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LEXICAL KNOWLEDGE OF EMOTIONS: THE STRUCTURE, VARIABILITY AND SEMANTICS OF THE ESTONIAN EMOTION VOCABULARY

ENE VAINIK

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PREFACE

The present thesis introduces the steps taken by the author to explore the Estonians' lexical knowledge of emotions. The process of research involved studying the structure, variability and semantics of the Estonian emotion vocabulary. It included approaching the subject of emotion knowledge from different angles, sometimes changing the viewpoint slightly and using different levels of interpretation. It also included the challenge of using some novel or, at least, non-customary methods and raised several methodological, psychological and substantial questions.

In the course of studying the Estonian emotion terms some very interesting results have been found, some preliminary conclusions have been drawn, some discussions have been initiated, some appealing fields of further research have come into sight, yet last but not least – not very many claims about emotion knowledge have been presented that could be taken as final truths.

This monograph is certainly not the final word the author is going to say on that very fascinating subject. This piece of research is just a part of an infinite process of approaching the subject, while the author, at least, is quite sure that a bigger part of the picture remains still under cover. It reflects mainly the author's attempt to increment our knowledge of knowledge and to move on towards a deeper understanding.

This highly committed work has been possible owing to the relative freedom I have enjoyed as a researcher at the Institute of the Estonian Language, being partly supported by the Grant No. 5040 of the Estonian Science Foundation.

During the pretty intensive period of my study I have been able to use a lot of help of many people. My heartfelt thanks belong to my supervisor Urmas Sutrop, who has guided me to empirical studies and introduced a very fascinating field method. I also want to thank all the Estonian informants who have generously participated in the studies, as well as my numerous colleagues, reviewers, friends, and supporters who have been interested in my work and available when most needed. The translators and editors of subparts of this monograph should be thanked, too.

And last but not least — my greatest thanks belong to my husband and two sons, without whose patience and infinite support my effort could hardly ever have been possible.

Tallinn
10 June 2004

Ene Vainik

CONTENTS

LIST OF PUBLICATIONS 9
ABBREVIATIONS 10
INTRODUCTION 11

1. INTERRELATIONS OF EMOTIONS, EMOTION TERMS AND EMOTION CONCEPTS IN AN ESTONIAN FOLK MODEL 17
1.1. A study of the Estonian emotion vocabulary 18
1.2. Method, procedure and subjects 19
1.3. Cognitive salience and basic terms 20
1.4. Results 22
1.4.1. Task A: Listing members of the category "emotions/feelings" 22
1.4.2. Task B: Naming antonyms 26
1.4.3. Task G: Listing the subcategories of positive, negative and neutral emotions 29
1.5. Discussion 31

2. THE ESTONIAN FOLK CATEGORY OF EMOTIONS 36
2.1. Method 38
2.2. Results 39
2.2.1. Position and structure of the folk category of emotion 39
2.2.2. Core of the category – basic terms of emotions 42
2.2.3. Non-basic emotion concepts 44
2.2.4. Periphery 45
2.2.5. Outsiders and beyond periphery 47
2.3. Discussion 51
2.4. Summary 54

3. INTRACULTURAL VARIATION OF EMOTION VOCABULARY 57
3.1. Participants and method 58
3.2. Results 60
3.2.1. Effect of gender 61
3.2.2. Age-related differences 66
3.3. Discussion 73
3.4. Conclusion 79

4. SEMANTICS OF EMOTION TERMS: A SELF-ORGANIZATIONAL APPROACH 81
4.1. Subjects and method 84
4.2. Self-organising maps (SOM) as an analytical tool 85

4.3. Results ... 86
4.3.1. Task 1 ... 86
4.3.2. Task 2 ... 102
4.4. Discussion ... 108
4.5. Theoretical implications ... 112
4.6. Conclusion ... 113

5. SUMMARY AND CONCLUSIONS ... 115
5.1. A brief summary ... 115
5.2. Conclusions ... 119
5.3. Prospects of further research ... 124

LEKSIKAALSED EMOTSIOONITEADMISED: EESTI KEELE EMOTSIOONISÕNAVARA STRUKTUUR, VARIEERUVUS JA SEMANTIKA *(KOKKUVÕTE)* ... 126

REFERENCES ... 147

APPENDIX 1: The results of Task A: Cognitive salience (S) of the elicited emotion terms, calculated as general and and as for different groups based on gender and age ... 154

APPENDIX 2: The results of Task E: Cognitive salience (S) of the recalled emotions, calculated as general and and as for different groups based on gender and age. ... 157

APPENDIX 3: Estonian emotion terms, their frequency data and average semantic profiles against the set of seven joint scales in Task 1 ... 159

TABLE OF FIGURES ... 162

CURRICULUM VITAE ... 164

CURRICULUM VITAE ... 165

LIST OF PUBLICATIONS

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X. Vainik, Ene. Intracultural variation of the Estonian emotion vocabulary: The effect of age and gender on the results of a list task (a manuscript submitted for publication).

XI. Vainik, Ene, Kirt, Toomas. Self-organizing emotion concepts: A case study of Estonian emotion terms (a manuscript submitted for publication).

ABBREVIATIONS

AVE	– average
F	– frequency
GNA	– General Negative Affect
GPA	– General Positive Affect
mP	– mean position
N	– number
Ri	– individual rank
rS	– relative strength (of relation)
S	– index of cognitive salience
SOM	– self-organizing map
STDEV	– standard deviation

INTRODUCTION

Object of the study

In every natural language there are certain means for designating emotional phenomena. Emotion lexicon facilitates immediate communication of emotions (the expressive function of language) as well as conceptually mediated meta-communication about emotions (the descriptive function of language). Through lexical labels the knowlegde of emotional phenomena, that are ubiquitous and pivotal in human interactions, is made accessible and talkable in principle.

In literature concerning the so-called emotional intelligence it is argued that the ability to label emotions with words and to adequately recognize the relationships among the units of affective lexicon is the fundamental competency of emotional knowledge (Salovey, Bedell, Detweiler, & Mayer, 2000). There is, however, more to lexical emotion knowledge: an emotionally intelligent person is claimed to be able to recognize that terms used to describe emotions are arranged into families, and that groups of emotion terms form fuzzy sets (see Ortony, Clore, & Collins, 1988). Deduction of the relations among these terms is claimed to be not only an inevitable but also the most important part of one's emotional knowledge (Salovey et al., 2000).

The importance of lexical knowledge of emotions cannot be overestimated. What is the essence of that knowledge, how is it structured, is it individual or shared, is it constant or variable, is it universal or shaped by cultural models – these are but some of the questions that are ivestigated, reported and discussed in this study.

The result is not an exhaustive survey of the Estonians' lexical emotion knowledge, though. This study deals of only that part of emotion knowledge that is manifested in emotion terms, i.e. the lexemes used to refer to emotions, emotional states, feelings and related vocabulary. All nonverbal knowledge, and also that part of verbally mediated knowledge that is manifested in expressive emotion lexicon and phenomena of figurative language (extremely interesting as they may be) remain beyond the scope of this particular study.

Neither is it an exhaustive survey of the emotion vocabulary of the Estonian language. The immediate object of the study is this part of the emotion vocabulary which is in active use by ordinary speakers and is therefore easily accessible by list tasks or in the form of a questionnaire. In that way the speakers' collective knowledge of emotions and their relation to these phenomena comes into focus.

The aim of the study is to explore the lexical knowledge of emotions crystallized in the Estonian emotion vocabulary by the beginning of the 21st

century. The purpose is to describe the availability of emotion lexicon, to find out its structure, if any, to analyse its variability and to find out the relevant aspects of the semantics of emotion terms for Estonians.

Theoretical assumptions

The very idea that emotion vocabulary is an access to emotion knowledge is rooted in a broader basic assumption that in the vocabulary of a specific domain the collective knowledge of that particular domain is crystallized. This is an assumption that generally holds in cognitive linguistics (see e.g. Õim, 1990). This is also the assumption underlying the so-called lexical approaches in psychological studies (e.g. Allik, 1997). An extension of this assumption is the claim that cognitive domains (fields of collective encyclopedic knowledge) are not chaotic but structured and that this structure is detectable by means of lexical analysis (Langacker, 1987; Viberg, 1994: 170–171; Cruse, 2000: 179; Croft, 2003: 164).

The universalists' view of the relationship of emotions and lexicon is that the inherent structure of emotion lexicon is in accord with the universality of emotional experience and holds universally in most cultures and languages, although there are remarkable differences in the exact meanings and scope of the use of specific emotion terms (Hupka, Lenton, & Hutchinson, 1999; Wierzbicka, 1999).

This basic assumption is accompanied by another assumption propounded in this study that probably it is only part of the possible lexical knowledge of emotions of a specific language community (i.e. Estonian speakers) that is used actively and thus shapes their actual knowledge of emotions. So the lexical knowledge of emotions is expected to be structured not only on the basis of its relation to emotions and their quality but also on the basis of its linguistic criteria and potentiality to be accessible and at hand when needed. The distinction between basic and non-basic terms found in the structure of vocabulary in general (Sutrop, 2000) as well as in some specific domains (Sutrop, 2002) is assumed to hold in the semantic field of emotions as well. As in any other cognitive domain, so in the domain of emotions the more accessible and more frequently mentionable part of knowledge is expected to function as the basic level of knowledge (Rosch, Mervis, Gray, Johnson, & Boyes-Braem, 1976).

In this study the hierarchical organisation of emotion terms and concepts into levels of general, basic and specific knowledge is assumed to influence the processes of categorisation and perception of emotions both intra- and interpersonally. That assumption is supported by findings on the impact that emotion concepts have on the perception, categorization and memory of emotional phenomena (Halberstadt, Jamin, & Niedenthal, 2001). This predicted impact of

the most accessible lexical labels and concepts on one's cognitive processing is assumed to hold as a potential and restricted area of influence of the hypothesis of linguistic relativity (Whorf, 1956).

It is also assumed that while the purpose is to explore the shared, or folk knowledge of some field, the the best primary source of information are the carriers of that knowledge i.e. laymen[1]. With this assumption a decision has been made for this particular survey to focus on the supposedly context-free units of mental lexicon (see, e.g. Aitchison, 2003) that are spread out in the "talking heads" of the speaking community rather than on any kind of real textual usage events of that lexicon, possibly influenced by a specific context.

Besides the assumption that all Estonian speakers share the central and most prominent part of lexical emotion knowledge — the basic terms of emotions and their underlying concepts — an individual and group variance of knowledge is expected regarding the relevance, salience and semantics of the terms.

The theoretical background will be more illuminated and differentiated in the following chapters according to the viewpoints in the light of which the results of empirical studies are interpreted and discussed in each case.

The structure and sources of the study

The present survey into the lexical knowledge of emotions consists of four chapters taking partly different viewpoints towards the main topic. The reason why the dissertation is structured that way is that substantially this is a collection of four essays written in 2002–2004 as research reports of two different empirical studies. In order to achieve a more coherent approach to the main object of study, i.e. lexically manifested emotion knowledge, a brief introduction and a special chapter summarizing the work and and conclusions has been added, while only a few minor adjustments[2] have been made to the texts previously written. The first two chapters of the monograph have been published earlier and the following two have been submitted for publishing. Titles of earlier publications and manuscripts submitted for publication are mentioned in the footnotes and in the list of references.

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[1] This assumption holding naturally both in psychology and anthropology has been accepted for a linguistic study as well. According to A. Cruse the native speakers' semantic intuitions should be the primary source of data in the linguistic inquiry of meaning (Cruse, 2000: 11).

[2] The recurring procedure of calculating the index of cognitive salinence (Sutrop, 2001), for example, is described only once in the first chapter; the parts of the monograph related to each other are cross-referenced. As regards the technical formatting (numbers, abbreviations, references etc.) the Publication Manual of American Psychological Association (2001) is followed.

The first of the two empirical studies was a series of free listings of Estonian emotion terms carried out by the author in 2001 (Vainik, 2001). The second was a questionnaire/based study into the semantics of some Estonian emotion terms carried out by the author in 2003[3]. Closer details about these empirical studies are presented in the following chapters according to the analytical level and viewpoint taken in each case. The results of the tasks of free listing have been analysed and interpreted from three viewpoints and are presented in the first three chapters of that monograph.

The first chapter presents the results of three tasks of free listing of Estonian emotion terms and discusses the results from the viewpoint of the relative cognitive salience of different terms and concepts. The status and linguistic, psychological and ontological criteria of basic terms of emotions are explained and the possible influence of folk models on emotion knowledge is discussed.

In the second chapter the results of a series of seven list tasks have been summarised and analysed semantically. On the basis of reccurent lexical production the structure of the Estonians' folk category of emotions and its associated fields are described. Some of the Estonians' folk-psychological attitudes to emotions and a tendency of collective avoidance of certain emotion-related phenomena have been pointed out.

The third chapter analyses the variance caused by sociodemographical factors like gender and age in the results of two of the list tasks carried out in the first empirical study. In addition, the differences of semantic and episodical knowledge of emotions are pointed out and discussed.

The results of the second and more detailed semantic inquiry have been analysed just on one occasion and are presented in the fourth chapter. In this case the results of a questionnaire filled in by 100 informants, which was addressed to measure the semantics of a small but representative set of Estonian emotion terms are analysed. The method of self-organizing maps is introduced as an independent analytical tool and used in order to find out if there are any differences in the structure of emotion knowledge as accessed by a componential approach and by lexical relations of synonymy and antonymy. The method is used both for presenting the locations of emotion concepts in a semantic field and for explaining the presence and interaction of semantic features in some selected emotion concepts.

In the final section a brief summary of the results is presented and some generalisations are drawn, which are hopefully not premature from the viewpoint of future research. Details of the main results are presented in three appendices.

[3] It is important to mention that in the course of technical data processing of the second inquiry also Toomas Kirt (TTÜ) was involved. He is responsible for the generated self-organizing maps and has written the overview of SOM as an analytical tool (Ch. 4.2.).

The methods and scope of investigation

What is common to the four chapters of this survey and their underlying studies is, first, that their object is the Estonians' lexical knowledge of emotions as it is manifested in their active vocabulary of emotions and, second, that the field method introduced by U. Sutrop (2001) is used in all four subparts of the study.

Additionally, in the empirical study reported in the fourth chapter, dedicated to the matters of semantics, a method inspired by the method of semantic differentials (Osgood, Suci, & Tannenbaum, 1975) was used. Instead of the traditional factor analysis the method of self-organizing maps developed by T. Kohonen (2000) was applied.

As the main object of this study is the lexical knowledge of emotions which is a phenomen concerning a speaker–language relation rather than language as an abstract system *per se*, all linguistic data for the two empirical studies were gathered directly from informants. The purpose of such an approach was to get closer to people's spontaneous intuitions and knowledge. Closer details of the applied methods and distribution of informants are explained in each chapter.

Due to the specific subject matter, used methodology, the different levels of analysis and viewpoints of interpretation this survey is pretty interdisciplinary in character. Vocabulary, its structure and semantics traditionally belong to the sphere of linguistics, although lexical methods are used also by psycholinguists and psychologists. For the latter, vocabulary is usually a means rather than an object of study. The specific domain the vocabulary mediates — emotions — biases this survey even more towards the field of psychology. Dealing with group variation is common in social psychology and sociolinguistics.

For a proper psychological study, on the other hand, this study is not so much interested in what emotions really are (cf. Griffiths, 1997) but in what people think they are. Due to the interest in folk emotion concepts, conceptualisation processes and folk models as forms of collective cognition this survey probably fits best into the framework of cognitive sciences. The field method used for data collecting, in its turn, is close to "cultural domain analysis" (cf. Bernard, 1995) and biases the study towards anthropology.

The slightly different theoretical viewpoints of the subject taken in each chapter increase the number of associated fields and add diversity to the list of referred authors.

Substantial terms and concepts

The chapters of the present monograph have been written during 2002–2004 as essays focused on different aspects of lexical knowledge of emotions. It is probably worthwhile to explicate the content of some of the most exploited and recurrent terms and concepts throughout the whole monograph. These expla-

nations do not pretend to be proper definitions of the terms, but probably help the reader to keep in track with author's interpretations.

Emotion – the term is mostly used in its broader sense including *emotions* in a literal sense (i.e. short-time psychophysiological reactions) alongside with other affective phenomena like *moods*, *emotional states* and *feelings*.

Emotion term (word) – lexeme referring primarily to an emotion (emotional state or feeling).

Emotion vocabulary (lexis, lexicon) – subpart of the lexicon of a language as a whole referring to emotions, emotional states, feelings and related phenomena either primarily or secondarily.

Emotion concept – semantic invariant of co-denotational emotion words, part of a conceptual structure regarding emotional phenomena, a result and a segment of the conceptualisation process of such phenomena.

Conceptualisation – a process (and result) of cognitive organisation of information, an abstraction of episodic and otherwise diverse perceptual input into mental representations according to the recurring patterns in the multidimensional information flow.

Emotion knowledge – knowledge about emotional phenomena either experiential or conceptual.

Lexical knowledge of emotion – lexically manifested knowledge of emotion either individual or shared.

Cognitive salience – a tendency of a term or concept to be easily accessible and mentionable when needed.

Despite the different viewpoints taken on the subject matter and the inter-disciplinary scope of the whole monograph the subparts of the study are interrelated. Exploration of the lexical knowledge of emotions in Estonian is the forest to be seen behind the trees.

1. INTERRELATIONS OF EMOTIONS, EMOTION TERMS AND EMOTION CONCEPTS IN AN ESTONIAN FOLK MODEL[4]

Emotions can be treated as a natural part of human experience. It is equally natural to constantly experience emotions and to think and talk about this experience. Words and concepts can be treated as the main tools of talking and thinking, respectively. Yet what are the interrelations of ubiquitous experiential units (emotions), units of cognitive processing (concepts) and units of verbal communication (words) is far from obvious.

There are figurative and literal expressions in languages for both expressing and describing emotional experience (Kövesces, 2000). Though there are differences across languages in the range and scope of specific emotion terms, the very principles of conceptualising emotions have been claimed to be universal (Wierzbicka, 1999). Some cognitive linguists have argued that in the vocabulary of a specific domain a folk theory or layperson's model of the domain is built up (Õim, 1999).

A layperson's model represents the socially relevant common sense of a topic in a given culture, the basic level knowledge that most people share and by which most of their everyday experience is interpreted. It is not clear, however, whether a layperson's model is mostly influenced by the realm it intermediates (e.g. emotions), the realm it serves (social norms and interactions) or the realm it is carried by (a specific language).

The universality *vs.* specificity of emotions, emotion terms and emotion concepts across cultures and languages is a topic of interdisciplinary interest for anthropologists, psychologists and linguists (e.g. Scherer & Wallbott, 1994; Russell, Fernandez-Dols, Manstead, & Wellenkamp, 1995; Hupka et al., 1999; Wierzbicka, 1999). The field methods originally used in anthropology and psychology have been introduced into linguistics. A tradition of empirical studies based on field methods and reliable data originates from the cross-cultural study of folk colour terms by B. Berlin and P. Kay emphasising the evolutionary universality of vocabularies (Berlin & Kay, 1969). Different semantic fields have been studied with similar methodology, e.g. terms of botanical and zoological life-forms (C. H. Brown, 1977, 1979), etc. Also an attempt has been made to demonstrate the universal development of emotion categories in 64 natural languages (Hupka et al., 1999).

[4] An earlier version of this chapter was published under the title *Emotions, emotion terms and emotion concepts in an Estonian folk model* (Vainik, 2002a).

The present study explores the folk model of emotions as it presents itself in the Estonian emotion vocabulary. Two interrelated topics are discussed: the role of emotions, emotion terms and concepts in the layperson's model and the relevant facets of the popular emotion category in Estonian.

1.1. A study of the Estonian emotion vocabulary

Estonians are a nation of about 1 million living on the southern coast of the Gulf of Finland. Although they speak a Finno-Ugric language, relation to Western cultures (especially German) is supposed to be dominant by some researchers (e.g. Ross, 2002). As in any other language there are plenty of words in Estonian, referring to and differentiating between the qualitative and quantitative aspects of emotional experience. Yet the boundaries of the natural category of "emotions" itself are not clear in Estonian as this category seems to be mixed and blended with another closely related natural category of "feelings".[5]

There is no linguistic or anthropological analysis of Estonian emotion terms available so far. The earlier attempts to explore the Estonian vocabulary referring to emotional experience (Veski, 1996; Allik, 1997; Kästik, 2000) belong to the field of psychology. The goal of these investigations has been to ascertain not a layperson's emotion vocabulary *per se,* but their use of the vocabulary for the description of experience. J. Allik has found that most of the variation of emotion vocabulary is accounted for by two dimensions: Positive Affect and Negative Affect, which are claimed to be unipolar dimensions not to be regarded as opposites (Allik, 1997; Allik & Realo, 1997). L. Kästik takes Russell's model (Russell, 1980) as an example and argues for the crossing dimensions of pleasantness/unpleasantness and high/low activation constituting the so-called subjective space of emotion terms, in which every single term can be located.

The selection of linguistic data for those psychological inquiries has been carried out by experts so far. This means that people are questioned about what

[5] There are three competing terms in contemporary Estonian referring to emotional experience in general: *tunne* 'feeling, sensation', *emotsioon* 'emotion, feeling' and *tundmus* 'sentiment, feeling'. All three are roughly synonymous; differences lie in the scope of use and social status of the words. Two of the terms *tunne* and *emotsioon* are common terms referring to any type of emotional experience. *Tunne* is a trivial native word with a lower social status than *emotsioon*, which is a non-native word also used in the (socially higher) sphere of psychology. The word *tundmus* is proposed as a label for a higher order category of 'feeling, sensation' in contemporary Estonian psychological literature, whereas the meaning of *emotsioon* is defined to be narrower as 'an act or short process of experiencing *tundmus*' and thus this term is subordinate to *tundmus* (Kidron, 2001).

they have experienced (Veski, 1996) or what they count as emotions (Kästik, 2000) using certain test words selected beforehand by one or more experts. Veski and Allik established a structural correspondence between the Estonian word selection and the English word selection of Watson's and Clark's PANAS-X scale (Watson & Clark, 1994).

The purpose of the present study is to explore the layperson's model of emotions as it presents itself in the Estonian emotion vocabulary. In order to find out what words the Estonians consider as belonging to the category of emotions, an empirical study was carried out (Vainik, 2001). Several more specific goals were stated for the study: to collect the vocabulary of emotions being "actively used" by real native Estonian speakers and to examine the basic emotion terms and concepts in Estonian, taking into account their frequency and mean position of being mentioned by the subjects. The resulting data are examined from both psychological and linguistic points of view.

1.2. Method, procedure and subjects

As the focus of the present investigation lies on a layperson's terms and concepts of emotional experience the selection of the relevant vocabulary for the current research has also been made by laymen. For collecting data best meeting the specific goals of the empirical investigation the field method of U. Sutrop (2001) was used. The ordinary task of free listing of category members was complemented by several additional detailed list tasks, three of which are reported here[6]:

A. The list task of category (emotions/feelings) members.

B. Naming antonyms (if any) for the concepts listed in the first task.

[...]

G. Listing the subcategories of positive, negative and neutral emotions (if the subject accepts such a division).

The list tasks were carried out (01. 05. 2001–22. 06. 2001) in the form of oral interviews without previously informing the subjects of the theme. The essence of the list task was first illustrated with a trivial sample of listing members of the "fruits" category: *apple, pear, plum,* etc. As the tentative inquiry showed that it was difficult for the respondents to list members of a rigid category labelled "*emotsioonid*" 'emotions', so in the working inquiry the category label was replaced by a more flexible one "*emotsioonid/tunded*" 'emotions/feelings'

[6] Task C required a rank ordering of the words elicited in the first two tasks on a principle the subjects were free to choose, Task D called for naming instant emotions, in Task E participants were asked to mention emotions they remembered to have experienced in their short-term past, in Task F emotion-related verbs were listed (for details see Vainik, 2001).

and the subjects were encouraged to mention everything that came to their mind in association with that category label, without considering if the words coming to their mind were "proper" emotion terms or not. The interviewer documented everything mentioned by the subjects in the same form and sequence.

There were 100 subjects involved 50 of which were men and 50 were women (average age 39.4 years, STDEV=18.6, in the range from 14 to 88). All of them were native Estonian speakers; most of them inhabitants of Tallinn or its suburbs. The proportion of men and women in different age groups is presented in Table 1. In this report the age and gender differences possibly reflected in the results are not considered. No observable deviance of mental health of the informants was detected. The informants seemed to be in their ordinary mood, as in most cases the inquiry took place in their own familiar environment (schools, working places, homes, a club for retired people). Though some of the respondents had difficulties with some parts of the list task series, nobody failed totally and all 100 interviews were counted valid.

Table 1. The distribution of respondents across age groups

Age group	Men	Women
14–24	13	14
25–39	18	13
40–59	12	11
60–	7	12
Total	50	50

1.3. Cognitive salience and basic terms

As the first goal of the empirical study – collecting easily memorable and usable emotion terms as the part of emotional vocabulary that is in "active use" – was completed with creating a database, the next step was to analyse the data in order to make a distinction between the basic and non-basic emotion terms. There are many criteria a word should meet to qualify for the category of basic vocabulary (Sutrop, 2000, 2002).

The basic parameter used in this study is called the *cognitive salience* of a word or concept. If a unit has a relatively high cognitive salience, it has a tendency to be mentioned in the first positions and the most frequently in tasks of free listing. The field method of U. Sutrop provides several ways for calculating cognitive salience indices (S) in order to make relative cognitive salience as a parameter exactly measurable and comparable across different list tasks (Sutrop, 2001). The important initial data are: the frequency (F) of an item throughout all data of a given list task, the number of subjects (N) participating in the list task (usually 30–50 is recommended) and the mean position of an

item (mP), which takes into account the varying ranks of an item across individual lists. The cognitive salience index is calculated by the following formula:

$$S = F/(N * mP)$$

How to calculate the mean position of an item has been the most problematic and changeable aspect of cognitive salience indices. The cognitive salience index used in this survey has been proposed by U. Sutrop (2001), stating that the mean position of an item is a quotient of the sum of all individual ranks (ΣR_i) and the frequency of an item in a given list task (F).

$$mP = (\Sigma R_i)/F$$

The procedure ranks the results of a given list task by the value of their relative cognitive salience indices in descending order. The distinction between the basic and non-basic units appears as an observable difference in their values. As the basicness of a word is a psycholinguistic parameter (Sutrop, 2000) there are some other important characteristics besides the relatively high cognitive salience that have to be considered[7]. Notably, a basic term should be:

- monolexemic (not analysable into identifiable lexical parts);
- morphologically simple (not a derivative);
- a native word;
- refer to an easily identifiable basic level object, quality or phenomenon;
- applicable in all relevant domains.

The cognitive salience indices were calculated for all frequent ($F \geq 3$) items appearing in all tasks of free listing used in the inquiry. The task of naming antonyms (B) was exceptional, because the results of the first free listing task (A) were used as stimuli and so the sequence of items in task B was not free. Among the results of the antonym-naming test the frequency of antonyms and the strongest relationships were examined.

[7] In this study cognitive salience is treated as the primary characteristic feature of basicness, while linguistic criteria are treated as subsidiary ones.

1.4. Results

1.4.1. Task A: Listing members of the category "emotions/feelings"

A hundred subjects named 844 words, so the average length of an individual list was 8.44 items. The actual length varied from 2–23. During the task 390 different word forms were mentioned, 58 of which were named at least by three individuals (F ≥ 3). For those 58 words the cognitive salience indices were calculated.

As the instruction encouraged people to mention everything that came to their mind in association with the label "emotions/feelings", in addition to proper emotion terms, words designating several emotion-associated phenomena (behavioural expressions, sensations, personality traits, activation level, etc) were also elicited. These expressions were counted as meaningful for the Estonian layperson's model of emotions in the case of a frequency rate F≥3.

1.4.1.1. Cognitive salience of emotion terms

The average value of the indices was .018. The 13 most salient items had values equal or above the average, while 45 items scored less than the average. Table 2a presents the 13 most salient items in the results of the first list task, in the order of their cognitive salience indices (S). Also the overall frequency rate (F) and mean position (mP) are presented in the table. Four of the most salient items (*viha* 'anger', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness') are treated as Estonian basic emotion terms due to their relatively higher index values (S ≥ .1) and are highlighted in Table 2a.

Table 2. Results of list task A

a)

Words:	**F**	**mP**	**S**
viha **'anger'**	**56**	**3.61**	**.155**
armastus **'love'**	**43**	**2.95**	**.145**
kurbus **'sadness'**	**40**	**3.70**	**.108**
rõõm **'joy'**	**43**	**4.12**	**.104**
naer 'laughter'	25	5.80	.043
raev 'rage'	14	4.07	.034
nutt 'weeping'	19	5.74	.033
rõõmus 'joyful'	6	2.17	.028
nutmine 'weeping'	5	2.00	.025

b)

P	**Y**
1	**95%**
23	**72%**
6	**86%**
2	**93%**

Table 2. Results of list task A *(continued)*

a)				b)	
Words:	**F**	**mP**	**S**	**P**	**Y**
tunded 'feelings'	3	1.33	.022		
kurb 'sad'	6	2.67	.022		
vihkamine 'hatred'	8	4.00	.02		
hirm 'fear'	10	5.50	.018	8	85%

Note. F–frequency, mP–mean position, S–index of cognitive salience, P–position, Y–percentage of "yes" answers.

There is, however, a remarkable difference in the cognitive salience of the basic terms themselves, too: *viha* 'anger' and *armastus* 'love' are far more salient ($S \geq .145$) than the other two: *kurbus* 'sadness' and *rõõm* 'joy' ($.108 \leq S \geq .1$). The tendency of basic emotion terms to occur as pairs is very clear. People tend to remember and mention emotion terms by their relation of antonymity. The most salient pair of lexemes to be co-elicited was *viha* >< *armastus* 'anger >< love' while the runner up was *kurbus* >< *rõõm* 'sadness >< joy'.

1.4.1.2. Linguistic criteria of basic emotion terms

Most emotion terms were monolexemic. There were but a few exceptions in the group of third most salient terms (*rahul+olu* 'contentment, *lit.:* [at-peace]+ being', *üks+kõik-sus* 'indifference, *lit.*: [one+all]-ness', *kaas+tunne* 'sympathy, *lit.*: with+feeling', *rõõmsa+meelsus* 'joviality, *lit.*: joyful+ mindedness', *armu+kade-dus* 'jealousy, *lit.:* [love+envious]-ness', *rahul+ olematus* 'dis-contentment, *lit.:* [at-peace+not-being]-ness').

The criterion of being a morphologically simple native word functioning in all relevant domains was met by *viha* 'anger' and *rõõm* 'joy' (the group of cognitively most salient terms), *naer* 'laughter', *raev* 'rage', *nutt* 'weeping', *kurb* 'sad', *hirm* 'fear' (the group of second most salient terms), a number of least salient emotion terms (*valu* 'pain', *mure* 'worry', *õnn* 'happiness', *kirg* 'passion', *rahu* 'peace') and a few non-emotion terms (*päike* 'sun', *külm* 'cold', *soe* 'warm', *uni* 'sleep').

Two of the basic emotion terms are morphologically complex. These are the derivatives: *kurb-us*[8] (noun) 'sadness' < *kurb* (adjective) 'sad' and *armast-us* (noun) 'love' < *armasta/ma* (verb) 'to love', while the latter is in turn the result of a three-step derivative process: *armasta/ma* (verb) 'to love' < *armas* (adjective) 'darling, lovely' < *arm* (noun) 'mercy; love'. The morphological

[8] *-us* is a very productive suffix systematically used to derive abstract substantives either from Estonian adjectives or verbs (EKG 483–480).

complexity of the word *armastus* is really high. Most of the words occurring in the group of less salient emotion terms (Table 3) are also morphologically complex, as names for more specific emotional states, feelings, personality traits and behavioural expressions tend to be derived either from adjectives or from verbs.Only non-native emotion words mostly functioning in the specific context of psychological terms occurred in the least salient group (*melanhoolia* 'melancholy', *depressioon* 'depression', *agressiivsus* 'aggressiveness').

Table 3. Third most salient emotion terms with average values F = 4.08, mP = 6.33 and S = .007 (grouped according to meaning)

a) emotional states/ feelings	b) feelings/ personality traits	c) behavioural expressions	d) causes and attributes of emotions
depressioon 'depression'	*agressiivsus* 'aggressiveness'	*kallistamine* 'hugging'	*külm* 'cold'
kaastunne 'sympathy'	*armukadedus* 'jealousy'	*karjumine* 'yelling'	*lilled* 'flowers'
kirg 'passion'	*headus* 'goodness'	*naermine* 'laughing'	*nali* 'joke'
meeldimine 'pleasing'	*hellus* 'tenderness'	*pisarad* 'tears'	*perekond* 'family'
melanhoolia 'melancholy'	*igavus* 'dullness'		*päike* 'sun'
mure 'worry'	*kadedus* 'envy'		*rahu* 'peace'
nördimus 'indignation'	*nukrus* 'wistfulness'		*soe* 'warm'
rahulolematus 'discontent'	*närvilisus* 'nervousness'		s*õbrad* 'friends'
rahulolu 'contentment'	*rahulik* 'calm'		*uni* 'sleep'
segadus 'confusion'	*rõõmsameelsus* 'joviality'		*valu* 'pain'
sõprus 'friendship'	*tigedus* 'nastiness'		
õnn 'happiness',	*vaenulikkus* 'hostility'		
ängistus 'anguish'	*õnnelik* 'happy'		
ärevus ' anxiety'	*õrnus* 'tenderness'		
ärritus 'irritation'			
üksindus 'loneliness'			
ükskõiksus 'indifference'			

In the third group of expressions with a rather low cognitive salience (mean S= .007) there is a list of 45 elicited names for emotional states and feelings (Table 3). On the basis of their semantic content some groups can be distinguished: terms referring to emotions and feelings of a non-basic status (Column a) in Table 3), words functioning as both names of feelings and names of personality traits (Column b) in Table 3), words designating conventional

behavioural expressions of emotions (Column c) in Table 3), and words referring to conventional causes and attributes of emotions (Column d) in Table 3). These semantic groups refer to classes of phenomena with which emotions are associated in the Estonian folk model of emotions.

1.4.1.4. Reducing lexical data back to concepts

For the most salient emotion concepts there was a tendency to be elicited in several semantically related units varying but a little lexically or morphologically (for example, the concept KURBUS 'SADNESS' was most frequently referred to as *kurbus* 'sadness', but also as *kurb* 'sad' (adj), *kurvastav* 'grieving' (adj/v) and as *kurvastamine* 'being sad' (n). Thus, an emotion concept might occur not as linked to one rigid emotion term, but to a "family of terms". This kind of lexical variation was reduced in the results of the list task in order to calculate cognitive salience indices also for emotion concepts as follows: the items related both lexically and semantically were replaced by the "head of the family" – the most frequent item, for example *kurbus* 'sadness', was taken as head for *kurb*, *kurvastamine* and *kurvastav,* and the frequency rates of variants were added to the frequency rate of the head. The items closely related semantically (almost synonyms), but lexically different (e.g. *kurbus* 'sadness' and *nukrus* ' sadness, wistfulness') were treated separately.

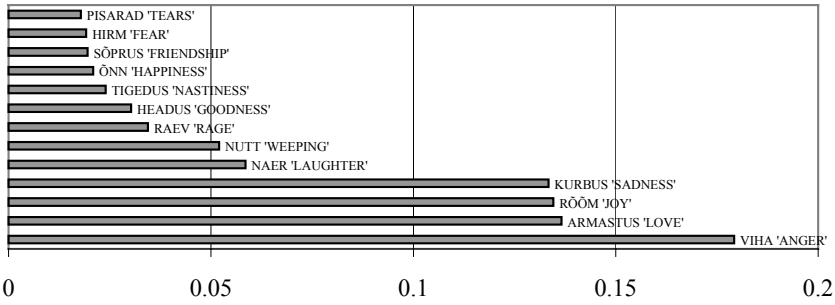


Figure 1. Cognitive salience indices of conceptual items in Task A.

Figure 1 presents the cognitive salience indices for the 13 most salient concepts. The basic level concepts are the same (VIHA 'ANGER', ARMASTUS 'LOVE', RÕÕM 'JOY', KURBUS 'SADNESS') as the basic emotion terms referred to (Table 2). There is a difference in the salience of basic level concepts: VIHA 'ANGER' is far more salient (S = .179) than the other three (the mean S = .135).

On the conceptual level VIHA 'ANGER' appears to be the most salient and prototypical member of the emotion category for Estonians. Cognitive salience at a conceptual level does not show clear pairs as was characteristic of the

lexical level. Instead, it shows the outstanding role of the concept VIHA 'ANGER' that, disregarding its lexical manifestations, tends to appear in relatively high positions of individual lists (mean position 3.68).

Reducing the data down to emotion concepts (Figure 2) we can see that all basic emotion concepts are cognitively more salient than the corresponding lexical items (basic terms), except the concept of ARMASTUS 'LOVE'. Though the frequency of the the concept (F = 50) was higher than of the term (F = 43), the mean position of mentioning secondary labels for ARMASTUS 'LOVE' appeared to be low (mP = 9.4). The concept ARMASTUS 'LOVE' is cognitively highly salient only in a rather fixed lexical manifestation – in the word *armastus*.

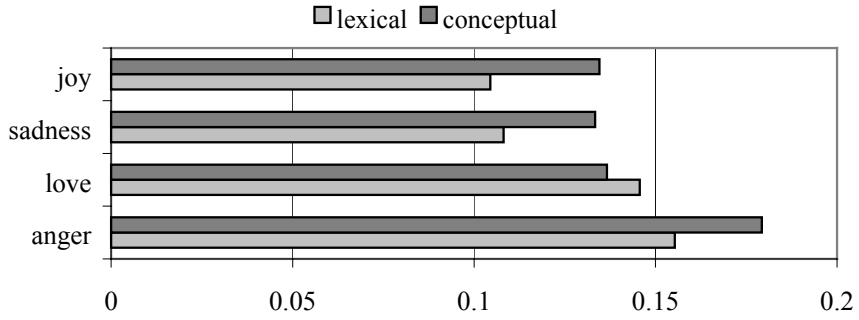


Figure 2. Cognitive salience indices of basic emotions at lexical and conceptual levels.

1.4.2. Task B: Naming antonyms

There were 99 subjects[9] participating in this task, the total number of stimulus words was 844 (the results of the first list task), the total number of antonyms offered was 724. 86% of the emotion terms mentioned in the first list were offered an antonym by the subjects.

The pairs of antonyms showed up big differences in frequency: 64% of all pairs were mentioned only once. The frequency rates for 44 recurring pairs varied from 34 to 2. The frequency of each pair was compared to that of the most frequent pair *rõõm* >< *kurbus* 'joy >< sadness' (F = 34) and its relative strength of antonymic relations was calculated. The data of the most frequent antonyms are presented in Table 4 and the interrelations of lexical items are

[9] One of the 100 subjects participating in Task A refused to perform the antonym naming task (B).

presented in Figure 3. Bold arrows indicate the relatively higher strength of a relation (rS ≥ .50), while dashed arrows indicate asymmetrical relations.

The strongest antonymic relations appear between two basic emotion terms (*rõõm* >< *kurbus* 'joy >< sadness', *kurbus* >< *rõõm* 'sadness >< joy'). The antonymity of those words is symmetrical. The second strongest antonymic relation is seen between the words designating acts of behavioural expressions of emotions (*naer* >< *nutt* 'laughter >< weeping', *nutt* >< *naer* 'weeping >< laughter'). The antonymity of those words is also symmetrical. There is a rather strong asymmetrical relation (rS = .53) between a basic emotion term (*armastus* 'love') and a non-basic emotion term (*vihkamine* 'hatred'). The most salient emotion term *viha* 'anger' has two equally strong antonyms: *armastus* 'love' and *rõõm* 'joy'. The relation to *armastus* 'love' is symmetrical; the relation to *rõõm* 'joy' is asymmetrical.

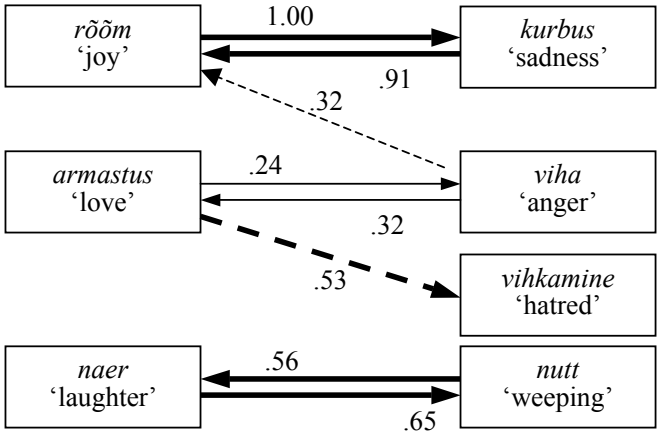


Figure 3. System of lexical antonyms in the Estonian emotion vocabulary.

The emotion term *viha* 'anger' is apparently polysemous, having the meanings of a passively experienced intrapersonal state (this meaning is opposed to that of the emotion term *rõõm* 'joy', which also denotes an act of experiencing an intrapersonal state) and of an active interpersonal feeling (that is opposed to the emotion term *armastus* 'love' also denoting an interpersonal feeling). In the latter sense *viha* is synonymous to *vihkamine* 'hatred'.

The cutting back on the lexical variants (by the above procedure) increased the frequency rates proportionally (Table 4 b), except for the relation ARMAS-TUS >< VIHA 'LOVE >< ANGER' for which the frequency and relational strength increased remarkably. The system of contrasting emotion concepts is presented in Figure 4. There is only one asymmetrical relation on the conceptual level, which is between VIHA 'ANGER' and RÕÕM 'JOY'.

Table 4. The most frequent pairs of antonymous words and concepts in task B

a) antonyms

Stimulus word	Antonym	F	rS
rõõm 'joy'	*kurbus* 'sadness'	34	1.0
kurbus 'sadness'	*rõõm* 'joy'	31	.91
naer 'laughter'	*nutt* 'weeping'	22	.65
nutt 'weeping'	*naer* 'laughter'	19	.56
armastus 'love'	*vihkamine* 'hatred'	18	.53
viha 'anger'	*armastus* 'love'	11	.32
viha 'anger'	*rõõm* 'joy'	11	.32
armastus 'love'	*viha* 'anger'	8	.24

b) pairs of contrasting concepts

Stimulus concept	Contrasting concept	F	rS
RÕÕM 'joy'	KURBUS 'sadness'	43	1.0
KURBUS 'sadness'	RÕÕM 'joy'	41	.95
ARMASTUS 'love'	VIHA 'anger'	28	.65
NAER 'laughter'	NUTT 'weeping'	27	.63
NUTT 'weeping'	NAER 'laughter'	24	.56
VIHA 'anger'	ARMASTUS 'love'	15	.35
VIHA 'anger'	RÕÕM 'joy'	12	.28

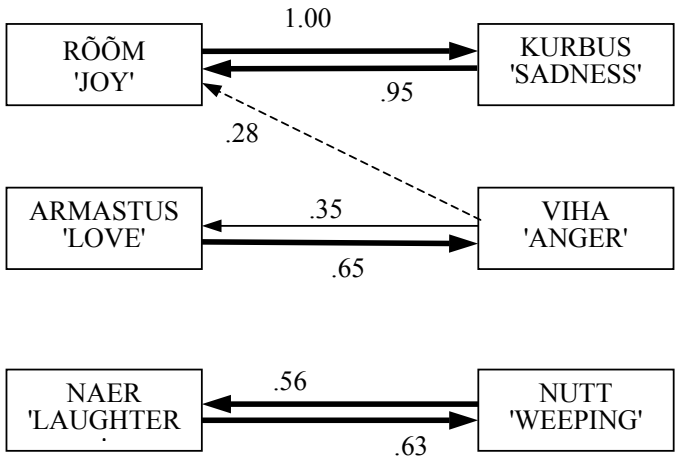


Figure 4. System of contrasting concepts.

The basic emotion terms as well as concepts tend to form a connected system. This is due to the fact that the most salient basic concept VIHA 'ANGER' tends to have two contrasting basic concepts to it (RÕÕM 'JOY' and ARMASTUS 'LOVE'). Evidently the contrasting concepts and antonyms are opposed to two different aspects of the concept VIHA 'ANGER' – the intra- and interpersonal

one. On the lexical level there are also two emotion terms (*viha* 'anger', *vihkamine* 'hatred') to designate these two different semantic aspects. The lexical unit *viha* 'anger' is more general and polysemous taking two antonyms, while *vihkamine* 'hatred' is more specific and occurs only in an interpersonal meaning, i.e. as an antonym for the stimulus word *armastus* 'love'.

