ibid.: 33). Thus, Celms argues that geometric code is one of the constituents of culture that binds people together (ibid.), and, as pointed out by O'Connell and Airey, [m]any apparently modern logos [such as Mercedes-Benz, BMW, and McDonald's] in fact have their roots in ancient symbolism' (2007: 77).

So, drawing together theories on the phenomenology of language, geometric signs, and branding, it appears that all communication occurs on three interpretive levels, see Table 3.5.

Table 3.5 **Interpretive levels of communication**

Layer of language	Geometric sign	Branding
iconic	image perception	graphic sign
indexical	mappings created	consumer's background
symbolic	mythopoetic story	brand's story, legend

Consequently, brand marketing is a deeply semiotic process that exploits complex signs in order to evoke a network of free associations, revolving around the central idea a brand stands for. Employing both tangible and intangible means, companies narrate their values in the language of icons and symbols and build dynamic indexical relationships subjected to customer feedback in sales figures. Analysis of the extent to which geometric signs alone convey brand messages is provided in Chapter 4.

4. CASE STUDIES OF GEOMETRIC SIGNS IN LATVIAN BRANDS

Because successful brand design is based on the freedom of metaphorical associations evoked, geometric signs are often used in logotypes at the heart of visual identities of enterprises due to their design economy and ability to communicate on all three layers of the phenomenology of language. However, it remains an open question, to what extent geometric signs and patterns deliver brand messages without the help of lexical means, such as brand name and product descriptions. Consequently, in order to find out how geometric signs are perceived in Latvian brands, ten brands were selected for semiotic analysis based on the relations of their graphic signs. But, since it was impossible to select brands without knowing their names, a pilot survey was conducted, in order to obtain preliminary statistic results on the perception of geometric signs and their actual capacity to transmit brand messages when detached from the context provided by the brand name and market situation. As a result, first, a brief description of the questionnaire and background of the respondents will be presented, before proceeding with a qualitative brand analysis on each of the three levels of the phenomenology of language based on their logotypes and webpages, which provide information on brand legends and messages. Finally, results obtained via the application of both theoretical and background knowledge will be compared to the responses on the perception of graphic signs alone provided by the respondents of the pilot survey.

4.1. Pilot survey on the perception of geometric signs in Latvian brands

In order to gain an insight into the perception of geometric signs in Latvian brands, a pilot survey was conducted, using *Google Forms* as an online platform to design and distribute a questionnaire that consisted of three parts: information on the respondents' background, a question on general perception of geometric signs and patterns, and a section where respondents were asked to write their associations with the geometric signs/patterns presented. Initially, the questionnaire was developed in two languages, English and Latvian, in order to offer respondents a choice to provide their answers in their native tongue as not all associations might have direct equivalents in English. However, only 10 respondents opted to fill in the questionnaire in English, therefore only results obtained from the Latvian version will be further discussed (see Appendix 1 for a sample questionnaire). Although the data collected cannot be considered quantitatively representative because only 82 self-selected online respondents participated in the survey conducted in Latvian, they suffice to sketch the

trends in geometric sign perception, which would be interesting to investigate further in a future research.

Analysis of the respondents' background shows that most of the respondents were 20 to 50 years old and had obtained at least a Bachelor's Degree, see Figure 4.18.

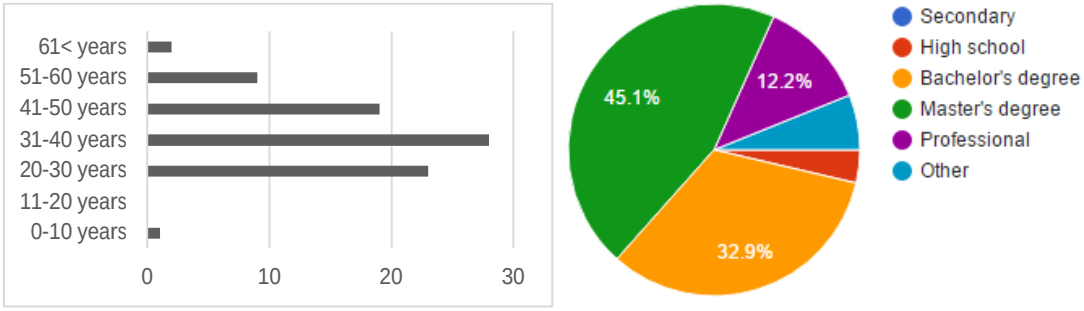


Figure 4.18 **Respondents' age and education level**

Only 11% of the respondents indicated Russian as their native language and the rest were Latvians, the gender distribution being 58.5% female to 41.5% male respondents. The professional background of the respondents was diverse, however, management positions, including one CEO, engineers, economists and programmers dominated over designers, attorneys, PR, sales and other specialists (see the word cloud on the respondents' professions generated by software available from http://www.wordclouds.com/ in Appendix 2).

The next section posed an introductory question on the perception of geometric signs and patterns, allowing multiple answers to choose from, provided on the basis of the theoretical background of the research. Asked to indicate whether they perceive geometric signs and patterns as decorative ornaments, a cultural heritage, a universal code, a modeling system, a language of thoughts, powerful symbols, visual representations of objects, a dialog based on associations, an alphabet, mythopoetic images, or other, the majority of respondents selected more than one answer and only one respondent inclined to a perspective not listed yet (see Figure 4.19).

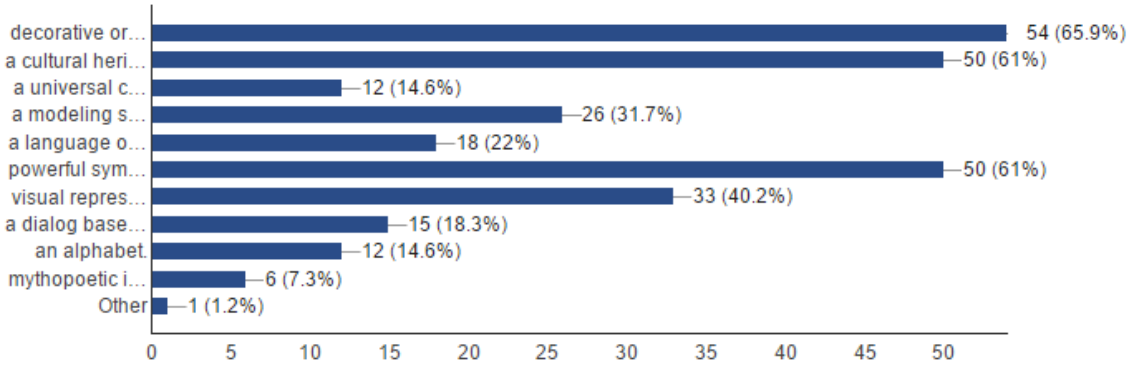


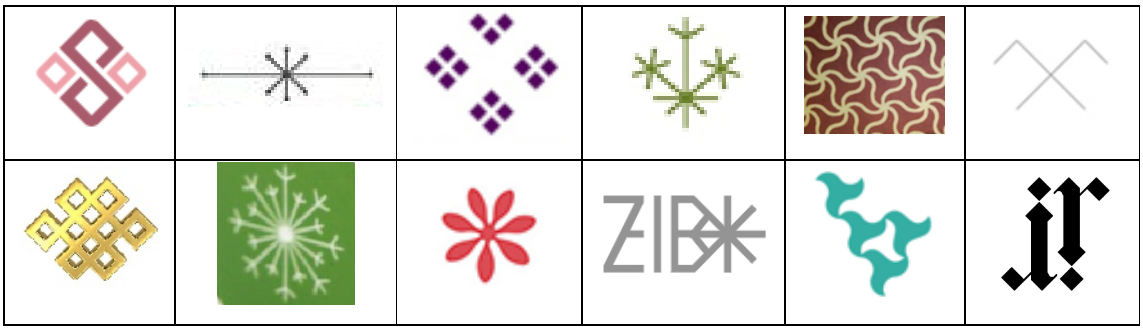
Figure 4.19 **Respondents' perception of geometric signs**

More than a half of the respondents saw geometric signs and patterns as decorative ornaments (65.9%) and a cultural heritage (61%) and admitted that they are powerful symbols (61%). However, other responses were also checked, indicating that, apart from visual representations of objects, geometric signs and patterns function also as a modeling system (31.7%), a language of thoughts (22%) and a dialog based on associations (18.3%). Only 7.3% of the respondents perceived geometric signs as mythopoetic images, while 14.6% treated them as both a universal code and an alphabet. Thus, it can be concluded that geometric signs do have an immense semiotic potential across all layers of the phenomenology of language though their perception varies from individual to individual, leaving it uncertain whether iconic, indexical or symbolic aspects would dominate, should a more representative survey be conducted.

4.2. Qualitative brand analysis

Ten brands with geometric signs/patterns as part of their visual identity were selected in order to find out, firstly, how compatible the graphic signs are with the brand legends represented and, secondly, how successfully geometric signs/patterns serve as the only narrators of brand identity when detached from the lexical part of the logotype. However, since two of the brands perpetuate the same geometric motif in a modified way, twelve images were presented to the respondents for the generation of associations, in order to see if the alterations affect brand interpretation. The images presented to the respondents are displayed in Table 4.6.

Table 4.6 **Graphic signs and patterns of Latvian brands analyzed**



Moreover, two of the brands included in the semiotic analysis were selected for their having designed their brand names in a geometric fashion in order to see whether the lexical or geometric aspect of the graphic sign prevails in brand perception. The brands analyzed are: NicePlace, Lido, Mádara, Zib, Hotel Jūrmala Spa, Saneribox, Purpurs, Riija, Tīne, and IR Wood. Each brand will be analyzed in a separate subchapter, before drawing overall conclusions the perception of geometric signs in Latvian brands.

4.2.1. NicePlace

The first geometric sign selected for analysis is the graphic sign of NicePlace, see Figure 4.20. According to the information available on the company's webpage, NicePlace was founded in 2006 and produces Latvian design souvenirs (Online 1).

Figure 4.20 **Logo of NicePlace (Online 1)**

The values of NicePlace focus on the environment, recycling, and employment of local workforce, promoting cultural heritage for which it was awarded 'a certificate of merit' by 'the State Inspection for Heritage Protection and UNESCO' in 2011 (ibid.).

On the iconic level, the graphic sign of the enterprise appears to be a representation of a red, seven-petal flower, however, associations with windmill also arise. Further analysis of the indexical parts of the logo leads to associations with synergy of seven forces joined by a common goal, or, flipping the perspective, with seven directions/branches stemming from a common origin. Moreover, treated as an ideogram of a mythopoetic image, the graphic sign bears semblance to *the Sun Wheel* related to representations of *God* as a burning star. Color red further highlights the dynamic ornament, foregrounding the sense of perpetual motion embedded in all levels of the triadic sign, and, given the white background resonates with the national flag of Latvia. Thus, the hierarchy of associations evoked by the geometric sign selected fully supports the company's values of collaboration, nature friendly attitude, and national culture, although logo alone does not convey what products and/or services NicePlace provides.

Results obtained via the pilot questionnaire demonstrate that the vast majority of respondents did not transcend the iconic level of the geometric code, associating the logo with either a flower (*zieds, puķe, margrietiņa*) or the sun (*saule*), some drew parallels with spring (*pavasaris*), summer (*vasara*), or autumn (*rudenīgs*) and corresponding feelings, but only a few respondents mentioned the dynamic aspects of the sign: *bumerangs* (boomerang), *vējdzirnavas* (windmill), *enerģija* (energy), *rotācija* (rotation), *lidojošs* (flying). Among the most interesting associations generated were those with 'an atomic model', 'blood', and 'a badge' or 'a pattern' either embroidered, engraved or knitted, also Chinese telecommunications equipment company HUAWEI, see Figure 4.21.