The terms and concepts referring to behavioural expressions (NAER 'LAUGHTER', NUTT 'WEEPING') stand apart and are not connected to other terms through antonymic relations. One should not forget that these terms are connected by association as they refer to prototypical behavioural expressions of basic emotions (*naer* 'laughter' is associated to *rõõm* 'joy' and *nutt* 'weeping' to *kurbus* 'sadness', respectively).

1.4.3. Task G: Listing the subcategories of positive, negative and neutral emotions

There were 99 subjects[10] participating in this task. The total number of words mentioned was 1076, which was the highest rate in the series of list tasks. The distribution of items mentioned as positive, negative or neutral is presented in Table 5. It was rather easy for the informants to divide their emotional experience into positive and negative. Finding something neutral about emotions was more difficult.

Table 5. Distribution of the results of the differentiated list task (G)

	Number of all items mentioned	Number of different items	Number of items with F≥3
Positive	497	292	29
Negative	448	246	29
Neutral	132	103	9

For the most frequent items ($F \geq 3$) in each category indices of cognitive salience were calculated in order to examine their prototypicality and sub-category membership. Table 6 presents the results with values above the average in each category. Both lexical and conceptual items are presented. In each category the basic emotion terms and basic level concepts tend to have remarkably higher values of the indices than the rest. These appear to be the most salient and prototypical members of the subcategories of positive and negative emotions. The category of neutral emotions is exceptional in that its rates of salience are far below the rates of either positive or negative emotions.

[10] Each person was first asked if he or she agrees with the division of emotions into three subcategories. Only one of the 100 informants did not agree.

The subcategory of neutral emotions appears artificial as it has no prototypical members: all items are on the same (rather low) level of cognitive salience. It is interesting that in the case of a missing prototype a subjectively experienced low energy level is common to the most salient concepts (VÄSIMUS, 'FATIGUE', RAHU 'PEACE' and ÜKSKÕIKSUS 'INDIFFERENCE') in this category.

Table 6. Results of the differentiated list task

Emotions	Lexical items	S	Conceptual items	S
Positive	*rõõm* 'joy'	.22	RÕÕM 'JOY'	.29
	armastus 'love'	.16	ARMASTUS 'LOVE'	.16
	rahulolu 'contentment'	.04	NAERMINE 'LAUGHING'	.09
	naermine 'laughing'	.04	ÕNN 'HAPPINESS'	.07
	naer 'laughter'	.04	RAHULOLU 'CONTENTMENT'	.07
	õnnelik 'happy'	.03	SÕPRUS 'FRIENDSHIP'	.04
Negative	*viha* 'anger'	.21	VIHA 'ANGER'	.28
	kurbus 'sadness'	.08	KURBUS 'SADNESS'	.11
	vihkamine 'hatred'	.06	KADEDUS 'ENVY'	.05
	raev 'rage'	.04	NUTMINE 'WEEPING'	.05
	kadedus 'envy'	.04	RAEV 'RAGE'	.04
	valu 'pain'	.03	VALU 'PAIN'	.03
	nutmine 'weeping'	.03		
Neutral	*väsimus* 'fatigue'	.03	VÄSIMUS 'FATIGUE'	.03
	kurbus 'sadness'	.02	RAHU 'PEACE'	.03
	rahu 'peace'	.02	ÜKSKÕIKSUS 'INDIFFERENCE'	.03
	igavus 'dullness'	.02	KURBUS 'SADNESS'	.02
	ükskõiksus 'indifference'	.02	IGAVUS 'DULLNESS'	.02

Both negativeness and positiveness of the emotion terms are stronger on the conceptual than on the lexical level. A comparison of the cognitive salience of the emotion concepts indicates that for more differentiated tasks the salience rates tend to be higher (Table 7).

Table 7. The cognitive salience of basic emotion concepts in Tasks A and G

	Undifferentiated task (A)	Differentiated task (G)
VIHA 'ANGER'	.179	.281
ARMASTUS 'LOVE'	.137	.162
RÕÕM 'JOY'	.134	.292
KURBUS 'SADNESS'	.134	.110

The basic concept KURBUS 'SADNESS' is exceptional in being less salient as a negative emotion than as simply an emotion. The appearance of KURBUS 'SADNESS' in the subcategory of neutral emotions as well indicates the same

uncertainty of its negativeness, probably resulting from the subjectively experienced low energy level accompanying the emotional state of KURBUS 'SADNESS'.

Another remarkable increase is observed in the cognitive salience of the concept RÕÕM 'JOY' in a differentiated task: this concept appears to be the most prototypical for positive emotions. The differentiated task also raises the salience of the concept VIHA 'ANGER'[11], but it does not cause a proportional rise in the salience of the concept ARMASTUS 'LOVE'.

1.5. Discussion

Presuming that the relative cognitive salience of words or concepts is a sufficient indicator of their prototypicality and category membership the relevant facets of an Estonian layperson's model of emotions can be pointed out and discussed.

At the core of a layperson's model there are some very salient basic emotion concepts manifested by several lexical variants**.** The basic level emotion concepts in Estonian layperson's model are VIHA 'ANGER', ARMASTUS 'LOVE', RÕÕM 'JOY' and KURBUS 'SADNESS' that appeared to be far more cognitively salient than the other emotion concepts. The most prototypical member of the emotion category is VIHA 'ANGER', while ARMASTUS 'LOVE' is an exceptional member[12]. The terms referring to basic emotion concepts matched well with the psychological criterion of basicness (a relatively high cognitive salience), but not as well with the linguistic and ontological criteria. Only two of the four (*viha* 'anger' and *rõõm* 'joy') met all the necessary criteria.

Due to the different objects and different methods used in previous investigations of the Estonian emotion vocabulary the results of the current study have not been systematically compared with those, being not even comparable with them in all details. Some obvious similarities and discrepancies can be pointed out, though. L. Kästik has also questioned Estonian informants about membership of the emotion category[13] (Kästik, 2000). Similarly to the results of the present investigation the words referring to three of our basic level emotion concepts occurred at the top of the frequency list in her results: VIHA 'ANGER' got 95%, RÕÕM 'JOY' 93%, KURBUS

[11] Some people mentioned VIHA 'ANGER' as belonging to positive emotions, some as belonging to both positive and negative ones.

[12] Possibly the high salience of the word *armastus* 'love' can be explained by the fact that this concept is actually the most salient member of the closely related category of "feelings", which is not distinguished in the folk model.

[13] This was not a test of free listing, but one consisting of a closed range of emotion words with closed questions asked (e.g. *Is x an emotion?*).

'SADNESS' 86% of "yes" answers. The concept ARMASTUS 'LOVE' took the 23rd position (72%) of 80. Table 2 b presents the comparable part of Kästik's results (P = position, Y = percentage of agreement). These results are in accord with the outstanding role of the concept VIHA 'anger' as well as with the exceptional role of the concept ARMASTUS 'love' in the Estonian layperson's model.

In the study of Allik and Realo (1997), in addition to two general dimensions (Negative Affect and Positive Affect), seven relevant emotionally more specific factors were distinguished: Hostility, Sadness, Fatigue, Shyness, Joviality, Pertinacity and Affection (Allik & Realo, 1997). Some of these statistical factors can be identified with the basic level emotion concepts of the layperson's model: Hostility can be identified with VIHA 'ANGER', Sadness with KURBUS 'SADNESS', Joviality with RÕÕM 'JOY' and Affection with ARMASTUS 'LOVE'. The concept of FATIGUE was not highly salient in the case of list tasks. Appearing in the periphery of the emotion category FATIGUE was rather related to emotional neutrality than to the evaluative two-dimensionality accompanying the natural emotion category. The concepts of SHYNESS and PERTINACITY did not show any cognitive or emotional salience in the present investigation and are thus counted as standing outside the Estonian layperson's model of emotion (Vainik, 2002d, see Chapter 2 in this monograph). Interestingly the role of the basic emotion fear was under the expected level in the results of both inquiries, regardless of the methods used (Allik & Realo, 1997; Vainik, 2002d).

The similarity of the basic level emotion concepts belonging to the very core of a layperson's model can be treated as an indicator of universality of this kind of models across languages and cultures. Tests of free listing have demonstrated an amazing correspondence in the most frequently mentioned emotion terms in 11 languages. The cross-cultural basicness of joy, anger, fear, love and sadness has been explained by means of certain recurrent and important universal aspects of emotional events (appraisal dimensions, aspects of readiness for action and emotional event features) (Frijda, Markam, Sato, & Wiers, 1995). The leading position of anger in the free-listing task seems, however, to be specific to the Estonian folk model[14]. Though anger is not the most easily recognisable emotion[15] (Nummert, 2002) it still seems to be socially very important for Estonians. The social dimension also determines the scope of the concept VIHA 'ANGER' as an intra- or interpersonal emotion depending whether or not the emotional state is experienced as socially oriented.

[14] The top items of free listings of emotions in 11 countries have been *joy* (Belgium, France, Italy, Switzerland), *happy* (England, Canada), *fear* (the Netherlands), *sadness* (Japan, Indonesia, Surinam) and *love* (Turkey) (Frijda, Markam, Sato, & Wiers, 1995: 122).

[15] The percentages of anger being recognised by its facial expression among Estonians have been 63 (Luik, 1999) and 69 (Nummert, 2002).

In a layperson's model emotions are closely related to feelings, behavioural expressions, personality traits and conventional causes and attributes of emotions. It is only natural that a considerable number of words in the results of the first list task indicate feelings and certain more specific emotional states (Table 3 a) rather than emotions, because the people were encouraged to mention everything that came to their mind in association with the double-labelled category "emotions/ feelings".

The cognitive salience of words referring to behavioural expressions of basic emotions (*naer* 'laughter', *raev* 'rage' and *nutt* 'weeping') was apparent in the results of the first list task (Table 2 a). A high salience of those words and concepts is indicative of the importance of social interaction and behaviour that Estonians tend to attach to emotions. Those words of conventional behavioural acts most evidently conceptualise the preconceptual ways of experiencing and expressing emotions, which still appear to function as relevant social signals. Also, the fact that emotional states and personality traits are so closely related in the collective emotion knowledge that they tend to be co-conceptualised and co-activated in the case of a list task is indicative of the importance of the social dimension (Tables 3 a and 3 b). It has been pointed out that the interrelatedness of words designating personality traits and those designating emotions is a general tendency, because personality traits are formed in response to events evoking emotions (Plutchik, 1980).

The Estonian layperson's model also includes some conventional causes and attributes of emotions (Table 3 d). Referring to emotion-evoking things and situations is characteristic of collectivistic cultures, whereas referring to personality traits pertains to individualistic cultures (Smith, 1995). As the Estonian folk model of emotions demonstrates both tendencies one may suspect a kind of uncertainty present in the Estonian cultural identity.

In Estonian there is a strong tendency for basic level emotion concepts and terms to be divided into two subcategories according to positive and negative emotions. The subcategory of neutral emotions does not belong to the basic level knowledge of emotions as the cognitive salience of words that referred to neutral phenomena was remarkably lower (Table 6). Emotional neutrality is associated with states of unemotionality due to a subjectively experienced low energy level. Therefore, some level of activation is needed for a state to be categorised and evaluated as an emotion in an Estonian layperson's model.

It is claimed that all variation of emotion vocabulary at the most general level of abstraction is due to two independent and unipolar dimensions of Positive and Negative Affect (Watson & Clark, 1994; Allik, 1997). Though the aims of the two studies were different, the results of the current study confirm that the statistical tendency is in accord with the opinion of native Estonian speakers. This is proved by the results of our differentiated list task, where the informants demonstrated the highest verbal productivity in the case of both negative and positive subcategories, being, at the same time, almost unable to

mention any neutral emotions. To the split subcategories the informants also included some other phenomena expressing certain values associated with human interactions. The basic level feature of emotional knowledge (division of experience into "good" and "bad") also tends to be characteristic of non-basic emotion concepts and of concepts of other associated fields (see Ch. 2). Probably the space determined by these two dimensions goes far beyond the borders of the emotion category in the collective consciousness.

Thus, the splitting of emotional vocabulary is not specific to Estonians. An analysis of the emotional vocabulary of different languages and cultures has led some authors to the conclusion that dividing one's emotional experience into contrasting categories of "good" and "bad" is one of the semantic universals of conceptualising emotions across cultures and languages (Wierzbicka, 2000). The question is if this ubiquitous lexical splitting relies on some aspects of objective reality (e.g. the measurable processes of arousal and inhibition in human brain), some universal principles of cognitive processing (e.g. giving rise to contrasting categories and concepts first), on the preverbal (and probably preconceptual) kinesthetic image schemata of approach and retreat, on a reflection of one's emotional processing (subjectively experienced pleasantness or unpleasantness of a situation), on an evolutionary mechanism of automatic appraisal (Lazarus, 1991), or on a culturally determined evaluative oppositeness of acceptable and non-acceptable behaviour.Most likely some of the above reasons coincide and that is why the good-bad opposition in emotion vocabularies is so pervasive and naturally belongs to folk models of emotions.

To a certain extent, the oppositeness of emotion terms and concepts in an Estonian layperson's model is a matter of belief. The argument is supported by the fact that there was a rather high agreement rate (86%) with the idea that for every emotion term there must exist an antonym in the case of Task B. For most of the emotion terms mentioned (64%) there was no agreement, though, about their lexically specific antonyms. The relation of oppositeness is believed to hold between the subcategories of positive and negative emotions. Nevertheless, the real antonymity of the two most prototypical positive and negative emotion concepts was not the strongest. According to the results of Task B there is a rather weak (.28) asymmetrical antonymic relation between the intrapersonal aspect of the concept VIHA 'ANGER' and the most prototypical positive emotion concept RÕÕM 'JOY'.

The results of the second list task (B) indicate that there are but a few truly antonymic relations in the Estonian emotion vocabulary. These are more evident (as the frequency rates are higher) on the conceptual level than on the lexical one. Strong symmetrical antonymic relations occur between the basic level emotion concepts RÕÕM >< KURBUS 'JOY >< SADNESS' and ARMASTUS >< VIHA 'LOVE >< ANGER'. Oppositeness appears as a characteristic feature for basic level knowledge of emotions. The basic level feature is prototypical, though, for the whole popular emotion category (Vainik,

2002d, see Ch. 2), as we can follow the belief in the oppositeness of emotion terms also on non-basic levels (e.g. the second strong antonymic relation holds between NAER >< NUTT 'LAUGHTER >< WEEPING').

In the results of factor analysis of self-ratings there is a relatively low correlation between GPA (General Positive Affect) and GNA (General Negative Affect), $r = -.18$, $p = .001$ (Allik & Realo, 1997: 634), which allows one to argue that the negativeness and positiveness of emotion terms is due to their describing different processes that lie on different substrates and should therefore not be regarded as opposites. Though Negative and Positive Affect may be unipolar dimensions in self-ratings, the results of the present investigation have confirmed that on the lexical and conceptual level people tend to consider the most contrasting basic level emotions as opposites. A layperson's thinking of "good" and "bad" as opposites may be conceptual, but not necessarily experiential.

Emotions seem to be organised differently: on experiential level positive and negative emotions can be self-reported and mentally operated while not mutually excluding one another, whereas on the conceptual level that is influenced by forms of social cognition (like folk models), the positive and negative emotion concepts are treated as opposites and related to each other through relations of antonymity on the lexical level.

A layperson's model of emotions is a kind of generalisation. Although there is hardly a ready-made conscious model in any layperson's head, there is certainly an ability to conceptualise the domain of emotional experience using one's individual skills and culturally determined social standards. There is an overlap of individual knowledge, experiences and attitudes towards emotions, which can be called a layperson's model.

As a result of a lexical free listing task, only part of the whole Estonian emotion vocabulary was elicited, and the emotion terms certainly do not contain everything that the Estonian language reveals about emotions (e.g. figurative language and the grammar of emotional expressions are very interesting topics for further investigations). Thus, the characteristic facets of the Estonian folk model presented in this report hold only for this part of the model that consists of emotion terms and collectively emotion-associated words.

Emotional experience is highly varying and so are the lexical labels. Emotion concepts present the invariants of emotional experience in a given culture. The system of interrelated basic level emotion concepts represents the basic level knowledge of emotions and forms an important part of a layperson's model of emotions. The emotion vocabulary of a given language is influenced by linguistic, psychological and cultural factors and meets the needs of the linguistic community.

2. THE ESTONIAN FOLK CATEGORY OF EMOTIONS[16]

Latvians have a teasing phrase for Estonians – 'hot-blooded', which ironically refers to the emotional dullness and inadequate – either apparent or actual – calmness of Estonians.

This article does not aim either to compare the ethnopsychology of Estonians and Latvians, or to measure the psychological characteristics inherent to the nation of Estonians (Tulviste, 1998). It does strive to take a look at the folk psychology of Estonians – what is the attitude of Estonians to emotions and how the so-called average Estonian deals with emotions. By the end of this article it should also become clear why Latvians refer to us as they do.

The term folk psychology is used here to denote the understanding of psychic phenomena on the part of common people. Not the understanding of a single person, but that of the so-called average person. Admittedly, folk psychology is connected with the culture in which it has developed and the language people have taken into use for analysing such phenomena.

Similarly to other unsophisticated treatments, the terms of folk psychology are not clearly definable or in direct correspondence with the words, which are used at random and in parallel. Thus, Estonian folk psychology does not make a substantial difference between the meanings of the words *emotsioon* 'emotion' and *tunne* 'feeling'. These two words are used in parallel, like numerous other pairs consisting of a foreign and a native word, where the use of the foreign word is more prestigious. For example, *positiivne emotsioon* 'positive emotion' sounds more elegant than the simple *hea tunne* 'good feeling' in Estonian.

In modern Estonian folk psychology the word *emotsionaalne* 'emotional' tends to be used as an evaluative adjective. For instance, the sentence *Ta on nii emotsionaalne, temaga ei saa rääkida* 'She is so emotional, there's no point in talking to her' is likely to mean that the person in question is too emotional (which is bad) or *Ärgem laskugem emotsioonidesse!* 'Let's not descend to emotions!' (emotions are something to descend to and it would be better not to do it, otherwise *võivad emotsioonid üle pea kokku lüüa* 'emotions could close in above your head'). If there has been an "emotional conversation" between the boss and the employee, it rather means having called names than expressed

[16] Earlier versions of this chapter were titled as: *Kuumaverelised eestlased. Eestlaste rahvalikust emotsiooni-kategooriast.* [Hot-blooded Estonians. On Estonians' folk category of emotions] (Vainik, 2002b, 2002d) and *Kas eestlased on "kuumaverelised"? Eestlaste rahvalikust emotsioonikategooriast.* [Are Estonians "hot-blooded"? On Estonians' folk category of emotions] (Vainik, 2002c).

warm feelings. It seems that if the positive or negative mark of an emotion has not been pointed out explicitly, the default connotation and evaluation is negative.

So it must be admitted that in Estonian folk psychology the category of emotion is vague rather than delimited, in addition it seems to carry an evaluative mark. While neither the nation, culture nor language is invariable in time, there are changes in the concepts and beliefs of folk psychology, too. To get a better overview of what the category of emotion of Estonians is like at the beginning of the 21st century, I decided to conduct an empirical study of emotion vocabulary (Vainik, 2001).

The ideological basis for the current approach originates from the hypothesis of linguistic relativity (Whorf, 1956) claiming that one's native language with its concepts influences and shapes the way how the world is seen and interpreted.

This hypothesis leads to at least two substantial conclusions – one at the individual and the other at the collective level. For an individual it is important that linguistic competence significantly determines how he/she manages socially and emotionally. On the level of the society the conclusion is that language research can provide information about the culture and the people who carry it. A major role is played by concepts which have formed in the culture and crystallised in the language, and by means of which information is conveyed.

In the collective consciousness the language-supported concepts in a specific field form a body of universal knowledge about this domain, which is common to the majority of speakers of this language. For example the vocabulary used in a language to denote emotions and differentiate between their nuances and intensity or duration levels plays a significant role in how emotions are popularly treated by the speakers of this language[17].

Each person's relation to vocabulary and to concepts that it mediates is different. Some words are easily remembered and elicited – they are in active use. Others are in passive use – one knows that such words and concepts exist, but it is more difficult to use them. Our daily life and how we succeed is probably more dependent on the words and concepts that are in active use, always at hand.

The choice of emotion words that are in active use and easily available for a certain group of people, e.g. speakers of the Estonian language, shows which concepts are important for and frequently used by the specific group at a specific time. Consequently, by studying the available emotion vocabulary of Estonians we can get an idea of which emotions are important for Estonians,

[17] In addition to emotion terms, crystallised folk psychology is also linguistically expressed in, e.g. phraseological expressions, phrases and grammatical structures, which are used to speak of emotions.

which is their level of cognisance and how organized is a common person's view of the so-called internal world, i.e. what does an average Estonian's "map of emotion landscape" look like.

2.1. Method

It is said that the concepts of a specific domain, actually all concepts, and the words that represent them are not chaotically located in a person's head. As A. Cruse puts it: "The vocabulary of a language is not just a collection of words scattered at random throughout the mental landscape." (Cruse, 2000: 179). Cruse believes that vocabulary is at least partly structured and some authors go even further arguing that words and concepts are located in quite a systematic way in human brain, which facilitates categorization and classification (Viberg, 1994: 170–171). If this statement is true, it should be easy for people – for instance in the tasks of free listing – to "leaf through their systematic catalogues" and present words by categories.

On the basis of this presumption an empirical study was conducted using the field method of U. Sutrop (2001)[18]: in the course of oral interviews one hundred people of different sex, age and educational background were asked to attempt free listing of emotions[19]. The linguistic material collected as a result of the interviews was sequenced according to frequency and the position of naming; the form and meaning of recurring phrases was analysed (Vainik, 2001).

The number of phrases collected in the course of these interviews was nearly five thousand and they were not all purely emotion terms. As the people were not to feel restricted during the experiments – they were encouraged to mention anything they could remember in connection with emotions in random order (similarly to the free associations method used in psychoanalysis) – a large part of the total corpus of this vocabulary is made up of people's individual associations with emotions (for example *kosmos* 'cosmos', *lehm* 'cow', *lilla* 'violet' etc). The recurring part of the vocabulary (3+n times), however, revealed the cognitive domains on which the category of emotions borders in the consciousness of Estonians, how the area of emotions is structured, which concepts belong to the basic level and which are the prototypical emotions of Estonians. But it also showed which emotions are not willingly acknowledged by Estonians or even prevented from entering the collective consciousness.

[18] The field method originates from Berlin and Kay's methodology (1969) for the study of colour terms and it includes making experiments of naming the members of a certain category in fieldwork conditions and later an analysis of the psychological aspect of the linguistic data.

[19] For the distribution of informants and details of the series of tasks of free listing see Vainik (2001) and briefly Chapter 1.2 in this monograph.

2.2. Results

2.2.1. Position and structure of the folk category of emotion

The semantic space of a language, which could also be called the collective consciousness of the users of this language, is said to consist of cognitive domains that concentrate knowledge, experiences and meanings by subjects (Langacker, 1987). Such cognitive domain or at least an independent natural category is also made up of emotion-related cognitive knowledge and experiences which have crystallised in the language as emotion lexis.

On the basis of the results of this empirical study it is possible to outline which are the principal and prototypical representatives of the Estonians' field of emotions and which are peripheral, staying in the zone where the field of emotions borders on and intersects other cognitive domains. Naturally, it is not presumed that the fields are separated from each other by inflexible borders.

According to the semantic grouping of the words and concepts that emerged repeatedly (3+n times) it can be concluded that in the collective consciousness of Estonians the emotion category is located in the intersection of three cognitive domains – the subjective physical space, the social space and the intrapsychic space. Figure 5 schematises these three main cognitive domains and the letter E marks the position of the emotion category in their intersection.

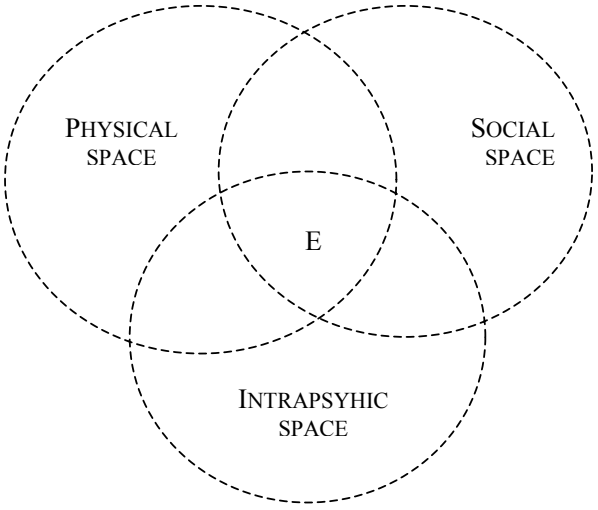


Figure 5. Position of the emotion category in the collective consciousness of Estonians.

Each natural category has its centre and periphery. The most frequently and first mentioned words in the tasks of free listing are claimed to be the basic terms of this category (Sutrop, 2000), i.e. in our case the basic terms of emotions in the Estonian language. These words are supposed to be in correspondence with the basic-level objects of the Estonian folk emotion category. The basic level emotion concepts are the most prototypical representatives of the category of emotions (Kövecses, 2000)[20].

The concept of relative cognitive salience[21] has been taken as an indicator of "basicness" of emotion concepts. Figure 6 presents the results of the first task of free listing of members of the category "emotions/feelings" (Task A).

In the center of the emotion category Estonians have the words *viha* 'anger', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness', the cognitive salience of which appeared to be the highest. The index of cognitive salience shows the relation of the frequency and the average position of the word in the tasks of free listing. If the index of cognitive salience approximates one, it means that almost every informant elicited this word among the first; if the index is close to zero, it means that this word occurred to few people and even in that case, not among the first.

Differences in the value of the cognitive salience index of members of the same category show how central and representative the concepts are in terms of the general meaning of the category. The difference between the basic and non-basic terms of this category is revealed by a plunge in the decreasing line of indices. This is graphically shown in Figure 6.

The total salience of the first four members of the folk category of emotions makes up 44 per cent of the total salience of all the words that emerged in the task of free listing, which means that objects situated on the basic level of this category cover 44 per cent of the collective emotional consciousness of Estonians.

The remaining 56 per cent of the collective emotional consciousness was divided among 54 words. Such division expressly shows that in Estonians' common knowledge of emotions there is a compact core of the basic level, but off the basic level the folk category of emotion is diffusive. For a more detailed analysis of the cognitive salience of emotion terms and concepts in the Estonian language see Vainik (2002a) or the first chapter of this monograph.

[20] It has been claimed that prototypes or "best exemplars" play a crucial role in human categorisation (Rosch et al., 1976). This assuption has also been applied to the category of emotions (Fehr & Russell, 1984).

[21] For the method of calculating cognitive salience indices see Ch. 1.2.

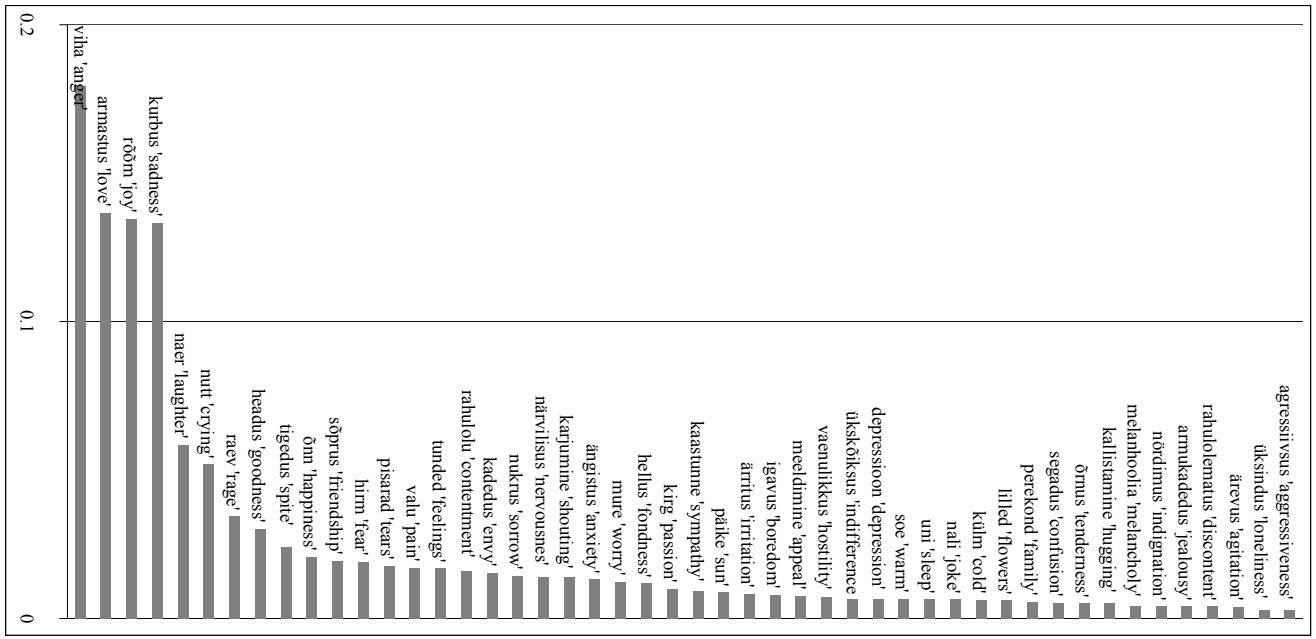


Figure 6. Cognitive salience indices in the task of free listing of emotion terms (Task A).

2.2.2. Core of the category – basic terms of emotions

Viha 'anger', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness', turned out to be the basic emotion terms in the Estonian language. The corresponding emotion concepts are the representative members of the category in the consciousness of Estonians. These concepts are also connected with the physical, social and intrapsychic space, and therefore they are appropriate objects of the basic level (Rosch et al, 1976). Namely, these emotions have a specific and recognizable external form[22] – the facial expression that mediates the internal state and functions as a means of communication. As regards the external form, the prototypical emotions can be connected with the physical space, as regards the communicative role, they can be related to the social space. The basic emotions have certain inherent prototypical behavioural expressions that the informants also knew well. Sadness is prototypically related with crying, joy with laughter, anger with rage, love with hugging and kissing.

A characteristic feature of a prototypical basic emotion concept is, for Estonians, also the existence of an opposite emotion concept: a positive emotion term is usually opposed by a negative one and *vice versa*. The basic emotion terms form pairs: *viha* 'anger' (negative) >< *armastus* 'love' (positive) and *rõõm* 'joy' (positive) >< *kurbus* 'sadness' (negative). Maybe *love*, the emotion without a characteristic facial expression, belongs to the basic emotions just because anger needs an opposite. This typical feature of the category of emotion – bipolarity, division between the good and the bad – can also be detected with emotion terms positioned further from the basic level. This is not typical of Estonians only, but it is a semantic universal for the conceptualization of emotions (Wierzbicka, 1999).

This semantic universal becomes most intensive as it moves in the concept hierarchy upward from the basic level, towards generalization "where the non-specific meaning outweighs the specific meaning" [23] (Allik, 1997). Even people who had difficulties with naming emotion words or cognising emotions, agreed at least to the division of emotions into positive and negative ones. Yet, they could not name more than "*well, all those good ones*" or "*well, all those bad ones*". In one task of free listing (Task G) the informants also had a task "name neutral emotions". Many declared bluntly that in their opinion there were no

[22] Somewhat surprisingly, *armastus* 'love' – the emotion without a facial expression – belongs to the basic objects in Estonians' treatment of emotions; evidently this feeling is very important in other aspects that compensate for the lack of a specific loving countenance.

[23] J. Allik has found out that most of the variation of emotion vocabulary is accounted for by two dimensions: Positive Affect and Negative Affect, which are claimed to be unipolar dimensions, not to be regarded as opposites (Allik, 1997, Allik & Realo, 1997).

such emotions, yet some could be pointed out (e.g. *ükskõiksus* 'indifference', *väsimus* 'tiredness', *rahulik* 'calm'). Also qualities and phenomena emerged that cannot be classified as good or bad, e.g. *vaikne* 'silent', *tõsidus* 'seriousness', *mõtlik* 'reflective', *tavaline* 'usual', *normaalne* 'normal'. These concepts are evidently related to the emotion category through reference to the lack of emotion in a situation where it could be present.

It is said to be a general tendency that languages have more words for naming and discerning negative emotions, but words denoting positive emotions are used more frequently (Allik, 1997). The abundance of negative emotion words is accounted for by the struggle for existence, which in the course of time has forced people to develop the terminology for distinguishing danger signals of different kinds. In the tasks of free listing the informants were eager to mention positive emotions, the overall frequency and variety of which appeared to be relatively higher. Among the more frequently mentioned words (3+n times) that represent the national consensus over the emotion category, strangely, there was an equal number of both positive and negative ones. The salience proportion of positive, negative and neutral emotion words is presented in Table 5 (Ch. 1).

Partially, the significant semantic polarity of emotion vocabulary can also be explained via the principle of the strongest perceptual contrast used in the tasks of free listing – the tendency to distinguish and find names primarily for those phenomena that differ from each other to the greatest extent – this was expressed mainly in naming the emotion words in antonymic pairs (e.g. *nutt* 'crying' – *naer* 'laughter', *rõõm* 'joy' – *kurbus* 'sadness'). Yet, the Estonians' treatment of emotions cannot be regarded as totally black and white: the principle of the weakest contrast was also reflected in the experiment – the tendency to elicit synonymic or semantically close words side by side (e.g. *armastus* 'love' – *hellus* 'fondness' – *soojus* 'warmth').

The most frequently the Estonians agreed on the antonymity of the word pair *rõõm* >< *kurbus* 'joy >< sadness', followed by *naer* >< *nutt* 'laughter >< crying' and *viha* >< *armastus* 'anger >< love'. These three were symmetrical antonymic relations. In addition, the following asymmetric antonymic relations emerged: *armastus* >< *vihkamine* 'love >< hate' and *viha* >< *rõõm* 'anger >< joy'. The relative strength of antonymic relations in comparison with the strongest relation (*rõõm* >< *kurbus* 'joy >< sadness') is shown in Figure 3. Bold arrows indicate a relatively higher strength of a relation (rS≥ .50), while the dashed arrows indicate asymmetrical relations. While all the basic concepts are somehow related, *nutt* 'crying' and *naer* 'laughter' as behavioural expressions of basic emotions form a separate autonomous opposition. Yet the respondents were most unanimous in this respect – the only deviation was that *pisarad* 'tears' were given twice as the opposite of *naer* 'laughter'.

In other cases belief in the existence of opposites tended to be greater than agreement on specific antonyms. It seems that it was the emotion concepts

rather than specific emotion words that were opposed in the consciousness of the informants. The concepts could be expressed by different words, for instance *viha* 'anger' could be expressed as *viha* 'anger', *vihkamine* 'hate', *vihatunne* 'feeling of anger', *vihastamine* 'getting angry', etc. One factor that could explain the inconsistency of opposite words is an individual's personal relationship with that particular emotion or the lack of it. For example, while for one person lack of love means hatred, for another it may mean loneliness, indifference or jealousy. In this case the opposite word to the basic emotion term was found among non-basic emotion concepts that most precisely described one's personal experience and attitude.

2.2.3. Non-basic emotion concepts

On the secondary level there are the more specific developments of the prototypical basic concepts, for example words emerge that distinguish feelings on the basis of duration or intensity: *armastus* 'love' > *kirg* 'passion', *kurbus* 'sadness' > '*ahastus'* distress, *viha* 'anger/hate' > *vahkviha* 'fit of rage', *rõõm* 'joy' > *joovastus* 'intense joy'. While basic terms are monolexical native words that can be used in any context, the non-basic words are characterised by a specific context of use: for example words of international origin are primarily used in the professional terminology of psychologists (e.g. *melanhoolia* 'melancholy', *depressioon* 'depression', *agressiivsus* 'aggressiveness', *eufooria* 'euphoria'). Beside the nouns, several other word forms, mostly adjectives, emerge (e.g. *kuri* 'evil', *tige* 'ill-natured', *õnnelik* 'happy') and verbs (e.g. *pahandama* 'to scold'). On this level there are also compound nouns (*meele+heide* 'despair', lit.: 'throwing the mind out', *paha+meel* 'displeasure', lit.: 'bad mind', *hinge+valu* 'grief', lit.: 'pain of soul'). In addition to primary emotion terms there are also secondary references – the emotion is referred to by means of a quality characteristic of a personality either temporarily or as a supposed permanent disposition (e.g. *ägedus* 'vehemence', *tigedus* 'spitefulness', *karmus* 'severity', *õnnetus* 'unhappiness'), or the name of a process or state (e.g. *ärritus* 'irritation', *ahastus* 'distress', *joovastus* 'intense joy').

Specific concepts of non-basic emotions include both the valency (+/-) of the emotions and the qualitative features that connect them with basic emotions. For example, *viha* 'anger/hate' is related to *pahameel* 'displeasure', *kuri* 'evil', *tige* 'scold, spiteful', *ägedus* 'vehemence', *karmus* 'strictness', *ärritus* 'irritation', *ärritatus* 'irritatedness', *vimm* 'resentment', *vaen* 'hostility' and *agressiivsus* 'aggressiveness'; *kurbus* 'sadness' is related to *ahastus* 'distress', *meeleheide* 'despair', *mure* 'worry', *nukrus* 'sorrow', *õnnetus* 'unhappiness', *ängistus* 'anxiety', *depressioon* 'depression', *enesehaletus* 'self-pity', *halb meeleolu* 'bad mood', *lein* 'grief' and *melanhoolia* 'melancholy'; *rõõm* 'joy' is

related to *hea meeleolu* ‘good mood’, *joovastus* ‘intense joy’, *lõbu* ‘enjoyment’, *õnn* ‘happiness’, *eufooria* ‘euphoria’ and *ekstaas* ‘ecstasy’; *armastus* ‘love’ is related to *armumine* ‘falling in love’, *hellus* ‘fondness’, *kirg* ‘passion’, *soojus* ‘warmth’ and *õrnus* ‘tenderness’.

Antonymic relations between the non-basic emotion words showed either great diffuseness or were rarely existent at all. At the same time belief in the existence of opposites was great, as was the eagerness of people to invent them. The informants had different strategies for finding the specific opposite word. One of them was opposing the emotion to the lack of it, using purely formal means like negation (e.g. *õnn* >< *õnne-tus*[24] ‘happiness >< unhappiness’ or ‘fortune >< misfortune’, but also *valu* >< **mittevalu* ‘pain >< *non-pain’, *hirm* >< **mittehirm* ‘fear >< *non-fear’) or doing the trick semantically (e.g. rage >< indifference, envy >< indifference, love >< indifference). Another strategy was naming the extreme opposite emotion (or quality or state) (e.g. *valu* ‘pain’ >< *mõnu* ‘pleasure’, *hirm* ‘fear’ >< *julgus* ‘courage’, *raev* ‘rage’ >< *rõõmuafekt* ‘intoxication with joy’, *kadedus* ‘envy’ >< *altruism* ‘altruism’).

More than the specific words, the conciousness of the informants seemed to contain emotion concepts or personal images and memories of experienced emotions.

2.2.4. Periphery

Still further from the centre of this category are emotion concepts that are less similar to prototypical emotions (*viha* ‘anger/hate’, *armastus* ‘love’, *rõõm* ‘joy’ and *kurbus* ‘sadness’) and belong, more or less, to the above-mentioned three main domains – physical, social or intrapsychic space. In the meaning of these words their negative or positive valency to a degree outweighs their specific emotional meaning. It is easier, for instance, to decide that *kadedus* ‘envy’ is bad and *sõprus* ‘friendship’ is good than whether they are emotions at all. Maybe envy is a personality trait instead and friendship – a social phenomenon like a human relation?

The importance of physical space for the conceptualisation of emotions is confirmed by one’s knowledge and experience of the size of bodies, their movement, temperature, comprehension of their causality etc. that are gained by means of sensory abilities. The capabilities of seeing and hearing mediate the actions expressing emotions (e.g. crying, shouting, laughter, cheers), the sense of physical touch and wellbeing mediates subjective experience (e.g. pain, suffering, lightness), sensitivity to temperature is an appropriate source for metaphorical evaluations of emotions (e.g. *külm* ‘cold’, *soojus* ‘warmth’ used to describe one’s attitude to another person).

[24] *-tu* is a suffix referring to a missing quality or thing, while *-s* is a nominal suffix.

Social space involves interpersonal relationships. This field comprises knowledge and experience gained from communicating with other people, for example the acceptance of social behavioural norms – knowledge about acceptable and disapproved behaviour and qualities. A lot of words emerged in this semantic group, which shows that the domain of social space is very important for Estonians and it is therefore well subdivided. Division into good and bad covers both the subjects of the interpersonal space (the people) and the relationships between them. On this basis the following groups of social emotions are specified.

The "good feelings" of "good people" towards good people are *sõprus* 'friendship', *meeldimine* 'liking', *poolehoid* 'partiality', *igatsus* 'longing', *aitamine* 'helping', *kaasaelamine* 'sympathizing', *kohusetunne* 'sense of duty', *hoolivus* 'considerateness', *usaldus* 'trust', *lugupidamine* 'respect', *uhkus* 'pride'. The "bad feelings" of "good people" to good people are *kadedus* 'envy' and *armukadedus* 'jealousy'. The "good feelings" of "good people" towards "bad people" are *mõistmine* 'understanding', *sallivus* 'tolerance', *kaasatundmine* 'sympathy', *empaatia* 'empathy', *andestamine* 'forgiveness', *tolerantsus* 'tolerance'.

The "bad feelings" of "good people" towards "bad people" are *solvumine* 'offence', *nördimus* 'indignation', *pettumus* 'disappointment', *põlgus* 'disdain'. "Bad people" seem to be devoid of good feelings as no word was mentioned that could be so classified. The "bad feelings" of "bad people" to "good people" are *hoolimatus* 'inconsideration', *sallimatus* 'intolerance', while their share among "good people" shall be *üksindus* 'loneliness', *häbi* 'shame' and *süü* 'guilt'.

Similarly to the good qualities that favour communication – *sõbralikkus* 'friendliness', *lahkus* 'kindness', *siirus* 'sincerity', *südamlikkus* 'cordiality', *heatahtlikkus* 'benevolence', *töökus* 'diligence', *avameelsus* 'openness', *leebus* 'gentleness', *leplikkus* 'tolerance', *osavõtlikkus* 'sympathy', *tähelepanelikkus* 'attentiveness' and *abivalmidus* 'helpfulness' – the negative human qualities that hinder communication – *rumalus* 'stupidity', *edevus* 'vanity', *väiklus* 'narrow-mindedness', *õelus* 'maliciousness', *ahnus* 'greediness', *häbematus* 'impudence' – are related with the interpersonal space and emotions.

The internal space is formed of awareness and experience of mood, hedonistic preferences and other intrapsychic processes. To this field belong the subjective evaluations of liking and attraction, the subjectively experienced levels of excitement and intensity of will. But also awareness of knowledge, memory and perceptual processes.

The words *meeldiv* 'pleasant', *mugav* 'comfortable', *mõnu* 'enjoyment', *nauding* 'pleasure', *rahulolu* 'contentment', *rahul* 'content', *heaolu* 'well-being', *positiivne* 'positive' refer to hedonistic evaluations; *ebameeldiv* 'unpleasant', *vastikus* 'disgust', *rahulolematus* 'discontent', *kole* 'ugly', refer to un-

pleasantness. The words *huvi* 'interest', *põnevus* 'excitement', *vaimustus* 'rapture', *entusiasm* 'enthusiasm' refer to the evaluation of attraction.

Igavus 'dullness', *tuimus* 'apathy', *tundetus* 'insensitivity', *tüdimus* 'boredom', *mõttetus* 'senselessness', *ükskõiksus* 'indifference', refer to lack of attraction. *Ergas* 'alert' indicated a subjectively experienced high energy level, whereas *jõuetus* 'powerlessness', *vaev* 'torment', *väsimus* 'tiredness', *puhkamine* 'resting', *lõdvestumine* 'relaxation' expressed a low energy level. *Vabadus* 'freedom', *kindlus* 'security', *enesekindlus* 'confidence', *saavutus* 'achievement', *soov* 'wish', *lootus* 'hope', *ootus* 'expectation' pointed to will and *ebakindlus* 'insecurity', *lootusetus* 'hopelessness', *suutmatus* 'inability' to weakness of will.

A decreasing level of positive excitement is characterised by the sequence of words like *elevil* 'excited', *erutus* 'excitement', *julgus* 'courage', *hingerahu* 'peace of mind', *rahulik* 'composed' and an increasing level of negative excitement by the sequence of words like *närviline* 'nervous', *rahutus* 'restlessness', *ärevus* 'anxiety', *ootusärevus* 'trepidation', *mure* 'worry', *kartus* 'apprehension' and *hirm* 'fear'.