Figure 4.21 **Respondents' associations with the logo of NicePlace**

So, the heterogeneous associations provided by self-selected online respondents prove to be narrower than a deeper semiotic analysis, indicating that the iconic level of the geometric sign might override further interpretive potential. Although the connotations of the brand were all perceived as positive, responses mainly aligned with a set reaction to visual stimuli.

4.2.2. Lido

Established in 1987, LIDO has had its traditional logo since 1991 and is 'a public catering' company, with a vision to popularize Latvia throughout Europe (Online 2). Being 'an integral part of the current image of Latvia', LIDO values tradition, relationship and family ties, as well as choice, accessibility, and growth (ibid.). Although its main logo does not contain any geometric ornamentation, geometric signs and patterns are amply used in the interior design of the fast food restaurants and a particular graphic sign has been selected to appear on representative materials, see Figure 4.22.

Figure 4.22 **Graphic signs of LIDO (Online 2)**

Consequently, due to the limited scope of the research and the sign's prominence over other traditional ornaments, only this pattern was presented to the respondents and will be analyzed.

The image selected by LIDO to represent its values slightly resembles the logo of NicePlace. In both cases, the foundation of the geometric sign/pattern is a star structure, though, where NicePlace added volume and color iconic of a flower, LIDO has opted for simple lines in black with dots at the ends of the rays, here, spreading in eight directions symbolic of infinity. The middle line divides the ornament in two, evoking associations with the horizon, mirror images, and breakthrough. While the dots mark the limits of the rays emanating from the central node enlarged to create a visual illusion of pulsation, they seem to be rich with the expansion potential of buds. Due to the extension of the middle line, a six-pointed star is foregrounded, alluding to the frame of reference signified by the coordinate system of three axis, outlining spatial dimensions. Moreover, instead of a wheel, the image of the World Tree sprouting from the earth appears to be more prominent, with balanced roots and branches, emphasizing the importance of equal respect to both past traditions and future growth as well as the crossroads of choice. Like in the design of the logo of NicePlace, the center of the star is a meeting point, embodying the warmth of the sun in spite of the grayscale image. In addition long arrows can be discerned coming from the sides and shorter ones joining from the top and bottom, thus highlighting also motion towards the center as if in response to the resonance of the rays emitted. Eventually, the graphic sign is iconic of a crown reflected as above, so below. As a result, the seemingly simple image manages to narrate the key values and vision of the enterprise via the iconic-indexical code of geometric signs where the symbolic level of interpretation seems to play only a tangential role since the graphic sign constructs a wide associative network that leads to mythopoetic images rather than requires their recognition according to folk tradition.

Respondents, however, typically associated the graphic sign with an iconic image of a snowflake (Latvian *sniegpārsliņa*), probably due to the cold colors of black and white reminiscent of winter (*ziema*), though associations similar to those with the logo of NicePlace also prevailed, denoting the geometric pattern as ‘the sun’ (*Saule, saulīte*) or ‘star’ (*zvaigzne*), see Figure 4.23. Again, most respondents mentioned a single association and many identified the pattern as a traditional Latvian ornament, linking it with embroidery (*izšuvums*) and knitting (*adot*). A number of respondents interpreted the sign as crossroads (*krustpunkts, krustojums*), related with a goal (*mērķi*) or solution (*risinājums*). Some respondents associated it with the semantic field of schemata (*shēmas, nogrieznis, matemātikā, ģeometrija, nogriežņi, elements*) or a tree (*koks*), and one of them thought the pattern to be the graphic sign of MÁDARA brand. Surprisingly, one respondent discerned the intersection of static and dynamic cross (*statiskais un dinamiskais krusts*) and some had associations with sharp objects (*zobeni*, *dzeloņstieple*).

Figure 4.23 **Respondents' associations with the graphic sign of LIDO**

As a result, it can be concluded that colors and minor alterations have a high impact on the interpretation of otherwise similar geometric signs.

4.2.3. Mádara

MÁDARA is a Latvian brand of products for organic skincare and as such lists 'quality', 'nature and safety', 'Latvian identity', and 'people' as its top values (Online 3). The company aims at becoming 'one of the best known natural cosmetics brands in Europe by 2030' and has designed its visual identity around the local wild madder plant (ibid.), incorporating growth and eco ideas in its logotype, see Figure 4.24.

Figure 4.24 **Graphic signs of MÁDARA (Online 4-7)**

Consequently, MÁDARA has designed different graphic signs for various product lines, playing with colors white and green and different angles of representation of the herb in its logo. However, apart from the iconic sign of wild madder, the graphic sign also depicts the more generic icon of a tree, which is a symbol of *the World Tree* or *Tree of Light*. Looking from a bird's eye view, its foliage appears circular and, according to the geometric code stands for the model of the world. The tree symbolism used in MÁDARA's logotype exploits both the vertical and circular geometric representation, conveying various stages and representations of growth. Thus, initially, the plant is small, but, with the expansion of the product lines and market share, the tree/flower grows. However, in its vertical portrayal, only the visible part of the plant is depicted, omitting roots, emphasizing the present with the focus on future. Consequently, apart from similar indexical associations as discussed in relation to the graphic signs of NicePlace and Lido, the graphic signs of MÁDARA actually depict the herb that stands for the brand both graphically and lexically. Moreover, color green associates the logo with ideas of youth, spring, new life, and ecological lifestyle, highlighted by the purity of color white. In its circular shape, the ornament emphasizes radiance, dynamic blossoming, and eternal growth.

In order to see if the respondents would recognize and link the logotypes of MÁDARA, two graphic signs were presented to them. As can be seen from the word clouds summarizing the frequencies of responses, many respondents were able to identify the brand in both cases and acknowledged that some of their associations arose from this knowledge, see Figures 4.25 and 4.26.

Figure 4.25 **Respondents' associations with the tree-shaped graphic sign of MÁDARA**

Where the logotype was presented in the vertical shape of a tree (Figure 4.25), the iconic shape of tree/plant was recognized either as a generic name for trees (Latvian *koks*), a fir-tree (*egle*), foliage (*galotne*), or dandelion (*pienene*), or *the Tree of Light* or *World Tree* (*Austras koks, Pasaules koks*). Consequently, many respondents listed associations with Latvian signs and patterns (*zīme, raksti*) and traditions, a symbol of life force (*dzīvība, enerģija, spēks, ģimene, dzimta*), nature (*daba*), fertility (*auglība/s, ražas, vākšanai*), and growth (*izaugsme, tiekšanās, plešas plašumā, aug, zeļ*).

The circular, flower-shaped graphic sign (Figure 4.26), on the other hand, was mostly associated with either a snowflake (*sniegpārsla*, *sniegpārsliņa*) or the sun (*saule*). Thus, many respondents linked the image with space and light dynamics: *Kosmoss* (cosmos), *Visums* (space), *galaktika* (galaxy), *Sprādziens* (explosion), *brīnumsvecīte* (sparkler), *firework, gaisma* (light), *mirdzums* (glitter), Zvaigzne (star), *planētas* (planets), *apspīd* (shine).

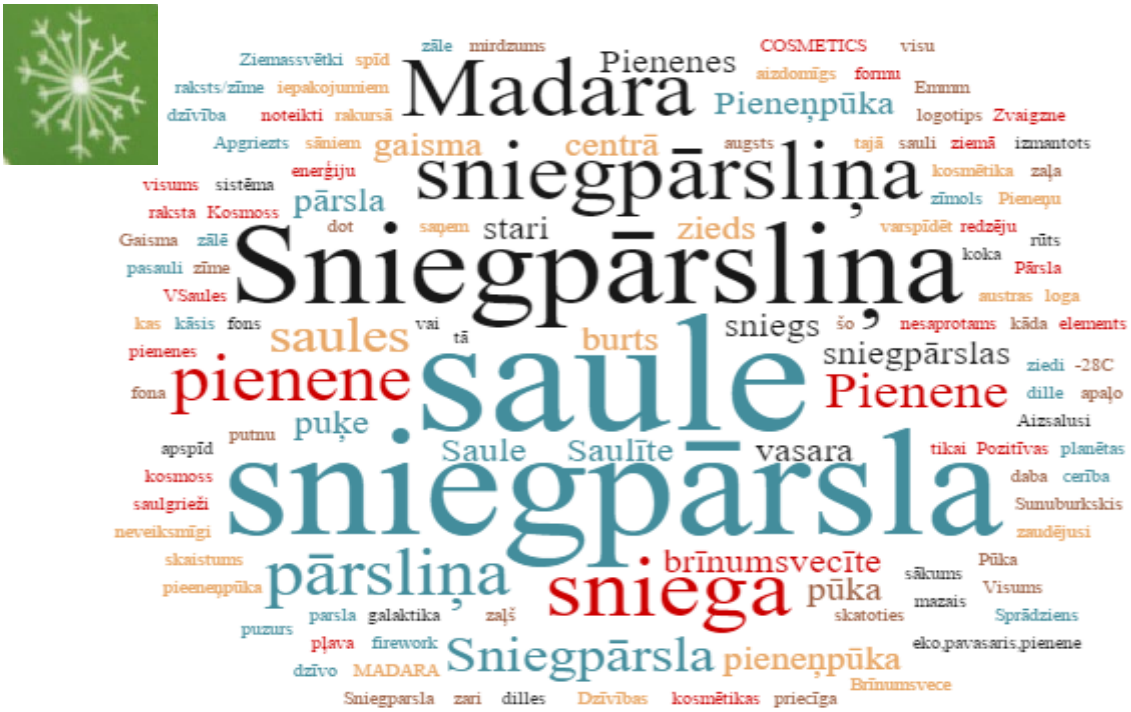


Figure 4.26 **Respondents' associations with the flower-shaped graphic sign of MÁDARA**

Although MÁDARA proved to be a rather well recognized brand, it was probably the most famous Latvian brand presented to the respondents therefore it is difficult to say if the geometric code of the graphic signs alone aided in brand recognition.

4.2.4. Zib*

Another brand that has opted to incorporate a geometric sign iconic of a star/flower/wheel is ZIB*. According to the information available on its webpage, '[t]he idea behind the ZIB*

brand is to add a little bit of art to everyday apparel. ZIB* offers comfortable and original jersey clothing as well as bright accessories' (Online 8). As a result, ZIB* emphasizes as its brand equity its original 'drawings and paintings', 'unique and different' color variations, and being 'hand made in […] Riga' quality. As can be seen in Figure 4.27, ZIB* has merged its brand name with the graphic sign, creating an ornamental logotype with wide associative interpretations.

Figure 4.27 **Graphic sign of ZIB* in horizontal and vertical position**

To begin with, several Latvian words can be discerned, making one wonder which of them has actually been intended as the original brand name: *ZIED/I, ZIB, ZILBE*. Although their English equivalents are *flower/s, flash, syllable,* which somehow connects with brand identity, these meanings are likely lost to foreigners not equipped with knowledge of the Latvian language. Consequently, the exported brand appears more like a solid pattern where letters can be traced but the meaning rests in purely geometric forms. Thus, the general connotations of the star-shaped sun sign are similar to those of brands with similar graphic signs already analyzed, the difference being in the neutral color choice of gray as the sum of all color opposites and complementary background to whatever hue brand customers might prefer.

However, if observed from a vertical perspective, the overall structure of the pattern resembles a stylized form of a mitten, or an iconic representation of a hat plus scarf and a muff. Apart from garment categories, the logotype also depicts the triadic composition characteristic to Latvian patterns where the lower part signifies the underground, roots, tradition, subconscious, and past, here in a variant shape of *the Serpent* symbolic of intuitive wisdom, life force, and eternity. The horizontal line marks the borderline of the surface of the earth, the conscious, present timeline, whereas the upper level depicts the spiritual super consciousness and enlightened future with a range of possibilities of likely events, here emphasized by the church-like icon of a house with a star-like spire constructed as the sum of the dynamic and static cross as the world axis coursing through the spinal cord of the iconic shape of a man with hands clasped over the navel and legs in a full split, see Figure 4.28.