Among the states of mind *loomingulisus* 'creativity', *tasakaalukus* 'balance', *usk* 'faith', *imetlema* 'admire' and *üllatus* 'surprise' are the positive ones and *segadus* 'confusion', *arusaamatus* 'misunderstanding', *teadmatus* 'ignorance', *kahetsus* 'regret', *kõhklus* 'hesitation', *stress* 'stress', *kahtlus* 'suspicion', *unustamine* 'forgetfulness' and *hämming* 'bewilderment' are negative rather than positive.

2.2.5. Outsiders and beyond periphery

There are also terms related to the folk category of emotion, which primarily belong to the three above-mentioned large domains – the physical, social or internal space – and are connected with the emotion category via presupposed causality or associative links. To a considerable degree, these words are related to the folk category of emotions because of their division into positive and negative phenomena, which generate positive or negative emotions or help to manage the negative ones. Apparently such words like *päike* 'sun', *lilled* 'flowers', *lapsed* 'children' and *perekond* 'family', as these emerged repeatedly, are associated with the collective emotion model of the nation. Generally, there is high individual variation among the associative and causal relations as about a third of the mentioned phrases emerged just once.

The fact which feelings and emotions were avoided is as telling as the fact which of them were named. According to a mere intuitive feeling it could already be said that by far not all Estonian emotion terms were mentioned in the study. For example, sexuality related items seemed to be a taboo.

It was interesting to compare the vocabulary that emerged in my empirical study with 210 words from the PONESK-X list[25], which had earlier been used to study the emotion vocabulary of Estonians (Veski, 1996; Allik and Realo, 1997). The comparison of the material collected in our empirical study with the exhaustive emotion scale prepared by experts highlighted the fields that are scarcely represented or not represented at all in the collective consciousness of Estonians, or that are voluntarily excluded from the emotion category.

The part in which the laymans' and experts' scale overlap is only about a fourth. The differences have clear tendencies: the laymans' scale consistently lacked word groups referring to certain feelings.

1. The following words indicating positive satiety of energy or will that were abundantly present in the expert list were rarely, if ever mentioned by our subjects (the word form in Estonian follows the PONESK-X survey list): *agarana* 'eager', *elavana* 'lively', *lõõgastunud* 'relaxed', *toimekana* 'busy', *tragi* 'brisk', *tublina* 'efficient', *uljana* 'daring', *vahvalt* 'bold', *virge* 'alert', *järjekindel* 'persistent', *sundimatult* 'casually', *südina* 'spirited', *aktiivsena* 'active', *elurõõmsana* 'cheer-fully', *energilisena* 'energetic', *entusiastlik* 'enthusiastic', *jõulisena* 'vigorous', *reipana* 'sprightly', *otsustav* 'decisive', *tahtekindlana* 'determined', *tugevana* 'strong', *visadust* 'tenacity'.
2. Rarely such words were mentioned that denote expression of anger in socially aggressive behaviour (e.g. *tülinoriv* 'cantankerous', *julmana* 'cruel', *riiakana* 'quarrelsome').
3. The concept of *hirm* 'fear' was not extensively subdivided either: the words for the different grades of fear were not numerous, e.g. *kabuhirmul* 'panicky', *pelglikult* 'timid', *kõhedalt* 'uneasy' were missing.
4. Words referring to the feeling of inferiority were abundantly represented in the expert scale, but nearly nonexistent in the layman's scale. Missing were the terms of :
    a. social inferiority (e.g. *armetuna* 'miserable', *haavunud* 'hurt', *haletsusväärsena* 'pitiful', *häbistatuna* 'ashamed', *hädisena* 'feeble', *hüljatuna* 'rejected', *mahajäetuna* 'abandoned', *alandatuna* 'humiliated', *allasurutuna* 'suppressed', *petetuna* 'cheated'),
    b. situational inferiority (e.g. *hädas* 'in trouble', *kimbatuses* 'embarrassed', *kitsikuses* 'stranded', *kohmetunud* 'constrained', *nõmedalt* 'vacuous', *süümepiina* 'pang of guilt', *piinlik* 'embar-

[25] PONESK-X – a scale for measuring positive and negative emotions, used by Veski (1996) and Allik (1997). PONESK-X is the Estonian variant of the PANAS-X scale created by Watson and Clark (1994).

rassing', *häbelikkus* 'bashfulness', *ujedust* 'shyness', *tobedalt* 'silly', *kohkunud* 'taken aback', *naeruväärsena* 'laughable');

c. mental inferiority (e.g. *nüristunud* 'numb', *peast segasena* 'out of one's mind', *endast väljas* 'upset', *hullunud* 'maddened', *meeltesegaduses* 'in mental confusion').

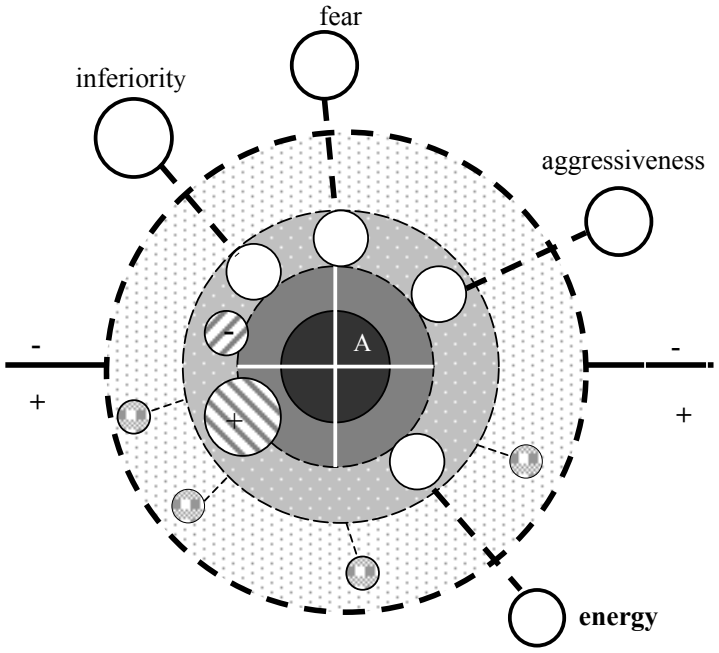
Therefore some blank spots were discovered in Estonians' cognised emotion landscape – feelings that Estonians either do not know, do not remember, do not want to remember or do not want to think and talk about. Or maybe there simply are no appropriate words that would belong to the folk category of emotion even peripherally?

Certain subjects, on the other hand, were clearly overrepresented in the layman's scale. The folk category of emotions seems to be intertwined with a popular system of values that also operates with plus/minus evaluations. The majority of words that were not included in the experts' list referred to concepts of the social space, which presented ideal or recommended qualities, feelings and phenomena (e.g. *armastus* 'love', *rahulolu* 'contentment', *sõprus* 'friendship', *sõbralikkus* 'friendliness', *lahkus* 'kindness', *lootus* 'hope', *meeldimine* 'liking', *vabadus* 'freedom', *igatsus* 'longing', *poolehoid* 'sympathy', *usaldus* 'trust', *abivalmidus* 'helpfulness', *sallivus* 'indulgence', *heaolu* 'well-being', *mõistmine* 'understanding', *nali* 'joke', *töökus* 'diligence', *tasakaalukus* 'balance', *avameelsus* 'openness', *empaatia* 'empathy', *heatahtlikkus* 'benevolence', *lahke* 'kind', *lugupidamine* 'respect', *aitamine* 'helping', *andestamine* 'forgiveness', *hingerahu* 'peace of mind', *hoolivus* 'caring', *imetlema* 'admire', *saavutus* 'achievement', *siirus* 'sincerity', *soov* 'wish', *südamlikkus* 'cordiality', *tolerantsus* 'tolerance', *turvalisus* 'safety').

As a counterbalance, some anti-ideal, socially undesirable feelings, personality traits and phenomena were also named (e.g. *rahulolematus* 'discontent', *agressiivsus* 'aggressiveness', *depressioon* 'depression', *teadmatus* 'ignorance', *kartus* 'fear', *nördimus* 'indignation', *hoolimatus* 'incon-sideration', *pahameel* 'displeasure', *õelus* 'malice', *ahnus* 'greed', *arusaamatus* 'misunderstanding', *karmus* 'severity', *sallimatus* 'intolerance', *edevus* 'vanity', *hingevalu* 'grief ', *kahetsus* 'regret', *kannatus* 'suffering', *melanhoolia* 'melancholy', *mõttetus* 'senselessness', *stress* 'stress', *vimm* 'resentment', *väiklus* 'meanness').

Social norms and magic thinking seem to rule in the Estonians' folk category of emotions. Words that refer to social inability (social and situational inferiority) or deviation from the norm (mental inferiority) are rather not elicited, as if the mere mentioning of these words would bring about these phenomena[26].

[26] Most likely the very situation of interviewing itself (as an act of social interaction) accounts for at least part of such a massive influx of social values and antivalues into the activated associations.



Basic level in the folk emotion category. The most representative member is anger (A).

Non-basic level. More specific emotions, which specify the concepts of the basic level.

Periphery. Concepts belonging more or less to the neighbouring cognitive domains: the social, physical and intrapsychic space.

Terms associated with emotions, highly varied individually.

"Outsiders", objects and phenomena related with the collective emotion category.

Socially ideal feelings, phenomena and qualities.

Socially anti-ideal feelings, phenomena and qualities.

Blank spots in the collective emotional cognition, uncognized feelings, phenomena and qualities.

\+ Positive emotions, feelings, qualities, phenomena and objects.

\- Negative emotions, feelings, qualities, phenomena and objects.

Border of the collective emotion consciousness.

Figure 7. The Estonians' folk category of emotions.

The scarcity of words indicating abundance of energy may mean that this quality is not socially valued. The default norm accepted among Estonians does not include enthusiasm, self-confidence and activeness. As goes an Estonian saying: *"Liigne agarus on ogarus"*–'excessive eagerness is idiocy'.

Figure 7 illustrates the Estonians' folk category of emotion in a multilayered form, as it was revealed in our empirical study of their emotion vocabulary. The following facts should be noted:

- The basic level is compact and cognitively most salient. It is divided qualitatively between four basic emotion concepts.
- The category is divided into positive and negative, the precise quality of the emotion is important for the emotion concepts of the basic and non-basic level.
- The folk emotion category is remarkably rich in socially important feelings, phenomena and personality traits.
- Certain semantic groups are missing from the collective emotion category.

2.3. Discussion

The regularity outlined in the introduction of this chapter that in Estonian folk psychology, when the essence of the emotion is not precisely brought forth, a negative meaning and evaluation is attributed first is explained by the fact that for Estonians, the most prototypical, best remembered and least marked member of the emotion category appeared to be *viha* 'anger'.

Anger enjoys the privilege of representing the whole folk emotion category in the Estonians' collective consciousness. In Figure 6 the word *viha* 'anger' differs from the other basic emotion terms nearly as much as the basic terms from non-basic ones. Therefore, the status of anger is special in the Estonians' treatment of emotions. The negative aura that surrounds anger casts a shadow on the category of emotion as a whole and this is characteristic not only of Estonians, but also typical of, e.g. the Anglo-American culture (cf. Stearns, 1994).

It is not surprising that *viha* 'anger' appeared to be the most clearly polysemous word as it was also the most frequently named word. According to the principle of linguistic economy the frequency of a word also correlates with its formal simplicity and multiplicity of meanings (Zipf, 1949). The antonyms suggested equally frequently for the word *viha* 'anger' were *armastus* 'love' and *rõõm* 'joy'. As the opposite relation was revealed to exist only with the word *armastus* I would draw the conclusion that in the consciousness of the Estonians *viha* 'anger' has two interrelated meanings.

The first and primary meaning is the opposite of *armastus* 'love', as clearly a social feeling related to a human object. In this sense the synonym of *viha*

'anger' is *vihkamine* 'hate'. It seems that *viha* in this first sense is understood as a continuous, active process concerning the subject. The other meaning is the opposite of *rõõm* 'joy' and in this meaning the passive state of the subject is emphasised. The synonym of *viha* in this second meaning could be *vihastamine* 'getting angry' or 'getting frustrated' which may – but need not – be related to a human object. Supposedly, in this meaning anger is understood as a momentary feeling rather than a continuous one, similarly to the antonymous joy.

Nowadays the primary meaning of *viha* is its active and social meaning but this need not have been so througout the history of the language (Vainik, 2002e). Originally the word *viha* was used to refer to a phenomenon of a different cognitive area, namely the domain of taste perception, as the original meaning of the word was 'bitter'. It can thus be concluded that historically the primary meaning was just the one of state or quality – *viha* was first noticed and named as a bitter feeling rather than a social attitude. Even today the word *viha* has preserved this meaning, but it can hardly be associated with emotions in the folk consciousness.

As was shown by the results of the tasks of free listing, anger, love, joy and sadness belong to the basic level in the Estonians' folk emotion category. There is a debate among psychologists over which emotions are basic and which are not and even whether the basic emotions can be listed at all (Allik, 1997). For practical reasons, however, applied psychology considers six basic emotions – anger, joy, sadness, fear, surprise, disgust – as these are more or less associated with culturally universal facial expressions (Ekman, 1982).

The Estonians' opinion of basic emotions coincides with the expert opinion in terms of anger, joy and sadness. The fact that these emotions are important, easily recognised and evidently frequent emotions, is supported by the frequency of naming words that refer to the prototypical behavioural expressions of these emotions (e.g. crying, laughter, rage). Estonians seem to focus on behavioural rather than facial expressions (smile was mentioned only in one case out of five thousand!). Unlike the experts, the Estonians also regard love as an emotion.

The words *hirm* 'fear', *vastikus* 'disgust' and *üllatus* 'surprise' do exist in the consciousness of Estonians but they are not as frequent and as actively used as *viha* 'anger', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness'. The reason why fear, surprise and disgust, classified by psychologists as basic emotions on the basis of facial expressions, do not belong to basic emotions in the opinion of the Estonians, may lie in that these these concepts cannot be used to form antonymous pairs. Evidently fear, disgust and surprise are also feelings that are experienced only in specific situations and in connection with stimuli of a specific type – fear in connection with danger, disgust mainly in connection with perceptions of taste or smell, and surprise with a sudden a change of situation or a sudden discovery of contrast between reality and expectations. Obviously the interviewing situation did not typically include those stimuli.

Psychologists say that Estonians cannot think of their emotions in any other way than of positive or negative emotions, whereas actually these dimensions do not contrast, but are mutually associated in every possible way (Allik, 1997: 150). The tasks of free listing and analysis of the results have confirmed the first part of this statement – Estonians really tend to think of emotions only as positive or negative ones. As for the second part stating that such negativeness and positiveness are independent, mutually non-opposing dimensions, the layman's opinion diverges from that of experts. The fact that positive and negative emotions are carried in the brain by different substrates does not seem to stop Estonians from regarding emotions as diametrical opposites in their conceptual system of emotions.

The belief that emotions can be set in opposition – divided into good (positive) and bad (negative) ones – is firmly fixed in the consciousness of Estonians. At the same time people probably do not understand the positiveness or negativeness of emotions in the same way. Depending on the circumstances, this aspect may have a different content. For instance, emotions could be divided into positive and negative ones either according to stereotypes, or, vice versa, proceeding from personal views that contradicted the general stereotypical attitudes, e.g. some people classified anger, rage and sadness as positive, while one out of a hundred considered joy to be negative.

The division of human experience into positive and negative is a tendency at work in a much more extensive sphere of phenomena than just emotions. Indeed, even in this study not only emotions, but qualities, behaviour, objects, etc. were sometimes included in both categories. The question remains whether the plus-minus evaluation primarily represents cultural norms and ethical values (e.g. knowledge about good and evil as cultivated by Christianity) or is it a psychological phenomenon – e.g. meta-emotions – i.e. evaluation of emotion as a phenomenon on the basis of personal usefulness/harmfulness (Lazarus, 1991).

It is stated that emotion knowledge is divided into two levels (Planalp and Fitness, 1999). The first-level preverbal emotion knowledge regulates our behaviour on the basis of an operative plus-minus evaluative mechanism, which is subconscious and has developed in the course of evolution (fight – flight, dangerous – safe, attractive – repulsive, pleasant – painful). The socially acquired second-level emotion knowledge is influenced by language and cultural scripts.

Emotion vocabulary and emotion concepts belong to the second-level emotion knowledge, being tools in the process of cognising emotions. Yet it seems that some of the first-level emotion knowledge has also been encoded in this second level, for example as a preverbal or even preconceptual image that corresponds to a subconscious evaluation mechanism, like a kinaesthetic image-schema that is based on bodily experience (approach – retreat). This dualistic first-level emotion knowledge in the form of a kinaesthetic image-schema is included in the emotion vocabulary in general as well as individually in each

meaning of an emotion term and it corresponds to the plus/minus valency of the emotion.

In general it can be stated that while from the experts' point of view the category of emotions and basic emotions is primarily associated with facial expressions and the physiological process of experiencing emotions, an Estonian layperson regards emotions as social constructs that are connected with interpersonal relationships and communication in the first place. In the experts' opinion emotions belong to individual psychological phenomena, whereas in laymen's opinion – as it emerged from the present study of emotion vocabulary – they rather belong to the sphere of social psychology.

I would hardly dare to judge which of the opinions is more correct or which one describes the nature and scale of emotions better. I can only say that in some parts they overlap and in others they do not. For scientists it is important to match their treatment with data of modern neurology, to prove their results experimentally and to produce verifiable statements. For people it is important to get along with each other, to keep good and evil apart and appeal to themselves and their neighbours.

2.4. Summary

It is not surprising that the category of emotions is located in the subjectively cognised intersection of the physical, social and intrapsychic inner spaces. Emotion – a process subjectively perceived by the individual – has its external physical expressions (expressive behaviour, facial expression, changes in the tone of voice), which function in the communicative process as markers of the person's mental or emotional condition. It is characteristic of all the three cognitive domains, that border on emotions that feelings, emotions, personality traits, phenomena, and activities should be divided into good and bad ones.

However, the ways in which the category of emotions exists in the consciousness of people are surprisingly manifold. The internal arrangement of this area does not seem to be uniform in the consciousness of all Estonians. Overlaps in the emotion categories of different individuals are on the level of concepts rather than words. Within this empirical study neither a ready-made order in the concepts nor a systematic arrangement for preserving (emotion) knowledge could be discerned in the consciousness of language users. The internal systematic order of the cognitive domains does not emerge in the collective consciousness by itself, quite the contrary, it comes into being as the result of a study, analysis and systematisation effort made by an analyst.

It seems that even though every user of the language knows the "map of the collective emotion landscape" to a certain degree – in daily life, faced with actual emotion experience, there is no use for him/her of the hypothetical collective structuredness of this area. In my opinion an average person does not

know which emotion knowledge is located in which "locker", he/she mainly uses what is at hand. But the handy ones are the tools that are most frequently needed – primarily the basic-level concepts. An average Estonian does know that there exist more precise and accurate words to denote emotional nuances, but as these concepts are not topical on the daily level, the corresponding words remain usually "in the dusty locker of consciousness" behind and under everyday things.

This empirical study, conducted using the field method, does not by far reveal the entire emotion-related vocabulary in the Estonian language, but it does reveal its more essential part, the part that most influences people's everyday life.

An average Estonian does not usually seem to carry the map of emotion landscape with him/her (and what is the use of a map with blank spots anyway?). Yet he/she does have a compass that shows the good and the bad, and awareness of the main cardinal points of emotions – anger, love, joy and sadness.

By ironically calling Estonians "hot-blooded", Latvians do not point to the characteristic feature of Estonians, but to something Estonians are typically lacking –facial expressions of emotions. For Estonians emotions are not primarily associated with facial, but with behavioural expressions and social relationships. The emotional life of Estonians belongs not so much to themselves as to the society, to which a higher status has been attributed than to individual values, and the power of making life-changing judgements. Showing emotions makes people vulnerable and can be interpreted as an expression of inferiority. Estonians hide their emotions probably for safety reasons.

Latvians seem to surmise that Estonians have emotions they do not want to express, moreover, they have emotions they do not even want to admit. Social orientation and protective barriers allow Estonians to consider socially acceptable or ideal emotions only while the anti-ideal ones are deplored. Psychoanalysts would say that keeping up such social defense mechanisms absorbs psychic energy[27], and presumably they are right – why else would words indicating abundant energy and enthusiasm be found missing in the Estonians' vocabulary. This is a tendency noticed in the behaviour of Estonians ages ago. The Baltic Germans who lived here for centuries have also reproached Estonians for being unenergetic and lazy[28].

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[27] Psychic energy is said to be absorbed and engaged by the defense mehcanism of repressing unwanted content from one's consciousness (Freud, 1915). What holds on the individual level, evidently also holds on the collective level.

[28] Karl Ernst von Baer writes in his doctoral thesis "On the endemic diseases of Estonians": "I would list the faults that still cannot be denied: laziness, dirtiness, excessive humbleness with their superiors and cruelty and rudeness to their inferiors" (Baer, 1976: 30).

Latvians seem to be a smart nation: they have understood that behind their reticence, the Estonians' most prototypical emotion is anger, which burns slowly, smouldering like coals. Estonians tend to direct their rancour inwards, not outwards, treating their neighbours with a pretended friendliness or passive aggression.

In case this picture appears too pessimistic, may it be a comfort to us that the major part of irony between nations is caused by envy and those traits of character that one does not easily admit to are most likely projected onto one's neighbours.

3. INTRACULTURAL VARIATION OF EMOTION VOCABULARY[29]

Heretofore a lot of attention has been paid to the examination of cross-cultural and cross-linguistic variation of emotion vocabulary and emotion concepts. These efforts have been carried out by researchers working in the field of linguistics (e.g. Wierzbicka, 1999), psychology (Scherer & Wallbott, 1994; Hupka, Lenton, & Hutchinson, 1999) as well as anthropology (Smith, 1995; Kobayashi, Schallert, & Ogren, 2003). The intralinguistic or intracultural variation of emotion vocabulary and emotion concepts, however, has received less attention than it seems worthy of. Such variation within just one language or just one culture can result from dialectal differences, gender and age, education and field of activity, and personality traits of the speakers of the language or carriers of the culture.[30]

The present article is focused on the intracultural differences brought into emotion vocabulary by age and gender, which up to now seems to have elicited less scholarly interest than cross-cultural differences. However, the role of gender has been discussed in the expression of emotions, verbal expression included (Brody & Hall, 2000), emotion concepts as a function of gender (Fisher, 1995), and the effects of gender and age on the perception of lexical emotion (Grunwald, Borod, Obler, Erhan, Pick, Welkowitz et al., 1999).

Most of the experimental studies available on cross-cultural differences are based on the recognition of emotion expressions (visual, auditory, or verbal).[31] The recognition and categorisation of emotion expressions, however, is but one of the aspects of verbal communication on emotions. Another aspect is the production of verbal expressions of emotions. There are a few studies on that, too. In John (1988), for example, we find norms inferred from students' free associations for certain emotion categories (happiness, sadness, anxiety, anger), while Doost, Moradi, Taghavi, Yule, & Dalgleish (1999) have studied categories associated with emotions by children.

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[29] Earlier versions of this chapter were titled as: *Soolisest ja ealisest spetsiifikast emotsioonisõnavara loetelukatsetes* [On gender- and age-based specificity in tasks of free listing]. (Vainik, 2003) and *Intracultural variation of the Estonian emotion vocabulary: The effect of age and gender on the results of a list task*. (Manuscript submitted for publication).

[30] Estonian emotion vocabulary has been used as a diagnostic means by J. Allik and A. Realo, who studied the relationship between emotions and personality (Allik & Realo, 1997).

[31] Most experiments in the field of psychology have been made on recognition, concerning either facial affect (Thayer & Johnsen, 2000), vocal parameters (Johnson, Emde, Scherer, & Klinnert, 1986), or lexical stimuli (Grunwald et al., 1999).

A third approach to the relationship of humans and emotions, and to the words used either to describe or express them, seeks to find out the structure of human emotion knowledge together with the way it is actually reflected in active vocabulary, and whether it corresponds to the structure of an actual emotional experience. The ideal method would, of course, be a real-time recording of emotion vocabulary in active use and associated with actual events. A less ideal, but more feasible possibility of finding out that part of mental lexicon which is practically available for use in case of need (i.e. the necessity to mention an emotion) is to apply the so-called field method[32] and set up a list task asking the informants to name members of a category (e.g. emotions) just in the order they happen to come to their mind (Sutrop, 2001). Even if the results of a list task may look less interesting than recordings of conversations on emotions, they are easily measurable, repeatable and controllable.

The following is a survey of the gender- and age-based differences found by the author in the material collected from a series of list tasks on emotion expressions (Vainik, 2001), and a discussion of how the results compare with the gender- and age-related tendencies concerning emotions as described by some other authors.

The first aim of the study is to find out what age- or gender-related differences (if any) might be revealed in the Estonians' responses to list tasks on emotion vocabulary and what kind of variation could be manifested in the structure of emotion knowledge within this one language and culture.

The second aim is to explore whether semantic emotion knowledge corresponds with episodic emotion experience and whether this correspondence could in any way depend on age or gender. The premise is that semantic emotion knowledge is influenced by episodic emotion knowledge (basic knowledge being made up of whatever happens to be the most frequent and impressive part of everyday experience) and vice versa – normative semantic emotion knowledge (basic emotion terms) influences the categorisation of personal experience.

3.1. Participants and method

The list tasks were carried out in the spring of 2001 in Tallinn and its suburbs. All participants and the interviewer were native speakers of Estonian. No observable deviance of mental health of the informants was detected. The participants seemed to be in their ordinary mood, as in most cases the inquiry

[32] The field method has its origin in the studies of colour terms (Berlin & Kay, 1969, Davies & Corbett, 1994) and it has been widely used to study various lexical material (e.g. Battig, 1969; Brown, 1977, 1979).

took place in their own habitual environment (schools, working places, homes, a club for retired people).

There were 50 male and 50 female participants, aged 14–88 (average age 39.4 years, STDEV=18.6, for a detailed age structure see Figure 8). Of the task series of seven,[33] the present study compares the results of the following two:

1. Task A: list all words, in the order they come to your head, that in your mind you associate with the more general category of 'emotions/feelings'.

2. Task E: list emotions, in the order they come to your head, that you have experienced in the short-term past.

Thus, the stimuli to be responded by lists were different: in Task A it was the abstract label of a category and in Task E the participants' personal memories of their own emotional experience. The experiments were carried out in the form of oral interviews without informing the participants of the subject beforehand.

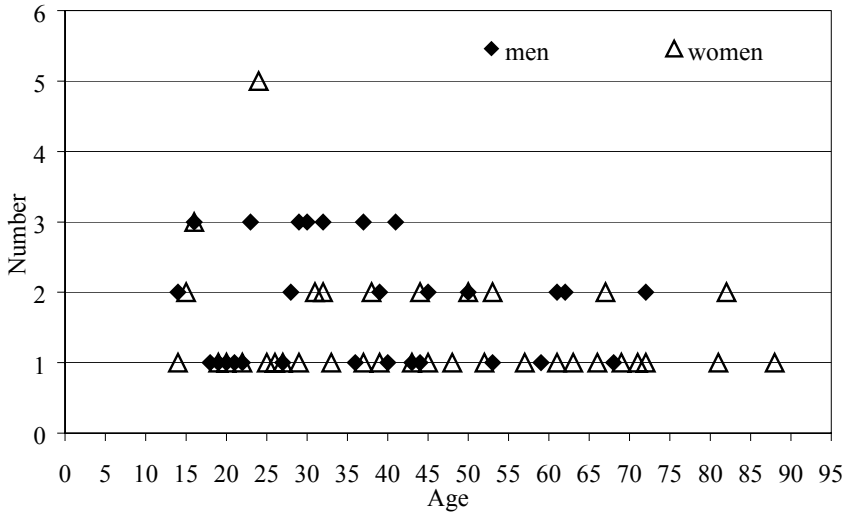


Figure 8. Distribution of men and women on the age axis.

Traditionally, the results of a list task are analysed so as to find out the cognitive salience of the more frequent expressions relative to the other members of the list. Cognitive salience is measured by a cognitive salience index (S), which correlates the occurrence frequency of the word in the list task with its average rank (mean position) in the lists. In this survey the methodology of calculating the index of cognitive salience comes from U. Sutrop (2001) and the procedure is described in Chapter 1.2.

[33] For the details of the list tasks series see Ch. 1.2. of that monograph.

For the sake of index reliability the recommended number of participants in a list task is 30–50, at least it should never be under 20 (Sutrop, 2001). As the series discussed was applied to 100 participants, the resulting material admits analysis in smaller subgroups as well. To bring out gender differences it is sufficient to compare just two equal groups of fifty. In order to follow the age-related variation of word salience the participants were first ranked by age and then divided into 8 partly overlapping groups. Each group had 30 (±1) members, 2/3 of which coincided with the previous and next groups.

The words elicited by Task A should be interpretable as the emotion vocabulary ready for active use with the participants, while the structure of the vocabulary should represent the semantic knowledge of the group of informants within the category 'emotions/feelings'. The cognitively most salient part of this vocabulary (the most frequent words and words mentioned in the beginning of lists) expresses the basic level of folk emotion knowledge and it can be interpreted as public norm.

The linguistic material yielded by Task E is the emotion vocabulary actually used by the participants in describing their own emotional states. A comparison of the potentially active and the actualised parts of emotion vocabulary should reveal how emotion knowledge is organised on conceptual as well as experimental levels.

3.2. Results

The cognitive salience index computed across the results of all participants in Task A enabled the researcher to pick out four terms that could be called the basic Estonian emotion terms.[34] These were *viha* 'anger/hate' (S = .155), *armastus* 'love' (S = .146), *kurbus* 'sadness' (S = .108), and *rõõm* 'joy' (S = .104). As for Task E (requiring description of one's own experience) the only term of comparable cognitive salience was *rõõm* 'joy' (S = .116).

Closer details of the basic emotion terms and concepts in Estonian and how they relate to the Estonians' normative emotion knowledge are described in the first two chapters of this monograph (or Vainik, 2002a, 2002d). The gender- and age-related deviations from that normative emotion knowledge are reported below.

[34] In this report all indices apply to lexical units. The cognitive salience indices computed for both lexical units and concepts, as well as a detailed analysis of the differences between the salience of lexical and conceptual units can be found in Vainik (2002a) or the first chapter of this monograph.

3.2.1. Effect of gender

3.2.1.1. Task A

A detailed representation of the results of Task A can be found in the first three columns of Appendix 1. Separate columns are given to women's (S_{women}) and men's (S_{men}) indices, as well as to the general index ($S_{general}$) for more comparison. The words with a relatively higher cognitive salience have been set out in bold print as basic emotion terms.

One of the most obvious gender difference revealed by Task A is the men's lower salience of *kurbus* 'sadness' (S = .08) and *rõõm* 'joy' (S = .083), which is lower than the women's salience and the general salience level. Although SADNESS and JOY as concepts certainly belong to the basic level of emotion knowledge with men as well, the men's lexical representation of the concepts is divided between nouns and the respective adjectives *kurb* 'sad' (S = .033) and *rõõmus* 'glad/happy' (S = .043).

Figure 9 juxtaposes the salience of men's and women's emotion vocabulary with its general salience. It demonstrates clearly that the relevant difference between the basic and nonbasic emotion terms on popular level is due to the considerably higher salience of *kurbus* 'sadness' and *rõõm* 'joy' (to a lesser extent also *armastus* 'love') with women than with men. For men it is *viha* 'anger/hate' that is slightly more salient than the average norm. Other slightly more salient words are *pisarad* 'tears' for women and *raev* 'rage', *nutt* 'weeping/tears', *vihkamine* 'hatred', *hirm* 'fear', and *valu* 'pain' for men.

For both men and women the most salient part of emotion vocabulary represents antonym pairs (anger/hate >< love, sadness >< joy).[35] Lexical antonymy (corresponding to conceptual contrast on knowledge level) and opposition, which is an important mnemonic device at a list task, may well lie at the base of the semantic structuring of emotion knowledge.

Some of the gender-based differences were morphological: among the words mentioned by men only there were some adjectives (*rõõmus* 'glad/happy', *kurb* 'sad', *rahulik* 'calm') and a verbal noun *nutmine* 'weeping', whereas the words mentioned only by women included some plural nouns (*tunded* 'feelings', *sõbrad* 'friends', *lilled* 'flowers').

From the semantic point of view men preferred keeping within the emotion category, while all women mentioned some object or issue associated with emotions (*päike* 'sun', *külm* 'cold', *lilled* 'flowers').

[35] The same antonym pairs were also named most frequently in the special Task B for antonym naming, another frequent pair was *nutt* 'weeping/tears' >< *naer* 'laughter' (see Vainik, 2002a, or the first chapter of this monograph).

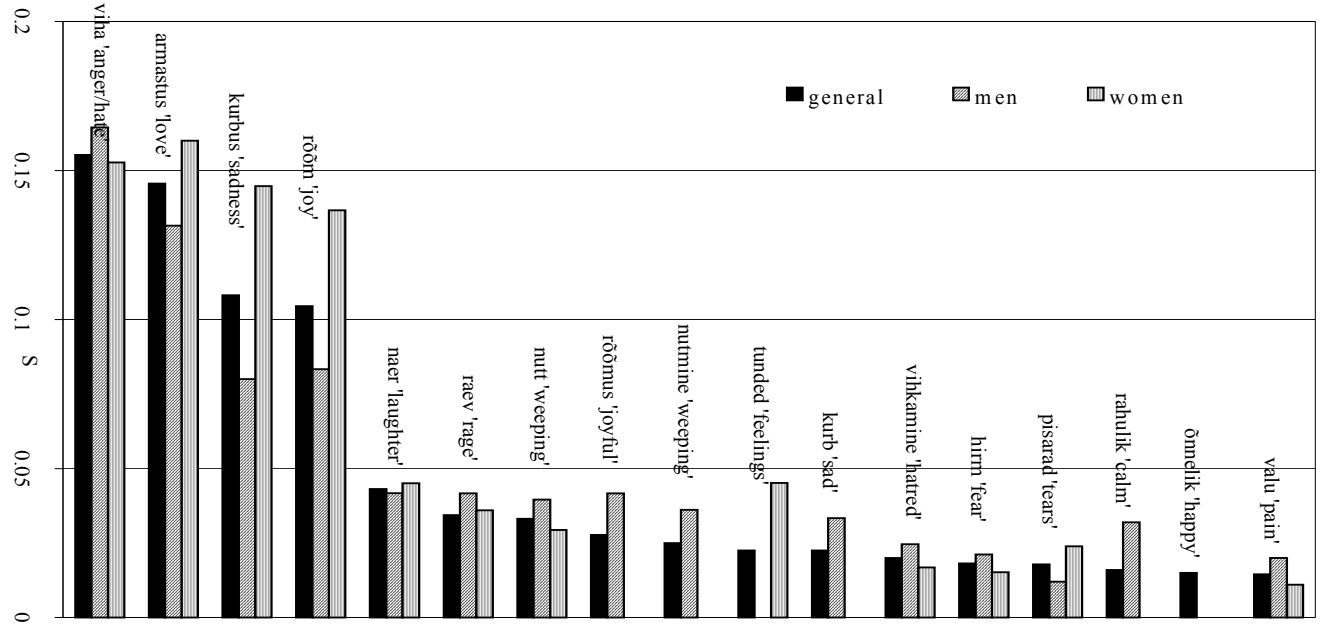


Figure 9. Men's and women's common vocabulary of emotions as compared to its general salience (S) in Task A.

3.2.1.2. Task E

The results of Task E are presented in detail in the first three columns of Appendix 2. Only one of all the basic emotion terms as defined by Task A showed a comparable rate of salience, for men as well as for women. This word was *rõõm* 'joy' (Figure 10).

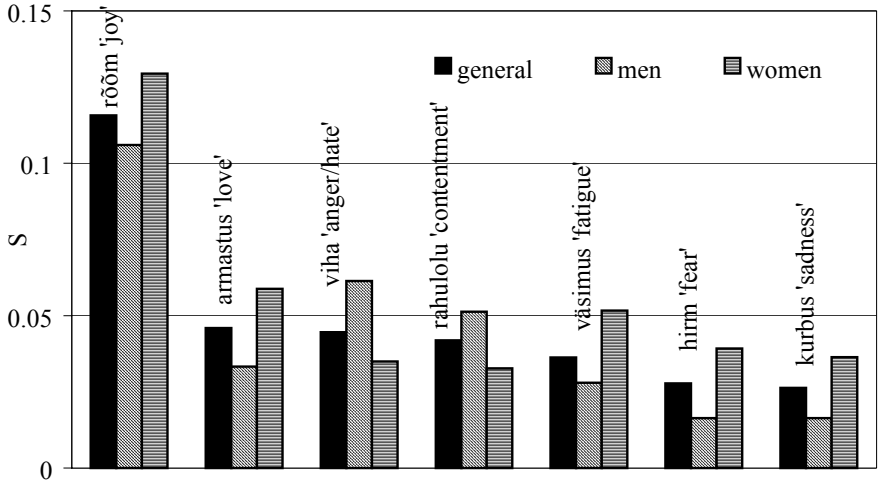


Figure 10. Men's and women's common vocabulary of emotions as compared to its general salience ($S_{general}$) in Task E.

Note that this time the participants were not required to name category members (activating the semantic memory), but to recall and categorise their own emotional experience (activating the episodic memory). The higher dispersion of the results and lower index values can be due to a difference of the recalled episodes and a tendency to categorise them with linguistically more specific emotion terms.

Although the rest of the basic emotion terms are also firmly present among the words used to categorise one's own experience, the results do not show a direct correlation between the frequency or intensity of personal experience and the basic status of a given emotion term. Neither can the result be used to prove whether the availability of the basic emotion terms could in any way facilitate their use in the categorisation of personal experience or not.

Women more often remember to have experienced *joy, love, fatigue* and *fear* than men do. Men more often recall to have felt *anger/hate* and *contentmen*t. Only men said to have experienced *boredom, tension, nervousness, happiness*,

or mentioned the words *positiivne* 'positive' and *naermine* 'laughing'. Only women spoke of *surprise, confusion, disappointment, apprehension, friendship, offence, curiosity, friendliness, pity,* and *annoyance.*

3.2.1.3. Comparison of the results of Tasks A and E.

Both men and women were more verbose in Task A than in Task E. Table 8 characterises the average verbal production of men and women in Tasks A and E. In Task E the difference of men's versus women's verbosity is not really significant (both remain more or less in the limits of the short-term memory), whereas in Task A women would find 3 words more, on average, than men.

Table 8. Average verbal productivity of men vs. women in Tasks A and E

	A	E	Difference:
Men	6.94	4.58	2.36
Women	9.94	5.36	4.58
Difference:	*3.00*	*0.78*	

Figure 11 illustrates the salience differences (S_a - S_e) for the expressions elicited by Tasks A and E. The closer the value of S_a - S_e is to zero the closer are the salience readings of the emotion in the semantic knowledge and episodic memory. Positive values of S_a - S_e indicate hypercognition of the emotion concepts, while negative values refer to hypocognition (Fisher, 1995: 458). [36]

The figure reveals that in comparison with personal experience (Task E) both men and women tend to hypercognitise *anger/hate, love* and *sadness*, while women do it more, particularly where *sadness* is concerned. Gender differences are more salient in hypocognition. Men hypocognitise *joy, fatigue* and *nervousness* — although the feelings are experienced they do not seem to come first in men's emotion knowledge. Women, however, hypocognitise *tiredness/fatigue* and *fear*, as the feelings that, although actually experienced, failed, for some reason or other, to occur in the list task.

Adding up the absolute values of S_a - S_e it turns out that the summary difference between the semantic knowledge and the availability of words to describe personal experience is slightly higher for women, whose $\Sigma \mid S_a - S_e \mid$ = .58 while the men's rate is .52.

[36] The concepts of hypercognition and hypocognition come from Levy (1984: 227), who explains them as certain normative ways for a culture to control one's feelings either by turning them into a prescriptive obsession rather inadequate to reality (hypercognition) or by establishing that it is better just "not to know" certain emotion concepts (hypocognition).

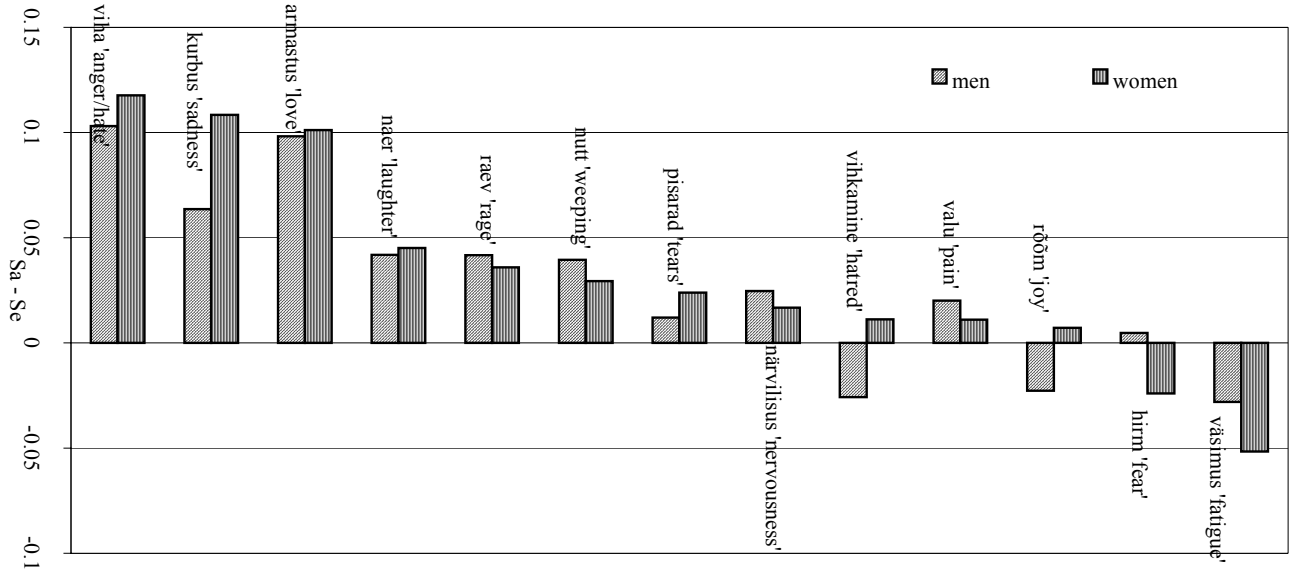


Figure 11. Gender-based differences in the cognitive salience of emotion vocabulary as elicited by Tasks A and E ($S_a - S_e$).

3.2.2. Age-related differences

3.2.2.1. Task A

Indices computed for emotion words recurrent in different age groups for Task A are presented in detail in Appendix 1. Some age-related differences are indeed revealed in the semantic knowledge of the participants. As for the basic level of emotion knowledge (*anger/hate, love, joy, sadness*) the age groups seem to differ over what is considered an emotion in the first place. Figure 12 illustrates the age variation of the salience of basic emotion words: younger groups show high salience for *armastus* 'love' and *viha* 'anger/hate', whereas the cognitive salience of *rõõm* 'joy' and *kurbus* 'sadness' remains under .1.

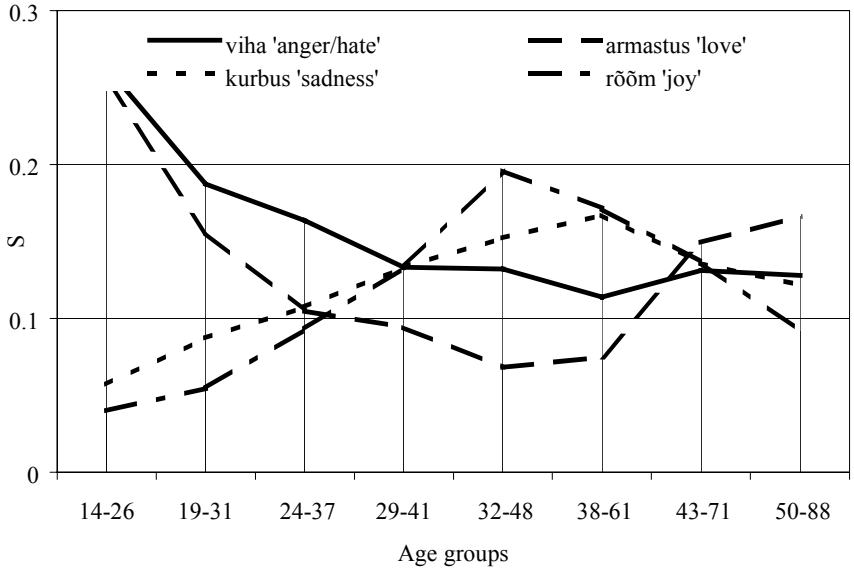


Figure 12. Age variation of the salience of basic emotion terms in Task A.