Figure 4.28 **Meditating man in the graphic sign of ZIB***

Respondents' reactions, however, indicate that many either had no particular associations (*nav*) with the logotype or recognized it not only as ZIB (*zīmols ZIB*), which could be easily read, but also stated the market niche of the company (*logotips, latviešu apģērbiem*, *moderns apģērbu zīmols*, and *radīts Latvijā*, *Dizaina zīmols ZIB*), see Figure 4.29.

Figure 4.29 **Respondents' associations with the graphic sign of ZIB***

Associations with a flower, star, *the Sun* or *the World Tree* also arose similar to the graphic signs of NicePlace, LIDO, and MÁDARA. One respondent actually indicated that the flower resembles the logotype of MÁDARA. Another discerned Latvian geometric signs: *Saules, Jumja, Austras koka, zalkša modernizējums* (*the Sun*, *Jumis*, *the Tree of Light*, a modern version of *the Serpent*). Other interesting mappings linked the geometric pattern to images of technologies (*tehnoloģijas*, *fotografēšana*, *parole*), speed and light (*ātrums gaisma*, *spilgtums*, *zibakcija*), also youth (*jaunatne*) and multiculturalism (*multikulturālisms*). Thus, the graphic sign seems to successfully encode the main message of the brand identity though various people would discern different aspects of the added value of the brand depending on their individual background knowledge inspiring versatile mappings of the geometric pattern.

4.2.5. Hotel Jūrmala Spa

As the brand name suggests, 'Hotel Jurmala Spa is a modern SPA resort and conference centre', the destination for 'unforgettable relaxation […in order] to escape from daily stress

and to gain inspiration for new ideas' (Online 9). According to the hotel's webpage, its graphic sign is based on a pattern from 'Alhambra Royal Baths' in Spain and 'reflects motives of the wave and water - key words in the Spa culture', signifying an 'open and developing system that is full of health and life spirit' (ibid.), see Figure 4.30.

Figure 4.30 **Graphic sign of *Hotel Jūrmala Spa*, its color variations and multiplication (Online 9-10, carpet pattern photos mine)**

However, the perpetuation of the graphic sign and change of color scheme that creates the ornament of the carpets evoke associations with the Baltic legacy of the geometric code and resemble *the Magic Dragon* as a variant of *the Cross of Thunder* symbolic of the union of opposites and homecoming. So, apart from associations with wind and water embedded in the violet and blueish modes of the graphic sign reminiscent of birds and flowing motion, the red and white patterns, symbolic also of the Latvian national flag, convey the ambivalent link between water and fire and the dance of cosmic forces, bringing about a new phase of harmony after changing tides of time. Consequently, although originally based on a symbol taken from a foreign culture, the graphic sign morphs into a geometric ornament at the heart of Latvian cultural heritage.

As can be seen from the respondents' responses to the multiplied pattern of the graphic sign, many remembered having seen it in a hotel in *Jūrmala*, see Figure 4.31.

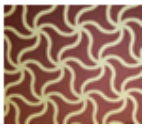


Figure 4.31 **Respondents' associations with the perpetuated graphic sign of *Hotel Jūrmala Spa***

As a result, several associations might be rooted in the respondents' background knowledge of the brand: *paklāja raksts viesnīcā*; *zivis, delfīni*; *spa*; *smiltis* (a carpet pattern at a hotel; fish, dolphins; spa; sand). However, the majority of respondents thought that the pattern comes from a wallpaper (*tapetes*), carpet (*paklājs*), or wrapping paper (*ietinamais papīrs*). A number of respondents associated the pattern not only with water (*ūdens*),waves (*viļņi, vilnīši*) and wind (*vējš*) but also fire (*uguns*), conforming the fluid symbolism of the geometric sign. Moreover, several respondents mentioned the feeling of foreign origins: *austrumi* (east), *indiešu paklājs* (an Indian carpet), *mošeju noformējumā* (used to decorate a mosque), *Arabian pattern* (arābu raksts), *nav mūsu musturs* (not our pattern). Others, on the contrary, reflected on the iconic associations rather than possible origins of the pattern: *puķes* (flowers), *putni* (birds), *delfīni* (dolphins), *piparkūkas* (gingerbread), *rūķu cepures* (hats of elves). Some admitted that the pattern associates with magic (*maģija*) and is difficult to follow (*raibs gar acīm*; *acu mežģis*). But those respondents who looked for more symbolic interpretations reported associations with letters of an alphabet and the sun (*alfabēta burti un saule*),waves of thoughts (*domu viļņi*), eternity (*bezgalība*), unity (*vienotība*), and Indra's Net (*Indras tīkls*).

Viewing the isolated ornament of the graphic sign, the respondents predominantly saw a representation of water (*ūdens*), waves (*viļņi*), and the sea (*Jūra*) and related associations, see Figure 4.32.

Figure 4.32 **Respondents' associations with the isolated graphic sign of *Hotel Jūrmala Spa***

However, some reported also associations with wind (*vējš*) and air (*gaisīgs*) as well as fire (*uguns liesma*) and smoke (*dūmi*). Thus, the graphic sign and geometric pattern at the basis of

the visual identity of *Hotel Jūrmala SPA* convey the values of the company not only via the waves and infinite interconnectedness created by the continuity of the graphic sign but also the ambivalent nature of the ornament that generates new, previously potentially unforeseen connections and metaphors. However, previous knowledge of the brand legend seems to override other indexical mappings, limiting the cognition of more creative interpretations that might enrich the myth of the spa resort.