The salience of *armastus* 'love' and *viha* 'anger/hate', however, drops considerably as age advances, while *armastus* 'love' is the lowest in the age group 32–48 and *viha* 'anger/hate' is the least salient in the age group 38–61. In the next group and on, both experience a salience rise, but *armastus* 'love' has the lead, coming ahead of all other emotion words in the age group 43–71. The salience of *viha* 'anger/hate' surpasses .1 in all age groups. In the age group 29–

41 *rõõm* 'joy' and *kurbus* 'sadness' come first in salience. *rõõm* 'joy' is highest in the 32–48 group and *kurbus* 'sadness' is highest in the 38–61 group. In the group aged 43–71 the salience of all basic emotions is more or less similar.

As can be seen in Figure 12, the salience curves of words change in pairs. *Armastus* 'love' and *viha* 'anger/hate' as antonyms tend to be remembered either simultaneously or close in time. It is possible that the corresponding concepts also lie close in the semantic structure of emotion knowledge as two polar opposites of one and the same phenomenon (e.g. social relations[37]). Those two concepts are particularly salient in younger age groups, for whom the respective knowledge is the most topical. Another pair of words that are often remembered together are *rõõm* 'joy' and *kurbus* 'sadness'. These, too, may designate two polar opposites of one and the same phenomenon in the structure of emotion knowledge (e.g. mood). Those two seem to occupy a particularly important place in the emotion knowledge structure of middle-aged people (32–61). Lexical antonymy and semantic opposition appear wherever a category contains concepts differing radically on an essential feature. The high cognitive salience of antonym pairs seems indicative of those oppositions being typical of the knowledge structure of the given field.

Table 9. Correlations between emotion word saliences across age groups in Task A

Word salience	1.	2.	3.	4.	5.	6.
1. viha 'anger/hate'	—	**.808**	**-.930**	**-.786**	-.417	-.570
2. armastus 'love'		—	**-.850**	**-.831**	**-.813**	**-.750**
3. kurbus 'sadness'			—	**.941**	.608	**.806**
4. rõõm 'joy'				—	**.773**	**.920**
5. naer 'laughter'					—	**.854**
6. nutt 'weeping/tears'						—

Note. The coefficients with a 95% statistical relevance are in bold print.

Table 9 represents the mutual correlation coefficients calculated between the emotion vocabulary salience series (comprising all age groups) of Appendix 1. There is a strong correlation between all basic-level emotion terms: the strongest positive salience correlation (r = .941) is found between the words *rõõm* 'joy' and *kurbus* 'sadness', while the strongest negative correlation is revealed between the saliences of *kurbus* 'sadness' and *viha* 'anger/hate' (r = -.930). The salience correlation of the words *viha* 'anger/hate' and *armastus* 'love' is positive only with each other, whereas with all other basic and relevant words

[37] The social meaning of the Estonian word *viha* 'anger' was found to be its primary meaning prevailing nowadays over its historically inherited intrapersonal meaning (see Ch 2.3).

their correlation is negative. All mutual correlations are positive between the words *kurbus* 'sadness', *rõõm* 'joy', *naer* 'laughter' and *nutt* 'weeping/tears'.

Age groups also differ on the nonbasic or more specific vocabularies of emotions. Only the group aged 14–26 mention action terms as *nutmine* 'weeping', *karjumine* 'shouting', social phenomena like *sõprus* 'friendship', *sõbrad* 'friends', and *kadedus* 'envy'. The group aged 19–31 mention *vihkamine* 'hatred' and begin to speak of individually relevant states like *rahulolu* 'contentment' and *valu* 'pain', to which the group aged 24–37 adds *rahulik* 'calm', *õnn* 'happiness', and *kirg* 'passion'. The group aged 29–41 complements the list with low energetic states like *nukrus* 'wistfulness', *igavus* 'boredom', *segadus* 'confusion', and causal associations like *päike* 'sun'. The group aged 32–48 adds *rõõmus* 'glad/happy', *mure* 'worry/sorrow ', and *ängistus* 'anguish'. *Agressiivsus* 'aggression' lengthens the list in the group of 38–61 years old, while *hellus* 'tenderness' is added by the group aged 43–71, and *kaastunne* 'pity' and *tigedus* 'spite' by the group aged 50–88. A more or less stable salience reading is characteristic of the words *raev* 'rage', *hirm* 'fear' and *pisarad* 'tears', but they do not appear in all age groups.

3.2.2.2. Task E

The salience indices of emotion vocabulary as computed from the results of Task E by age groups are presented in detail in Appendix 2. The only emotion remembered among the first experiences in all age groups was *joy*. Other emotions characteristic of several age groups are *love, fatigue, contentment, surprise*, and *sadness*.

There were no age-related fluctuations in the salience of the basic emotion words available for episodic memory except a relatively higher level of *rõõm* 'joy' in the age group 19–31. *Love* was mentioned as part of recent experience by younger people (until the age group 32–48), and the same age group is the starting-point for the rise of *sadness*. *Anger* occurred in the episodic memory of all groups except the most aged. Figure 13 depicts the dynamics of remembering basic emotions across different age groups.

Table 10 represents the mutual correlation coefficients of emotions remembered in Task E, which, however, cannot be considered statistically relevant for insufficient cases of occurrence. Due to gaps in the occurrence series the correlation coefficients have been calculated only for those age groups where both members of the emotion pair showed up. Note, though, that there is a very strong negative correlation between *joy* and *sadness* (r = -.956) as well as between *love* and *contentment* (r = -.855), while the positive correlation between *contentment* and *tiredness* is also quite considerable (r = .798). As for *anger/hate*, it had a very weak positive correlation with *love* (in episodic emotion memory) and a weak correlation with *joy*, whereas its

correlations with all other emotions are stronger and positive. *Love* has an extremely weak positive correlation with *anger/hate* and *joy*, whereas its correlations with all other emotions are negative. *Joy* correlates rather weakly with *love*, which is its only positive correlation.

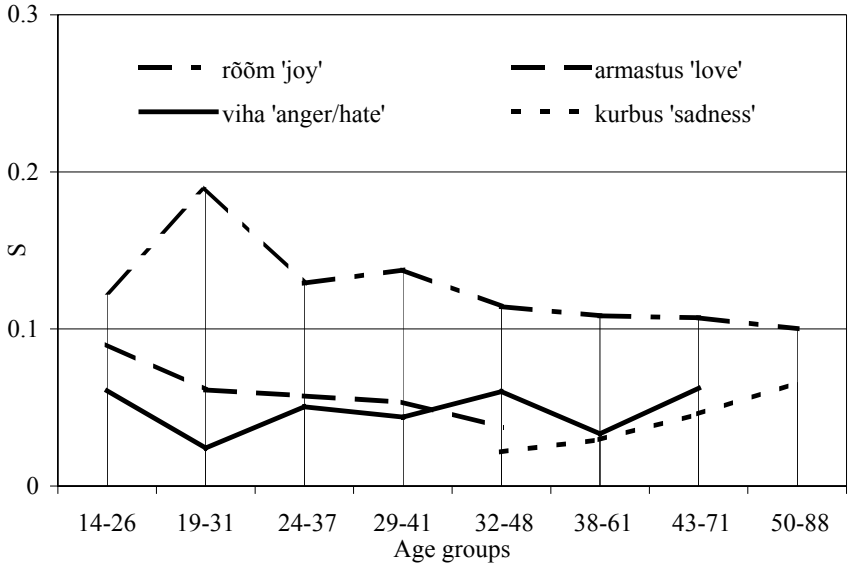


Figure 13. Age-related variation of the basic emotions in Task E.

Table 10. Correlations between emotion saliences across age groups in Task E.

Emotion salience	1.	2.	3.	4.	5.	6.	7.
1. anger	—	.088	.266	-.684	.576	.432	.401
2. love		—	—	.082	**-.855**	-.680	-.426
3. sadness			—	**-.956**	-.771	.266	-.638
4. joy				—	-.427	-.640	-.684
5. contentment					—	**.798**	-.267
6. fatigue						—	.516
7. surprise							—

Note. The correlations | r | ≥ .7 are boldfaced, but not regarded as statistically relevant

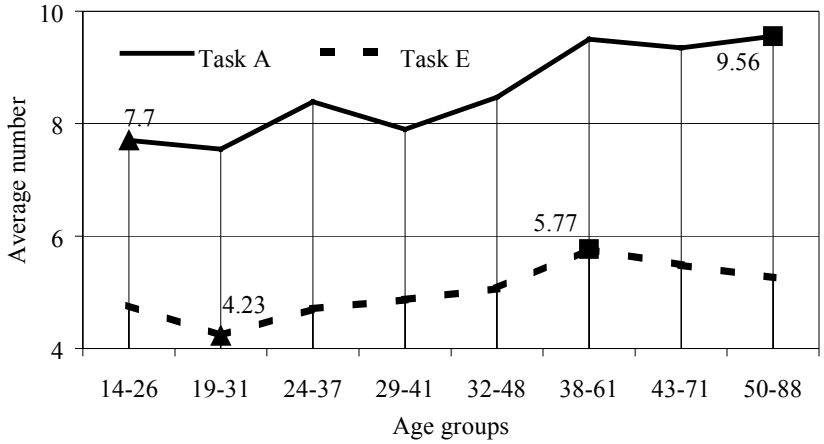


Figure 14. Age-related variation of general verbal productivity.

3.2.2.3. Comparison of the results of Tasks A and E

Age-related variation is obvious even in the quantitative yield parameters of the linguistic material. Figure 14 illustrates the variation of the average yield of expressions, which represents a parallel growth for both tasks (r = .887). For Task A the word yield reaches its maximum (9.56) in the oldest group (aged 50–88), while for Task E the maximum (5.77) is reached a little earlier (group aged 38–61). Consequently, the vocabulary used by the older group to describe their own emotional experience becomes a little more limited. Figure 15 shows variation in the average number of different expressions produced by the participants, i.e. the variety of their vocabulary. This, too, tends to increase in both tasks (r = .783), except for a fall (4.27) in the age group 32–48.

Figure 16 demonstrates age-related variation of coincidental (at least in 3 participants) expressions. Here, too, there is a strong positive correlation (r = .809) between the results of Tasks A and E. The general tendency for the coincidental expressions is a fall. To this background the group aged 32–48 stands out clearly for their higher readings both in Task A (0.6) and Task E (0.339). This indicates that in those age groups in which the episodic memory is the most similar, the semantic emotion knowledge is also more similar than in the other age groups and vice versa. In older groups (38–61, 43–71, 50–88) the drop in coincidental vocabulary is particularly sharp (note the simultaneous growth in general verbal productivity), especially for Task E.

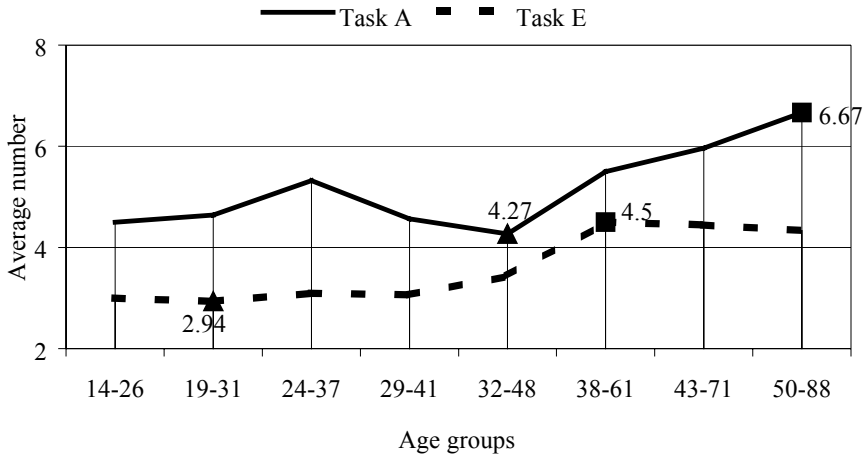


Figure 15. Age-related variation of expression variety.

As for the qualitative aspect of the results, age-related differences could be observed in what is considered to be an emotion (Figure 12) as well as in what emotions are recalled from one's short-term past (Figure 13). At that, both the general verbal productivity and, accordingly, the salience indices (calculated from the coincident vocabulary, i.e. from expressions occurring with at least three participants) are considerably higher for Task A than for Task E.

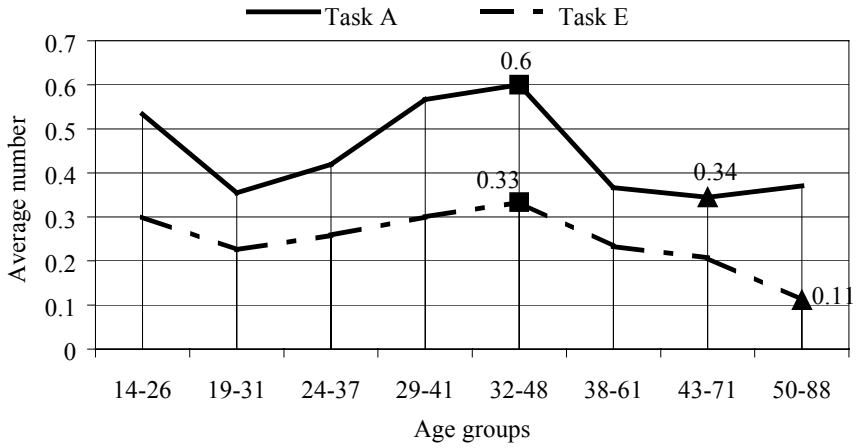


Figure 16. Age-related variation of the production of coincidental expressions.

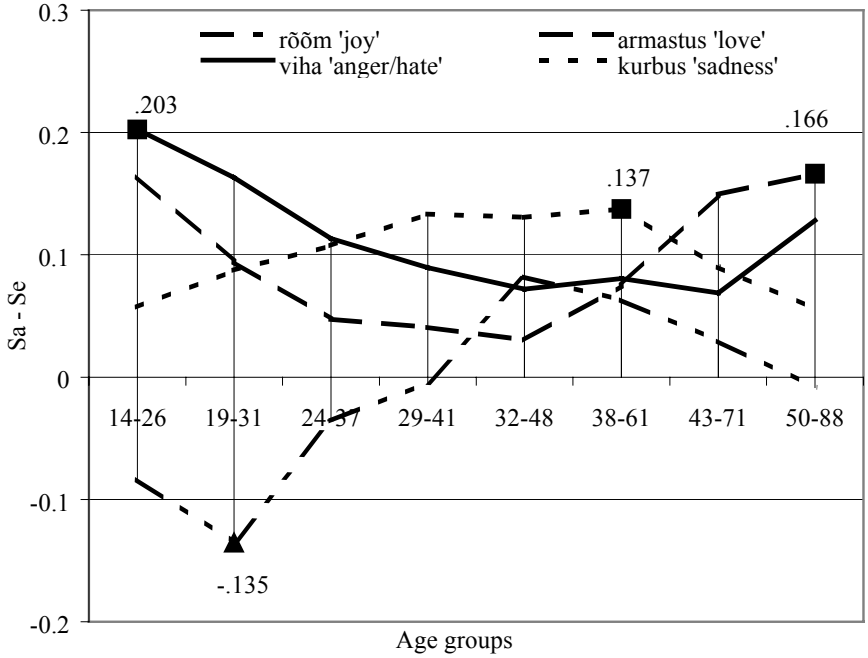


Figure 17. Age-related variation of the difference (S_a - S_e) between the saliences of basic emotion terms elicited by Tasks A and E.

The age-related variation of the difference (S_a - S_e) between the cognitive salience and recall rate can be followed in Figure 17. The closer the S_a - S_e reading is to the 0-axis the higher the correspondence between the salience of the emotion word in the semantic knowledge and the rate of its use by the participants for the categorisation of their own experience. The upper (positive) half of the graph shows hypercognition and the lower (negative) half demonstrates hypocognition for the given expression in the given age group. As is revealed by Figure 17, the word with the most dynamic salience across different age groups is *rõõm* 'joy'. Up to the age of 29 *joy* is considerably hypocognitised (peak S_a - S_e = -.135). Among the middle-aged people (32–48), however, the feeling is rather hypercognitised. The average difference between the Tasks A and E across all age groups is S_a - S_e = -.012. Of other basic emotion terms *kurbus* 'sadness' is hypercognitised in the middle-aged participants (the peak is in the group aged 38–61, in which S_a - S_e = .137, while the average S_a - S_e = .099). The word *armastus* 'love' is hypercognitised in the young and in the older persons (the peak falls in the group aged 50–88, with S_a -

S_e = .166, the average S_a - S_e = .096). The word *viha* 'anger/hate' finds the highest hypercognition in the youngest participants (peak S_a - S_e = .203, average S_a - S_e = .115).

Adding up the absolute values of S_a - S_e one will notice that the difference between the semantic knowledge and the availability of words to describe one's personal experience is at its maximum ($\Sigma|\ S_a - S_e\ |$ = .51) for the youngest (aged 14–26) and at its minimum for the middle-aged (29–41) participants ($\Sigma|\ S_a - S_e\ |$ = .27).

3.3. Discussion

The field data on the cognitive salience of the Estonian emotion vocabulary elicited by list tasks, which are easy to express and compare by means of the index of cognitive salience (S) introduced by U. Sutrop (2001) are, indeed, indicative of certain gender- and age-related tendencies in the salience of emotion vocabulary. The common norm of emotion knowledge, including *viha* 'anger/hate', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness' as basic emotion terms, is not at all equally salient across different gender and age groups. The following is an attempt to analyse to what extent these results may coincide with what can be found in literature on the influence of gender and age on the expression and recognition of emotions.

First, the present results prove what is generally recognised in psychology, notably, that women have higher verbal ability than men. This is manifested in the number 3, showing the difference between men and women in average verbal productivity as revealed by Task A addressing semantic emotion knowledge (see Table 8). In Task E, however, which tested episodic emotion knowledge, the difference between men and women in verbal productivity was irrelevant (0.78). E. Tulving has guessed that the actualisation of episodic information requires some conscious effort, while semantic information is used automatically (Tulving, 1984). This should be particularly true about women, as in Task A the women were almost twice (1.85 times) as verbose as in Task E. They were eager to name not only emotions as such, but also certain socially important attributes and phenomena associated with emotions.

The higher productivity of women in the list task A of emotion vocabulary may probably be associated with women's higher competence in the field of emotions. Supported by statements from several studies, Brody and Hall (2000), for example, have found that women are emotionally more competent and more expressive, in particular verbally. According to Grunwald et al., women carry out emotional and linguistic tasks more precisely, as they are more sensitive to that kind of stimuli (1999: 235). As women are also better at recognising emotions, Thayer & Johnson argue that women's space of affective differentiation is more complex than men's (2000: 245). Schimanoff has shown

that women have a richer emotion vocabulary (at least in writing) and that they perceive negative emotion words as more negative and more intensive than men do (Schimanoff, 1983).

According to A. Fisher there are some gender-related differences in the importance attached to emotions as such, and this is due to educational differences. She claims that in bringing up girls, mothers would always use more emotion words, turning a lot of detailed attention to their emotional states, whereas with boys the focus tends to lie on causes and consequences of their emotional episodes. The display rules of emotions taught to children also differ according to gender: it is not proper for boys to weep, while anger is not considered becoming for girls (Fisher, 1995: 461). Education provides, of course, for the future gender role of a person: women as future mothers will need to be able to communicate emotions, as to a baby practically everything is communicated by emotions. The male model, however, requires that a man should be able to protect his family and procure subsistence.

As women usually pay more attention to emotions, speaking of them more often and knowing more about them, they are regarded as better experts in the field. Fisher has found out that although the emotion vocabulary of women is more active, there is no considerable difference in the basic level emotion knowledge of men and women (1995: 472).

In the results of the present study the women's yield at Task A shows a clear difference between the basic and nonbasic terms. It can be observed that the salience of men's emotion terms displays two drops, whereas womens's has one (Figure 9). Thus, the common basic terms for emotions (the nouns *viha* 'anger/hate', *armastus* 'love', *rõõm* 'joy' and *kurbus* 'sadness') as the Estonian norm of emotion knowledge (as revealed by the list task discussed) seems to be established by women rather than men. This may be due to the fact that women agree more on their emotion knowledge and the lexicalisation (noun) level of their emotion knowledge is higher. One reason for the lower salience readings of *kurbus* 'sadness' and *rõõm* 'joy' is the fact that men had encoded the concepts in adjectives as well (*kurb* 'sad', *rõõmus* 'glad'). Anger, however, as the emotion sometimes characterized as the most prototypical emotion for Estonians (Vainik, 2002d, Chapter 2.3 in this monograph) seems to be central for the men's model of emotions rather than women's (maximum salience in Task A and the runner-up in Task E for men).

According to Brody & Hall (2000: 339) at least 30 cultures agree on women being the more emotional sex. On the other hand, no gender differences have been found in the actual rate and frequency of certain prototypical emotions like fear, anger, happiness, sadness, disgust (Manstead, 1992). There has been, however, some record of certain specific emotions (sadness, fear, uncertainty) being experienced more frequently and more intensely by women, which may indeed lie at the base of the stereotypic image of women as the more emotional sex. The common denominator for those "womanly" emotions is experiencing

the feeling of one's own weakness and helplessness, which is associated with a culturally acquired gender role rather than biological weakness (Fisher, 1995). No differences have been reported to exist in the experiencing of anger, its expression is just more overt with men. The emotions reported more frequently by men than women are contempt, loneliness, pride, confidence and guilt (Brody & Hall, 2000).

As has been revealed by the results of the present study (see Figure 11), both Estonian men and women tend to hypercognitise *anger/hate* and *love*, which are both social (interpersonal) emotions. In addition, women hypercognitise sadness, which is a typically "feminine" emotion. There are some emotions or feelings that, although experienced to a considerable extent, are neglected as unimportant or not regarded as an emotion at all. For men these are *joy* and *nervousness*, for women, *fear* and *fatigue*. Those hypocognitised emotions are intrapersonal rather than interpersonal in nature.

Despite the generally recognised tendency for several cognitive abilities to decline with age,[38] studies of possible age-related changes in verbal ability have yielded contradictory results, some proving stability, some demonstrating a down trend. The ability to recall words, important from the point of view of this study, has been found to decline with age (Nicholas, Obler, Albert & Goodglass, 1985).

Not much has been written on the age specifics of the availability of emotion words. Grunwald et al. have studied the lexical perception of emotion vocabulary in men versus women as well as along the age axis. From the results of his tests of verbal stimulus recognition he concludes that older people tend to suffer some loss in the precision of their lexical perception, no matter whether the expression concerns emotions or not. Older people seem to be characterised by excessive attribution of emotional intensity, i.e. they tend to suspect emotional stimuli even where there are none whatsoever. At that, negative stimuli are perceived as more intensive than the positive ones. As for the lexical elaboration of emotions, it is argued that precision decreases with age, but not intensity (Grunwald, 1999: 234).

The attribution of emotional intensity in the older age group is explained by Carstensen's theory of socio-emotional selectivity arguing that "the regulation of emotion becomes increasingly salient over the life course" (Carstensen, 1995: 152). The theory of socio-emotional selectivity as well as the phenomenon of emotional attribution is in harmony with the present findings that, age advancing, verbal productivity increases in the list task of emotion words (Figure 14). At that, growth was observed in the participants' readiness to list members of the category "emotions/feelings" as well as to describe their own emotional experience. An even more remarkable increase appeared in the variety of the words produced (Figure 15), in older people in particular. The

[38] See Grunwald et al. with its numerous references (1999: 227).

growth of lexical variety may have different causes, such as men's habit of giving lexical variants of one and the same emotion concept, responding with semantic variants *kurbus–nukrus* 'sadness–wistfulness', *viha–vihkamine* 'anger/hate–hatred', or the women's habit of naming associations and qualities of emotions. However, the general tendency towards the growth of variety in responses to lexical tasks may be related to the above-mentioned decline in the precision of lexical elaboration of emotions with a simultaneous growth of intensity (Grunwald et al., 1999: 234). The results of the present study indicate that the older the person the more numerous, specific and idiosyncratic their words.

The statement that the available emotion concepts affect the perception as well as remembering of emotional experience (Halberstadt, Jamin, & Niedenthal, 2001) seems to hold, as the present study revealed a strong positive correlation (r = .809) between semantic emotion knowledge and the rate of active vocabulary used to describe episodic emotional memories (see Figure 16). Especially conspicuous for their semantic coincidence of emotion vocabulary and, consequently, for their unanimity over emotion knowledge was the group of middle-aged (32–48) participants. This holds for both tasks, i.e. the one testing semantic knowledge as well as the one requiring recalling episodic emotional memories. It seems that by that age the native speakers of Estonian arrive at a certain consensus in what should be considered an emotion and what should not. In older groups the solidarity of opinion weakens again.

In some earlier papers (Vainik, 2002d, Chapter 2.3. in this monograph)I have argued that for Estonians the most prototypical emotion is anger, as anger was the most salient concept in the list task. The present study reveals that although the most prototypical emotion changes with age (see Figure 12), being *anger/hate* for the young, *joy* for the middle-aged and *love* for the older group, *viha* 'anger/hate' is the only basic emotion term that retains its remarkable cognitive salience across all age groups. In all age groups *anger/hate* is also the most hypercognitised emotion (the average S_a - S_e = .115). It is this relatively high salience for all age groups that has given *anger* the status of the most prototypical national emotion.

Following the age variation of the salience of basic emotion terms (Figure 12) one can see that there are two periods critical for the structure of basic-level emotion knowledge. The first is in the group aged 21–47 (mean 38), when the polar opposition of *love* and *anger/hate* characteristic of the younger groups begins to be replaced by a rise of *joy* and *sadness*, while *love* loses its topicality and *anger/hate* retains its former salience. The shift could be interpreted as intrapersonal emotions rising to the foreground of the emotion knowledge. The replacement of interpersonal terms by intrapersonal ones is not quite simultaneous in the fields of positive and negative emotions. Notably, the positive term *armastus* 'love', is replaced by *rõõm* 'joy' earlier in its high-salience position than the negative term *viha* 'anger/hate' is replaced by *kurbus*

'sadness'. The dominance of intrapersonal emotions and states in the middle-aged group is also corroborated by the occurrence of *nukrus* 'wistfulness', *igavus* 'boredom', *segadus* 'confusion', *rõõmus* 'glad/happy', *mure* 'worry/sorrow', and *ängistus* 'anguish' among salient words. As for episodic memories of the short-term past (Figure 13), the middle-aged period marks the end of recalling how one experienced *armastus* 'love' and the beginning of recalling how one experienced *kurbus* 'sadness'. As we know, this period is referred to as "midlife crisis".

Another critical period when the topicality of certain emotion concepts is revaluated belongs to the age group 43–71 (mean 57). This is when *armastus* 'love' regains some of its high salience, while the rest of the basic emotion words keep their position, more or less. As the rise in the salience of *armastus* 'love' is not accompanied by a new rise of *viha* 'anger/ hate', there seems to be some reason to assume that the concept of *love* has changed for the older groups (e.g. from egotistical to altruistic), and has lost its polar opposition with *anger/hate*. Also, it is possible that in those age groups the objects of love are, perhaps, grandchildren rather than peers. A closer analysis of the semantics of emotion terms and the possible changes in the contents of emotion concepts would certainly make an exciting subject for further research.

Analysing the results of the list tasks I conclude that most likely emotion knowledge is organised differently on different levels. It has been claimed that on experiential level (people using words to describe their experience), the semantic variation of the whole emotion vocabulary is accounted for by two dimensions: Positive Affect and Negative Affect, which are claimed to be unipolar dimensions not to be regarded as opposites (Watson & Clark, 1994; Allik & Realo, 1997). On the conceptual level, however, (in semantics of language, based on folk models of emotion), there is a vital opposition between positive and negative emotions as subcategories of the emotion category (Vainik, 2002a, 2002d, Chapters 1.5 and 2.3 in this monograph). The difference in the results of Tasks A and E as revealed in the present study should confirm the conclusion that in the consciousness, semantic and episodic emotion knowledge (as well as the vocabulary used to express it) are organized in different ways.

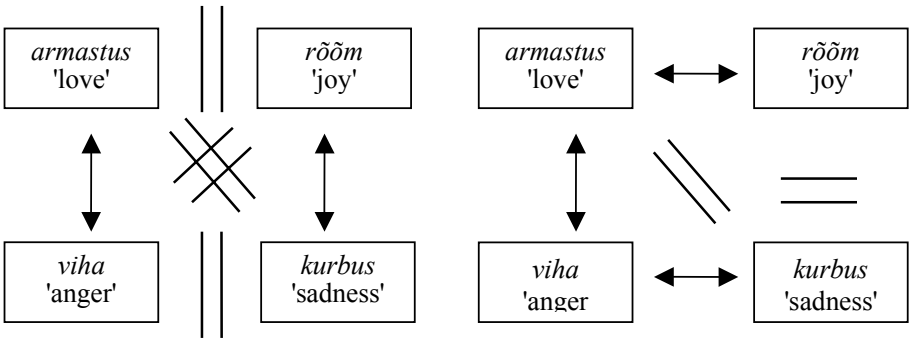
The correlation coefficients calculated between the occurrence of four basic emotion terms across age-groups[39] (Tables 9 and 10) can be used to draw such graphs as in Figure 18, where a) and b) refer to the results of Tasks A and E, respectively. The arrow indicates a positive correlation across the age groups,

[39] The coefficients have been computed between the sequences of index values characterising the age-related variation of emotion and salience. The salience of one word should by no means be regarded as a direct function of the salience of another word. Actually the salience changes of all words in question depend on changes on the general age scale. It is just that for different words the changes take different directions.

while the double lines stand for a negative correlation. The strength of the correlations is not reflected in these graphs. As can be seen in Figure 18 a) there are two antonymous pairs of emotion words, *viha* 'anger/hate' >< *armastus* 'love' and *rõõm* 'joy' >< *kurbus* 'sadness' with positive mutual correlations inside the pairs and negative correlations with all other basic emotion terms.

The positive correlation manifested in the age variation of emotion word salience has a clear reference to the conceptual contrast of the respective emotion concepts, which seems to lie at the base of the structure of semantic emotion knowledge, which substantially differentiates between socially related phenomena and moods.

The mutually negative correlation, however, between the members of the pairs *joy–love* and *sadness–anger/hate* can be explained by their conceptual similarity: both j*oy* and *love* belong to the subcategory of positive emotions, while the preference of one or the other differs in different age groups. Similarly, both *anger/hate* and *sadness* represent the category of negative emotions, while their topicality for different age groups tends to diverge.



a) Task A b) Task E

Figure 18. Directions of correlations of the basic emotion terms in semantic emotion knowledge (Task A) and in episodic emotion knowledge (Task E).

In episodic emotion knowledge (Figure 18 b), however, the negativity/positivity and the semantic contrast of emotion concepts does not seem to mean much. Here positive correlations are probably associated with the occurrence of a given pair of emotions in concrete emotional situations (the pairs *anger/hate–sadness, anger/hate–love* and *love–joy*) while the negative correlations are supposedly due to the fact that the corresponding pairs (*sadness–joy* and *joy–anger/hate*) as alternative states of mind do not typically co-occur.

Some scholars have found that there is some dependence between evaluations of emotion similarity and correlations appearing in self-evaluation

of emotions (Schimmac & Reisenzein, 1997). They agree that those emotions that often co-occur are considered similar, while the more frequently occurring ones are considered more similar with a larger number of others. As for emotional intensity and valency (positivity and negativity), those authors tend to regard them as parameters of emotional episodes, rather than part of semantic emotion knowledge. According to Schimmac & Reisenzein, 1997, memories of emotions are episodic and, as such, more easily available than abstract emotion knowledge. In the present list task, however, semantic emotion knowledge was available about twice as readily as episodic knowledge. The availability was supported by the semantic relations of synonymy and antonymy.

3.4. Conclusion

As a result of the list task of emotion vocabulary it is possible to find out which emotion terms are basic and common for the native speakers of Estonian. Such basic common terms (cultural norm independent of age or gender) are *viha* 'anger/hate'*, armastus* 'love', *kurbus* 'sadness', and *rõõm* 'joy' (Vainik, 2002a, see Chapters 1.3 and 2.2.2 in this monograph), but there are also intracultural age- and gender-related differences in the scope, structure and availability of emotion knowledge.

Gender-based are differences in the salience of the basic Estonian emotion terms, as are the number and inventory of concepts associated with emotions. In addition, there are differences in hypercognitised emotions, as men hypercognitise *anger/hate, rage*, *weeping/tears, hatred, fear, and pain*, whereas women tend to hypercognitise *sadness*, *joy, love,* and *tears*. Women display a higher divergence in the salience of central emotion concepts in semantic and episodic knowledge ($\Sigma| S_a - S_e | = .58$). For women, semantic emotion knowledge was accessed more easily. In their results, there is also a particularly clear difference between the basic and nonbasic emotion terms, while the terms that women use to describe their own experience are rather more specific.

As age advanced, one could observe the growth of both verbal productivity and lexical variety. The highest consensus in emotion knowledge was characteristic of the group aged 32–48, while emotions experienced in the short-term past were also the most similar in that group. Age-related variation also makes a very clear appearance in the salience of basic emotion terms. Here it is important to note that emotion terminology is structured by conceptual contrast manifested in lexical antonymy. For the young, the most topical polar opposition occurs between *anger/hate* and *love*, for the middle-aged, however, it occurs between *joy* and *sadness,* which is explained by the different topical actuality of interpersonal versus intrapersonal states. The results of the older persons fail to display any polar opposition between basic emotion terms. The difference between the saliences of basic level emotions in semantic and

episodic knowledge ($\Sigma| S_a - S_e | = .51$) was the largest for the youngest participants (age 14–26), whose attitude towards most of the basic emotion terms was either hypercognition (*love, anger/hate*) or hypocognition (*joy*). The highest degree of similarity between the basic level salience of semantic and episodic emotion knowledge ($\Sigma| S_a - S_e | = .27$) was found in middle-aged (age 29–41) participants.

To sum up, although the Estonian vocabulary (emotion words included) is shared by the whole language community, its topicality and availability for active use reflects the different cultural conceptions and attitudes characteristic of different subgroups of the community.

A language community is a heterogeneous company including anybody from babies to the aged, who are united by the language they communicate in. Natural communication always includes a non-verbal component of emotional communication, which is obviously primary from the point of view of meeting certain basic psychological needs. It seems essential for the reproduction of the language community that intracommunity communication between men and women as well as between different generations should proceed smoothly in all channels, either verbal or non-verbal. How the availability of emotion terms as instruments of metacommunication about emotions might differ for the members of a heterogeneous language community is certainly important enough to require further studies.

4. SEMANTICS OF EMOTION TERMS: A SELF-ORGANIZATIONAL APPROACH[40]

Semantics of emotion terms has enjoyed a lot of attention during the final quarter of the 20th century among both psychologists (e.g. Watson & Tellegen, 1985; Russell, 1980; Fehr & Russell, 1984) and cognitive linguists (e.g. Iordanskaja, 1974; Goddard, 1998; Wierzbicka, 1999; Kövecesz, 2000). Besides the well-known universality of facial expressions (Ekman, 1982), cross-cultural comparison of apparently extremely divergent emotion terms and a search for cultural universals from verbal expressions and emotion vocabulary has also been popular (Hupka, Lenton, & Hutchinson, 1999; Scherer & Wallbott, 1994; Frijda, Markam, Sato, & Wiers, 1995; Wierzbicka, 1999; Romney, Moore, Batchelder, & Hsia, 2000).

At a position of interdisciplinary interest, a wide variety of analytical methods has been applied to emotion vocabulary and several models of emotion structure have been presented. The goal of semantic studies has been different in psychology and linguistics. Psychologists have used emotion vocabulary as a source of information about the phenomenon — i.e. emotions — *per se*, and their conclusions are often driven about the *qualia* and structure of emotions in the first place. Depending on the nature of input data and the analytical tools applied the psychologist's conclusions tend to be partly controversial: using the results of self-rated emotional experience and factor analysis a model of two unipolar dimensions of General Affect is supported (Watson, Clark, & Tellegen, 1988; Watson & Clark, 1994), while using the data of evaluated word similarity and a reduction method of multivariate scaling a circumplex model of two bipolar orthogonal dimensions (*pleasantness vs. unpleasantness* and *activation vs. deactivation*) has been derived (Russell, 1980).

Usually the analytical tools and methods chosen depend on intradisciplinary traditions and serve the interests of verifying this or that preset hypothesis. It is extremely likely that part of the proven cultural universality of emotion terms is due to the universality of the analytical tools applied. Intraculturally the similarity and divergence of emotion concepts are explained either by the use of a prototype model (Fehr & Russell, 1984; Johnson-Laird & Oatley, 1989), a model of semantic features (Tversky, 1977; Frijda, 1987) or, alternatively, by a model of episodical co-occurrences (Schimmack & Reisenzein, 1997).

[40] The original version of this chapter is titled *Self-organizing emotion concepts: a case study of Estonian emotion terms* (manuscript submitted for publication, co-author Toomas Kirt).

Traditionally, cognitive linguists have treated emotion vocabulary as an access to emotion knowledge, conceptualisation processes and folk theories of emotions rather than to emotions *per se* (Kövecses, 2000; Wierzbicka, 1999; Õim, 1999; Vainik, 2002a, 2002d, White, 2000). The descriptions of folk concepts of emotions are mostly based on traditional linguistic contextual analyses, linguistic tests and on the subjective intuition of analysts (Iordanskaja, 1974; Wierzbicka, 1999; Johnson-Laird & Oatley, 1989). In this kind of semantic studies the "folk" (in the form of real living ordinary speakers) is actually not involved.

The structure of the relevant semantic descriptions, however, seems to have remained a little short of reason so far. Proponents of cross-cultural studies emphasise the importance of an independent metalanguage in the semantic description of emotion terms, but the use of an "experience-near" descriptive metalanguage of semantic primitives tends to end up in a rather "experience-far" complexity of linearly presented scripts (e.g. Wierzbicka, 1999) that are not easy to comprehend. The relevant semantic markers are presented in a mixture together with less relevant information. The defining of emotion concepts in the form of "truth conditions" like statements might be a solution for human-computer interaction (e.g. Iordanskaja, 1977), but it is hardly revealing about the naturally fuzzy concepts.

The scope and level of finegrainness of the semantic description of an emotion lexicon is very different in the framework of psychology and cognitive linguistics. In a psychological study it is an acceptable and sufficient result if 50–75% of all semantic variance is accounted for by two main factors leaving other nuances unimportant (Watson & Tellegen, 1985), while for a linguistic approach this kind of a result would be insufficient as it says almost nothing about the actual meaning of every item and the way the words relate to each other. A linguistic study, on the other hand, rarely manages to handle the cognitive domain or semantic field of emotions as an integrated whole.

The present study investigates the semantics of emotion terms (i.e. emotion concepts) as part of culturally shared emotion knowledge, which means the shared part of the emotion knowledge of individuals belonging to one and the same speaking community. Culturally shared emotion knowledge seems to include not only actively used words or terms, but also their prototypical semantic interrelations, at least on the basic level of knowledge[41]. The lexical relations of antonymy and synonymy are expected to be based on the perceived maximal contrast (oppositeness) and minimal contrast (similarity) of the concepts.

As far as culturally shared emotion concepts serve the needs of a speaking community there is reason to believe that the structure of emotion concepts is in accord with the relevant aspects of the supposedly universal emotional

[41] See Chapters 1.4.2 and 2.2.2 in this monograph.

experience. Thus, in this paper we do not exclude the possibility of being able to draw at least some conclusions about the nature of emotions, too. This approach is somewhere in between the above mentioned viewpoints of psychologists and cognitive linguists.

The purpose of this study is to find out if there exists an underlying universal structure of emotion knowledge that is independent of the nature of the source data (numerical self-ratings versus lexical production) and analytical tools. In the empirical study we report the results of 100 Estonian subjects whose first task was to measure the semantics of a limited but representative set of emotion terms against a set of widely exploited characteristics of emotions in terms of 7 scales with polar "experience near" semantic values on the top. For comparison and as proof of the relevance of the feature model, the same subjects were given a second task asking them to produce synonyms (similar concepts) and antonyms (opposite concepts) for the same set of stimulus words/concepts. To ensure the independence of data processing as well as comparability the method of self-organizing maps (SOM) was applied to the results of both tasks.

In the final section we plan to discuss the inherent organisation of the semantic field, the role of prestructuredness of emotion knowledge and the role of self-organization in both emotions and emotion knowledge.

As in any other language there are plenty of words in Estonian, referring to and differentiating between the qualitative and quantitative aspects of emotional experience. However, the very boundaries of the natural category of emotions are not yet clear in Estonian (the number of lexical items forming the semantic field is about 400, depending on the strictness of the criteria of distinction) as this category seems to be mixed and blended with some other closely related natural categories such as feelings, personality traits, behavioural expressions as well as conventional causes and attributes of emotions (see the first two chapters of this monograph or Vainik, 2002a).

The 24 lexical items selected for detailed empirical inquiry (see Appendix 3) form a small but representative set of the category, sharing the prototypical features of emotion concepts to various degrees. Selection is based on the results of tests of free listing (Vainik, 2001), as well as on the basis of word frequencies in some corpora (see the frequency data in Appendix 3). The list contains the basic Estonian emotion terms (*viha* 'anger', *armastus* 'love', *rõõm* 'joy', *kurbus* 'sadness'), as well as some of their close synonyms. Also some higher "cognitive" and "social" emotions are included. The number of "positive" and "negative" terms is balanced and some supposedly neutral or ambivalent terms are added (*üllatus* 'surprise', *kaastunne* 'pity, compassion'). As is revealed by the translations (see Appendix 3) the semantics of Estonian emotion terms matches that of their English counterparts only partly, as for several Estonian items it is impossible to give just one suitable equivalent. What is the measurable and relevant content of the Estonian concepts for ordinary speakers will be presented in the results of the following empirical study.

4.1. Subjects and method

The inquiry was performed in a written form during the summer months of 2003 in several different spots of Estonia (Tallinn, Tartu, Võru county, Western Estonia). 15 out of the 115 questionnaires turned out to be corrupt or were not returned. The eventual number or participants was 100 (50 men and 50 women), age varying from 14–76 (average 40.2, STDEV = 18.61), all native speakers of Estonian.

In the first task the participants had to evaluate the meanings of 24 emotion terms against a set of scales consisting of seemingly polar opposite values. The construal of the scales was inspired by Osgood's method of semantic differentials (Osgood, Suci, & Tannenbaum, 1975) consisting of three degrees on either side and a neutral zero value in the middle. The degrees on both sides were labelled, but with positive labels only (1, 2, 3), so that the counterparts of a scale were tentatively treated as two independent semantic features. The purpose of such a construal was to find out which of the scales appear to function as bipolar and which as unipolar in nature. The participants were instructed to mark down their primary opinion about a given concept on one side of the scale indicating the degree of relevance of a specific feature. In the case of semantic irrelevance a zero value was suggested and in the case of ambivalent relevance an additional mark of secondary opinion was at hand.

The semantic features under investigation were selected from the characteristics of emotions most discussed in literature and formulated as "experience near" (demand of A. Wierzbicka, 1999) and as understandable for unprepared participants as possible.

Asking the informants to evaluate whether and to what degree a state referred to by a given word is regarded as a *strong vs. weak emotion* and whether it is rather considered to be *long vs. short in duration* was meant to measure to what extent certain quantitative parameters may participate in concept formation and to what extent they may function as relevant semantic features differentiating between lexically close synonyms (like *viha* 'anger' and *raev* 'rage') as has been the default assumption in the linguistic approach.

The scale of subjective evaluations of *pleasantness vs. unpleasantness* was expected to be the most pervasive characteristic of emotion terms as it has been referred to by several authors (Watson & Tellegen, 1985; Allik, 1997). In the case of the present study its cooperation with other variables was the main point of interest.

The dimension of action readiness (*increases vs. decreases action readiness*) was meant to measure the universal and important component of emotion structure constituting one of the basic dimensions of emotion lexicon in several languages (Frijda, 1987; Frijda, Markam, Sato, & Wiers, 1995).

The scale *depends mostly on others vs. oneself* was meant to measure the relevance of the distinction between intrapersonal and interpersonal states in the

cognitive structure of emotion terms as a possible distinction between social emotions and the so-called basic emotions (Ekman, 1982).

The distinction *felt in the mind vs. body* was meant to find out to what degree bodily feelings and conscious cognition participate in the conceptions of emotional experience.

The seventh scale was meant to measure to what degree the temporal and causal sequence of events belongs to the cognitive structure of emotion terms. That they belong there has been claimed mainly by cognitive linguists who construct script-like presentations of emotion concepts (e.g. Wierzbicka, 1999; Goddard, 1998). The participants were asked whether a given emotion was typically perceived to *precede* or to *follow an event*, leaving unspecified what the event was, so encouraging the informants to specify whether their conceptualised focus of attention fell either on antecedent events (type of scripts "something bad/good will happen" by A. Wierzbicka, 2000) or on an emotional episode following the event it was elicited by (type of scripts "something bad/good has happened" by A. Wierzbicka, 2000).