4.2.6. Saneribox

According to Online 11, SANERIBOX offers the chance to experience the seemingly infinite range of beauty products compressed in a single gift box of testers so that customers can regularly enjoy the revelation of new cosmetics brands by subscription, feeling loved and cared for. The logotype of SANERIBOX is created in feminine hues of pink to mark its target customer and plays with the symbol of infinity that can be discerned both horizontally as the sum of the two dynamic squares and vertically as an adaptation of the sign of *the Serpent*, which together form the shape of an iconic gift box where the vertical element resembles a ribbon tied to decorate the present, see Figure 4.33.

Figure 4.33 **Graphic sign of SANERIBOX (Online 11)**

Although, on the symbolic level, the squares could be interpreted also as *Sun* signs, signifying warmth and bringing together the four corners of the world, associations with infinity symbolic of rejuvenation and, due to color pink, femininity and love dominate. Also respondents interpreted the brand as infinity (*bezgalība*) and serpent (*zalktis*), see Figure 4.34.

Figure 4.34 **Respondents' associations with the graphic sign of SANERIBOX**

Consequently, the graphic sign was seen as logical (*loģiska*) and structured (*strukturētība*), representing balance (*līdzsvars*) and symmetry (*simetrija*) characteristic to cosmos (*Visums*). Associations with jewels (*dārgakmeņi*), and beauty (*smuks*) intended for women (*sievietēm*) also arose, and one respondent stated that it seems like a logotype of a political party (*partijas zīmols*), presumably due to the embedded message of eternal unity. Thus, the iconic simplicity of the sign restricts the flow of associations and the color code directs interpretations towards the brand values, target audience and possible goods or services although SANERIBOX is not yet a well-known brand.

4.2.7. Purpurs

PURPURS is a Latvian design paper brand that values the combination of 'practical simplicity and modernity', 'beauty and usefulness', and 'high quality' and 'dignity' as sources of inspiration 'for unrestrained self-expression' on the way to 'wholeness and perfection' embodied in the dual nature of paper as both a fragile and enduring material capable of transformation and information storage (Online 12). The brand has received a number of awards and finds it important to explain the choice of its logotype, see Figure 4.35.

Figure 4.35 **Graphic sign of PURPURS**

According to the company's webpage, '[t]he drawing represents the age-old wisdom of our people expressed in the intricate language of Latvian ethnographic symbols and patterns' whereas the color purple represents the brand name (meaning purple in Latvian) and is symbolic of 'not only […] royalty but also […] some of nature's most exuberant manifestations: a patch of heather, a spray of lilac, a posy of violets, luscious berries, vivid sunsets and the warm hues of reddening autumn leaves' (Online 13). Although PURPURS provides its reason for selecting a geometric pattern as its graphic sign, it admits that this language is 'an ancient code we must still learn to decipher' and leaves the interpretation to its customers (ibid.).

As the answers of the respondents show, a vast majority either had no particular associations (*nav asociāciju*), though many acknowledged that the graphic sign is a geometric pattern (*raksts, ornaments, ģeometriski zīmējumi*, *raksta fragments*), or linked it with the semantic field of mathematics: *matemātika, kvadrāts, krusti*; *trūkstošais elements*; *kāds no matemātikas uzdevumiem*; *kaut kas fraktāļveidīgs*, *mathematics code*; *sistēma, kārtība, atslēga ģeometrisko zīmju rakstīšanai*; *astotnieks, nulles*; *bulta* (mathematics, square, crosses;

missing element; one of math tasks; something fractal-like; system, order, a key to writing geometric signs; eight, zeros; arrow), see Figure 4.36.

Figure 4.36 **Respondents' associations with the graphic sign of PURPURS**

Among iconic associations resembling particular objects, the respondents mentioned mittens (*dūraiņi*), paw prints (*dzīvnieku pēdas*), fields and a bird (*lauki un putns*), dance group (*deju kopa*), a fleet (*flote*), or jewels (*dārgakmeņi*). Many noted that one square is missing and consequently reported feelings of something falling or downward (*krītošs*, *uz leju*), signifying incompleteness (*nepabeigtība*). However, one respondent indicated that this might stand for an opening to receive energy (*atvērums kur ieplūst enerģijai, caur to notiek enerģētiska apmaiņa*).

Although a number of associations were thus provided and the graphic sign might be interpreted also as an icon of a wrapped up gift or symbolically as a constellation of celestial objects or semiospheres with an emphasis of the dynamics of processes in nature, *the Tree of Light* and iconic model of human body/organism, representing neural synapses, it is interesting that where many could not pinpoint any distinct associations, others translated the geometric code from a mathematic perspective as if in an attempt to find symbolic expressions to describe the cognitive experience of Firstness. Thus, whatever the semiotic reading of the owners of the brand, the graphic sign of PURPURS fully represents the brands aim to offer unique first hand experiences on the crossroads of different states, serving as a connection point for new creative interpretations on the path to fulfillment of ideas worth entrusting to the keeping of design paper worthy of equally royal expressions.

4.2.8. Riija

RIIJA is a brand that houses ‘an eclectic range of products by Latvian designers […] rooted in a fusion of traditional Latvian craftsmanship with a contemporary world view’ (Online 14). Consequently, the values of the concept store, referred to as ‘barn’ as an English equivalent for the brand name, are the union of ancient and modern solutions via ‘innovative design’ and timeless elegance of ‘ecologically balanced products’ (ibid.). Thus, the choice of *Jumis* as a graphic representation of the brand is a geometric consolidation of the brand equity, iconically depicting the rooftop that is a symbol of the abundance of harvest time, the intersection of the old and new, and the birth of life and prosperity as a result of the union of opposite forces. Moreover, color gray and the simple lines stand for elegance and serve as a quiet background for the colors of design products and nuances of creative solutions transcending time, see Figure 4.37.

Figure 4.37 **Graphic sign of RIIJA**

As testified by the respondents’ associations with the logotype, the geometric sign serves as an indexical pointer to iconic objects related to the symbolic layer of the sign, see Figure 4.38.