The set of semantic features selected was intentionally not exhaustive enough to enable a detailed description of the whole semantic field of emotions in Estonian. It was rather meant as a proof of the usefulness of such kind of distinctions in concept formation in ordinary speakers tested on a small range of central members of the emotion category.

In the second task the participants were asked to write down as many "similar concepts" and "opposite concepts" of the given 24 stimulus words as came to their mind.

There being no preset time limits, these two tasks taken together formed a rather demanding exercise with a duration from twenty minutes up to two hours (average 45 minutes), depending mainly on verbal abilities as most of the participants reported some difficulty in the lexical task. In some cases the lexical task was left partly or totally unfulfilled.

4.2. Self-organising maps (SOM) as an analytical tool

SOM belong to a general class of the so-called neural network methods, which are non-linear regression techniques that can be trained to learn or find relationships between inputs and outputs or to organise data so as to disclose patterns or structures so far unknown (Deboeck & Kohonen, 1998). A self-organising map is a feedforward neural network that uses an unsupervised training algorithm of competitive learning, and through a process called self-organisation, it configures the output units into a topological representation of the original data (Kohonen, 2000). SOM can serve as a clustering tool as well as a tool for visualising high-dimensional data.

The process of creating a self-organising map requires two layers of processing units. The first is an input layer containing processing units for each element in the input vector; the second is an output layer or a grid of processing units that is fully connected with those at the input layer. The learning process goes on as follows. At first the output grid will be initialised with initial values that could be random values from an input space. One sample will be taken from the input variables and presented to the output grid of the map. All the neurons in the output layer compete with each other to become a winner. The winner will be the output node that is the closest to the sample vector according to the Euclidean distance. The weights of the winner neuron will be changed closer to the sample vector moved in the direction of the input sample. The weights of the neurons in the neighbourhood of the winner unit will also be changed. During the process of learning the learning rate declines and so does the rate of change around the neighbourhood of the winning neuron. At the end of the training only the winning unit is adjusted. As a result of the self-organising process similar input data vectors are mapped onto nearby map units in the SOM.

A Unified distance matrix (U-matrix) gives a picture of the topology of the unit layer and thus also of the topology of the input spaces as follows: altitude in the U-matrix encodes dissimilarity in the input space. Valleys in the U-matrix (i.e. low altitudes) correspond to input vectors that are similar (Ultsch, 1999). So the clusters in a multidimensional data set can be identified if all the points falling into the same valley of a U-matrix are grouped together. Furthermore, the height of the walls or hills on a U-matrix gives a hint of how much the classes differ from each other. Finally the properties of Self-Organising Maps ensure that similar groups are situated nearby in a U-matrix.

Although there have been a few applications of SOM in the processing of linguistic and semantic data (e.g. Ritter & Kohonen, 1989; Wittenburg & Frauenfelder, 1992; Honkela, 1997), the present investigation is probably the first to apply it to the semantics of emotion terms.

4.3. Results

4.3.1. Task 1

As a result of the first task, a data cube of 33600 items was gathered (the evaluations of 100 informants about 24 emotion terms of 14 possibly independent, but semantically opposite features coupling pairwise). This data cube includes a detectable part of culturally shared emotion knowledge as well as a lot of individual and sociodemographic variance.

For all 24 concepts one end of each scale of the pairing features occurred more heavily exploited than the other. We took those features as unmarked and their less exploited pairs as marked[42] features in the semantic field of emotions and joined both ends of a seemingly bipolar scale into a joint scale measuring the unmarked feature. For example the feature "strong" was exploited more heavily than "weak" and so on the joint scale *strong (vs. weak) emotion* the strength is handled as the unmarked feature and its marked counterpart is parenthesized. The evaluations of a word accumulating on opposite sides of the same scale were summated taking the "secondary opinions" into account with 0.5 values. The joint scales were transformed from having +/- values into positive scales of 7–1 starting with the maximum value (7) of an unmarked or default feature, 4 pointing to the irrelevance of the scale and a continuing increase of its marked counterpart (value 1 designating the maximum value of the marked feature).

4.3.1.1. Self-organization of the semantic field

The data pool of all answers to the 24 concepts on the 7 joint scales was processed by a SOM program[43] and the self-organizing process resulted in a graph (Figure 19). Locations of emotion concepts are marked with numbers; Estonian lexical items and their English translations are presented on either side of the graph. Closer details about the average loadings and standard deviations of the concepts on joint scales are presented in Appendix 3.

The optimal positions for concepts appear in the nodes seated on the edges of the overall picture. This means clear similarities in the evaluation rates of the neighbouring concepts and clear and systematic discrepancies in the evaluation rates of items located relatively far from each other. There are also nodes on the graph where several words are located together[44] (e.g. *rõõm* 'joy', *õnn* 'happiness', *vaimustus* 'enthusiasm'); these nodes make up groups in Figure 19. It would be easy but probably inconsiderate to declare these items as synonymous. More accurate would be an assumption that according to the features chosen for this inquiry the collocated items refer to a qualitatively similar kind of emotional experiences.

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[42] The opposition of marked vs. unmarked units in the description of language originates from Greenberg (1966). In this study the opposition is used in the sense of distributional markedness (Lyons, 1977), which means that unmarked is this counterpart of the opposites that occurs in the widest variety of contexts or context types (Cruse, 2000).

[43] Helsinki University of Technology, The SOM Toolbox version 2, 1999, http://www.cis.hut.fi/projects/somtoolbox/

[44] For technical reasons the identification number of only one of several co-located items is presented.

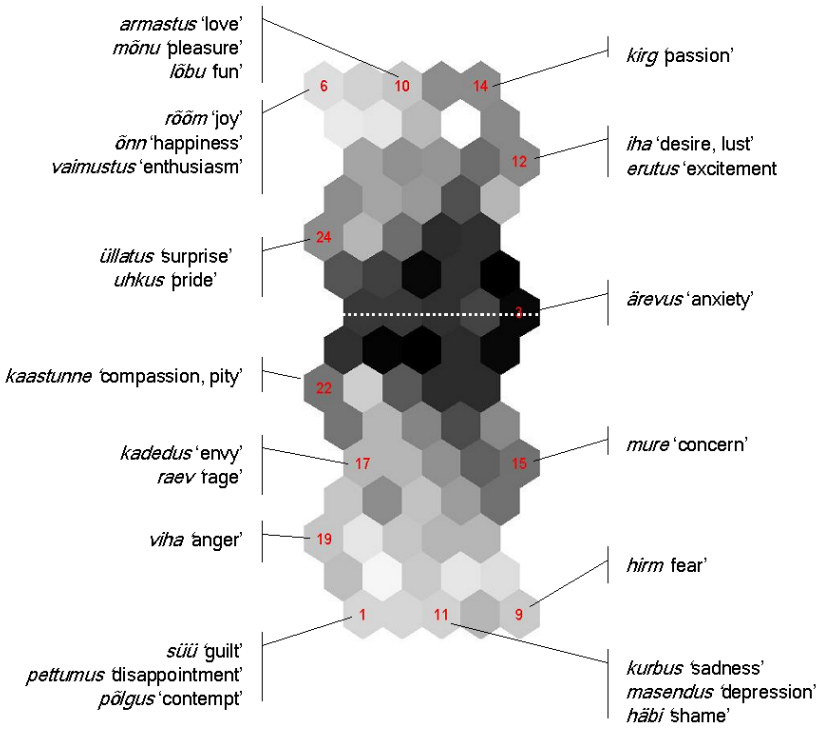

Figure 19. Locations of 24 Estonian emotion concepts on a self-organizing map.

For further semantic distinctions either an additional and more precise system of semantic features is needed or the feature(s) creating an inaccurate degree of similarity should be removed. Another explanation — concerning methodology rather than content — would be that the program calculates the best possible locations and any other location would have been inappropriate for any of these collocated items.

There are two pairs of most dissimilar emotion concepts: *hirm* 'fear' is located at a maximum distance from the first group — *õnn* 'happiness', *rõõm* 'joy' and *vaimustus* 'enthusiasm' — and the concept of *kirg* 'passion' is located at the maximum distance from the group consisting of *põlgus* 'contempt', *süü* 'guilt' and *pettumus* 'disappointment'.

Using one's imagination it is possible to claim that the lexical items are situated on the map circle-like, which would be kind of a contribution to Russell's circumplex model of emotions (Russell, 1980). The extended shape of the figure would, however, qualify it rather for an oval. One dimension dominating over another refers to the superiority of the former. Taking into account the clear division of the concepts into two subsets of positive and

negative emotions the result can also be interpreted as a contribution to the Watson Tellegen's model of two unipolar dimensions that the most part (50–75%) of semantic variation of emotion terms is claimed to be accounted for in multiple languages (Watson & Tellegen, 1985).

The locations of the concepts reveal a clear bilateral symmetry. A dark area lies as a distinction between the words denoting positive emotions (the upper part of the graph) and the words referring to negative emotions (the lower part of the graph). A white dotted line is added to emphasize the distinction between the positive and negative concepts.

The darkness of the colour is also important — the darker the colour on the graph the bigger the differences in the semantic profiles of the emotion terms. In that way a third dimension of the hypothetic semantic space is pictured. The right side of the oval is sitting up on the hill of dissimilarity from the left side items, while one item — *ärevus* 'anxiety' — appears to be quite distinct from both positive and negative emotion words, sharing some features only with *mure* 'concern' and with the group of *erutus* 'excitement' and *iha* 'desire'. The resulting, partly three-dimensional, semantic space can probably be considered as a contribution to Osgood's hypothetic affective space determined by universal and cross-cultural dimensions of *evaluation*, *activity* and *potency* (Osgood, May, & Miron, 1975).

Table 11. Correlations of variables

ID Joint scale	1.	2.	3.	4.	5.	6.	7.
1. ***strong*** *(vs. weak) emotion*	—	-.041	-.028	**.253**	.032	.157	-.162
2. ***follows*** *(vs. precedes) an event*		—	**.239**	-.008	-.060	-.079	.121
3. ***felt in the mind*** *(vs. body)*			—	.093	.050	-.031	.122
4. ***long*** *(vs. short) in duration*				—	.137	.034	-.045
5. ***depends mostly on oneself*** *(vs. others)*					—	.002	-.017
6. ***increases*** *(vs. decreases) action readiness*						—	**-.720**
7. ***unpleasant*** *(vs. pleasant)*							—

Note. Correlations stronger than r= .2 are boldfaced, p=.05.

A graph of a self-organizing map is, however, not about dimensions, as it is not oriented to any kind of fixed landmarks, but a map of interrelations and best suitable positions of items to each other. As the input data consists of several variables it is possible to tackle the contribution of each scale to the overall self-organizational process as well as to gauge the degree of naturalness of the artificial bipolar joint scales by their actual use by informants. The inter-correlations of the variables are presented in Table 11.

Figure 20 presents the self-organization of emotion concepts by single variables as measured by the scales used in the questionnaire.

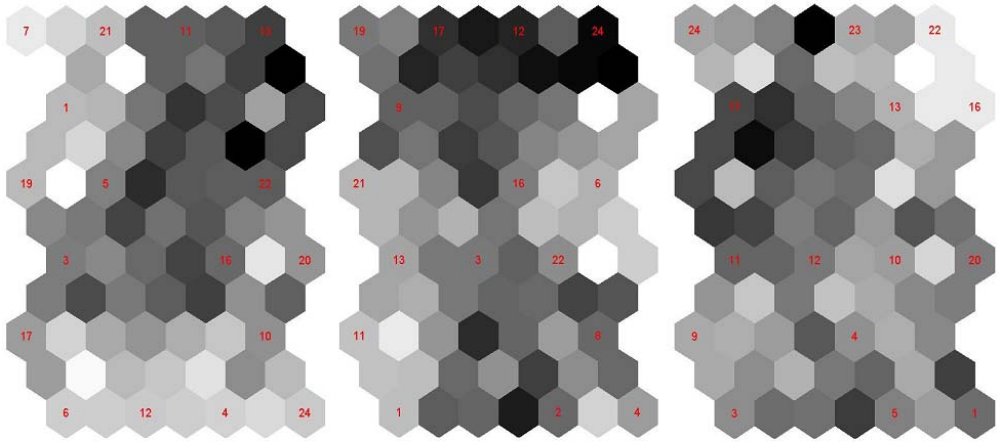

Figure 20a. The self-organizing maps of 24 Estonian emotion concepts by variables: non-distinctive features.

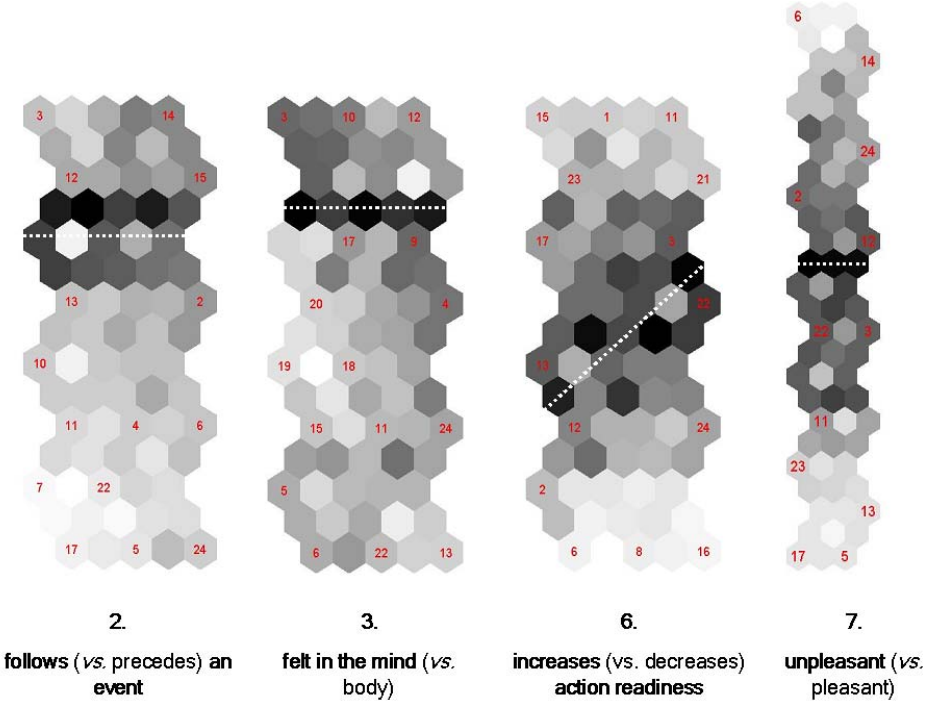

Figure 20b. The self-organizing maps of 24 Estonian emotion concepts by variables: distinctive features.

It appears that three of the seven variables are non-distinctive (Nos. 1, 4 & 5, Figure 20a) as the self-organizing process does not result in visible groupings, while four of the variables are distinctive in nature (Nos. 2, 3, 6, 7, Figure 20b) as they provide sufficient basis for dividing the set of words into two clearly separate subsets, although usually the dividing line is not very sharp. In most cases there is a grey transition region, showing the areas where both of the opposite features are simultaneously present or missing in the evaluations of concepts. So four of our tentatively bipolar scales behave as carrying really opposite and distinctive features in people's minds and three of them behave as carrying concurrent or widely varying features. Thus the oppositeness of the features and bipolarity of the scales appears to be a matter of degree.

The features that occurred as distinctive regarding the semantic field form the most relevant set of features probably present in the semantics of every single term in that field. The highly varying and non-distinctive features from the viewpoint of the whole semantic field can still be distinctive while distinguishing between close synonyms or different senses of polysemous words.

There was no division of the set of studied words into those denotating clearly *strong* or *weak* emotions. The strength of emotions seems to be subject to default conceptualisation, as most words were evaluated as strong (Ave=5.9, StDev 1.56). The feature of strength correlated positively with another quantitative characteristic — duration (*r= .253*) — and with some other features to be mentioned later. There was also no clear division of the concepts by duration. There was a positive correlation between duration and the dependence of an emotion on oneself rather than on others (*r= .137*). It appeared that people tend to take responsibility for strong and long states (e.g. *süü* 'guilt', *armastus* 'love', *õnn* 'happiness', *uhkus* 'pride'), while the causes of weaker or shorter states are attributed to others (*viha* 'anger', *üllatus* 'surprise', *pettumus* 'disappointment', *põlgus* 'contempt', *kaastunne* 'pity, compassion'). The feature of *depending on oneself (vs. others)* appeared to be varying widely and did not divide the concepts into distinct groups.

The vertical alignment of the graphs shows the distribution of the concepts according to their degree of manifestation of the observed semantic feature. In the bottom gather the concepts with higher evaluation rates on the unmarked counterpart, thus contributing to the prototype of the whole category of emotions in Estonian.

It is typical for an emotion to be conceptualised rather as following an event than preceding it (to the highest degree this feature holds for *viha* 'anger', *raev* 'rage', *süü* 'guilt', *häbi* 'shame' *rõõm* 'joy' and *üllatus* 'surprise'), but there is also a set of exceptions (*hirm* 'fear', *ärevus* 'anxiety', *erutus* 'excitement', *mure* 'concern', *kirg* 'passion'). We conclude that the time axis and the sequence of events is a relevant semantic distinction while conceptualising emotional experiences. It is interesting to note that the prototypical feature of *follows (vs.*

precedes) an event shows up a positive correlation with two other prototypical features of *felt in the mind (vs. body)* (*r*= .239) and *unpleasant (vs. pleasant)* (*r*= .121).

It is more prototypical to conceptualize the emotional states as felt in the mind rather than in the body (to the highest degree this feature holds for *süü* 'guilt', *vaimustus* 'enthusiasm', *kaastunne* 'compassion', *kadedus* 'envy', *uhkus* 'pride', *pettumus* 'disappointment'), unlike a small set of exceptions to be felt mostly in the body (*ärevus* 'anxiety', *mõnu* 'pleasure', *erutus* 'excitement'). The above-mentioned positive correlation between *unpleasantness* and being *felt rather in the mind* than *in the body* gives rise to an assumption that the unpleasantness of an emotion is the result of cognitive evaluation following an episode, but on the other hand the evaluation of pleasantness tends to precede an event and be a bodily sensation rather than a conscious decision.

The feature *increases (vs. decreases) action readiness* divides the set of words into two subsets diagonally. It is more prototypical for an emotion, generally, to be conceptualized as increasing rather than decreasing action readiness, as the most increasing and motivational states have gathered in the right-hand bottom corner (*iha* 'desire', kirg 'passion', *armastus* 'love', *rõõm* 'joy'). True, the set of words deviating from that prototype is of a comparable size (*mure* 'concern', *hirm* 'fear', *süü* 'guilt', *häbi* 'shame', *kurbus* 'sadness', *masendus* 'depression') and there is also a set of words that is evaluated as irrelevant or carrying both features (*kaastunne* 'pity, compassion', *kadedus* 'envy', *viha* 'anger', *raev* 'rage', *erutus* 'excitement', *mõnu* 'pleasure', *üllatus* 'surprise'). *Increase in action readiness* correlates positively with *strength (r= .157)* and strongly negatively with *unpleasantness (r= -.720)* that causes a slight diagonal alignment of concepts by their valency in the first graph of Figure 19a. So, taking into account the correlations previously mentioned we may conclude that motivational states with high action readiness tend to be associated with strong and pleasant bodily sensations that precede an event, while consciously evaluated negativity of emotinal states follows an event an tends to be weaker.

It is notable that the overall shape of a self-organizing map extends dramatically when the variable of *unpleasantness (vs. pleasantness)* is pictured. A two-dimensional map (Figure 20b, scale 7) appears almost as a linear scalar presentation. The unpleasant end of the scale is located at the bottom and presents the invariant and most prototypical feature that the category of emotions is generally conceptualized by in Estonian.

A comparison of the locations of lexical items on two independent maps proves that two prototypical features — *increasing action readiness and unpleasantness* — have opposite directions. There is a strong negative correlation *(r= -.720)* between these two variables. The emotional states conceptualized as decreasing action readiness most (*masendus* 'opression', *pettumus* 'disappointment', *hirm* 'fear') are also conceptualized as the most unpleasant. This is not the case of a superfluous variable, though, as there are

also emotions conceptualized as unpleasant but moderately increasing action readiness (*viha* 'anger', *kadedus* envy') and emotions conceptualized as clearly increasing action readiness but valued not as pleasant as one might expect (*erutus* 'exitement', kirg 'passion', *iha* 'desire'). The results suggest that the evaluation of a hedonistic quality and the motivational evaluation of one's action potential are partly independent and lie on top of each other in the meanings of most emotion terms.

In order to check this assumption we present a graph of emotion concepts without the overtly manifested hedonistic evaluations. Figure 21 presents the layout of emotion concepts with the data about *unpleasantness (vs. pleasantness)* removed.

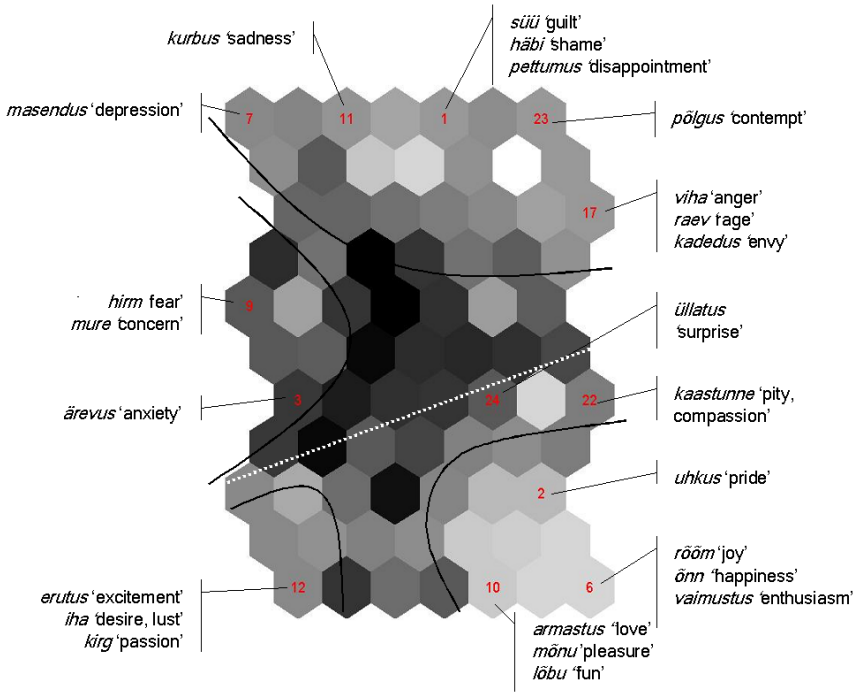

Figure 21. A self-organizing map of Estonian emotion terms with the scale of unpleasantness *(vs.* pleasantness) removed.

Comparing it with the graph in Figure 19 one can notice that the map has lost its strong extension in one dimension as well as bilateral symmetry, and looks more harmonious. Two of our variables — *follows (vs. precedes) an event* and *increases (vs. decreases) action readiness* — seem to function as hidden inherent dimensions of the map. A conceptual division between the most different concepts is situated in the middle, two emotion words *üllatus* 'surprise' and

kaastunne ‘pity, compassion’ sitting on the right-hand side of it. Groups of closely related words have been clustered: the upper part of the map is occupied by words conceptualized as states following an event decreasing action readiness (*masendus* ‘depression’, *süü* ‘guilt’, *kurbus* ‘sadness’, *häbi* ‘shame’), while the right-hand bottom corner houses states following an event increasing action readiness (*rõõm* ‘joy’, *armastus* ‘love’, *mõnu* ‘pleasure’, *lõbu* ‘fun’, *vaimustus* ‘enthusiasm’, *õnn* ‘happiness’).

There is a group of words conceptualized as states preceding an event and ending up in a decrease of action readiness (*ärevus* ‘anxiety’, mure ‘concern’, *hirm* ‘fear’) on the left side as well as a group of words denoting motivational states preceding an event that increase action readiness (*erutus* ‘exitement’, *iha* ‘desire’, kirg ‘passion’). Two words — *üllatus* ‘surprise’ and *kaastunne* ‘pity, compassion’ — do not fit into the system, being conceptualized as states following an event neither increasing nor decreasing the action readiness remarkably (or having both characteristics to an equal degree). One can imagine the division into positive and negative emotions even when the variable of *unpleasanteness (vs. pleasantness)* is not present. This hypothetical division is pictured with a white dotted line in Figure 21.

We conclude that the most bipolar of our joint scales — *unpleasant (vs. pleasant)* — functions as a kind of higher order scale, a cognitive abstraction of other semantic features contributing to the semantics of emotion concepts. It correlates positively with the feature *follows (vs. precedes) an event* and *felt in the mind (vs. body)* and negatively with the features *increase in action readiness* and *strength.* The whole system of our variables appears to be intercorrelated, while correlations of the superordinate scale *unpleasant (vs. pleasant)* with the scales of *duration* and *dependence rather on oneself (vs. others)* are mediated *via* correlations with *strength* (Table 11). The scale of hedonistic evaluations functions like a projection from a multidimensional semantic space onto a one-dimensional scale.

4.3.1.2. Self-organizing of some discrete emotion concepts

The evaluations given by 100 participants on our seven joint scales can be self-organized also by single words (data squares of 700 records). In this case the relevance and possible groupings of specific measured scales are pictured (Figures 23 to 27). As the SOM presentations show only the similarity of evaluations on scales, but not the average measured values or the standard deviations characterising variance, closer details are presented in Appendix 3 and duplicated next to the graphs. The average values bigger than 5 and less than 3 are boldfaced as indicating consensus expressed clearly enough. Boldfaced are also the standard deviations equal to or bigger than 2, indicating a

higher rate of variance and, consequently, a possible ambivalence of evaluations.

Figure 22 presents the SOMs of *rõõm* 'joy' and *õnn* 'happiness'. The two nearly synonymous concepts are organized alike: both graphs are extended in one direction and at the top of the graph there is the feature of very low *unpleasantness* (i.e. high *pleasantness*) positioned separately. This is the marked feature of these concepts that is not in alliance with the pattern of the other related features, which is indicated by the dark area separating co-operating features and emphasised by the white dotted line. The difference between the concepts *rõõm* 'joy' and *õnn* 'happiness' (if any) lies in the organization of certain specific features rather than in remarkable differences in their average semantic profiles (see Appendix 3). So one can claim that in the Estonian term *rõõm* 'joy' the unmarked feature of *increasing action readiness* is closely related to the *strength* and a tendency to *follow an event*. The features closer to the dark area show up lower values and higher variance, being probably less relevant in the conception of joy. In the Estonian term *õnn* 'happiness' the unmarked values of *strength* and *increase in action readiness* are equally positioned towards the *length* dimension, leaving other features less relevant and apt to variance. On the basis of the measured features one can conclude that the emotional experiences of *õnn* 'happiness' and *rõõm* 'joy' are almost indistinguishable and the use and distribution of lexical labels is probably highly contextual or consituational.

Figure 23 presents the self-organized concepts of *mõnu* 'pleasure' and *armastus* 'love'. Both graphs are of an extended shape due to a bipolar tension between the extreme values of their characteristic features; both graphs are of a darker shade than *rõõm* 'joy' and *õnn* 'happiness', which is a characteristic indicator of lower similarity, i.e. bigger variance in evaluations. *Mõnu* 'pleasure' demonstrates the marked features of *pleasantness* related to the bias to be *felt less in the mind than in the body*. Unmarked is the feature of *strength* related to the tendency to *follow an event* and to *increase one's action readiness*. In the concept of *armastus* 'love' the marked value of pleasantness is related to the tendency to *depend less on oneself than others* , although the latter feature shows up the highest degree of variance (STDEV=2.03). Unmarked is the union of potency to *increase one's action readiness* with ultimate *strength* and *length*.

The concepts of *erutus* 'excitement' and *ärevus* 'anxiety' (Figure 24) do not show a shape extended between the extreme values of opposite features. Instead, they tend to be shaped by interaction of prototypical features expressed to a lesser degree. The concept of *ärevus* 'anxiety' self-organizes with a rather clear structure divided into two subsets of features. There is a marked feature of *preceding an event* related to two ambivalent features indicating that this state neither *increases* nor *decreases* action readiness (AVE=3.70) or does both (STDEV =2.01), and is equally *felt in the body* and *in the mind* or neither.

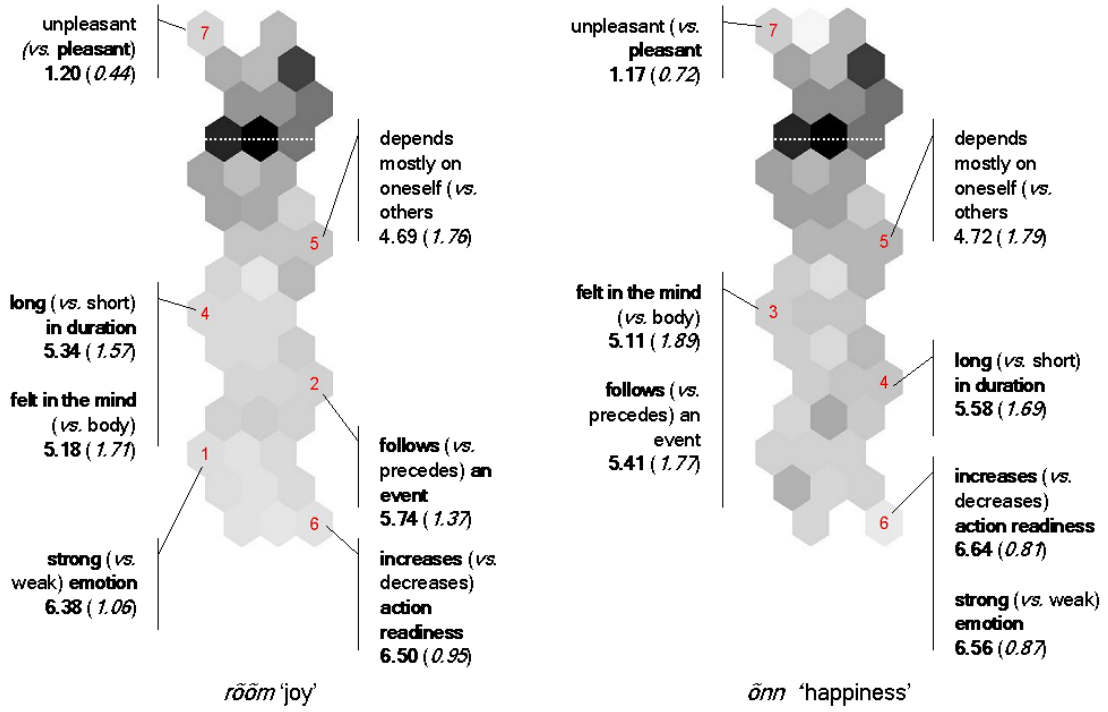

Figure 22. Self-organized Estonian concepts *rõõm* 'joy' and *õnn* 'happiness'.

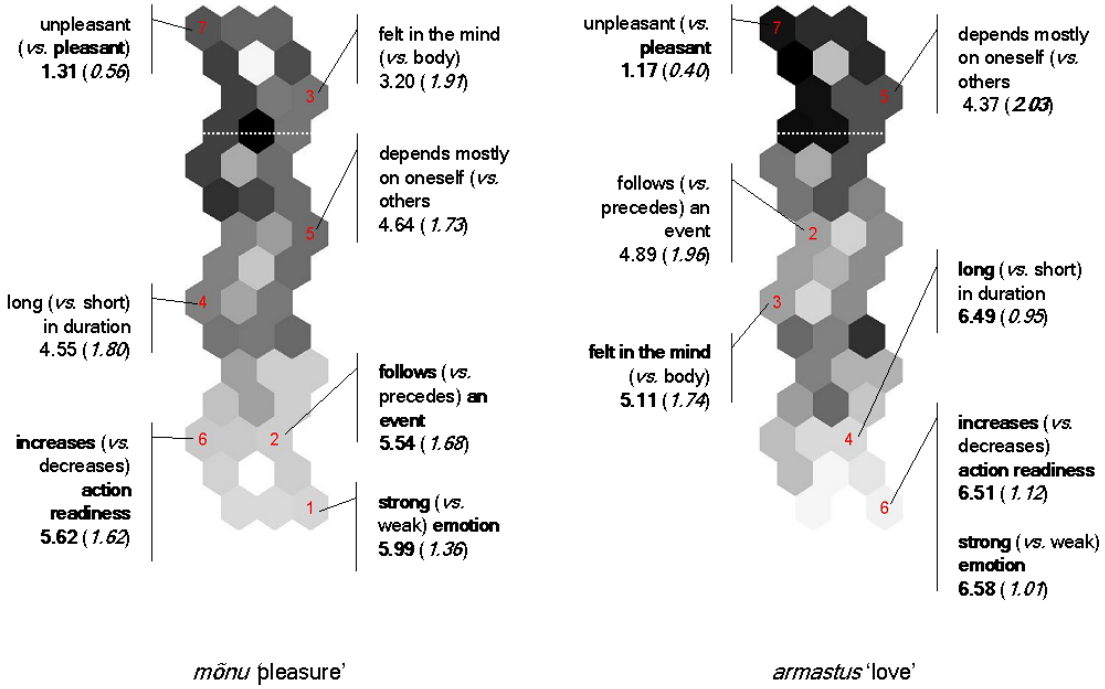

Figure 23. Self-organized Estonian concepts *mõnu* 'pleasure' and *armastus* 'love'.

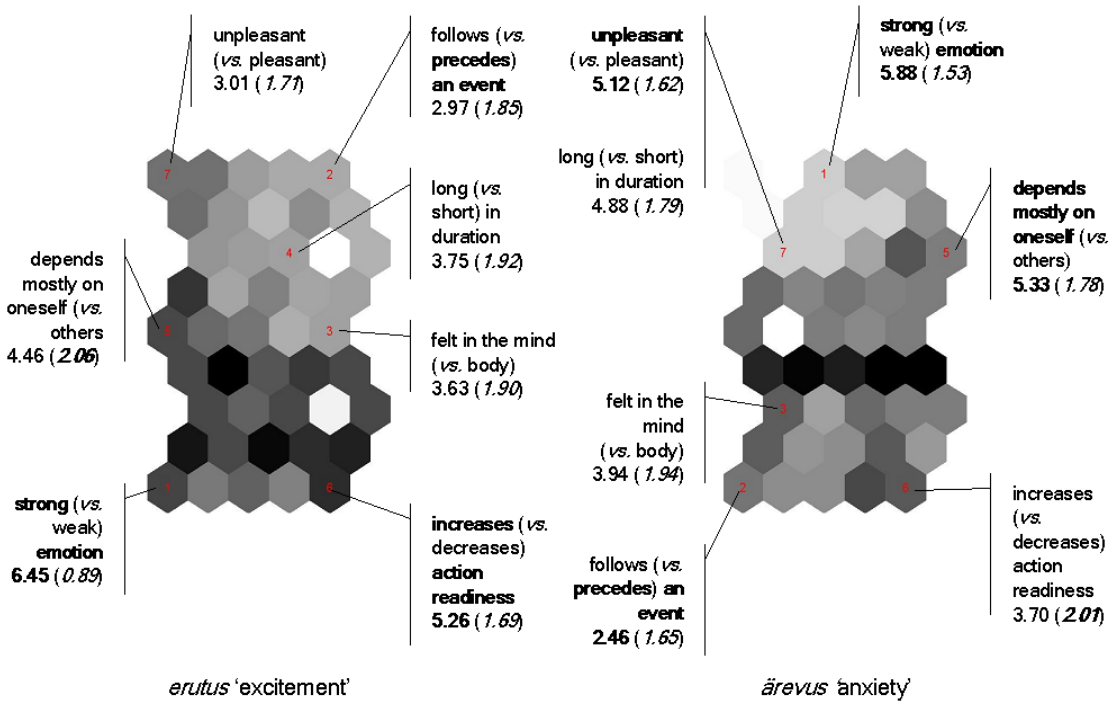

Figure 24. Self-organized Estonian concepts *erutus* 'excitement' and *ärevus* 'anxiety'.

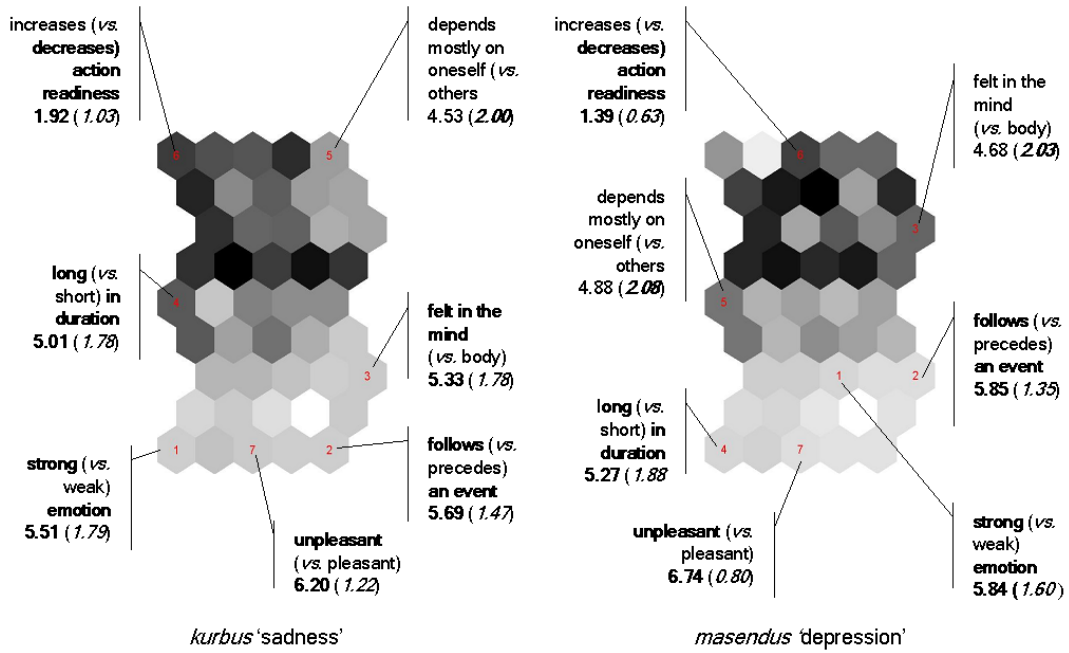

Figure 25. Self-organized Estonian concepts *kurbus* 'sadness' and *masendus* 'depression'.

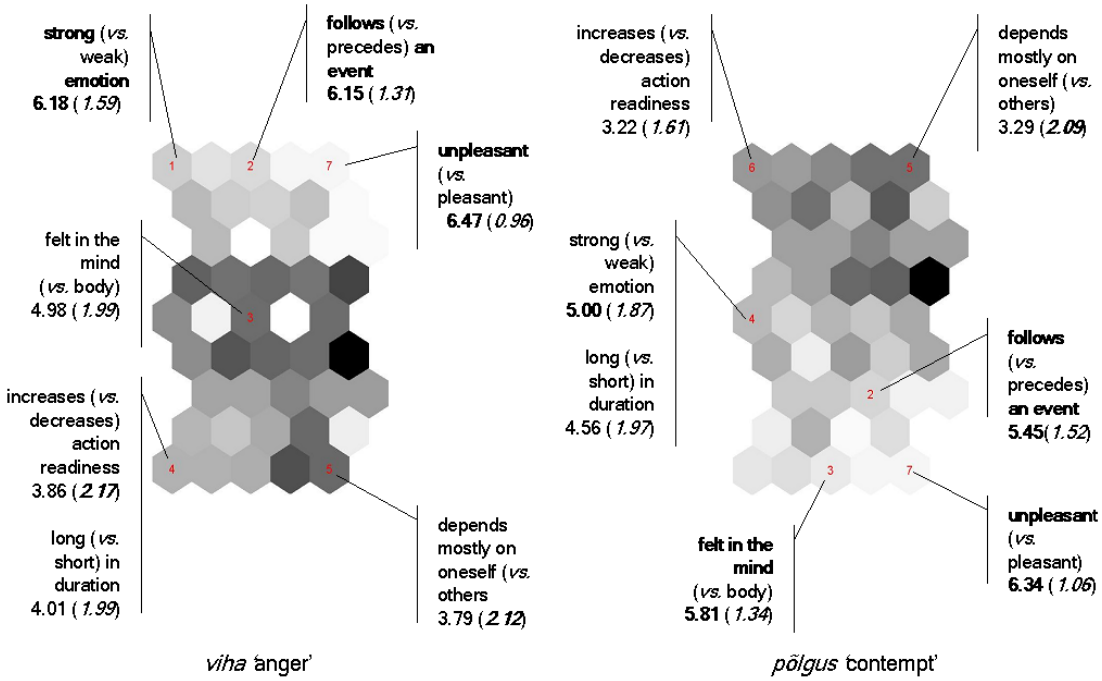

Figure 26. Self-organized Estonian concepts *viha* 'anger' and *põlgus* 'contempt'.

On the other side it is hard to ignore *strength* and the collocation of non-ultimate *length* and *unpleasantness*.

The concept of *erutus* 'excitement' appears self-organizing but with no clear structure. The clearest feature of the concept *erutus* 'ecitement' its *strength* and a potency to *increase action readiness* but these features stand quite apart from each other. Neither are related its unmarked feature of *preceding an event* and the relatively low rate of *pleasantness*. Possibly there are several ways to conceptualize excitement as the variation of the given answers is indicative of a rather low consensus of evaluations.

The concepts of *kurbus* 'sadness' and *masendus* 'depression' are self-organized likewise (Figure 25), having the marked feature of *decreasing action readiness* on top. There are slight differences, too. In the concept of *kurbus* 'sadness' the *strength*, *unpleasantness* and tendency to *follow an event* are unmarked salient features similarly evaluated, while in the case of *masendus* 'depression' *unpleasantness* and *length* are salient.

The concept *viha* 'anger' (Figure 26) is profiled by relevant unmarked features of *strength*, *unpleasantness* and a tendency to *follow an event*, while other features are either irrelevant or apt to vary. Remarkable is the similar combination of irrelevance and the variance of such features as *action readiness* (AVE=3.36; STDEV =2.12) and *length* (AVE=4.01; STDEV =1.99). The concept of *põlgus* 'contempt' (Figure 26) is profiled by its unmarked *unpleasantness* together with the tendency to be *felt in the mind* rather than *in the body*. The marked features of *decreasing action readiness* and *dependence on others* rather than *on oneself* tend to higher variance.

Only some SOMs of the 24 studied concepts have been presented here as illustration, and we do not claim that natural fuzzy emotion concepts actually look like those graphs presented in Figures 23–27. This is just the way the information gathered by a questionnaire about those concepts organizes itself.

The self–organizing approach suggests that the profile of an emotion concept is the most influenced by tension between the variables *unpleasantness (vs. pleasantness)* and *increase (vs. decrease) in action readiness,* and by the number and location of some additional relevant features that the tension is most likely co-interpreted with. The relevance of different semantic features in emotion concepts is a matter of degree and subject to high individual variance.

4.3.2. Task 2

The task of eliciting similar concepts resulted in 4068 lexical items (average 1.69 *per* word) and the task of eliciting opposite concepts resulted in 3694 lexical items (1.53 *per* word).

There were big differences in the frequencies of similarity and dissimilarity judgments as well as clear asymmetries in similarity ratings of pairs of

concepts. We do not have enough space to deal with the differences and variance in closer detail in this paper. Let us just note that there are five emotion concepts participating in the semantic relations of similarity and oppositeness with the lowest rate of variance: these are *rõõm* 'joy', *õnn* 'happiness', *viha* 'anger', *kurbus* 'sadness', and *armastus* 'love'.

The relations of these concepts are supposed to form a part of the culturally shared emotion knowledge in Estonian. Three of them — *rõõm* 'joy', *õnn* 'happiness' and *viha* 'anger' — also get the biggest numbers of elicited responses and function as the most frequent targets of similarity judgments. These concepts are all actual, accessible and have a semantic content that is characteristic in certain aspects but remains probably rather unspecific in some other nuances.

There are also some words with more specific or even individual meanings — *häbi* 'shame', *kadedus* 'envy', *pettumus* 'disappointment', *põlgus* 'contempt', *vaimustus* 'enthusiasm', *uhkus* 'pride', *üllatus* 'surprise' — as they show up a remarkably bigger variance of relations with other words. We do not find those words among the most accessible and actual concepts with biggest numbers of mentioned relations.

4.3.2.1. The self-organizing of similarity and dissimilarity evaluations

In order to let the lexical information self-organize by means of a SOM-program the information about lexical relations was first quantified. Every single event of listing similar or opposite concepts was treated as a task of free listing and so for every relation mentioned by at least three persons an index of relative cognitive salience (S) was calculated[45].

The calculated indices varied from .88 to .01. Table 12 presents the data of the 30 most salient relations among the emotion terms. 161 relations out of 488 with indices greater than or equal to the average (S_{ave}=.07) were taken into account to generate a SOM. For SOM input the indices of similarity (S_s) were transformed into theoretical closeness between concepts ($1-S_s$), and the indices of oppositeness (S_o) were transformed into theoretical distances with polar values ($0-S_0$). Some examples of the input values are presented in the rightmost column of Table 12.

The SOM generated from our information on the semantic relations of similarity and oppositeness is presented in Figure 27. There are 95 concepts placed on the map, but only the locations of stimulus words are referred to by numbers and lexical labels. Almost every concept is supported by a group of collocated semantically similar items.

[45] The formula for calculating the index of relative cognitive salience comes from U. Sutrop (2001) and the procedure is described in Ch. 1.2.

Table 12. 30 most salient relations between emotion terms

Stimulus word	Gloss	Target word	Gloss	R	F	mP	S	I
raev	'rage'	*viha*	'anger'	s	97	1.17	.88	.12
kurbus	'sadness'	*rõõm*	'joy'	o	74	1.15	.71	-.71
rõõm	'joy'	*kurbus*	'sadness'	o	66	1.15	.63	-.63
viha	'anger'	*raev*	'rage'	s	65	1.17	.61	.39
ärevus	'anxiety'	*rahu*	'peace'	o	59	1.15	.56	-.56
mure	'concern'	*rõõm*	'joy'	o	52	1.15	.53	-.53
masendus	'depression'	*rõõm*	'joy'	o	55	1.15	.53	-.53
kurbus	'sadness'	*nukrus*	'wistfulness'	s	49	1.06	.52	.48
hirm	'fear'	*kartus*	'alarm'	s	62	1.29	.51	.49
kirg	'passion'	*iha*	'desire'	s	53	1.20	.49	.51
hirm	'fear'	*julgus*	'courage'	o	49	1.15	.48	-.48
õnn	'happiness'	*rõõm*	'joy'	s	50	1.14	.47	.53
rõõm	'joy'	*õnn*	'happiness'	s	52	1.35	.47	.53
õnn	'happiness'	*õnnetus*	'unhappiness'	o	48	1.15	.44	-.44
kadedus	'envy'	*lahkus*	'kindness'	o	43	1.15	.42	-.42
erutus	'excitement'	*rahu*	'peace'	o	40	1.15	.41	-.41
lõbu	'fun'	*kurbus*	'sadness'	o	40	1.15	.40	-.40
lõbu	'fun'	*rõõm*	'joy'	s	47	1.29	.40	.60
kirg	'passion'	*ükskõiksus*	'indifference'	o	38	1.15	.38	-.38
iha	'desire'	*ükskõiksus*	'indifference'	o	34	1.15	.37	-.37
erutus	'excitement'	*ärevus*	'anxiety'	s	37	1.16	.37	.63
kaastunne	'pity'	*ükskõiksus*	'indifference'	o	35	1.15	.36	-.36
raev	'rage'	*rahu*	'peace'	o	35	1.17	.33	-.33
häbi	'shame'	*piinlikkus*	'embarrassment'	s	29	1.06	.33	.67
iha	'desire'	*kirg*	'passion'	s	31	1.16	.32	.68
armastus	'love'	*viha*	'anger'	o	32	1.15	.31	-.31
põlgus	'contempt'	*viha*	'anger'	s	35	1.28	.30	.70
üllatus	'surprise'	*ootamatus*	'unexpectedness'	s	31	1.29	.28	.72
masendus	'depression'	*kurbus*	'sadness'	s	32	1.30	.27	.73
mõnu	'pleasure'	nauding	'enjoyment'	s	34	1.50	.26	.74

Note. R – relation, s – similarity, o – opposition, F – frequency, mP – mean position, S – index of cognitive salience, I – input values.

The graph is quite different from the one based on evaluations of semantic features (Figure 19). There is no clear division line of positivity vs. negativity between the concepts, nor any other very sharp segmentation. In the same way as in Figure 21 the positive concepts tend to gather at the bottom and the

negative concepts congregate near the upper edge. The overall graph looks a little like a negative of the graph in Figure 21.

The concepts are not situated on the edges only; there is a bright area of rather similar concepts in the middle part of the graph. It appears that most of the lowland of semantically indifferent concepts consists of "opposite words" denying some qualities. The semantic denial is also manifested morphologically. There are 8 words derived with the caritive *–tu-* suffix[46] (*tunde**tu**s* 'insensitivity', *kire**tu**s* 'dispassionateness', süüdima**tu**s 'irresponsibility', *hooli-ma**tu**s* 'disregard', *häbi**tu**s* 'shamelessness', *kartma**tu**s* 'intrepidity', *mure**tu**s* 'ease' (lit. 'carelessness') and two compound words with the negative prefix ***eba-*** (***eba**õnn* 'adversity, bad luck') and ***eba**mugavus* 'discomfort'). At the same spot there are *tuimus* 'numbness', *igavus* 'dullness' and *ükskõiksus* 'indifference, lit. [all-the-same]-ness' as well as a metaphorical use of *külmus* 'coldness', all denying the presence of emotional arousal.

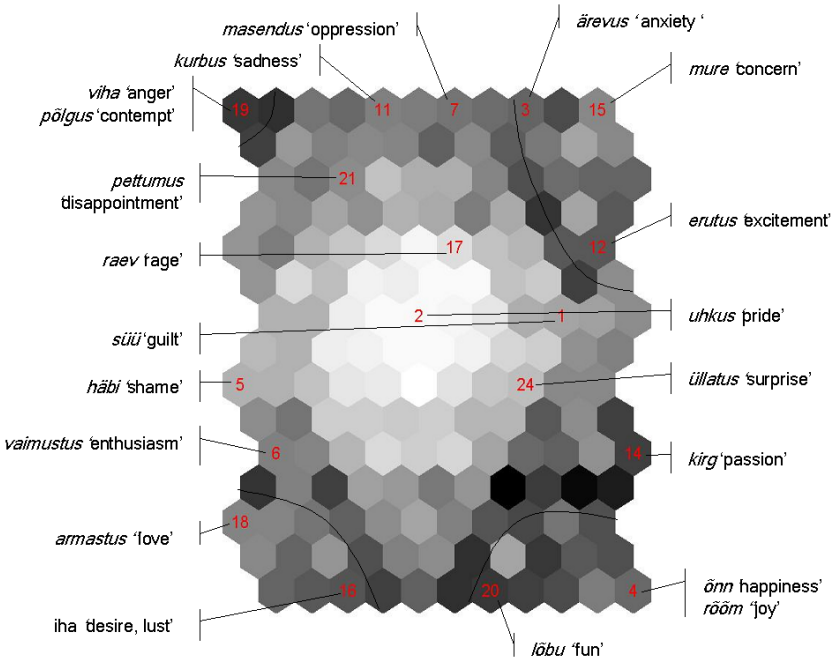

Figure 27. A self-organizing map of emotion concepts based on the relations of similarity and oppositeness.

[46] The caritive suffix *–tu* derives denominal and deverbal adjectives referring to missing qualities (meaning "without something") (EKG, 1995: 579).

We conclude that the bright lowland of the conceptual SOM is mostly based on a partial or total deactivation of the relevant semantic components contributing to prototypical emotion concepts. These indifferent concepts appear equally distant of "proper" emotion words referring to states of arousal that are located on the edges of the map and separated with small ghats in the picture.

Groups of words most distinct from the deactivation zone as well as from each other are separated by lines in Figure 27. There are several groups of words situated close to each other or even at the same node on the SOM, which indicates similarity in the evaluations of similarity and oppositeness given to those words.

In the upper left-hand corner there is a group of *viha* 'anger', *põlgus* 'contempt', *sallimatus* 'dislike' and *tigedus* 'viciousness', all referring to states of intensive negatively valenced reactions following a stimulus event and being addressed to other people. This kind of states function as negative feedback from interaction with other people.

In the upper right-hand corner there are *mure* 'concern', *ärevus* 'anxiety', *äng* 'angst', *kartus* 'fear', *paanika* 'panic', *närvilisus* 'nervousness', *rahutus* 'disquiet', *ootus* 'anticipation', *ärritus* 'agitation', *erksus* 'alertness', *erutus* 'excitement'. These words can be identified as referring to states of high arousal rather preceding than following an event. We can use a term "pro-actions" about such states as they function as states of anticipating feedback. The valency varies from highly negative to neutral and the presence of other people is not obligatory.

Between those two groups with dominating negativity there are nodes on the upper edge of the graph containing words like *valu* 'pain', *masendus* 'depression', *õnnetus* 'misfortune', *kurbus* 'sadness' *nukrus* 'wistfulness' designating individual antihedonistic states. States of this kind function as intrapersonal negative feedback. Note that the transition to central deactivational states is smooth in the graph: at the same node with *pettumus* 'disappointment' there are also *apaatia* 'apathy', *depressioon* 'depression', and *loidus* 'inertia'.

Also not separated from the central deactivational region there is a word group sitting on the left-hand edge of the graph referring to states experienced intrapersonally as negative feedback from social interaction *häbi* 'shame', *piinlikkus* 'embarrassment', *alandus* 'humiliation', *halvustus* 'disparagement', *ebameeldivus* 'dislike'.

Opposite to this group there are words on the right-hand edge of the graph referring to states of giving positive reinforcement to their interrelations – *hool* 'care', *sõprus* 'friendship' *austus* 'esteem', *kirg* 'passion'.

In the lower right-hand corner there are the words *rõõm* 'joy', *õnn* 'happiness', *rahulolu* 'contentment', *heaolu* 'well-being', *lõbu* 'fun' that qualify as referring to states of enjoying intrapersonal (or shared) positive feedback of one's actions.

In the lower left-hand corner there are *tahe* ‘will’, *soov* ‘wish’, *himu* ‘desire’, *iha* ‘lust, desire’, *armastus* ‘love’, *kiindumus* ‘affection’ — words referring to strong positive dispositions or motivational states towards something or someone. These states are rather pro- than re-actional by nature and refer to one’s inner positive feedback loop holding up motivation and thus increasing action readiness.

Between those two groups there is a node on the edge of the graph containing words designating purely hedonistic intrapersonal states of enjoying positive feedback: *lust* ‘mirth’ and *nauding* ‘enjoyment’.

It is rather surprising to find concepts like *uhkus* ‘pride’, *häbi* ‘shame’ *süü* ‘guilt’ and *raev* ‘rage’ near the central indifferent part of the graph. Probably the reason lies in the high level of specifity of those concepts — the concepts tended to show up a high variance of not very strong semantic relations, and no strongly polar opposites.

The described layout of emotion terms enables a conclusion that the Estonian system of emotion knowledge based on lexical relations is symmetrical in a radial manner. There are complementarily matching (positive vs. negative) counterparts of affective states sitting in the opposite corners of the graph: positive reactional states match negative reactional states, positive proactional states match negative ones. Symmetrical are also the edges of the graph between the corners of high activation. So a positive hedonistic state matches antihedonistic states, and states of positive social feedback match the states of getting negative feedback from social interaction, all of a relatively low activation.

It is notable that the extreme opposites on the graph do not match the relations the oppositeness of which was cognitively most salient in Task 2 (Table 2), nor are concepts with a maximum cognitive salience of similarity sitting in the same node. As a self-organizing map takes into account not only one or two most salient relations but a whole network of semantic relations it is considerable as an abstraction reflecting the higher order emotion knowledge captured into the emotion lexicon.

The most important self-organizing principle of the interrelations of Estonian emotion terms seems to be the level of activation. Although not visible on the graph, the division of concepts into positive and negative ones is also present. The +/- division is related to feedback functions and is therefore many-folded and holds for specific types and aspects of the emotional situation in which the feedback takes place. Relevant types of situations are formed in cooperation with the scope of an emotional episode (intrapersonal or interpersonal), the presence of a time axis and the conceptual focus of attention in the event structure.

4.4. Discussion

There are some investigations into the semantics of Estonian emotion terms that the results of the present study can be compared to. Two of the previous studies of Estonian emotion terms have been carried out by psychologists and the results appear, to a certain extent, model-depending and controversial. J. Allik (1997) has gathered students' emotional self-ratings and applied factor analysis to the results. His findings were in accord with the Watson-Tellegen's model of two main factors (Positive Affect and Negative Affect) that most semantic variance of emotion terms in many languages is claimed to be accounted for (Watson & Tellegen, 1985). These two factors were not regarded as two opposite ends of one bipolar scale, but rather claimed to be unipolar in nature and located orthogonally in respect of each other, because the correlation between them was found rather weak (*r=–.18, p=.001*, Allik & Realo, 1997: 634). In addition to the two main factors a set of seven more specific factors in the Estonian emotion vocabulary were found and their interrelations exemplified by cluster analyses (Allik, 1997).

L. Kästik and her supervisor T. Niit have analysed similarity judgments of Estonian emotion words, using the methods of multivariate scaling and cluster analysis (Kästik, 2000). Their results resemble the circumplex model of affect proposed by Russell (1980), probably because of applying a similar methodology (Russell, Lewicka, & Niit, 1989). In this model most of the variance of the emotion terms is explained by two crossing bipolar dimensions of *pleasantness vs. unpleasantness* and *activation vs. deactivation*. The Estonian emotion terms were found to locate almost circle-like with an exception of the words *ärevus* 'anxiety', *armukadedus* 'jealousy' and *rahutus* 'disquiet' and the absence of words for pleasant deactivated states.

These two approaches to Estonian emotion terms provide a perfect illustration of the main controversy of lexical approaches applied in the framework of psychology. Getting systematically controversial results about the main positive *vs*. negative construal of the emotion structure has caused a lot of discussion in emotion studies between "unipolarists" and "bipolarists" of emotion *qualia.* Curiously enough the proponents of both schools have contentedly asserted that the other side has given up. Proper bipolarists refer to Watsons & Tellegen's work (1999) as adjusting the bipolarity of the main dimensions (Russell & Lamay, 2000: 496), while the unipolarists claim that there is more and more evidence supporting their statement (Nõlvak & Valk, 2003: 179 refer to Allik & Realo, 1997 and, Cacioppo & Berntson, 1999; Watson et al., 1988).

Estonian emotion terms have been studied also from the viewpoint of linguistics. In tasks of free listing of emotion terms carried out by the author the basic Estonian emotion terms were found out and a tentative cognitive structure of the folk category of emotions was suggested (see Ch. 2 in this monograph or

Vainik, 2002d). It appears that laymen tend to divide their emotional experience strongly into two subcategories of positive and negative emotions. It was concluded that they treat these categories as opposites, as relations of lexical antonymy were widely found to hold between the basic emotion words. Thus, knowledge of the oppositeness of the two main categories — positive and negative emotions — was found to be an inevitable part of a layman's model of emotions as mediated linguistically.

Due to the partly controversial results of model-oriented psychological studies on the one hand and an empirical study carried out by a cognitive linguist on the other hand it was hypothesized that "emotions seem to be organised differently on different levels: on experiential level the positive and negative emotions can be self-reported and mentally operated while not mutually excluding one another, whereas on the conceptual level that is influenced by forms of social cognition (like folk models) the positive and negative emotion concepts are treated as opposites and related to each other through the relations of antonymity on the lexical level." (Vainik, 2002a: 338 – 339). The question arises: why does the semantics of Estonian emotion terms show up a different structure while data is gathered and analysed with different methodologies? Does it mean that there is no universal structure of culturally shared emotion knowledge that is independent of the nature of an approach?

As the results of the present study suggest, that this exactly is the case. Although the same set of words was studied, although the data was gathered from the same informants and analyzed by an identical process of self-organization,the results of two different tasks approaching the emotion concepts *via* different levels of access appeared, in most cases, different.

The only pervasive characteristic of emotion knowledge manifested in both tasks was its tendency to be projected from a hypothetical multidimensional semantic space onto a plane of SOMs according to their overall valency: terms with a positive valency were clustered together and terms of a negative valency were situated on the opposite sides of the graphs.

Self-organizing maps (Figures 19 and 27) as the main results of differently accessed semantics of Estonian emotion terms do not look identical. A hypothesis growing out of the result is that probably the culturally shared universal structure of emotion knowledge accounts only for the rather general division of emotional experience into positive and negative categories, and for the lexical interrelations of the basic level concepts of *õnn* 'happiness', *rõõm* 'joy', *kurbus* 'sadness', *viha* 'anger' and *armastus* 'love' that occurred as both frequent and with low variance in our second task. There seems to be no fixed network of interrelated emotion concepts in a semantic space determined by a fixed number of dimensions holding for most speakers of Estonian and being independent of the nature of source data (numerical self-ratings *vs.* lexical production) and analytical tools. The data produced by the informants about one and the same set of stimulus words organized itself differently according to the

task structure and the target it was meant to measure in the first place. There are also different possibilities of interpreting the results.

In the case of our first task of concept evaluation an extended bilaterally symmetric structure of emotion concepts was detected (Figure 19) with one dominating dimension coinciding with the scale of *unpleasantness (vs. pleasantness)* (Figure 20b). The concepts were situated on the edges of the graph, which was indicative of the relative similarity of evaluations of adjacent items and the systematic differences between the items located relatively far from each other. This result could be interpreted as a kind of contribution to the circumplex model of emotion structure (Russell, 1980), although the SOM program does not give a hint of what the other dimension besides the *pleasantness vs. unpleasantness* of this quasi-circumplex model could be.

The overall negativity vs. positivity of the concepts that was clearly demonstrated by self-organization into two relatively separate subsets on the graph (Figure 19) can be interpreted as a contribution to Watson-Tellegen's model of the two main factors of General Positive and Negative Affect, too (Watson & Tellegen, 1985). There is also some support to the unipolarity of these dimensions, as the dark area on the right hand side of the graph is indicative of bigger differences (accumulation of conceptual distances). It seems reasonable to think that the angle between the two ends of the graph would differ from 180 ° if the altitude dimension (darkness of shade) of SOM-presentations were not allowed.

Another way to interpret the presentation in Figure 19 as a partly three-dimensional semantic space is to regard the result as a contribution to Osgood's hypothetic affective space determined by the universal and cross-cultural dimensions of *evaluation*, *activity* and *potency* (Osgood, May, & Miron, 1975). There are, however, some difficulties identifying other dimensions but *evaluation* with our results.

The graph in Figure 19 is the result of a cooperation and coincidence of several relevant and less relevant specific variables used in the questionnaire. The analysis of the contribution of the measured variables to the overall self-organizational process indicated that the variable of subjective hedonistic evaluations *unpleasant (vs. pleasant)* was cross-accompanied by the situation-related and partly independent variable of motivational evaluations *increases (vs. decreases) action readiness.* These two are the semantic features that characterize most of the items in the semantic field of emotions for Estonians. Our results support the universality and importance of the dimension of action readiness in emotion lexicons of many languages as proposed by some authors (Frijda, 1987; Frijda, Markam, Sato, & Wiers, 1995).

Every emotion concept included in the present study was found to represent a state of tension between hedonistic and motivational evaluations. The hypothetical tension between the two main scales of evaluation is a matter of degree for different states and concepts as well as apt to individual variance. We

assume that as a result of this tension a summary psychophysiological valency (+/-) of emotion is conceptualised that is further interpreted in the context of ongoing events, their participants, social relations and cognitive processes. Features like *follows (vs. precedes)* an event, *felt in the mind (vs. body)* and *depends mostly on oneself (vs. others)* are some of the candidates for semantic features accompanied with the perceived tension that gives rise to the variety of words referring to basically similar emotional states. The quantitative parameters (*strength* and *length* of an emotional experience) occurred as conceptualised default in the set of the selected Estonian emotion terms. This finding is in accord with evidence indicating that intensity is the main default characteristic of "emotionness" predicting the prototypicality ratings of emotion words (Zammuner, 1998; Niedenthal et al., 2004). It should be noted, however, that the correlations of *strength* and *length* indicate that emotional intensity, while conceptualised, is applied to the overall amount of energy of an emotion rather than to its quotient to some time period.

Self-ratings either about personal experience or concept *qualia* (Allik, 1997 and his reference to Russell, 1980) is a method addressing itself directly to measure the underlying qualities of emotional experience influenced by the two processes of arousal and inhibition regulating one's behaviour (Gray, 1982). In most cases Positive Affect has been identified with the subjective hedonistic dimension of pleasantness and Negative Affect with unpleasantness. It is possible, however, that the dimension of General Positive Affect should be identified with a felt increase in action readiness instead — we tend to feel ready for actions when pleased and tend to avoid waste of energy when displeased. Or *vice versa*: we tend to feel displeased when our preferred actions are prohibited and pleased when we can do exactly what we feel like.

It is interesting to note that the inherentness of motivational evaluations (i.e. *action readiness*) in the semantics of most Estonian emotion terms might be the reason for the deficiency of terms for states simultaneously pleasant and of low arousal pointed out by previous investigators of Estonian emotion terms (Allik 1997; Kästik, 2000) — what is evaluated as pleasant by Estonians tends to be interpreted as motivation for action, accompanied by a relatively higher arousal. The tendency to interpret high action readiness as subjectively "positive" may also serve as an explanation for *viha* 'anger' being classified exceptionally under the subcategory of positive emotions by some informants in a series of list task carried out by Vainik (2001), as well as for the relatively lower average rate of *unpleasantness* (AVE=6.5) as compared to states ultimately *decreasing action readiness,* e.g. *masendus* 'depression' (AVE=6.7) found in the present study. As for terms referring specifically and mainly to an urge to act without being evaluated as *pleasant* such were not elicited in the series of list tasks of emotion terms — states of this kind just failed to occur as prototypical members of the emotion category for Estonians (see Ch. 2.2.5 or Vainik, 2002d).

The measurement of conceptual similarity and dissimilarity resulted in a radially symmetrical conceptual self-organization, where prototypical states of high activation were first opposed to a set of deactivational states omitting some important quality of emotions, and thereafter to their more specific situational counterparts of the opposite valency. We conclude that possibly lexical similarity and dissimilarity of emotion terms is evaluated on the basis of three aspects: type of situation, level of activation and valency. Type of situation varies from social to individual and from most prototypical reactions to marked states of pro-actions in respect of its eliciting event. The oppositeness of positively and negatively valenced emotion concepts reflected in the lexical network holds mainly, and probably only, in a specific situational context and is of complementary nature[47].

4.5. Theoretical implications

Due to having been successfully approached by scientists of different disciplines and with several methodologies Estonian emotion terms served as a suitable target for a self-organizational process in order to find out what the structure of emotion knowledge "really is". Unlike the preset instructions of data reducing used in statistical methods the method of self-organizing maps enables the inherent structure of the data to guide itself, while the program is learning about the interrelations of input data and generating the projection of a multidimensional semantic space onto a plane of best suitable positions.

One should not forget, however, that any visually attractive representation of conceptual space or emotion *qualia* cannot be identified either with spatial dimensions or with distances between the nodes of a real "wet" neural network. Neural coactivation patterns corresponding to concepts in the human brain are hardly measurable or describable in any kind of localistic terms[48]. Probably the semantic "closeness" of "neighbouring" units in a human neural network means a partial or total coactivation of subparts of neural pathways that results in perceiving conceptual similarity.

In this case the asymmetry of similarity ratings argued by Schimmack & Reizenstein (1997) is only natural — comparison of concepts is not about

[47] A. Cruse claims that complementaries constitute a very basic form of oppositeness. In this case some conceptual area is partitioned by the terms of oppositeness into two mutually exclusive compartments, with no possibility of 'sitting on the fence' e.g. dead: alive, true: false, inside: outside etc. (Cruse, 2000: 168).

[48] The terms "semantic field" and "semantic space" (see e. g. Osgood, Suci, & Tannenbaum, 1975, Langacker, 1987) are localistic and metaphorical in nature. *Semantic field* should be undertsood rather by its analogy with electromagnetic field, based on vibrations and co-vibrations, instead.

comparing the locations of two sites of equal distance, nor is it a conscious computation of discrete semantic features — it is about self-organizing processes in the neural network, carried out with different frequencies and giving rise to some cognitive routines winning over the others. Asymmetry of cognitive routines is probably the response of an organism to asymmetry in its environmental challenges.

Our conclusion, growing out of the results of conceptual self-organization, is that positivity and negativity as inevitable properties of the emotion category conceptualized in many languages are cognitive abstractions derived mostly from simultaneous evaluations in hedonistic and motivational dimensions in cooperation with quantitative and interpretative characteristics of perceived emotional experience. It is due to certain evolutionally formed prestructuredness of data-processing in the human brain that all emotional knowledge comes to us through a subjective filter deciding its benevolence or maladaptiveness to one's personal prospects and ability to act accordingly.

In this study the scale of hedonistic evaluations occurred as an ostensible projection of a multidimensional semantic space onto just one dimension. *Pleasant – unpleasant* is a manifestation of the inevitable first level knowledge of emotion (Planalp and Fitness, 1999). The ostensibility of the projection means that the reverse is also possible: the multidimensional semantic space enabling a second-level knowledge of emotions (Planalp and Fitness, 1999) may have been developed evolutionally in order to interpret the primitive positive and negative feedback from interaction with the environment in different settings. Some authors claim that human consciousness *per se* has been developed out of the "feeling of what happens" (Damasio, 1999) – the cognition and recognition of emotional states.

Prestructuredness is a factor to be taken into account also while interpreting the results of any kind of reductional data processing. The results of self-organization in our experimental study also depended on the pre-structuredness of the data. In both tasks the results depended on the set of emotion terms selected for study. In the case of the first task the data was prestructured by a set of specific scales chosen for evaluation; while in the case of the lexical task the data was prestructured by relations of perceptual similarity and dissimilarity asked for in the instructions.

4.6. Conclusion

The overall conclusion could be that probably there is no well-formed ready-made structure of emotion knowledge either at the experiential or at the lexical level. There is but a potential to activate the relevant associations and neural coactivation patterns according to the demands of a given task. There is a readiness to rearrange individual memories of emotional experiences,

conceptual knowledge and social evaluations into a local network according to their relevance to a task or a situation.

An individual response to a task is also the result of an in-brain self-organizational process, in which more dominant or prevalent associations compete with each other, shaping together something we call an individual concept of an emotion, and of course there are some less frequent associations and peripheral features that become relevant only in the case of some specific stimulus or context. The matching part of the responses of a representative set of people speaking the same language gives us an abstraction, which is a rather general cognitive map of the semantic field of emotions.

Self-organizing maps have served as an experimental analytical tool for this study. We believe that self-organization is a general principle that works on multiple levels of human information processing. Emotions *per se* can be viewed as an organism's inner feedback and feedfoward mechanisms in self-organizational processes of adaptation to its environmental changes. As to their semi-voluntarity in social communication (facial and verbal expressions) — it can be regarded as a very handy two-valenced feedback mechanism needed in the higher order process of social self-organization. The mechanisms designed for intrapersonal communication by evolution appear as important signs of interpersonal communication as well, and have been widely semiotisized in all human cultures. Socially shared, emotion concepts are but a tool of more specified metacommunication about emotions manifested in a highly varying emotion lexicon. At the same time the concepts are also not steady units ready-made in every detail, but dynamic self-organizing entities capable of adaptation to their environment and its challenges.

5. SUMMARY AND CONCLUSIONS

5.1. A brief summary

This monograph deals with lexical knowledge of emotions in Estonian, shedding light on the issues of emotion vocabulary, its structure, variability and semantics from different viewpoints. Doing so, the same kind of source data – the intuitions of ordinary speakers of Estonian – are used, but slightly different methods and approaches for interpretation have been applied. To sum up, let us mention briefly the content and results of the analysis chapter by chapter.

The first chapter titled "The interrelations of emotions, emotion terms and emotion concepts in an Estonian folk model" presents and interprets the results of three tasks of free listing of the first empirical study carried out by the author in 2001 (Vainik, 2001). The field method of U. Sutrop (2001) is used for data collecting and calculating the relative cognitive salience of items in order to find out the basic emotion terms in Estonian and their interrelations. The status of basic terms is characterized by linguistic, psychological and ontological criteria.

The interrelations of emotion terms and emotion concepts to their denotata, i.e. emotions, and to each other are further interpreted from the viewpoint of that branch of cognitive semantics that is interested in folk models and folk theories of mental life (Õim, 1996, 1999). The basic terms of emotions are identified as the central members of the Estonian folk model, the relevant facets of which are also discussed.

In the folk model the emotion concepts are found to have the greatest cognitive salience and they tend to be linked by the biggest perceptual contrast into pairs of antonyms that are most easily accessible and memorizable side by side. This tendency is stronger for concepts than for specific lexemes, and stronger on the basic level of knowledge than on the specific level. In the folk model emotions are not sharply distinguished from closely related phenomena like feelings, moods, acts of expressive behaviour and personality traits. This is not specific for Estonians, but a tendency also found in other languages (Plutchik, 1980).

The results of our empirical linguistic study are compared to some previous attempts to explore the structure of the Estonian emotion lexicon, made by psychologists (Allik, 1997; Kästik, 2000). As a main result of the comparison, it is argued that emotions are organised differently on experiential and conceptual levels. Although not excluding each other in everyday experience (Allik, 1997), the positive and negative emotions are thought to be of an opposite nature by ordinary speakers, because forms of collective cognition like folk models with

their dominant bipolar division of phenomena into opposite categories of "good" and "bad" affects the conceptualisation and lexicalisation processes and gives rise to antonymity of contrasting concepts on the lexical level.

The general approach applied in the first chapter is of a universalistic character and the conclusions drawn about the interrelations of emotion concepts and emotion terms in a folk model are most probably applicable to other languages and cultures as well.

In the second chapter titled "The Estonian folk category of emotions" the shared or collective knowledge of emotions is investigated further. This time the data gathered in seven tasks of free listing used in the empirical study (Vainik, 2001) are summarized and relying on the semantic analysis of recurrent vocabulary, an attempt is made to give an overview of the whole Estonian folk category of emotions and its associated fields. The results are interpreted from the viewpoint of folk psychology as a hypothetical folk theory of mental and emotional phenomena (see, e.g. Õim, 1997).

The main theoretical assumption concerns the role of prototypes in deciding category membership (Fehr & Russell, 1984). The approach applied in the second chapter is of a relativistic nature and the results of free listings are associated with some traits of the Estonian national character as seen by other nations.

The Estonian folk category of emotions is found to be located in the intersection of three cognitive domains: the physical, social and intrapsychic spaces and to be organised around four extremely salient basic level emotion concepts: *viha* 'anger', *rõõm* 'joy', *armastus* 'love' and *kurbus* 'sadness'. These appear to be the most prototypical emotions for Estonians. The multilayered structure of the natural category is explicated further. Besides the prototypical and specific members of the emotion category, some exceptional members as well as some collectively associated and dissociated phenomena are also pointed out and discussed.

Among the basic emotion concepts, *viha* 'anger' has found to have a specific status due to its extremely high cognitive salience kind of representing the whole category of emotions in Estonians' collective consciousness and shedding its negative aura onto the category itself. This hypercognition of anger may explain the default negative value given to "emotionality" in general by an average Estonian.

The organisation of collective emotion knowledge, however, was not found to have a clear well-formed structure except the ubiquitous division of emotional concepts and related phenomena into categories of good and bad ones and the high salience of prototypical basic level emotion concepts.

The lexical knowledge of emotions in the form of a well-structured folk category and its well-defined position relative to other cognitive domains in the hypothetic semantic space was concluded to be the result of analytical and systematisation efforts made by an analyst equipped with the methodology of

semantic and prototype analysis rather than a conscious and steady structure located and locked in any layman's head. Folk models and folk categories are found to be abstractions derived from the matching part of individuals' otherwise widely varying lexical knowledge. There being hardly any average persons in reality, a more detailed analysis of sociodemographic variance of emotion knowledge is reported in Chapter 3.

The third chapter titled "Intracultural variation of emotion vocabulary" tackles the effects of age and gender, using the results of two tasks of free listing carried out by the author (Vainik, 2001). Once again, U. Sutrop's index of cognitive salience (Sutrop, 2001) is used as an indicator of accessibility for lexical knowledge of emotions. The results are interpreted and discussed mainly from the viewpoints of cognitive and social psychology.

The salience of the basic emotion terms mentioned, on the one hand, as the members of emotion category and, on the other hand, as labels for recently experienced emotions are compared and, as a conclusion, a difference between the semantic and episodic emotion knowledge is pointed out. It is concluded that the organisation of the semantic emotion knowledge lies in the relations of conceptual similarity and contrast manifested in the opposition of antonymic terms, while the structure of the episodic knowledge of emotions rather lies on the episodic co-occurrences of emotional experiences in one's episodical memory of short-term past. This result reinforces the conclusion drawn in the first chapter, viz. lexical emotion knowledge appears to be organized differently on the conceptual and experiential levels.

For different sociodemographic groups the basic level emotion knowledge appears to be hyper- or hypocognitised according to its topicality. For youngsters the conceptual *viha* >< *armastus* 'anger/hate >< love' opposition is prevailing despite the fact that in reality *rõõm* 'joy' was the most salient experience in their own short-term past. Middle-aged participants hyper-cognitise *kurbus* 'sadness', which is accompanied by emergence of a variety of words designating sates of low energy level, while *armastus* 'love' ceases being mentioned as an emotion experienced in a short-term course. For most aged people the polar opposition of emotion concepts loses its actuality and the terms used to describe their own experience diverge largely.

Women tend to hypercognitise all basic emotion concepts except *rõõm* 'joy', the salience of which is proportional to its occurrence in short-term emotional episodes, and hypocognitise *väsimus* 'fatigue' and *hirm* 'fear' as emotional sates experienced saliently, but not regarded as typical members of the emotion category. Men tend to hypercognitise the *viha* >< *armastus* 'anger/hate >< love' opposition, while the word *kurbus* 'sadness' is not as salient as a member of the emotion category and *rõõm* 'joy' tends to be hypocognitised: although men do remember having experienced it, they do not count it as a prototypical member of the emotion category in the first place. The common norm of basic-level lexical emotion knowledge was found to be established by women. The finding

is in accord with literature claiming that women have a bigger expertise in the field of emotions (Fisher 1995).

The final conclusion reads that although the core of emotion knowledge within a culture is collective and shared, there are remarkable individual and group differences in its accessibility, topicality and most probably also in the semantics of even the basic terms.

The fourth chapter titled "Semantics of emotion terms: a self-organizational approach" is the first report of the results of the second empirical study of emotion terms carried out by the author. In the technical data processing T. Kirt (TTÜ) was also involved[49].

The method of self-organizing maps is applied to visualise the gathered multidimensional data and to compare the results of two tasks addressed to measure the semantics of emotion terms both in terms of co-occurrences of semantic features and in terms of conceptual similarity and dissimilarity. The results are analysed and interpreted from the viewpoints of semantics and cognitive psychology with some theoretical implications for human data processing. The main purpose of this chapter was to find out whether there exists a universal structure of lexical knowledge of emotions.

The main result is the tentative conclusion that probably there is no underlying universal structure of emotion knowledge in the form of a fixed network of interrelated concepts that is independent of the nature of the source data (numerical self-ratings versus lexical production). Emotion knowledge that is spread out in "talking heads" tends to be actualised according to a task or situation and therefore it organizes itself differently. This finding explains the difference between conceptual and experiential knowledge of emotions suspected in the previous chapters and clearly demonstrated in Chapter 3.

The only pervasive and universal characteristic feature of differently accessed emotion knowledge is the tendency of concepts to cluster according to their overall valency (positive vs. negative). It is further hypothesised that the overall valency (positivity or negativity) of an emotion concept is an abstraction derived from the psychophysiological tension between evaluations of the subjective hedonistic quality of a state and its motivational potency to increase one's readiness for action. The variety of emotion lexicon in a language and the variability of its semantics across individuals is a matter of diverse interpretations of these tension related states against situational or quantitative characteristics.

Emotion concepts, both individual and culturally shared, are shaped by certain universal facets of emotional experience (its function being to give either positive or negative feedback). They are not steady ready-made structures

[49] He is responsible for the generated self-organizing maps and wrote the overview of SOM as an analytical tool (Ch. 4.2.). T. Kirt is also the righteous co-author of the submitted manuscript that the fourth part of this monograph is based on.

with predisposed relations to each other but rather dynamic self-organizing processes capable of adaptation to their environment and its challenges. This is the source that all the variation in emotion lexicon comes from, both intra- and cross-culturally.

5.2. Conclusions

It is difficult to draw uniform conclusions from studies carried out by one and the same author, yet with slightly different methodologies, sometimes even interpreting the results from the viewpoints of different scientific disciplines: linguistics, social psychology, cognitive science etc. According to the different ways of approach the main object of this study – i.e. the lexical knowledge of emotions in Estonian – tends to show up different and even controversial facets in some respect as was reported in the brief summary above.

Despite the maybe vague and seemingly controversial results reported above, there is a temptation to draw some general conclusions, hopefully not premature from the viewpoint of future research into the same subject. Although the structure, variability and semantics of emotion lexicon as a manifestation of conceptual emotion knowledge turned up to be all mutually interrelated, let me present the conclusions as if the phenomena were distinguishable and considerable separately.

Lexical knowledge of emotions

Talking about emotions, categorizing them and using emotion terms is an act of metacommunication over immediate communication that takes place on the level of emotional exchange. To say *I love you* is certainly not the same thing as to share one's personal feelings of fondness here and now. Words are just words, even if meant to be more. Emotion terms do not stand for emotions, they stand for emotion concepts, i.e. they represent a part of people's knowledge about emotions. This is the so-called second-level knowledge of emotions as compared to the first-level preverbal and preconceptual knowledge discussed in Chapter 2.3.

The problem is that we cannot see or hear in-brain structures like emotion concepts. We can only see and hear them acting and interacting when they "go out" in the form of linguistic units, e.g. emotion terms. Therefore, the studyig of the behaviour and semantics of emotion vocabulary is a way to understand the conceptually captured part of emotion knowledge.

When people talk about their emotions, they use language as a means, i.e. words denoting emotions (emotion terms) seem to act as conveyors of emotion knowledge. When people try to list emotion terms for a list task, it is concepts

rather than words that emerge, which means that on the level of the cognitive organisation of emotion knowledge, it is concepts rather than words that are relevant.

The role of concepts turns even more relevant in studying not individual but collective knowledge. Similar content appears in a slightly varying and diverse form for different subjects, but the same set of very salient basic concepts is always present.

Lexical knowledge of emotions in the form of emotion-related vocabulary elicited in tasks of free listing is certainly not an exhausting inventory of lexically mediated knowledge possible in a given language. This kind of lexical knowledge, however, illuminates the central part of the cognitive domain or semantic field of emotions in that particular language.

It remains still open, if the central part of emotion knowledge does shape and influence the categorization of one's individual experience within that particular language community, as was assumed in the beginning of this study. A comparison of the results of two tasks (the initial task of free listing of category members and the task of reporting one's individual emotional memories of short-term past reported in the third chapter of this study) resulted in the use of the same set of basic emotion concepts (supporting the initial assumption) but the level of cognitive salience was not comparable in the second task (thus questioning the simple and *predictable* mutual dependence between basic terms and most frequently experienced emotions). The phenomena of gender- and age-related hypo- and hypercognition in emotion knowledge emerged, which is certainly a fascinating subject for further investigation.

Some units of lexical knowledge, i.e. emotion terms, appear as access nodes to the conceptual realm of emotion knowledge. Conceptual and conscious knowledge of emotions can only provisionally be distinguished from the experiential and unconscious or bodily knowledge of emotional states: the flow of perceptual input, the feeling of alternating psychophysical tension, the recurrent patterns of activation are sometimes recognized in and captured by the process of conceptualisation.

Lexically mediated conceptual knowledge involves collectively shared but dynamic and individually variable concepts, universal strategies of conceptualisation and forms of social cognition like, for example, a folk model of emotions.

The structure of emotion lexicon

Two main kinds of structuredness were found in the Estonian emotion lexicon: qualitative and quantitative.

The qualitative division of emotion terms into complementarily opposite positive and negative ones was found to rest on two main reasons. First come

the universal facets of emotional experience, like the preverbal and pre-conceptual evaluations of a situation. This is a manifestation of evolutionarily inherited binary data-processing giving an organism either positive or negative feedback in order to guarantee its homeostasis and optimal regime of energy consumption. The so-called first-level knowledge of emotions is strongly manifested both in the organization of the semantic field as a whole and as an omnipresent cognitive abstraction of dimensions of hedonistic and motivational evaluations in each emotion concept separately taken.

Second, there are cultural models that further reinforce the universal bipolarity of emotional experience. Studying the Estonian terms of emotions has convinced us that folk models with their bipolar division of phenomena into "good" and "bad" ones affect the way how emotions are conceptualized and that is why antonymic relations widely hold between two more general categories: positive and negative emotions. These categories are in complementary semantic opposition, i.e they exclude each other conceptually (although experientially the "opposite" emotions *per se* could sometimes co-occur as not mutually exclusive).

On the quantitative basis of occurrences a hierarchy of emotion concepts into general, basic and specific level, too, could be detected, as was predicted by the theoretical assumptions presented in the beginning of this monograph. The second chapter of this study has convinced us that the folk category of emotions is vague but multilayered and organized around its most prototypical basic level items.

The special status of the cognitively most salient basic level emotion concepts was hypothesized to be mainly usage-based and was explained by some cognitive routines winning over the others as an organism's self-organizing response to environmental changes. Some more frequently accessed conceptual items have been chunked into rather uniform semantic Gestalts, i.e. they have lost their semantic specifity to a certain degree and therefore they do not depend on very specific situational contexts.

Basic level items in emotion knowledge carry information about the type of autofeedback (positive or negative) they give either in interpersonal situations (*viha* 'anger' *armastus* 'love') or mainly intrapersonally (*rõõm* 'joy', *kurbus* 'sadness').

There is probably no more universal, well-defined and detectable structure inherent in emotion knowledge. Further semantic distinctions on the more specific conceptual level are implied by cultural traditions, individual and social learning, and last but not least, diligent scientific analysis.

Controversially maybe, the fourth chapter convinced us that probably there is no ready-made structure of lexical emotion knowledge in the form of a fixed network of interrelated concepts at all, but there is, instead, an ability to create a local network according to a task or situation. Self-organization is a process

believed to generate some local and focal structures in the potentially accessible resources of infinite knowledge.

Variability in emotion vocabulary

The third chapter convinced us that folk models or folk categories as cultural norms of lexical emotion knowledge are abstractions derived from the invariant part of individual and group variation of lexical knowledge, hardly ready-made and located or locked in any layman's head. Which part of potential emotion knowledge gets activated more easily turned out to depend on age, gender and the activating stimuli.

As measured in the empirical study, it appeared that the topicality of emotion terms is different for different sociodemographic groups based on age and gender. The level of topicality of the basic terms varied according to the nature of the task as well: in the task of listing members of the emotion category the level of cognitive salience was much higher than in the task of listing one's recently experienced emotions. This is due to the diversity of individual experience as well a to the relative stability of prototypical category membership.

This allows the author to conclude that topicality is the primary varying property of emotion knowledge. The topicality of a term or of a specific configuration of semantic features, however, is a matter of responding to environmental challenges, while some of the environmental challenges tend to appear as gender- or age-specific.

As a task of free listing is a specific kind of environmental challenge, set up artificially, that addresses itself to emotion knowledge in general, the most frequently used knowledge shaped by forms of social cognition is easy to activate and appears as the most topical.

Lexical variability of an emotion concept (i.e. its manifestation in the form of noun, adjective, adverb or verb) can also be explained in terms of varying topicality as a response to environmental challenge. In that case it is the context (e.g. clause structure) that challenges an emotion concept to appear in a specific part of speech.

Semantics of emotion vocabulary

There are two main topics to be discussed here: properties of the semantic field of emotions in general and the semantic content of single emotion terms.

First, it was claimed in the second chapter that the position of the Estonian folk category of emotions is in the hypothetical area of intersection where "neighbouring" cognitive domains (physical, social and intrapsychic pheno-

mena) are co-represented in the collective consciousness of the language community or the so-called semantic space of that language.

This is only natural, because emotions are phenomena manifested both physically (e.g changes in autonomous and central nervous systems, release of hormones and neurotransmitters, facial expressions, changes in body temperature and posture, ability and urge to act etc.); socially (emotions are often induced in social situations and often have human "objects", emotions function as primitive two-valenced and preconceptual, but socially relevant semi-voluntary parallel communication channels conveying messages sometimes inconsistent with verbal expressions), and intrapsychically (the bodily states of arousal and variation of the subjective energy level are accompanied with the perception and cognition of their typical antecedent events as causal chains or so-called scripts, cognitive evaluations and plans for action etc.).