Figure 4.38 **Respondents’ associations with the graphic sign of RIIJA**

Thus, although most respondents simply indicated the mythopoetic name of the sign, others had associations with *vārpas*, *izkaptis*, *klēts*, *auglība* (ears, scythes, barn/granary, fertility) all symbolic of the harvest time and abundance. However, knowledge of the mythopoetic name of the sign mostly prevented formations of other indexical mappings based on the iconicity of the geometric sign as few respondents could provide any associations beyond its name.

4.2.9. Tīne

Tīne is a society of female company owners that promotes mutual support in terms of sharing success stories and practical information on running a business, with the goal to help other women, especially young mothers, by inspiring them to believe in their ideas and partake in the job market by founding their own enterprises (Online 15). Consequently, its logotype signifies the repository of collective experience, see Figure 4.39.

Figure 4.39 **Graphic sign of *Tīne* (Online 15)**

Thus, the choice of a golden expansion of *octoloop* stands for power and protection, the union of female creative forces, and the manifestation of new order as a result of completed cycles of life that leads to greater prosperity in the future based on the strong roots of collaboration.

Respondents' responses show that although they were aware of the geometric sign being a Latvian pattern (*latviešu raksts*), they could not recall a name for it. Hence, like with the logo of PURPURS, the respondents came up with a wider range of heterogeneous mappings, see Figure 4.40.

Figure 4.40 **Respondents' associations with the graphic sign of Tīne**

So, some associated the logo with the lexical fields of either wealth: *turība*, *bagātība*, *saistībā ar naudu*, *majestātiskums*, *labklājība*, *vara* (affluence, riches, related to money, majestic, prosperity, power), or jewelry: *broša*, *sakta*, *gredzens*, *rotaslieta* (brooch, ring, jewelry). Others connected it with protection: *apsardzība*, *aizsardzība*, *žoga elements*, *pamatīgs un noslēgts*, *prison*, *restes* (defence, a fence element, solid and locked, grating). Respondents

noticed also the similarity with honey combs, wafers, and cookies (*medus šūnas*, *vafeles*, *cepumi*) as well as were able to discern the shapes of other geometric signs: *jumis*, *bezgalība*, *saule* (*Jumis, infinity, the Sun*). Consequently, the graphic sign of *Tīne* conveyed its main values of female business leadership and support via associations with female jewelry, prosperity, protection, and warmth.

4.2.10. IR Wood

IR WOOD is a brand for handmade '[w]ooden crafts for home and garden' produced by the company owners whose initials constitute the graphic sign (Online 16), see Figure 4.41.

Figure 4.41 **Graphic sign of IR WOOD (Online 16)**

The logo of IR WOOD is cast in black and designed both to resemble an ancient script and a symmetrical pattern that does not change if flipped upside down. Moreover, the logo is shaped like a double geometric sign *Jānis*, with vertica lines and squares for the suns of *Jānis*. Thus, the logo associates with the black soot and masculine heat of the meaning generating forge, emphasized by the two letters that form the dynamic verb *ir* (English *is*).

The respondents, however, were misled by the lexical value of the sign and associated it with the brand of a Latvian journal (*žurnāls*), using IR as a logo, see Figure 4.42.

Figure 4.42 **Respondents' associations with the graphic sign of IR WOOD**

Consequently, associations with calligraphy (*kaligrāfija*, *druka*, *raksts*, *alfabēts*, *fonta šriftiem*) and bygone, legendary days (*Livonija*, *pasaka*, *senie laiki, bruņinieki*, *Harry Potter*)

were prevalent, although a couple of respondents linked the graphic sign with *kalēja darbnīca* (smith's forge) and *metālkalums* (forged metal). Most respondents mentioned the symmetrical structure of the sign and had positive associations: *spēkpilns*, *interesanti, atjautīgi*, *smuks* (vigorous, interesting, ingenious, nice). Some, however, had negative feelings: *viltība*, *ļaunums*, *draudīgs* (cunning, evil, ominous). As a result, though often confused with another, better known brand, the graphic sign of IR WOOD partially conveys its brand equity, celebrating hand-forging of the ancient power of nature to man's design and will. Although the raw material of wood is not represented, the logo amply draws associations with magical and historical qualities seeped with wisdom.

CONCLUSIONS

Brand perception goes hand in hand with the interpretant's identity challenged by multilingualism and refugee crisis. But basic geometric signs and patterns have essentially remained unchanged since archaic times, playing an important role in constructing national identities with the help of mythopoetic images embedded in folklore as part of cultural heritage while preserving their archetypal nature, and are now frequently used in logotypes. Moreover, it has been suggested that geometric ornamentation might function as a sign system, therefore the aim of this research was, firstly, to investigate the phenomenology of language in order to see how geometric signs are cognized as semiotic narratives and, secondly, to analyze the perception of Latvian brands with geometric graphic signs in order to find out how successfully they represent brand equity according to theoretical analysis of the geometric code. Consequently, comparative analysis of theoretical literature was carried out and ten brands were analyzed as qualitative case studies accompanied by analysis of associations obtained via a questionnaire of self-selected online respondents.

Research on the phenomenology of language suggests that geometric patterns might be the Universal Grammar underlying other expression forms, including linguistic means. In addition, studies of geometric signs as a semiotic system reveal correlations with the color code, both geometric patterns and color spectrum arising from a single origin and expanding in a range of rays that gradually disperse, generating a network of iconic and symbolic associations based on indexical mappings. Thus, in likeness to mathematical formulae, the geometric code functions as a cognitive model where a geometric sign has no particular value unless variables based on cultural and situational context are filled in the equation that defines the semiosphere of homogeneous associations and enables iconic stimuli to transcend the cognitive levels of Firstness, Secondness, and Thirdness, resulting in a verbal text with symbolic denominators for indexical mappings. Hence, depending on individual thinking patterns that govern unconscious inclinations towards particular mappings, a number of heterogeneous narratives are constructed to fit the schemata that model both identity and communicative/behavior patterns such as cooperation versus antagonism. Consequently, the design economy of the geometric code models a whole semiosphere of connotations and associative networks out of a single sign. Moreover, the larger the semiosphere, the more successful a brand is likely to become due to a wider resonance with the identities of potential customers.