The folk category of emotions was found not to be distinguished from the closely related category of *feelings* by laymen. Also, the categories of *personality traits* and *social relations* were found to be partly blended with *emotions* and *feelings*. The whole semantic field, however, was clearly divided into two subcategories of positive and negative emotions (feelings, personality traits etc.). This is because the division of phenomena into good and bad ones is more inevitable and necessary for speakers of Estonian than an exact division of the phenomena into qualitatively more subtle subcategories.

In some cases one and the same lexical item represents both a qualitatively equivalent emotion and feeling in Estonian, and thus the exact meaning of an emotion term becomes pretty much a matter of its contextual interpretation. Emotion concepts appear as segments of ongoing conceptualisation processes, being dynamic entities of a high semantic potency, activated and used selectively according to a task, situation or specific context.

Unfortunately, the semantics of single emotion terms has received relatively little attention in the present study. Experimental study of the semantics of some discrete emotion terms against a set of bipolar semantic features has shown that some features of the intersecting cognitive domains mentioned above are also present as possible dimensions of the semantic descriptions of disrete terms in the semantic field. Provisionally a feature model was applied in this study and the semantic description of a single emotion term appeared as a specific configuration of marked and unmarked features. The reliability of such configurations is a subject for further research.

Interestingly enough, the level of semantic articulation of emotion terms turned out to depend on their status in the usage-based quantitative hierarchy of concepts. The more frequent and more general an emotional evaluation the less specific the content it carries. On the highest level of affective abstraction the semantics of terms is less articulated and reduced to a subjective evaluation of overall valency (good or bad). This is how first-level emotional knowledge is conceptualised in its purest form and this kind of knowledge is widely shared in

a culture and always accessible to individuals, no matter what the situation might be.

In basic level concepts the subjective evaluation of valency is selectively accompanied with features of typical situations, as well as physical, interpersonal and intrapsychic facets of emotional events. Some of these features appear as unmarked from the viewpoint of the whole emotion category (*unpleasant*, *increase of action readiness*, *follows an event*, *felt in the mind*) and some of them appear as marked features against the cluster of unmarked features.

On the lowest level of accessibility are terms with the most specified and articulated semantic content, carrying, in addition to overall valency, also information about event structure, interpersonal relationships, cognitive processing, social beliefs, implicit expectations etc., shaded by some memories of individual past. The meanings of most specific emotion terms appear as almost individual. The interdependence of articulatedness of meaning, relative word frequency and mediated emotional intensity has been pointed out by Zipf (1968).

The method of self-organizing maps used in the fourth chapter that is dedicated to semantic issues has induced us to conclude that the semantics of a single emotion term is also conceivable as a self-organizing process of co-activation patterns of neural connections, the characteristics of which depend on the stimuli, its regularity and its situational context.

An emotion concept can be treated both as the semantic content of a specific emotion term as well as a unit of a broader knowledge structure of emotions at the same time. This broader knowledge structure is, however, implicit by nature and often accessible only via the efforts of a detailed investigation. Paradoxically, when we use emotion terms, we appear to know more about emotions than we are consciously aware of.

5.3. Prospects of further research

Although the scope of the present investigation has been pretty wide, including different viewpoints and approaches to the same topic, the object and the principal method have been relatively restricted as compared to the vast field of possible research on the mutual interrelations of language and emotions.

First, in this study only literal emotion terms have been investigated, leaving the wide variety of emotion-associated figurative language for further research.

Second, this study of lexical emotion knowledge is confined exclusively to Estonian. All cross-cultural and cross-linguistic comparisons of the Estonians' lexically manifested emotion knowledge are still waiting for their turn.

Third, this study is thoroughly empirical, relying on the results of experiments, while a more theoretical approach would also be welcome.

Fourth, this study is addressing certain units of the mental lexicon, a more traditional study of contextual semantics of emotion terms is undoubtedly also worth undertaking.

Fifth, on the basis of the empirical data already gathered, a study of variation of the semantic content of the emotion terms across age and gender is certainly one of the next steps to be taken.

LEKSIKAALSED EMOTSIOONITEADMISED: EESTI KEELE EMOTSIOONISÕNAVARA STRUKTUUR, VARIEERUVUS JA SEMANTIKA

KOKKUVÕTE*

Uurimuse objekt ja eesmärk

Igas keeles on väljendeid emotsioonide nimetamiseks ja kirjeldamiseks. Nende abil saab võimalikuks nii emotsioonide vahetu kommunikatsioon kui mõisteliselt vahendatud metakommunikatsioon emotsioonide üle. Tänu emotsioonisõnavarale avaneb juurdepääs emotsiooniteadmistele ning need muutuvad põhimõtteliselt vahendatavaks keele abil.

Leksikaalsed emotsiooniteadmised on ka nn emotsionaalse intelligentsuse oluline allpädevus, kuhu usutakse kuuluvat mitte ainult emotsioonisõnavara kui sõnakogumi valdamine, vaid ka arusaamine emotsioonimõistete omavahelistest seostest ja nende koondumisest sarnasuse alusel hajusate piiridega mõisteperekondadesse.

Käesoleva uurimuse objektiks on eesti keelde otseste emotsiooninimetustena kristalliseerunud teadmised emotsioonidega seotud nähtustest. Uuritakse siiski mitte kogu eesti keeles olemasolevat emotsioonisõnavara, vaid ainult kõnelejatel n-ö aktiivses kasutuses olevat osa sellest, mis seetõttu hõlpsasti meenub loetelukatsetes ja mida on kerge iseloomustada küsimustiku abil.

Selle uurimuse eesmärk on välja selgitada, mis kuulub 21. sajandi alguse eestlaste käepärastesse emotsiooniteadmistesse, milline on rahvalik arusaam emotsioonidega seotud nähtuste ringist, kuidas leksikaalsed emotsiooniteadmised kultuurisiseselt varieeruvad ning kas ja kuidas on need semantiliselt struktureeritud.

* Käesolev kokkuvõte on kirjutatud silmas pidades põhimõtet, et kokkuvõte ei asenda selle lugemist, mida ta kokku võtab: seetõttu ei leidu selles tekstis viiteid, näiteid, arvandmeid ega selgitavaid jooniseid. Lähema huvi korral leiab need originaaltekstist.

Teoreetilised lähtekohad

Nii kognitiivses lingvistikas kui ka psühholoogias on üldaktsepteeritav, et mingi mõisteala sõnavara kujutab endast juurdepääsu selle valdkonna vaikimisi omaksvõetud kollektiivsetele teadmistele. Üldaktsepteeritud on ka seisukoht, et mõistealad (kognitiivsed valdkonnad) ei ole loomult kaootilised, vaid on seesmiselt struktureeritud ja et seda struktuuri saab leksikaalse analüüsiga välja selgitada ja kirjeldada, nt dimensioonide abil.

Käesolevas töös on omaks võetud ka universalistlik lähenemine, mis väidab, et emotsionaalse kogemuse universaalsed (kõigis kultuurides esinevad) aspektid määravad emotsiooniteadmiste (ja -leksikoni) sarnase struktuuri kõigis keeltes, ehkki üksikmõistete ja sõnade tasandil on vastavus pigem erand kui norm.

Käesolevas töös eeldatakse siiski, et ainult osa ühe kultuuri potentsiaalsest emotsioonisõnavarast on kõnelejatel aktiivses kasutuses ning mõjutab seega kogemuse interpreteerimist ja tegelikke emotsiooniteadmisi. Käepärase sõnavara mõju tunnistamisega emotsionaalsete nähtuste tajule ja äratundmisele toetatakse omamoodi keelelise relatiivsuse hüpoteesi, kuigi rakendusega vaid ühe kultuuri ja mõisteala piires. Sarnaselt muude kognitiivsete valdkondadega eeldatakse struktuurseid mõistehierarhiaid: üld-, põhi- ja spetsiifilise tasandi olemasolu emotsiooniteadmistes.

Kuivõrd uurimise all on kollektiivsed ja "rahvalikud" emotsiooniteadmised, on peetud õigeks kasutada informatsiooniallikana eesti keele tavakõnelejaid, usaldades nende poolt genereeritud emotsiooninimetustega seostuvaid assotsiatsioone ja intuitiivseid otsustusi. Seega ei uurita emotsiooninimetusi kui kontekstuaalselt varieeruvaid keelendeid, vaid kui nn mentaalse leksikoni eeldatavalt kontekstivabu üksusi. Kontekstuaalse varieeruvuse asemel on uurimise all leksikaalsete emotsiooniteadmiste sotsiodemograafiline varieeruvus.

Uurimuse struktuur ja allikad

Käesolev doktoriväitekiri koosneb neljast põhipeatükist, mille ühiseks eesmärgiks on uurida leksikaalselt väljendunud emotsiooniteadmisi eesti keeles. Meetodi ühtsusest hoolimata teeb iga peatükk seda pisut eri vaatenurgast.

Kõik neli peatükki esitavad empiiriliste uurimuste tulemusi ühes nende interpreteerimiseks vajaliku teoreetilise tagapõhja ning uurimistulemuste aruteluga antud ainevallas varem saadud tulemuste ning teoreetiliste seisukohtade üle. Kolm esimest peatükki esitavad ja interpreteerivad autori poolt 2001. aastal läbiviidud ja magistritööna kaitstud emotsiooninimetuste loetelukatsete seeria tulemusi. Neljas peatükk kujutab endast kokkuvõtet autori poolt 2003. aastal läbiviidud emotsiooninimetuste semantika detailsema küsimustiku tulemustest.

Kõik neli põhipeatükki on kirjutatud iseseisvaks artikliks, kaks neist on varem avaldatud ja kaks esitatud avaldamiseks. Käesoleva väitekirja osadena on nende sisu siiski redigeeritud, koondades korduvusi ja lisades ristviiteid monograafia eri osade vahele. Spetsiaalselt väitekirja tarvis on kirjutatud sissejuhatus, kokkuvõte ja üldiste järelduste peatükk.

Meetodid ja taust

Kolme esimese peatüki aluseks oleva empiirilise loetelukatsete seeria läbiviimisel on kasutatud välimeetodit (suulised intervjuud). Tulemuste interpreteerimisel on sõnade kognitiivse esiletuleku olulise indikaatorina kasutatud U. Sutropi poolt välja pakutud kognitiivse esilduvuse indeksit.

Neljanda peatüki aluseks oleva teise empiirilise uurimuse (emotsioonisõnavara semantika küsimustiku) metoodika on olnud inspireeritud C. E. Osgoodi semantiliste diferentsiaalide meetodist. Arvandmete töötlemisel on faktoranalüüsi asemel kasutatud T. Kohoneni iseorganiseeruvate kaartide meetodit, mis võimaldab multidimensionaalse andmeruumi projitseerida kahemõõtmelisele topoloogilisele kaardile. Kogutud andmete töötlemisel ja SOM kaartide genereerimisel oli abiks T. Kirt Tallinna Tehnikaülikoolist. Ka teises uurimuses on kasutatud U. Sutropi kognitiivse esilduvuse indeksit, seekord abistava suurusena leksikaalsete üksuste omavaheliste kauguste leidmisel semantiliste suhete poolt määratud mõisteruumis.

Käesolev väitekiri on nii uurimisobjekti spetsiifika kui rakendatud meetodite ja tulemuste interpretatsioonitasandite poolest loomult interdistsiplinaarne, kuuludes lingvistika, psühholoogia, sotsiaalpsühholoogia, antropoloogia ja kognitiivteaduste piirimaile.

Emotsioonide, emotsiooninimetuste ja -mõistete vastasseosed eesti keele rahvalikus emotsioonimudelis

Väitekirja esimeses peatükis käsitletakse emotsiooninimetuste ja emotsioonimõistete vahekorda emotsioonidega ning nende rolli eesti keele poolt edasikantavas rahvalikus emotsioonimudelis. Rahvalik emotsioonimudel usutakse olevat kollektiivse sotsiaalse kognitsiooni vorm, mis kätkeb endasse antud kultuuris kehtivaid tavateadmisi emotsioonidest. Lahtine on seni küsimus, kas rahvalik mudel on enam mõjutatud nähtusest, mida ta vahendab (emotsioonid), keelest, mida ta kannab (nt eesti keel) või nähtusest, mille teenistuses selline mudel on (sotsiaalsed normid ja kehtivad suhted).

Töös esitatakse kolme loetelukatse tulemused autori poolt magistritööna läbi viidud seitsme loetelukatse seeriast ja arutletakse nende tulemuste üle, võrreldes

neid varem psühholoogide poolt eesti keele emotsioonisõnavara kohta esitatud tulemuste ja väidetega.

Uurimuses osales 100 katsealust (50 meest ja 50 naist) vanuses 14–88 (keskmine 39,4) aastat. Tegemist oli tavaliste eesti keelt emakeelena kõnelejatega, keda intervjueeriti nende harjumuspärases keskkonnas.

Esimese ülesande (A) sõnastus oli: "Palun loetlege pähe tulemise järjekorras kõik emotsioonid või tunded." Uuritav kategooria oli sõnastatud kaheosalise ja paindlikuna, kuna pilootuuringus oli selgunud, et katseisikud ei erista "emotsioonide" ja "tunnete" ning "tundmuste" kategooriaid, mida võib küll leida eestikeelseist rakendusliku suunitlusega psühholoogia käsiraamatutest, kuid mille piirid rahva teadmistes ei kajastu.

Sagedamini ja individuaalsetes loeteludes esimeste hulgas mainitud sõnad (*viha*, *armastus*, *rõõm* ja *kurbus)* võeti vaatluse alla kui emotsioonide põhinimetused eesti keeles. Põhinimetusi peaks lisaks psühholingvistilisele kriteeriumile ehk nn kognitiivsele esilduvusele (S) iseloomustama ka monolekseemsus, morfoloogiline lihtsus, omasõnasus, viitamine nn põhitasandi objektile või nähtusele ja kitsendusteta rakendatavus valdkonniti.

Psühholingvistiliselt selgesti esilduvatest emotsioonide põhinimetustest kaks päritolult tuletuslikku nimetust (*kurbus* ja *armastus*) ei vastanud morfoloogilise lihtsuse kriteeriumile. Ontoloogilise kriteeriumi osas leiti rahva poolt nimetatud põhiemotsioonide ja psühholoogide poolt välja selgitatud kultuuriüleste universaalsete põhiemotsioonide kattuvus (*viha, rõõm, kurbus*) ja lahknevus. Katseisikutel ei tulnud võrreldavalt esile *hirm, üllatus* ja *vastikus*, mida kompenseeriti ohtra *armastuse* nimetamisega, põhjustades sellega viimase sattumise põhiemotsioonide hulka. Korduvate, ent vähem esilduvate sõnade semantikast ilmes ka assotsiatiivsete seoste laad, mis rahvalikus emotsioonikäsitluses toimib: emotsioonikategooria põimub ja lõikub tunnete, isikuomaduste ning sotsiaalsete suhete kategooriatega ning seda seostatakse emotsioonide tüüpiliste väljendustegevustega (*naer, nutt*) ning muude nähtustega põhjuse-tagajärje ahelaid pidi.

Põhiemotsioonidel rahvalikus mudelis ilmnes tendents esineda leksikaalsete variantidena, v.a. sõna *armastus,* mis oli katseisikute kollektiivsetes teadmistes kinnistunud kindla lekseemina. Leksikaalsete üksuste ja mõistete esilduvust võrreldes ilmnes, et põhitasandi mõisted on üldjuhul sõnadest esilduvamad, st teadmiste struktuuri üksusteks on pigem mõisted kui sõnad. Samuti ilmnes põhiemotsioonisõnadel esimeses katses tendents meenuda katseisikutele antonüümipaaride kaupa: kes ütles *rõõm*, ütles suure tõenäosusega kohe järgmiseks ka *kurbus*, kes ütles *armastus*, ütles suure tõenäosusega järgmiseks kas *viha* või *vihkamine*.

Teise katse (B) juhis katsealustele kõlas: "Nimetage palun vastandsõnu esimeses katses öeldud sõnadele." Eesmärgiks oli välja selgitada antonüümiasuhted emotsioonisõnade vahel. Valdaval enamusel (86%) esimeses katses lausutud sõnadest usuti olevat antonüüm, kuid suurem osa antonüümipaaridest

(64%) osutusid täiesti individuaalseteks vastandusseosteks mõistelise kontrasti alusel. Ka korduvalt esile tulnud antonüümipaaride seose tugevuses oli suuri erinevusi.

Tugevaimana tuli esile sümmeetriline antonüümiaseos sõnade *kurbus* ja *rõõm* vahel, järgnes sümmeetriline antonüümiaseos nende samade emotsioonide tüüpilisi väljendustegevusi nimetavate sõnade *nutt* ja *naer* vahel. Sõnal *armastus* oli tugevamaks, ent asümmeetriliseks paarikuks *vihkamine,* nõrgem, ent sümmeetriline seos kehtis sõnaga *viha*. Sõnal *viha* omakorda tuli lisaks esile ka asümmeetriline vastandsõnapaarik *rõõm.* Kõik emotsioonide põhinimetused paigutusid antonüümiasuhete vahendusel omavahel seotud süsteemi. Samuti kui esimeses katses ilmnes aga, et ka antonüümiasuhted kehtivad tugevamini mõistete kui sõnade vahel. Pärast leksikaalsete variantide koondamist mõisteteks (sagedamini esineva sõnakuju alla) ilmnes, et vastanduse *armastus* >< *viha* tugevus suurenes ja muutus sümmeetriliseks, kuid alles jäi *viha* asümmeetriline vastandipaarik *rõõmu* näol. Sellest mõistelisest vastandusest, mis leksikaalselt väljendus ka paralleelsõna *vihkamine* näol, tehti järeldus, et sõna *viha* on eestlaste jaoks polüseemne, tähendades ühel juhul pikemaajalist ja aktiivset, interpersonaalset ehk teisele inimesele orienteeritud tunnet (mille vastandiks peetakse *armastust*) ja teisel juhul lühemaajalist intrapersonaalset reaktsiooni, mis ei pruugi (kuigi võib) olla seotud teise inimesega. Viimasele *viha* mõistele vastandatakse *rõõmu.*

Viimases katses (G) oli ülesanne: "Kui te nõustute, et emotsioonid jagunevad positiivseteks, negatiivseteks ja neutraalseteks, siis palun loetlege emotsioone nende liikide kaupa." Katsealused olid väsimuse märkidest hoolimata väga innukad nimetama emotsioone nende liikide kaupa (1076 vastust), ainult üks katsealune ei võtnud seda liigitust omaks ning keeldus katsest. Teistel oli väga hõlpus nimetada positiivseid ja negatiivseid sõnu ja väga raske leida nimetusi neutraalsetele emotsioonidele. Katses ülesseatud neutraalsete emotsioonide kategooria, millele ei leidunud keskseid enamuse poolt aktsepteeritavaid esilduvaid liikmeid, osutus seetõttu kunstlikuks ning rahvalikule emotsioonimudelile mittevastavaks.

Sõnade ja mõistete kognitiivse esiletuleku indeksid osutusid selles diferentseeritud ülesandega katses üldiselt kõrgemateks kui esimeses loetelukatses A. Emotsioonide põhinimetused osutusid kognitiivselt eriti esiletulevaks just nende kahe kategooria (positiivsed emotsioonid ja negatiivsed emotsioonid) prototüüpsete liikmetena, seda nii leksikaalsel kui mõistelisel tasandil. Kõige esilduvam negatiivse emotsioonina oli *viha* ja kõige esilduvam positiivse emotsioonina oli *rõõm*. Mõistelisel tasandil *kurbuse* esilduvus negatiivse emotsioonina vähenes (osa keelejuhtidest nimetas seda neutraalsena, osa koguni positiivsena) ja ka *armastuse* nimetamise kasv positiivse emotsioonina ei olnud võrreldav *viha* ja *rõõmu* kui alamkategooria esindavate liikmete esilduvuse tõusuga.

Tulemusena tekkis ettekujutus rahvalikust emotsioonimudelist, kus olulised on põhitasandi mõisted (*viha, rõõm, armastus, kurbus*) ja nendevahelised

leksikaalsed antonüümiaseosed. Leksikaalse antonüümia laialdasus on seletatav kontseptuaalse kontrastiga, kahe alamkategooria vahel, milleks rahvalikus arusaamas jaguneb kõik mis emotsioonina käsitletav. Rahvalikus mudelis toimib vastandus pigem suurima kontrasti printsiibil väljaeraldatud vastandlike mõistete või koguni põhitasandist ülemal paiknevate kategooriate (positiivsed ja negatiivsed emotsioonid) vahel kui konkreetsete leksikaalsete üksuste vahel, kuna väga kindlaid vastandsõnade paare ilmnes vaid kaks: *rõõm* >< *kurbus* ja *naer* >< *nutt*.

Loetelukatsetega saadud ja kognitiivlingvistiliselt interpreteeritud andmeid eestlaste rahvalikust emotsioonimudelist võrreldi ka tulemuste ja väidetega, mida on esitanud eesti keele emotsioone väljendava sõnavara varasemad, psühholoogidest uurijad. Ehkki rakendatav metoodika on olnud erinev, leidus tulemustes ka kattuvusi. Näiteks ka L. Kästiku uurimuses tulid välja *viha* ja *rõõm* kui kõige prototüüpsemad emotsioonid, *kurbus* oli pingereas kuuendal ja *armastus* kui käesoleva uurimuse seisukohalt esilduv, ent erandlik liige emotsioonikategoorias alles 23-ndal kohal.

Mõned varasemates uuringutes leitud eesti keele emotsioonisõnavara semantikat kirjeldavad spetsiifilisemad faktorid osutusid kokkusobivaks rahvalike põhitasandi teadmistega emotsioonidest: VÄGIVALDSUSE faktorile vastab *VIHA* mõiste, KURBUSELE *KURBUS,* ÜLEMEELIKUSELE *RÕÕM* ja KÜLGETÕMBELE *ARMASTUS*. Faktor VÄSIMUS ei tulnud loetelukatses emotsioonina esile, sest selle mõistega ei seostu rahvalikule mudelile omast polaarset hinnangulisust ega emotsioonilt vaikimisi eeldatavat energiataseme tõusu. Samuti ei kajastunud rahva arusaamises tüüpilistest emotsioonidest UJEDUSE ega MEELEKINDLUSE faktorid.

Leksikaalseid emotsiooniteadmisi kujundavast rahvalikust emotsioonimudelist leitud domineeriv vastandus positiivsete ja negatiivsete emotsioonide vahel, mis sõnatasandil väljendus antonüümiaseostena, osutus erinevaks J. Alliku ja A. Realo poolt faktoranalüüsiga saadud tulemusest, mille kohaselt positiivsed ja negatiivsed emotsioonid ei ole vastandlikud, vaid kombineeruvad omavahel igal võimalikul viisil. J. Allik ja A. Realo põhjendavad seda asjaoluga, et kaks peamist faktorit, mis emotsioonisõnade semantikat nende uurimuses kirjeldavad, korreleerusid ainult nõrgalt negatiivselt omavahel. Sellest nad järeldasidki, et positiivsus ja negatiivsus pole mitte vastandid (ühe skaala kaks vastandlikku otsa), nagu väidab rahvalik arusaam, vaid et tegu on üksteise suhtes risti paigutuvate dimensioonidega. See leitud erinevus kogemuslike ning rahvalike mudelite poolt mõjutatud leksikaalsete (kontseptuaalsete) emotsiooniteadmiste vahel osutuski käesoleva uurimuse peamiseks tulemuseks. Me võime küll kogeda emotsioone samaaegselt, kuid tänu rahvalikule arusaamale võime neist mõelda kui polaarselt vastandlikest ja teineteist *mõisteliselt* välistavatest.

Rahvalikust emotsioonikategooriast

Väitekirja teises peatükis kirjeldatakse prototüübiteooriast lähtudes eestlaste rahvaliku emotsioonikategooria kui leksikaalsete emotsiooniteadmistena elava kollektiivse kognitsiooni struktuuri ja seoseid teiste kognitiivsete valdkondadega kollektiivses teadvuses. Lähenemine on selles mõttes relativistlik, et rahvalikku emotsioonikategooriat kui üldkehtivat vaikimisi omaksvõetud arusaama emotsioonidest käsitatakse nn rahvapsühholoogia osana, mis usutakse omakorda mõjutavat seda, kuidas selle rahva liikmed oma emotsioone tajuvad ning kategoriseerivad. Naaberrahvaste iroonia eestlaste "kuumaverelisuse" üle võib olla seotud sellega, mida eestlased kollektiivselt emotsiooniks peavad ja et nad sel põhjal vaikimisi "emotsionaalsusele" negatiivse märgi omistavad, ning et osa tundeeluga seostuvaist nähtustest on kollektiivsest emotsioonikategooriast koguni välja jäetud.

Uurimuse aluseks on jällegi autori poolt läbiviidud empiiriline emotsioonisõnavara loetelukatsete seeria, mille käigus koguti 100 informandilt aktiivset, so hetkeliselt meenuvat emotsioonisõnavara ja teemaga seostuvaid assotsiatsioone. Eelduseks oli, et kui teadmised ja neid esindavad sõnad pole tõesti inimeste peas paigutatud juhuslikult, vaid süstemaatiliselt, ainealade kaupa, nagu kirjanduses on väidetud, siis on katsealustel loetelukatses lihtne ühe teemaga seotud sõnu nimetada. Sõnu nimetatigi üsna palju, seitsmes loetelukatses kokku ligi viis tuhat nimetamist (tuhatkond erinevat), kusjuures kolmandikku neist mainiti ainukordselt.

Kõikides katsetes kokku korduvalt (3+n) esile tulnud sõnu (314) käsitleti kui kollektiivselt emotsioonikategooriaga seostatavaid ning nende semantilisel liigendusel põhineb tulemusena esitatud väide, et rahvalik emotsioonikategooria paikneb eestlaste kollektiivses teadvuses alal, kus omavahel tinglikult lõikuvad või kattuvad nn FÜÜSILISE RUUMI, SOTSIAALSE RUUMI ja INTRAPSÜÜHILISE RUUMI kognitiivsed valdkonnad. FÜÜSILINE RUUM kui kognitiivne valdkond koondab meeleorganite kaudu saadavaid teadmisi kehade, sh oma keha füüsilistest omadustest (nt ulatuvusest, paiknemisest, temperatuurist, liikuvusest), SOTSIAALNE RUUM koondab teadmisi inimestevahelistest suhetest ja suhtlusstrateegiatest ning INTRAPSÜÜHILINE RUUM subjektiivselt tajutavaid teadmisi ja kogemusi mitmesugustest psüühilistest protsessidest (nt meeldivushinnangud, psüühilise aktivatsiooni tase, meeleolu, huvi, tunnetuslik adekvaatsus).

Selline paiknemine leiti väitekirjas olevat loomulik, kuna emotsioonid on nähtused, millele on omased nii füüsilised manifestatsioonid (tüüpilised näoilmed, väljendustegevused, tegutsema või liikuma tõukamine või sellest tagasihoidmine, autonoomse närvisüsteemi ja hormonaalse infovahetuse vahendusel vallanduvad termoregulatsiooni muutused jne) kui ka sotsiaalne orienteeritus (emotsioonid on eelkõige indutseeritud sotsiaalsete olukordade poolt; osa sotsiaalsest suhtlemisest toimubki emotsioonide tasandil, kus suhete regulatsiooniks kasutatakse pooltahtmatult primitiivset ja prekontseptuaalset

kahevalentset tagasidet). Intrapsüühiliselt manifesteeruvad emotsioonid subjektiivselt tajutavate hedooniliste ja köitvushinnangutena, aktivatsiooni tõusu või langusena, mida interpreteeritakse seoses eelneva kogemusega ning millele järgnevad tegevusplaanid.

Jäiku piire ülamainitud kognitiivsete valdkondade vahel ega rahvaliku emotsioonikategooria ümber nende lõikumisalal mõistagi ei eeldatud ega esinenud ka katseandmetes. Rahvalik emotsioonikategooria osutus olevat kognitiivselt esilduva tuumosaga (emotsioonide prototüübid), kuid väga hajusate piiridega kategooria, demonstreerides sujuvaid üleminekuid nähtustesse, mis primaarselt kuulunuksid juba emotsioonidega piirnevatesse mõistealadesse.

Esimese loetelukatse (A) põhjal eristati *viha, armastus, rõõm* ja *kurbus* kui emotsioonide põhinimetused eesti keeles ja põhjendati nende kuulumist üldrahvalike emotsiooniteadmiste põhitasandisse kirjanduses omistavate omaduste toel (nt hõlpsasti äratuntav väliskuju). Emotsioonidel on selleks väliskujuks äratuntavad näoväljendused, aga ka spetsiifilised väljendustegevused, mida nende emotsioonidega tüüpiliselt seostatakse.

Põhitasandi objektidele on eestlaste rahvalikus emotsioonikategoorias omane nende mõisteline vastandamine ja sümmeetria. Oletati, et just vajadus *vihale* vastandit leida põhjustas silmatorkava näoilmeta *armastuse* kognitiivse üliesilduvuse ja kuulumise emotsiooniteadmiste põhitasandile. See eestlaste leksikaalsete emotsiooniteadmiste põhitasandi tuvastatud oluline omadus (jagunemine heaks ja halvaks) on omane ka mittepõhitasandi ehk spetsiifilisematele emotsioonimõistetele ning laieneb piirnevatele kognitiivsetele valdkondadelegi. Nii mõnegi sõna puhul on kergem otsustada tähistatava nähtuse headust või halbust kui seda, kas tegemist on emotsiooni, isikuomaduse, sotsiaalse nähtuse või millegi muuga.

Põhitasandi emotsioonimõistete hulgas ilmutas suurimat kognitiivset esilduvust *viha*, mille põhjal on uurimuses väidetud, et *viha* on eestlaste kollektiivses teadvuses kõige prototüüpsem emotsioon, millega sarnanemise alusel otsustatakse arvatavasti üksikliikmete kuuluvuse üle emotsioonikategooriasse ja mis põhjustab ka kogu kategooriale vaikimisi omistatava negatiivse hinnangulisuse. Nagu osutatakse ka väitekirja esimeses peatükis, esindab sõna *viha* nähtavasti kahte omavahel seotud (intra- ja interpersonaalset) VIHA mõistet. Tänapäeval on aktuaalsem ja primaarne interpersonaalne, sotsiaalne VIHA. Keeleajalooliselt seostub sõna *viha* tähendus eelkõige tunnetusliku naabervaldkonnaga, tähistades ebameeldivat maitseaistingut.

Emotsiooniteadmiste mittepõhitasandile kuuluvad rahvaliku emotsioonikategooria spetsiifilisemad liikmed. Selle kihi rahvalikus emotsioonikategoorias moodustavad sõnad, mis tähistavad põhitasandi emotsioonide kestuse ja intensiivsuse põhjal eristuvaid seisundeid (*viha > raev, kurbus > ahastus*), spetsiifilise olukorraga seotud kvalitatiivselt erinevaid põhiemotsioone (*üllatus, vastikus, hirm*), samuti sõnad, mis viitavad primaarselt nt isikuomadustele (*lahkus, kadedus*) või sotsiaalsetele nähtustele (*sõprus*). Keeleliselt leidub

mittepõhitasandi teadmistele viitavate sõnade hulgas ohtralt tuletisi, aga ka liit- ja võõrsõnu.

Kui emotsiooniteadmiste põhitasandile kuulub teadmine mõistete sümmeetrilisest vastandamisest leiavad väljenduse ka kinnistunud antonüümipaaridena *kurbus >< rõõm*, *viha >< armastus*, siis mittepõhitasandil, so spetsiifilisemate emotsioonimõistete puhul, tuli esile küll usk vastandite olemasolusse, kuid üksmeel vastandlike lekseemipaaride osas suuresti puudus. Täheldati toetumist pigem oma subjektiivsele kogemusele emotsioonist või selle puudumisest kui kinnistunud leksikaalsetele mittepõhitasandi emotsiooniteadmistele.

Keelejuhid ilmutasid leidlikkust vastandsõnade nimetamisel ja "leiutamisel", kui kontseptuaalselt oli vastand nende meelest olemas, aga sõna ei olnud käepärast. Tavalisemad strateegiad olid omadust eitavate sufiksite ja sõnaosiste (*-tu, -matu, eba-, mitte-)* kasutamine, emotsiooni puudumisele semantiliselt viitavate sõnade (*ükskõiksus, rahu*) nimetamine või antud situatsioonis kvalitatiivselt vastandlikuks peetavale seisundile osutamine (*mõnu >< valu*). See asjaolu kinnitab esimeses peatükis oletatud kontseptuaalset vastandust positiivsete ja negatiivsete emotsioonide kui emotsiooniteadmiste hierarhias kõrgemal abstraktsiooniastmel paiknevate kategooriate vahel.

Üleminekualal kontsentrilisena kujutatud emotsioonikategooriast kognitiivsetesse naabervaldkondadesse paiknevad mõisted, mis seostuvad nii emotsioonide kui naaberaladega. Näiteks kõrvade ja silmadega aistitavad emotsioonide väljendustegevused (*nutt, naer, karjumine*), metafoorsed temperatuuriilmingute ülekanded (*soojus, külm*) ja puutetundlikkus (*valu*) on nähtused, mida saab liigitada subjektiivselt tajutud füüsikalise ruumi elementidena, ometi on nende seos emotsioonidega ilmne.

Ülekaalukalt nimetasid katsealused loetelukatsetes mitmesuguseid sotsiaalsete suhete ning kollektiivsete väärtushinnangutega seostuvaid nii ideaalseid kui anti-ideaalseid seisundeid ja omadusi. Sotsiaalsete omaduste rohkuse ja temaatilise liigendatuse põhjal tehti käesolevas uurimuses järeldus sotsiaalse mõõtme olulisusest eestlaste rahvalikus emotsioonikategoorias. Intrapsüühilise aktiivsusega seostuvad primaarselt sellised nähtused nagu subjektiivselt tajutud aktivatsiooni tase, meeleolumuutused, huvitatus.

Uurimuses toodi ka välja mõned n-ö "autsaiderid" rahvalikus emotsioonikategoorias – sõnad, mis ei viita emotsioonidele ei primaarselt ega sekundaarselt, kuid mis tulid loetelukatsetes siiski korduvalt esile, kui emotsioonidega kollektiivselt põhjuse-tagajärje või assotsiatsioone pidi seostatavad nähtused ja objektid (*päike, lilled, perekond*).

Süstemaatiline võrdlus psühholoogide poolt kasutatud emotsioonisõnavara küsimustikuga, mis on koostatud eesti keele sõnaraamatute põhjal ning viidud vastavusse ingliskeelse eeldatavalt ammendava positiivsete ja negatiivsete emotsioonide skaalaga, lubas uurimuses välja tuua ka kollektiivselt teadvustamata või alaliigendatud mõistepiirkonnad: nendeks on ALAVÄÄRSUSTUNNE

oma väga mitmekesistes vormides, HIRM, KÄITUMUSLIK AGRESSIIVSUS ning vahest üllatuslikuna ka TEGUTSEMA TÕUKAV ENERGIAKÜLLASUS. Tugevalt ülepaisutatud võrreldes psühholoogide emotsiooniskaalaga oli rahvalikus käsitluses sotsiaalsete nähtuste ja suhete osakaal, seda nii ideaalsete kui taunitavate nähtuste nimetamisena.

Eestlaste rahvaliku emotsioonikategooria iseloomulikem joon – nähtuste läbiv jaotamine positiivseteks ja negatiivseteks – ei ole midagi eestlastele ainuomast, vaid on vastavuses kirjanduses esile toodud semantilise universaaliga emotsioonide kontseptualiseerimise juures, mida on leitud kõigi rahvaste emotsiooninimetuste puhul. Kehtib seaduspära, et pole võimalik osutada emotsioonile ilma osutamata, kas ta on positiivne või negatiivne.

Selline kogemuse kaheks jaotamine võib põhineda nii kultuurilistel normidel ja väärtushinnangutel (nt religiooni kultiveeritud "hea ja kurja" tundmine) kui ka inimpsüühika universaalsetel omadustel, mis on tagasi viidavad erutus- ja pidurdusprotsessidele ajus ning neurotransmitterite vallandumisele.

Väitekirjas nõustutakse seisukohaga, et emotsiooniteadmisi saab jaotada tinglikult kahe tasandi vahel: esimese astme moodustavad preverbaalsed ja prekontseptuaalsed teadmised, mis juhivad meie käitumist oluliselt, aga teadvustamatult, ning teise astme moodustavad kontseptuaalsed ja keeleliselt vahendatavad teadmised emotsioonidest. Viimaste alla kuuluvad ka emotsiooninimetused kui osa leksikaalsetest emotsiooniteadmistest.

Esimese astme teadmistele omane kahevalentsus, mis juhib meie käitumist primitiivse, aga töökindla (+/-) tagasiside vormis (kinesteetilise skeemkujutlusena, nt *võitle või põgene*), sisaldub aga ka kontseptuaalsetes teise astme emotsiooniteadmistes. See avaldub nii emotsioonikategooria kui terviku liigendumises kaheks kõrgema abstraktsiooniastmega kategooriaks (positiivsed ja negatiivsed emotsioonid/ tunded) kui ka iga üksiku emotsioonisõna semantikas, kuhu lahutamatult kuulub hinnang seisundi/omaduse positiivsuse või negatiivsuse kohta.

Leksikaalsete emotsiooniteadmiste väidetava struktureerituse osas on uurimuses oletatud, et igasugune emotsioonikategooria struktuuri eritlemine, mis jääb väljapoole jaotust headeks ja halbadeks tunneteks ning on spetsiifilisem põhitasandi mõistetest *viha, rõõm, armastus, kurbus*, on spekulatsioon ja pigem uurija püüdliku analüüsi tulemus kui kategooria loomuliku struktureerituse ilmsikstulek. Keelejuhtide peas ei paistnud emotsioonipere-kondadele eraldi ja hõlpsasti avanevaid panipaiku olevat, sealt kerkis kõige rohkem esile vaid kõige igapäevasemaid ja sagedamini esinevaid mõisteid. Ka vastandusseosed emotsioonimõistete vahel toimisid ainult emotsiooniteadmiste põhitasandil. Peenem struktuur sugeneb üldrahvalikku emotsioonikategooriasse pigem uurija abstraheerimispingutuste tulemusel, kui kuulub iga keelekasutaja peas leiduva rahvaliku emotsioonikategooria olemuslike joonte hulka.

Väitekirja kolmandas peatükis võetakse vaatluse alla sotsidemograafilistest teguritest tingitud varieeruvus emotsioonisõnavaras. Täpsemalt käsitletakse soo ja ea mõju loetelukatsete tulemustele.

Emotsioonisõnavara ja emotsioonimõisteid käsitlevas kirjanduses on palju juttu kultuuridevahelistest erinevustest ja mõistete võrreldavusest ning võrreldamatusest keelte lõikes. Varieeruvus ühe kultuuri sees on saanud teenimatult vähe tähelepanu. Väitekirjas oletatakse, et "keskmist eestlast keskmiste emotsiooniteadmistega" pole olemas ja et üldine emotsiooniteadmiste norm kujuneb kattuvustest indiviidide teadmiste vahel. Individuaalsed teadmised võivad aga sõltuda soost ja east, mistõttu üldistes teadmistes võib tulla esile soo ja eaga seotud varieeruvusi. Kuivõrd soo ja ea mõju tunnetusprotsessidele on pigem sotsiaalpsühholoogia kui lingvistika tööpõld, siis on eesti keeleruumis esile tulnud empiirilisi tulemusi interpreteeritud lähtudes kirjandusest, mis käsitleb soo ja ea mõju emotsioonide tajumisele ja üldistele leksikaalsetele võimetele.

Uurimuse aluseks on kaks loetelukatset 2001. aastal läbi viidud loetelukatsete seeriast, millest esimeses (A) paluti katsealustel loetleda kategooria emotsioonid/tunded liikmeid ja teises (E) loetleda emotsioone, mida nad ise on lähiminevikus kogenud. Kahe katse tulemusi vaadeldi võrdlevalt, eesmärgiga selgitada, kas käesolevas väitekirja esimeses ja teises peatükis esiletoodud emotsioonide põhinimetuste (*viha, rõõm, armastus, kurbus*) kognitiivne üliesilduvus on tingitud nende tunnete sagedusest igapäevases kogemuses või, vastupidi, tingib nende sõnade üliesilduvus ka oma kogemuse kategoriseerimist just ainult nende põhinimetuste abil. Samuti huvitas autorit semantiliste ja kogemuslike emotsiooniteadmiste struktuuri võimalik erinevus, mis oli välja tulnud esimese loetelukatse (A) tulemuste võrdlemisest psühholoogide poolt tehtud emotsioonisõnavara uuringutega (vt 1. peatükk käesolevas uurimuses).

Saja küsitletu tulemused löödi lahku vastavalt soole (kaks 50-liikmelist gruppi) ja eale (kaheksa 30-liikmelist gruppi, mis individuaalsete tulemuste mõju vähendamiseks moodustati osaliselt kattuvana eelneva ja järgneva grupiga). Kolm ja enam korda (3+n) esile tulnud sõnadele arvutati kognitiivse esilduvuse indeksid vastavalt U. Sutropi metoodikale.

Järgnevalt sedastati sooga seotud tendentsid võrrelduna leksikaalsete emotsiooniteadmistega üldiselt (vt 1. ja 2. peatükk) ja oma lähimineviku emotsioonide meenutamise katses. Emotsioonikategooria liikmete nimetamise katses (mida seostati väitekirjas semantiliste emotsiooniteadmistega) selgus, et võrrelduna keskmisega ja võrrelduna naistega on *viha* meeste jaoks esilduvam emotsioonikategooria liige, mis meenub koos antonüümist paarikuga *armastus*; naistest rohkem nimetati ka sõnu *raev*, *nutmine*, *vihkamine*, *hirm*, *valu*. Naiste jaoks on üldisest normist esilduvamad emotsioonikategooria liikmed *armastus, kurbus*, *rõõm*, üldine kategoorianimetus *tunded* ja emotsioonide väljen-

dusilming *pisarad*. Naiste emotsiooniteadmistes eristusid põhitasandi emotsiooninimetused selgemal ja leksikaalselt kinnistunumal kujul (nimisõnadena), meestel tuli esile ka adjektiive, nt *kurb* ja *rõõmus*. Sel asjaolul põhines töös esitatud väide, et leksikaalsed emotsiooniteadmised on eesti kultuuris valdavalt naiste "kehtestatud". Semantiliselt eelistasid mehed jääda tundetemaatika piiridesse, samas kui naised olid varmad nimetama ka kõikvõimalikke assotsiatsioone. Verbaalselt produktiivsuselt ületasid naised mehi semantiliste emotsiooniteadmiste katses pea kahekordselt. Viimane asjaolu on kooskõlas nii naistele üldiselt omistatava suurema verbaalse võimekusega kui kirjanduses välja toodud suurema "asjatundlikkusega" emotsioonide alal, kuivõrd need teadmised moodustavad osa nende soorolli mudelist.

Lähimineviku emotsioonide meenutamise katses (mida uurimuses seostati episoodiliste emotsiooniteadmistega) tuli nii meestel kui naistel ilmsiks suurim *rõõmu* kogemise määr, naised olid lisaks kogenud keskmisest enam *armastust*, *väsimust, hirmu* ja *kurbust*, mehed *viha* ja *rahulolu.* Verbaalse produktiivsuse erinevus selles katses oli küll naiste kasuks, aga ebaolulisel määral. Olulisem oli mõlema grupi suhteline sõnakehvus oma emotsioonide meenutamisel võrreldуna kategooria liikmete meenutamise katsega. Viimane asjaolu näis kinnitavat kirjanduses oletatud semantiliste teadmiste kergemat kättesaadavust võrreldes episoodilistega.

Kirjanduses on vastuolulisi andmeid selle kohta, kas mõned emotsioonid on soospetsiifilise esinemusega või mitte. Suuremat seost kui füüsilise sooga on leitud kultuuriliselt tingitud soorolliga. Viimase põhjal omistatakse naistele abitusega seotud madalama energiatasemega emotsioone (kurbus, hirm, ebakindlus) ning meestele põlgust, uhkust ja rahulolu kui sotsiaalselt kõrgema staatusega kaasnevaid tundeid.

Semantiliste ja episoodiliste emotsiooniteadmiste võrdlemisel kognitiivse esiletuleku indeksi alusel ei tulnud välja üks-ühest vastavust kaht liiki emotsiooniteadmiste vahel, ilmnesid hoopis üle- ja alakognitiseeritud mõisted.

Emotsiooni ülekognitiseerimine tähendab selle saamist omamoodi kinnisideeks kollektiivses teadvuses, alakognitiseerimine tähendab kollektiivsest teadvusest väljatõrjumist. Mõlemal juhul esineb disproportsioon emotsiooni kogemise määra ja sellest rääkimise ja mõtlemise määra vahel.