However, as shown by semiotic analysis of the perception of geometric graphic signs, although geometric logotypes are largely able to convey brand messages but not always their

business niche without the aid of the brand name, predisposition to focus on the tertiary modeling level of symbolic, mythopoetic conventions may limit the scope of geometric sign interpretation. To further the chess metaphor introduced by Saussure, although every interpretant has the same playing field, the structural frame of the geometric sign, and a set of pieces to which it can be broken down, the game of decoding the geometric message ends with different results, depending on the interpretant's background knowledge and individual inclinations. Thus, heterogeneous models of brand images arise due to the hegemony of set mappings over other alternatives encompassed in the geometric pattern, leading to partial projections of brand identity.

As a result, practice in reading geometric signs/brands might be a useful task in improving creative thinking and expanding awareness of multiple layers of semiotic texts. Moreover, since most respondents reported a multilayered perception of geometric signs as a language of thought, alphabet, powerful symbols, modeling system, and mythopoetic images among other views, it would be interesting to conduct a quantitatively more representative survey on actual trends in the perception of geometric code and to analyze possible correlations between the attitude towards geometric signs and respondents' capacities to decode geometric logotypes.

THESES

1. The self is the fundamental field of perception upon which the dyad of symbolic signifiers and indexical signifieds is inscribed.
2. Language arises as patterns of stimuli which can be perceived as iconic, indexical, and symbolic signs based on the Universal Grammar of vector geometry.
3. The geometric code is a hierarchical sign system where the form of the ornament bears visual likeness to the graphic representation of the mythopoetic image embedded, linking iconic and symbolic layers of the phenomenology of language, while the indexicality of the structure of patterns as colored spots on the background of a contrasted field model the variety of intertextual readings evoked.
4. Interpretations of the geometric code, where various signifiers are linked with a multitude of signifieds in a tree of infinite semiosis, can be regarded as the primordial roots of not only verbal language but also mathematical equations which in a poetic way morph into one another, illuminating different shades of meaning.
5. Geometric ornamentation as a semiotic system is both archetypal, having likeness to Universal Grammar, and simultaneously highly conventional due to the mythopoetic images signified, which depend on the outlook of given cultures.
6. Interpretation of geometric signs is a dialog between their creator and interpretant where any heterogeneous reading is a narrowing of the homogeneous code of geometric patterns, which encompasses at once all three layers of language.
7. The trinity of field serves as the foundation of more complex geometric signs (semiotic texts) elaborated as ornaments and linked together in strings of patterns (sentences).
8. Geometric patterns confirm modern semiotic frameworks and incorporate Saussure's dyad of signifier and signified with Peirce's triadic model of the sign, where growth begins as communication, the interpretant engaged in a dialog with the world perceived as various schemata or patterns that mirror internal and external experiences.
9. Interpretive analyses show that, in spite of the seeming hegemony of mythopoetic denotations, connotations signified by geometric signs are embedded in the iconic-indexical code underlying symbolic readings based on common myths.
10. Brand marketing is a deeply semiotic process that exploits complex signs in order to evoke a network of free associations, revolving around the central idea a brand stands for.
11. Heterogeneous models of brand images arise due to the hegemony of set mappings over other alternatives encompassed in the geometric pattern, leading to partial projections of brand identity.

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APPENDIX 1

Sample Questionnaire

ĢEOMETRISKO ZĪMJU UZTVERE ZĪMOLOS

Labdien! Mani sauc Aija Baibusa un es studēju valodniecību Latvijas Universitātē. Šis pētījums ir daļa no mana maģistra darba "Ģeometrisko Zīmju un to uztveres semiotiska analīze Latvijas zīmolos". Visi apkopotie dati ir anonīmi un tiks izmantoti vienīgi studiju darba ietvaros. Paldies par ieguldīto laiku aptaujas aizpildīšanā!

* Required

Lūdzu, norādiet ziņas par sevi!

Dzimums *

Vīrietis
Sieviete

Vecums (norādiet pilnu gadu skaitu) *

59

Dzimtā valoda *

latviešu

Izglītības līmenis *

Pamatskolas
Vidējā
Bakalaurs
Maģistrs
Profesionālā
Other :
doktors

Profesija *

izpilddirektors

Ģeometriskās zīmes

Pastāv dažādi minējumi par ģeometrisko kodu. Kāds ir jūsu viedoklis?

Ģeometriskās zīmes un raksti ir (iespējamas vairākas atbildes) *

rotājumi.
kultūras mantojums.
visuma kods.
modelēšanas sistēma.
domu valoda.
spēcīgi simboli.
priekšmetu vizuāli attēli.
līdzībās (asociācijās) balstīts dialogs.
alfabēts.
mītiski tēli.

Other:

Required

Ģeometriskās zīmes Latvijas zīmolos

Vai jūs varat nolasīt zīmolu vēstījumu? Esiet kodolīgi, skatieties dziļi un redzēsim vai atradīsiet atslēgvārdus!

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

puķe, lidojošs objekts, rotācija, simetrija

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

stabilitāte, sniegs, centrs, simetrija

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

eglīte, spēks, mūzika

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

tehnoloģijas, parole, matemātika, jaunatne

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

austrumi, audums, raibs gar acīm

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

astoņi, pamatīgums, fašisms

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

pēdas nospiedumu, adīti dūraiņi, tautiskums, piederība Latvijai

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

tautas dziesma, patriotisms, mājas svētība

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

vara, majestātiskums, bagātība, ierobežojums

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

putni, brīvība, vieglums, cerība

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

pasaka, melns spēks, ļaunums

Lūdzu, aprakstiet savas asociācijas ar zemāk attēloto zīmi/rakstu! *

gaisma, sniegs, pienenes, kosmoss

APPENDIX 2

Word Cloud of Respondents' Professions