Meestel olid enim ülekognitiseeritud *viha* ja *armastus*, naistel *viha*, *kurbus* ja *armastus.* Alakognitiseeritud olid meestel *rõõm*, *väsimus* ja *närvilisus,* naistel *väsimus* ja *hirm*. Summaarselt oli naiste puhul erinevus semantiliste ja episoodiliste emotsiooniteadmiste vahel suurem kui meestel. Nii mehed kui naised kaldusid ülekognitiseerima interpersonaalseid emotsioone ja alakognitiseerima intrapersonaalseid emotsioone, millest nähtub sotsiaalse mõõtme olulisus eestlaste semantilistes emotsiooniteadmistes.

Järgnevalt vaadeldi emotsiooninimetuste kognitiivset esilduvust semantilistes ja episoodilistes emotsiooniteadmistes eelnevalt eristatud kattuvate eagruppide lõikes, kus tuli ilmsiks huvitav dünaamika. Verbaalne produktiivsus

näitas püsivat kasvutendentsi mõlemas katses, samuti emotsioonisõnade mitmekesisus. Nende asjaolude üheaegne ilmnemine on seletatav kirjanduses esile toodud leksikaalse taju ebatäpsuse kasvuga kõrgemas eas, samas kui sõnadele omistatav emotsionaalne intensiivsus eaga kasvab. Eestlaste leksikaalsetes emotsiooniteadmistes ilmnes see üha rohkemate ja erinevamate sõnade nimetamisena, ükskõik, kas need seostusid otseselt emotsioonidega või mitte.

Kattuvate emotsiooniteadmiste osas oli samuti kahe katse vahel ideaalne korrelatsioon, ent kattuvate emotsiooniteadmiste lagi paiknes keskealiste informantide grupis. Selles eagrupis sedastati kõige suurem konsensus selle osas, mida pidada emotsiooniks, ja üllatusena ka kõige suurem sarnasus episoodiliste emotsioonikogemuste vahel. Viimane tõsiasi räägib oletuse kasuks, et leksikaalsete emotsiooniteadmiste põhitasand vastab igapäevaselt sagedamini kogetud emotsioonidele ja vastupidi, et semantiliste kategooriate käepärasus hõlbustab oma kogemuse identifitseerimist ja meenutamist.

Nooremate informantide semantilistes emotsiooniteadmistes prevaleerib *viha* >< *armastuse* vastandus, keskealistel *rõõmu* >< *kurbuse* vastandus, pärast keskiga näivad kaduvat nii mõistete sisuline vastandus kui ühtede mõistete domineerimine teiste üle. Põhiemotsioonisõnade esilduvuse dünaamikale sekundeerivad muudatused emotsiooniteadmiste mittepõhitasandil ehk spetsiifilisemate emotsioonisõnade osas. Iseloomulik on interpersonaalsete emotsioonide prevaleerimise väljavahetumine intrapersonaalsete vastu keskealiste semantilistes emotsiooniteadmistes. See, et eri eagruppide jaoks on aktuaalsemad teatud kindlad põhitasandi mõisted kas positiivsete või negatiivsete emotsioonide ülemkategooriast, seletub arvatavasti arengupsühholoogiliste seikadega, näiteks nagu ootuste ja keskkonnale reageerimise viiside muutustega.

Väitekirja teises peatükis väljatoodud *viha* staatus eestlaste jaoks kõige prototüüpsema emotsioonina põhineb tema püsivalt suurel kognitiivsel esilduvusel kõigi eagruppide lõikes, ehkki eri eagruppidel võib kõige prototüüpsema emotsiooni kohta olla eriarvamusi.

Episoodilistes emotsiooniteadmistes tuli esile *rõõmu* domineerimine kõigis eagruppides ja eriti nooremate katsealustel, millega oli negatiivselt seotud *viha* kogemine. *Armastus* kuulus nooremate inimeste episoodilistesse mälestustesse, keskeas astuvad selle asemele mälestused kogetud *kurbusest*.

Semantiliste ja episoodiliste emotsiooniteadmiste võrdluses tuli jällegi välja disproportsioon eesti keele emotsioonide põhinimetuste suhtelises esilduvuses, mis suurimana avaldus *rõõmu* alakognitiseerimisena noorte katsealuste poolt. Teistes eagruppides ilmnes semantiliste emotsiooniteadmiste dünaamikaga paralleelne easpetsiifiline ülekognitiseerimine. Summaarne erinevus semantiliste ja episoodiliste emotsiooniteadmiste vahel oli suurem noorimate ja vähim keskealiste katsealuste grupis.

Emotsioonide põhinimetuste esinemuse korrelatsioonide põhjal eagruppide lõikes jõuti tulemusele, mis kinnitas oletust, et semantilised ja episoodilised emotsiooniteadmised on organiseeritud erinevalt: semantilistes teadmistes on

põhiliseks organiseerivaks jõuks mõisteline vastandus suurima kontrasti printsiibi alusel ja episoodilistes teadmistes emotsioonide võimalik koosesinemine emotsionaalsetes episoodides.

Kuigi eesti keelt kõnelesid kõik katsealused emakeelena ja üldrahvalikult jagatakse rahvalikku emotsioonimudelit ning ettekujutust emotsioonikategooria seostumiseset teiste kognitiivsete valdkodadega, ilmnes emotsioonisõnavara ja eriti põhinimetuste aktuaalsuses ea ja sooga seotud kultuurisiseseid erisusi.

Iseorganiseeruv lähenemine emotsiooninimetuste semantikale

Väitekirja neljas peatükk kujutab endast autori poolt 2003. aastal läbi viidud emotsiooninimetuste semantika empiirilise uuringu tulemuste esmast kokkuvõtet ja interpretatsiooni. Tähelepanu on pööratud nii emotsioonidega seotud semantilise välja üldisele organiseeruvusele kui mõnede üksikmõistete struktuurile komponentanalüüsi seisukohtadest lähtudes. Arvandmete töötlemisel kasutati iseorganiseeruvate kaartide meetodit, mille osas autorit abistas Tallinna Tehnikaülikooli doktorant Toomas Kirt, kes on ka sel teemal avaldamiseks esitatud artikli kaasautoriks.

Psühholoogiaalases kirjanduses valitseb juba aastaid vastuolu kahe koolkonna uurimistulemuste vahel, millest üks väidab, et 50–75% emotsiooninimetuste semantikast on kirjeldatav kahe mittevastandliku dimensiooni abil (üldise positiivse ja üldise negatiivse afekti faktorid), ja teine väidab, et emotsiooninimetuste semantikat esitab paremini ringmudel, mis moodustub kahest lõikuvast bipolaarsest (st vastandlike otstega) dimensioonist (meeldiv – ebameeldiv ning madal – kõrge aktivatsioon). Mõlemad koolkonnad on leidnud kinnitust paljude keelte andmetest, ja ka eesti keele emotsioonisõnad on demonstreerinud allumist mõlemale lähenemisviisile. See tõik andis autorile alust küsida, kas emotsioonisõnavara semantika universaalne struktuur ei ole mitte osaliselt kasutatavate uurimismeetodite universaalsuse teene.

Väitekirjas kirjeldatav emotsiooninimetuste semantika uuring lähtus eeldusest, et mingi keele kõnelejatel käibel olevad emotsioonimõisted moodustavad osa selles keeles vahendatud kollektiivsetest emotsiooniteadmisest. Eesmärgiks oli selgitada, kas eestlaste leksikaalsetes emotsiooniteadmistes leidub iseomast "olemuslikku" struktuuri, mis ei oleneks uurimise lähteandmetest (enesehinnangud emotsioonide kohta või sõnasarnasuse hinnangud) ega analüüsimeetoditest (faktoranalüüs, multidimensionaalne skaleerimine), lisaks sooviti kontrollida mõnede kirjanduses osutatavate omaduste relevantsust emotsiooninimetuste semantika kirjeldamisel ning selgitada, kuivõrd on leksikaalsete emotsiooniteadmiste näol tegemist vastastikku sarnasuse alusel seotud mõistete süsteemiga, nagu üldiselt on oletatud.

Iseorganiseeruvate kaartide meetodit kasutati just selle põhjendusega, et välja ei tuleks mitte traditsiooniliste statistiliste reduktsioonimeetodite prog-

noositav tulemus, vaid emotsioonisõnavara semantika "tegelik" struktuur, mille ta ise võtab, kui lasta närvivõrgustikku modelleerival programmil alg-andmete varieeruvusest ise õppida ning tulemusena esitada mõistetevaheline optimaalne paigutus topoloogilisel kaardil.

Küsimustikule vastas 100 katseisikut vanuses 14–76 aastat (keskmine iga 40,2), pooled vastanutest olid mehed ja pooled naised. Uuriti 24 emotsioone või emotsionaalseid seisundeid tähistava eesti sõna semantikat nende inimeste intuitsiooni ja teadmiste põhjal. Pilootuuringuga testiti mõõdetavate omadusskaalade relevantsust, ülesannete sõnastuse arusaadavust ning jõukohasust tavaliste, ilma eriettevalmistuseta informantide jaoks.

Sõnad olid valitud nii, et esindatud oleksid emotsioonide põhinimetused (*viha, armastus, rõõm, kurbus*), kuid leiduks ka nende poolt tähistatavate emotsioonide kestuse ja intensiivsuse alusel eristatavaid seisundeid (*masendus, vaimustus, kirg, raev*), eeldatavalt sotsiaalselt orienteeritud (*kaastunne, kadedus*) ja intrapersonaalseid (*mõnu, ärevus*) tundeid, kognitiivsete protsessidega eeldatavalt seotud (*pettumus, vaimustus*) ja mitteseotud seisundeid (*iha, mõnu*). Võrdselt oli negatiivseid ja positiivseid emotsioonisõnu ning lisaks paar eeldatavalt indiferentset (*üllatus, kaastunne*).

Kirjalikus küsitluses tuli katseisikutel täita kaks ülesannet. Esiteks paluti hinnata sõnade tähendust seitsmel 7-astmelisel skaalal omadustepaaride suhtes, kus kumbki skaala otstest esindas ühte näiliselt vastandlikest omadustest (*tugev* vs. *nõrk tunne, kestuselt lühike* vs. *pikk, annab* vs. *võtab teotahet, tunda kehas* vs. *tunda mõtetes, oleneb ainult endast* vs. *oleneb rohkem teistest, meeldiv* vs. *ebameeldiv* ning *eelneb* vs. *järgneb sündmusele*). Semantiliste diferentsiaalide meetodist inspireeritud küsitlusmetoodikale lisati võimalus märkida lisaks esimesele spontaansele hinnangule ka teine arvamus, selgitamaks vastandlike omaduste samaaegse esinemise võimalikkust või võimatust. Teises ülesandes tuli katsealustel nimetada samade stiimulsõnadega sarnaseid ja vastandlikke mõisteid. Selle leksikaalse ülesande sooritamisel teatasid vastajad kimbatusest ja mõnel juhul jätsid ülesande koguni täitmata. Vastanutel oli kergem hinnata emotsioonimõisteid vastandlike omaduste suhtes kui eeldatavaid mõistetevahelisi seoseid pidi.

Esimesest katsest selgusid markeeritud ja markeerimata tunnused, mis iseloomustavad emotsioonikategooria keskseid liikmeid eesti keeles. Kahest näiliselt vastandlikust omadusest osutus üks emotsioonimõisteid enam iseloomustavaks markeerimata tunnuseks. Emotsioon kui seesugune kaldub olema pigem *tugev* kui *nõrk*, kestuselt pigem *pikk* kui *lühike*, kaldub pigem *andma* kui *võtma teotahet*, olema seotud pigem *enda* kui *teistega*, olema pigem *ebameeldiv* kui *meeldiv* ning pigem *tunda mõtetes* kui *kehas*.

Emotsioonimõisted organiseerusid SOM-programmi abil kaardile (joonis 19), mis kujustab nendevahelist eukleidilist kaugust, kui kõik vahemaad on optimaalsed. Üldine paigutus osutus väljavenitatud ristküliku taoliseks, kusjuures mõisted ja mõistegrupid paigutusid äärtele. Viimane asjaolu ilmutab

"naabergruppide" suhtelist sarnasust ja üksteisest kaugel paiknevate mõistete suurt erinevust antud hinnangute alusel.

Iseorganiseeruva kaardi väljavenitatus räägib selle kasuks, et üks domineeriv dimensioon määrab enamuse emotsioonimõistete struktuurist, ovaalne paigutus kaardi servadesse toetab jällegi nn ringmudelit ja kahe vastandliku dimensiooni teooriat. Heleduse-tumeduse abil kujutatud nn kolmas mõõde kaardil lubab põhimõtteliselt tuge kirjanduses esitatud hüpoteetilisele kolmemõõtmelisele semantilisele ruumile, mille mõõtmeteks on *hinnang*, *aktiivsus* ja *tugevus*. Iseorganiseeruv kaart annab alust mitmesugusteks interpretatsioonideks.

Mõistete paigutus kaardil on bilateraalselt sümmeetriline: negatiivsetele seisunditele osutavad sõnad paiknevad all ääres ja positiivsed ülal, vahepeale jääb üleminekupiirkond, kus asetsevad väljendumata või ambivalentsete hinnangutega mõisted (*ärevus, üllatus, kaastunne*).

Mõned kasutatud tunnustepaaridest osutusid distinktiivseteks selles mõttes, et osalesid kõigi uuritud mõistete kirjeldustes ja nende alusel toimus mõistete küllalt selge jagunemine markeeritud ja markeerimata tunnuseid kandvatesse mõistegruppidesse. Sellised tunnused olid *ebameeldiv* vs. *meeldiv, annab* vs. *võtab teotahet, eelneb* vs. *järgneb sündmusele* ja *tunda mõtetes* vs. *kehas*. Nendest tunnustest *ebameeldiv* vs. *meeldiv* oli tugevalt negatiivselt seotud tunnusega *annab* vs. *võtab teotahet*, tunnus *järgneb* vs. *eelneb sündmusele* korreleerus positiivselt *tunda olemisega pigem mõtetes* kui *kehas*. Tunnus *tugev* osutus vaikimisi omaseks kõigile valitud mõistetele. Selline leid on kooskõlas kirjanduses leiduvate väidetega intensiivsusest kui emotsiooni prototüüpsuse peamisest kriteeriumist.

Lisaks ilmutas *tugevus* positiivset korrelatsiooni teise kvantitatiivse näitaja – seisundi *pikkusega*, mis samuti ei osutunud distinktiivseks. Emotsioonide puhul ei näi tajutav intensiivsus tähendavat energiahulka ajaühiku kohta, vaid pigem koguenergiat, mis pikema kestuse puhul on suurem. Ka tunnus *oleneb rohkem endast* vs. *teistest* ei osutunud distinktiivseks.

Need kogu mõisteala suhtes mittedistinktiivsed ja teineteist vastamisi mitte välistavad (unipolaarsed) tunnused ilmutasid suurt varieeruvust vastajate lõikes, kuid võivad osutuda relevantseks üksikmõistete struktuuris, eristades nt sisult lähedasi mõisteid omavahel või põhjustades polüseemiat ühe mõiste siseselt.

SOM-kaartide põhjal, mis kujutavad iga üksiku tunnusepaari panust emotsioonimõistete organiseerumisse (joonis 20), tehti järeldus, et mõistete üldises organiseerumises on suur panus skaalal *ebameeldiv* vs. *meeldiv*. Kuna aga ka seda skaalat arvesse võtmata koondusid mõisted tähenduslikult sarnastesse gruppidesse, ainult et harmoonilisemalt, üldist kujutist deformeerimata (joonis 21), siis tehti järeldus, et emotsioonide positiivsus- ja negatiivsushinnangud on kõrgema tasemega abstraktsioonid, mis sünnivad teiste semantiliste tunnuste omavahelise koostoime põhjal. Negatiivsus seostub *ebameeldivusega, teotahte langusega*, seisundi *järgnemisega sündmusele*, *tunde nõrkusega* ja *tunda olemisega mõtetes*; positiivsus seostub *meeldivusega,*

teotahte suurenemise, *tunde tugevusega*, *eelnemisega sündmusele* ja *tunda olemisega kehas*. Kaudselt on negatiivsuse-positiivsusega seotud ka ülejäänud tunnused, ainult et mittedistinktiivse tunnuse *tugevus* kaudu, mis seostub positiivselt *pikkusega* ja viimane omakorda *olenemisega ainult endast*.

Hedooniliste hinnangute skaala toimib nagu mitmemõõtmelise semantilise ruumi näiline projektsioon ühele mõõtmele. *Meeldib – ei meeldi* on evolutsiooni käigus kujunenud kiire ja prekontseptuaalne kahevalentne viis otsustada iga sündmuse kasulikkuse ja kahjulikkuse üle isikule ja tema eeldatavale teovõimele. Tegemist on nn esimese astme emotsiooniteadmistele omase struktuuriga.

Näiline on see projektsioon ka selles mõttes, et tegelikkuses võib olla tegu hoopis vastupidise protsessiga: mitmemõõtmeline semantiline ruum oma dimensioonidega on võetud kasutusele selleks, et interpreteerida organismi toimimisest saadavat primitiivset positiivset ja negatiivset tagasisidet. Viimane tõlgendus on kooskõlas kirjanduses esitatud seiskohaga, et teadvus kui selline on evolutsiooni käigus kujunenud seoses eelistega, mida on andnud emotsioonide tundmise äratundmine ja interpreteerimine seoses asetleidvate intra- ja interpersonaalsete sündmustega.

Kirjanduses on üldise positiivsuse faktorit tavaliselt samastatud meeldivushinnaguga ja üldise negatiivsuse faktorit ebameeldivusega. Väitekirjas esitati hüpotees, et emotsioonimõistete üldises valentsis toimivad koos omavahel negatiivselt korreleeritud hedoonilised ja motivatsioonilised hinnangud: üldist positiivsust võiks samastada pigem teotahte tõusuga ja üldist negatiivsust ebameeldivusega. Niiviisi mõistetud positiivsus ja negatiivsus ei välista teineteist, mida oli näha ka mõnede mõistete struktuurist, mis ebameeldivusele vaatamata olid hinnatud mõõdukalt teotahet andvateks (*viha, raev, kadedus*) või mida teotahte andmisest olenemata ei hinnatud eriti meeldivatena (*iha*). Ka kirjanduses väljatoodud mõisteline tühik eesti keeles madala aktivatsiooniga positiivsete seisundite jaoks seletub tendentsiga tõlgendada positiivsena pigem teotahet andvaid ja kõrgema aktivatsiooniga seisundeid. Madal aktivatsioon seostub teovõimetusega, mida kaldutakse hindama negatiivsena.

Emotsioonimõistete *teotahtega* samastatud positiivsus ja *ebameeldivusega* samastatud negatiivsus ei ole sellised vastandid nagu ühe ja sama skaala diametraalselt eri otsad. Tegemist on eraldi skaaladega, mis toimivad koos ja enamasti erisuunaliselt ning loovad sellega aluse emotsiooninimetuste komplementaarsele antonüümiale ning vastandamisele mõistelisel tasandil.

Mõne üksiku emotsioonimõiste iseorganiseeruvat struktuuri vaadeldes (joonised 22–26) selgus, et kõige ühemõttelisemad ja struktureeritumad on emotsioonimõisted, milles pinge hinnangute vahel skaaladel *ebameeldiv* vs. *meeldiv* ja *annab* vs. *võtab teotahet* on suurim. Need mõisted ilmutasid suhteliselt vähest hinnangute varieeruvust ja markeeritud ning markeerimata tunnuste selget jaotust. Iseorganiseeruvatele kaartidele oli omane sellest pingest väljavenitatud kuju. Mõisted, kus hinnangud kahel põhidimensioonil ei olnud

nii äärmuslikud, osutusid semantiliste komponentide seostumise poolest komplitseeritumaks ning hinnangute varieeruvus osutus suuremaks.

Väitekirjas saadud tulemused julgustasid oletama, et igale emotsioonile iseomane pinge hedooniliste ja motivatsiooniliste hinnangute vahel kontseptualiseeritakse seisundi psühhofüsioloogilise valentsina (+/-), mida eri mõistete abil interpreteeritakse vastavalt keskkonnas aset leidvatele sündmustele, nende osalistele, sotsiaalsetele suhetele ja kognitiivsetele protsessidele. Sarnaste seisundite erinevast interpreteerimisest näib tulenevat emotsioonimõistete sisuline varieeruvus nii kultuuride lõikes kui kultuurisiseselt. Selle oletuse kontrollimine jääb edasiste uuringute ülesandeks.

Teises katses pidid katsealused nimetama sama 24 sõnaga sarnaseid ja vastandlikke mõisteid. Sarnasus- ja erinevushinnangute sagedus ning varieeruvus ilmutasid suurt erinevust. Viis sõna – *rõõm, õnn, viha, kurbus* ja *armastus* – osalesid sarnasus- ja erinevushinnangutes kõige sagedamini ning madalaima varieeruvusega. Neile emotsiooniteadmiste põhitasandile kuuluvatele mõistetele oli lihtne nimetada sarnaseid ja vastandlikke sõnu, samuti tulid kolm neist – *rõõm, õnn, viha* – kergesti meelde kui seisundid, mis on kõige sarnasemad ja vastandlikumad erinevatele lähtesõnadele. Osa sõnadest (*häbi, kadedus, pettumus*) ilmutas väga suurt pakutud sarnaste ja vastandlike mõistete varieeruvust ning nende mõistete tähendusi peeti pigem individuaalseks ning kollektiivsete emotsiooniteadmistega kindlal viisil mitteseotuks.

Teise katse tulemusena saadud sarnasus- ja erinevushinnanguid käsitleti loetelukatsetena ja arvutati sõnadele kognitiivse esilduvuse indeksid, mis iseloomustasid arvuliselt nende esiletulekut stiimulsõnaga kas sarnase või vastandliku mõistena. Sarnasust käsitleti mõistelise läheduse ja vastandlikkust mõistelise kaugusena ning lasti teabel SOM-programmi abil ise organiseeruda.

Tulemuseks olev mõistete (95) topoloogiline kujutus (joonis 27) ei meenutanud esimese katse tulemusena saadud kujutust, mille põhjal järeldati, et emotsiooniteadmistel ei ole "olemuslikku" struktuuri mõistetevaheliste kindlate seoste mõttes, mis ei oleneks katse iseloomust (sellest, kas küsitakse arvulisi hinnanguid sõnade omaduste kohta või leksikaalseid hinnanguid sõnade sarnasuse kohta). Universaalne tendents jaotuda kaheks – positiivseteks ja negatiivseteks emotsioonimõisteteks – ilmnes nende mõistete kogunemisena vastavalt kaardi ala- ja ülaossa, kuid mõistete erisust osutavat tumedat ala kaardil nende vahel polnud.

Sarnasus- ja vastandlikkushinnangute põhjal organiseerusid mõisted radiaalsümmeetriliselt, kusjuures mitte üksnes kaardi äärtele. Kaart meenutab mõnes mõttes fotonegatiivi esimese katse tulemusest: nimelt erisuse "kõrgendiku" asemel kaardi keskosas, mida demonstreeris esimese katse tulemus, paikneb teise katse tulemusena tekkinud kaardi keskosas hele "sarnasuse madalik", mis koosneb valdavalt vastanditena pakutud sõnadest, mis oma morfoloogia (ja semantika) poolest eitavad emotsioonidele omaseid kvaliteete (*tundetus, kiretus, muretus, ebaõnn, ebamugavus*).

Kaardi servades, eraldatuna väikeste erisuste kurudega, paiknevad neid kvaliteete ja muid emotsioonimõistetele tüüpilisi semantilisi tunnuseid sisaldavad mõisted ning sellisel viisil, et kaardi vastasäärtel paiknevad komplementaarselt vastandlikud seisundid sarnastes olukordades. Nt vastaskülgedel paiknevad tüübilt vastandlikud seisundid: positiivsete reaktsioonide (*rõõm, õnn*) vastas negatiivsed (*viha, põlgus*), positiivsete pro-aktsioonide (termin, mis võeti kasutusele olulist sündmust ennetavate seisundite tarvis) nagu *iha, tahe, himu* vastas negatiivsed (*ärevus, mure, kartus*). Positiivsete hedooniliste seisundite (*lust, nauding*) vastas seisavad antihedoonilised seisundid (*valu, masendus, kurbus*) ning negatiivsele sotsiaalsele tagasisidele (*häbi, alandus*) vastandub positiivne sotsiaalne tagasiside (*hool, sõprus, austus*).

Tulemusest tehti järeldus, et olulisimaks iseorganiseerumist põhjustavaks jõuks oli emotsionaalse aktivatsiooni tase, sest selle puudumine vastandina pakutud mõistetes põhjustas kaardi heleda keskosa, mille äärtele teisena tähtsa jagunemise tõttu positiivseteks ja negatiivseteks seisunditeks paiknesid prototüüpsed ja aktivatsiooni sisaldavad mõisted. Mõistete komplementaarne vastandlikkus ilmneb aga eelkõige spetsiifilistes situatsioonitüüpides, mida määratlevad relevantsed semantilised tunnused nagu emotsionaalse episoodi haare (intra- või interpersonaalne), ajatelje olemasolu ja sellega seostuv fokuseerimine kas eelnevale või järgnevale sündmusele.

Peamine järeldus, mis emotsioonimõistete semantika detailsemast empiirilisest uurimusest tehti, oli see, et emotsiooniteadmiste universaalset struktuuri, mis ei oleneks uurimisandmetest ja analüüsimeetoditest, tõenäoliselt pole olemas. Emotsioonimõistete ainus universaalne omadus on grupeeruda vastavalt mõistete üldisele valentsile (positiivsed ja negatiivsed). Kõigi keelejuhtide teadvuses paiknevat ühetaolist vastastikku seotud mõistete võrgustikku või süsteemi ei leitud. Teatud üksmeel valitseb mõistete omavaheliste seoste osas ainult teadmiste põhitasandil (vt 1. peatükki).

Esile tuli emotsiooniteadmiste tendents organiseeruda vastavalt ülesande loomusele ja selles sisalduvale andmete prestruktureeritusele. Seda asjaolu pakuti lahenduseks ka vastuolule, mis valitseb psühholoogiakirjanduses nn unipolaristide ja bipolaristide vahel, kuna kumbki koolkond lähtub järjekindlalt oma materjalikogumise ja andmetöötluse metoodikast. Enesekohased küsimustikud kalduvad esile tooma kogemuslike emotsiooniteadmiste mittevastanduvaid üldise positiivse ja negatiivse afekti faktoreid (mille puhul käesolevas töös tehti ettepanek siduda need mitte üksnes hedooniliste, vaid ka motivatsiooniliste hinnangutega) ja sõnasarnasustestid kalduvad välja tooma semantilistele teadmistele omast emotsioonimõistete bipolaarset vastandust.

Üldise emotsiooniteadmiste stabiilse võrgustiku asemel leiti võime moodustada ülesandekohaseid lokaalseid võrgustikke, milles ülesande spetsiifikast johtuvalt teatavaid mõisteid või omadusi kaldutakse kergemini aktualiseerima kui teisi. Suure hulga informantide korral tekib teatud seoste tõenäosuslik kuhjumine, milles ilmneb vastavus ülesande või olukorra spetsiifikale.

Eksperimendi korras kasutatud iseorganiseeruvate kaartide meetod kallutas väitekirja autorit oletama, et iseorganiseerumisprotsessidel on suur osa – kui mitte olulisim roll – ka ajus toimuvas inimlikus infotöötluses. Iga individuaalne vastus ülesandele või olukorrale on vaadeldav ajusisese informatsiooni iseorganiseerumisprotsessina, kus sagedamini kasutatud seosed muutuvad kognitiivseteks rutiinideks ja nende aktivatsioonitõenäosus suureneb. Mõistete omavaheline võrdlemine ei tähenda semantiliste tunnuste olemasolu või puudumise täpset rehkendamist ega mõistetevahelise kauguse mõõtmist fikseeritud võrgustikus, vaid iseorganiseeruvaid protsesse, mis leiavad aset eri sagedusega ja millest mõned saavad seetõttu rutiinseteks.

Autor peab emotsioone kui organismi vastust keskkonna muutustele samuti iseorganiseeruvaks protsessiks, millega organismisiseselt antakse positiivset ja negatiivset tagasisidet tema toimimisest ja selle perspektiividest. Emotsioonide poolvabatahtlikud näoväljendused, mida tuntakse igas kultuuris, on viisiks, kuidas organismisisene tagasiside on semiotiseeritud, ning sellest on saanud käepärane ja kiire tagasiside viis sotsiaalses iseorganiseerumisprotsessis.

Emotsiooninimetused on vaadeldavad kui emotsioonide metakommunikatsiooni vahendid, mis vahendavad emotsioonimõisteid. Ka mõisted ise ei avaldunud uurimuses stabiilsete ja püsivate üksustena, vaid pigem dünaamiliste iseorganiseeruvate protsessidena, mis on võimelised kohanema keskkonna ja selle väljakutsetega.

Järeldusi

Leksikaalsed emotsiooniteadmised ilmnesid käesoleva väitekirja osadeks olevates, pisut eri vaatenurkadest läbi viidud uurimustes mõneti vastuolulisel moel. Siiski saab väita, et emotsioonisõnavara struktuur, varieeruvus ja semantika on omavahel seotud nähtused, kuivõrd tegu on leksika aluseks olevate kontseptuaalsete emotsiooniteadmiste eri ilmingutega.

Leksikaalsete emotsiooniteadmiste omadused tulenevad nende kontseptuaalsest loomusest, st lekseemid oma variatiivsuses esindavad kommunikatsioonis mõisteid, viimased omakorda esindavad ja kontseptualiseerivad emotsioone.

Mõisted kujutavad endast mõistmisprotsessi lülisid ning nendes on palju individuaalset ja grupiviisilist variatiivsust, kuid alati avaldub emotsioonide kontseptualiseerimisele universaalselt omane tendents väljendada seisundi kas positiivset või negatiivset valentsi. Emotsiooniteadmiste põhitasand on arvatavalt esilduv ja aktuaalne eesti keele kõnelejate enamiku jaoks. Siia kuuluvad nii põhitasandi mõisted *viha, armastus, rõõm* ja *kurbus* kui ka nendevahelised vastandussuhted üldise valentsi alusel.

Teoreetiline lähte-eeldus, et põhitasandi mõisted mõjutavad enim oma emotsionaalse kogemuse äratundmist, kategoriseerimist ja meenutamist, ei leidnud käesolevas uurimuses piisavalt tugevaid poolt- ega vastuargumente ja vajab

edasist uurimist, niisamuti nagu ilmnenud soo- ja easpetsiifilised üle- ja alakognitsiooninähtused.

Käepärases emotsioonisõnavaras tuvastati kaht sorti struktureeritust. Kvalitatiivne jagunemine positiivseteks ja negatiivseteks emotsioonimõisteteks leiti põhinevat emotsionaalse kogemuse universaalsel struktuuril. Jagunemist tugevdas rahvalik hea ja halva vastandust sisaldav mudel. Emotsiooniteadmiste jaotus üld-, põhi- ja spetsiifiliseks tasandiks põhineb kvantitatiivsetel asjaoludel nagu kasutussagedus ja sellest tulenev käepärasus. Mõistetevahelisi suhteliselt kindlaid seoseid leiti ainult emotsiooniteadmiste põhitasandilt, kus needki väljendavad rohkem kahe ülemkategooria (positiivsed ja negatiivsed emotsioonid) omavahelist vastandust keelejuhtide teadvuses.

Detailseid ja stabiilseid mõistehierarhiaid emotsioonide kognitiivses valdkonnas või eesti keele semantilises väljas ei leitud. Järeldati, et struktuur on miski, mis sigineb emotsiooniteadmistesse iseorganiseeruva vastusena keskkonna või olukorra väljakutsetele, mitte pole seal lihtsalt olemuslikult olemas.

Vastavus keskkonna või stiimuli väljakutsele tähendab emotsioonimõiste (või ka mõõdetava semantilise tunnuse) aktuaalsust antud isiku jaoks antud olukorras. Aktuaalsus leiti käesolevas uurimuses olevat peamine kultuurisiseselt varieeruv emotsioonimõiste omadus, mida saab seletada keskkonna erinevate tüüpiliste väljakutsetega eri soost ja east inimeste jaoks (soorollid, arengupsühholoogilised tegurid).

Emotsioonikategooria paiknemine tinglike FÜÜSILISE, INTRAPSÜÜHILISE ja SOTSIAALSE RUUMI valdkondade lõikumisalal eeslaste teadvuses leiti olevat loomulik, kuna emotsioonidel on oma füüsilised ilmingud (näoväljendused, kehareaktsioonid, liikumistendents jne), sotsiaalsed tähendused (emotsioonidel on tihti "objekt" teise inimese näol, emotsioonid on käsitatavad paralleelse ja pooltahtmatu kommunikatsioonikanalina) ja puhtpsüühilised ilmingud (meeleolu, huvitatuse, aktivatsiooni muutused).

Keelekasutajate semantilistesse emotsiooniteadmistesse ei kuulu jäika vahetegemist emotsioonide, tundmuste ja tunnete vahel, ka üleminekud isikuomaduste ja sotsiaalsete suhete sfääri on sujuvad. Tähtsam kui täpne vahetegemine emotsioonidega seotud nähtusteringi sees on tavakõnelejale selle nähtusteringi selge jaotamine positiivseteks ja negatiivseteks mõisteteks.

Üksikute emotsioonisõnade semantika leidis selles uurimuses vähem käsitlemist. Empiiriline uuring andis tulemuseks relevantsete ja vähem relevantsete semantiliste tunnuste konfiguratsioonid. Selliste iseorganiseerunud konfiguratsioonide usaldatavus vajab edasist uurimist ja kontrolli.

Emotsioonimõistet võib käsitleda üheaegselt nii emotsioonisõnade semantilise invariandina kui laiema emotsioone käsitleva teadmistestruktuuri osana. See laiem teadmistestruktuur on aga loomult implitsiitne ja avaneb tihtipeale alles pärast tõhusaid uurimispingutusi.

Paradoksaalsel viisil osutume emotsioonisõnavara vallates ja kasutades teadvat emotsioonidest rohkem, kui me neist teadlikult teame.

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APPENDIX 1: The results of Task A: Cognitive salience (S) of the elicited emotion terms, calculated as general and and as for different groups based on gender and age.

Word	$S_{general}$	S_{men}	S_{women}	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
viha 'anger/hate'	**.155**	**.164**	**.153**	**.263**	**.187**	**.164**	**.133**	**.132**	**.114**	**.131**	**.128**
armastus 'love'	**.146**	**.131**	**.160**	**.254**	**.156**	**.105**	.094	.068	.075	**.149**	**.166**
kurbus 'sadness'	**.108**	.080	**.145**	.057	.087	**.108**	**.133**	**.152**	**.167**	**.136**	**.121**
rõõm 'joy'	**.104**	.083	**.137**	.040	.055	.093	**.133**	**.196**	**.172**	**.137**	.092
naer 'laughter'	.043	.042	.045	.030	.044	.052	.063	.092	.063	.035	.026
raev 'rage'	.034	.042	.036	.067	.077	.047	.033	.038	.039	.026	
nutt 'weeping/tears'	.033	.040	.029	.016	.027	.023	.038	.077	.066	.040	.019
rõõmus 'glad/happy'	.028	.042						.1			
nutmine 'weeping'	.025	.036		.059							
tunded 'feelings'	.023		.045								
kurb 'sad'	.023	.033		.030				.050			
vihkamine 'hatred'	.020	.025	.017	.040	.037						
hirm 'fear'	.018	.021	.015	.020			.024	.044	.033	.018	
pisarad 'tears'	.018	.012	.024	.033	.021	.016	.016	.029	.024		
rahulik 'calm'	.016	.032				.032	.033				
õnnelik 'happy'	.015										
valu 'pain'	.014	.020	.011		.022	.040	.035	.028			

Appendix 1 (continued)

Word	$S_{general}$	S_{men}	S_{women}	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
nukrus 'wistfulness'	.014	.024					.023	.023			
tigedus 'spite'	.013		.016								.037
headus 'goodness'	.013										
mure 'worry/sorrow'	.012		.018					.027	.036	.034	
hellus 'tenderness'	.012		.012							.031	.033
kadedus 'envy'	.011		.016	.021							
rahulolu 'contentment'	.010	.021			.026	.027	.028				
naermine 'laughing'	.010										
karjumine 'shouting'	.009			.030							
närvilisus 'nervousness'	.009		.011								
õnn 'happiness'	.008	.011				.015	.018	.021			
sõprus 'friendship'	.008			.025							
ängistus 'anguish'	.008							.018			
päike 'sun'	.008		.009				.014	.014	.014		.009
ärritus 'irritation'	.008										
kirg 'passion'	.007		.014			.019					
ükskõiksus 'indifference'	.007		.009								
külm 'cold'	.006		.007								
igavus 'boredom'	.006	.009					.016	.016			
meeldimine 'liking'	.006										
kaastunne 'pity'	.006										.013
soe 'warm'	.005			.014							

Appendix 1 (continued)

Word	$S_{general}$	S_{men}	S_{women}	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
uni 'sleep'	.005										
segadus 'confusion'	.005	.007					.015				
õrnus 'tenderness'	.005		.007								
nali 'fun/joke'	.005										
rõõmsameelsus 'cheerfulness'	.005										
kallistamine 'embracing'	.004										
melanhoolia 'melancholy'	.004										
perekond 'family'	.004										
sõbrad 'friends'	.004		.009								
nördimus 'indignation'	.004										
armukadedus 'jealousy'	.004		.008								
rahulolematus 'discontent'	.004										
depressioon 'depression'	.004										
ärevus 'anxiety'	.004										
lilled 'flowers'	.004		.005								
vaenulikkus 'hostility'	.003		.006								
üksindus 'loneliness'	.003		.006								
agressiivsus 'aggression'	.003		.006						.01		
rahu 'peace'	.002		.005								

APPENDIX 2: The results of Task E: Cognitive salience (S) of the recalled emotions, calculated as general and and as for different groups based on gender and age.

Emotion	$S_{general}$	S_{men}	S_{women}	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
joy	**.116**	**.106**	**.129**	**.123**	**.190**	**.129**	**.138**	**.114**	**.108**	**.107**	**.100**
love	.046	.033	.059	.090	.061	.057	.053	.038			
anger/hate	.045	.061	.035	.061	.024	.050	.044	.060	.033	.062	
contentment	.042	.051	.033		.026	.045	.069	.077	.049	.046	.042
fatigue	.036	.028	.052	.033	.027	.064	.063	.063			
fear	.028	.016	.039	.067							
sadness	.026	.016	.036					.022	.030	.046	.066
surprise	.023		.050			.040	.030	.041	.038	.039	
boredom	.021	.020				.032	.033				
misunderstanding	.015		.025								
happy	.015			.050							
disappointment	.013		.013				.043	.043			
hatred	.013										
nervousness	.013	.026									
happiness	.012	.017			.029		.014	.016			
apprehension	.011		.020								
suspense	.011			.027							
tension	.010	.013		.020							
laughing	.010	.020									
disgust	.010										
friendship	.008		.016	.027							

Appendix 2 (continued)

Emotion	$S_{general}$	S_{men}	S_{women}	$S_{14–26}$	$S_{19–31}$	$S_{24–37}$	$S_{29–41}$	$S_{32–48}$	$S_{38–61}$	$S_{43–71}$	$S_{50–88}$
feeling hurt	.008		.016								
suspicion	.008										
yearning	.018				.024	.024					
exhaustion	.008							.025	.025		
curiosity	.007		.008								
friendliness	.006		.013								

APPENDIX 3: Estonian emotion terms, their frequency data and average semantic profiles against the set of seven joint scales in Task 1.

Id	Term	Gloss	F_1	F_2	1 **Strong** (vs. weak) **emotion**	2 **Follows** (vs. precedes) **an event**	3 Felt in the **mind** (vs. body)	4 **Long** (vs. short) **in duration**	5 **Depends mostly on oneself** (vs. others)	6 **Increases** (vs. decreases) **action readiness**	7 **Unpleasant** (vs. pleasant)
1	*süü*	'guilt'	3	172	**5.73** (*1.75*)	**6.24** (*1.38*)	**5.43** (*1.82*)	**5.35** (*1.86*)	**5.65** (*1.64*)	2.34 (*1.68*)	**6.56** (*1.19*)
2	*uhkus*	'pride'	3	135	**5.53** (*1.56*)	4.98 (*1.83*)	**5.78** (*1.33*)	**5.48** (*1.48*)	**5.36** (*1.69*)	**5.64** (*1.45*)	2.80 (*1.82*)
3	*ärevus*	'disquiet, anxiety'	14	76	**5.88** (*1.53*)	2.46 (*1.65*)	3.94 (*1.94*)	4.88 (*1.79*)	**5.33** (*1.78*)	3.70 (*2.01*)	**5.12** (*1.62*)
4	*õnn*	'happiness, luck	29	249	**6.56** (*0.87*)	**5.41** (*1.77*)	**5.11** (*1.89*)	**5.58** (*1.69*)	4.72 (*1.79*)	**6.64** (*0.81*)	1.17 (*0.72*)
5	*häbi*	'shame, embarrasment'	3	92	**5.94** (*1.44*)	**6.10** (*1.40*)	**5.21** (*1.86*)	4.87 (*1.76*)	**5.12** (*1.89*)	2.10 (*1.41*)	**6.56** (*0.84*)
6	*vaimustus*	'exaltation, enthusiasm'	6	98	**6.28** (*1.18*)	**5.37** (*1.76*)	**5.53** (*1.77*)	4.58 (*1.94*)	4.67 (***2.11***)	**6.36** (*0.95*)	1.67 (*1.20*)
7	*masendus*	'depression, dysthymia'	10	10	**5.84** (*1.60*)	**5.85** (*1.35*)	4.68 (***2.03***)	**5.27** (*1.88*)	4.88 (***2.08***)	1.39 (*0.63*)	**6.74** (*0.80*)

Appendix 3 (continued)

Id	Term	Gloss	F_1	F_2	1	2	3	4	5	6	7
8	*rõõm*	'joy, gladness'	301	274	**6.38** (*1.06*)	**5.74** (*1.37*)	**5.18** (*1.71*)	**5.34** (*1.57*)	4.69 (*1.76*)	**6.50** (*0.95*)	1.20 (*0.44*)
9	*hirm*	'fear'	44	217	**5.84** (*1.78*)	2.86 (*1.81*)	4.36 (***2.08***)	4.27 (*1.97*)	4.65 (***2.16***)	2.25 (*1.55*)	**6.51** (*1.34*)
10	*mõnu*	'pleasure'	8	74	**5.99** (*1.36*)	**5.54** (*1.68*)	3.20 (*1.91*)	4.55 (*1.80*)	4.64 (*1.73*)	**5.62** (*1.62*)	1.31 (*0.56*)
11	*kurbus*	'sadness, sorrow'	185	127	**5.51** (*1.79*)	**5.69** (*1.47*)	**5.33** (*1.78*)	**5.01** (*1.78*)	4.53 (***2.00***)	1.92 (*1.03*)	**6.20** (*1.22*)
12	*erutus*	'excitement, arousal'	6	49	**6.45** (*0.89*)	2.97 (*1.85*)	3.63 (*1.90*)	3.75 (*1.92*)	4.46 (***2.06***)	**5.26** (*1.69*)	3.01 (*1.71*)
13	*kadedus*	'envy'	31	39	4.47 (*1.96*)	**5.00** (*1.72*)	**5.85** (*1.56*)	4.56 (***2.16***)	4.32 (***2.41***)	3.90 (***2.02***)	**6.24** (*1.45*)
14	*kirg*	'passion, heat'	18	51	**6.55** (*0.85*)	3.00 (*1.86*)	3.76 (*1.93*)	4.72 (*1.82*)	4.42 (*1.94*)	**6.19** (*1.20*)	1.73 (*0.97*)
15	*mure*	'concern, worry'	26	86	**5.88** (*1.62*)	3.56 (***2.02***)	**5.20** (*1.89*)	**5.44** (*1.69*)	4.25 (*1.98*)	2.89 (*1.82*)	**6.40** (*1.19*)
16	*iha*	'lust, desire'	-	59	**5.93** (*1.60*)	2.25 (*1.59*)	3.51 (*1.91*)	4.46 (*1.93*)	4.37 (***2.04***)	**5.97** (*1.46*)	2.14 (*1.30*)
17	*raev*	'rage, fury'	52	33	**6.40** (*1.40*)	**6.22** (*1.23*)	4.74 (***2.03***)	3.21 (*1.95*)	3.83 (***2.11***)	3.80 (***2.34***)	**6.54** (*0.99*)

Appendix 3 (continued)

Id	Term	Gloss	F_1	F_2	1	2	3	4	5	6	7
18	*armastus*	'love'	194	520	**6.58** (*1.01*)	4.89 (*1.96*)	**5.11** (*1.74*)	**6.49** (*0.95*)	4.37 (***2.03***)	**6.51** (*1.12*)	1.17 (*0.40*)
19	*viha*	'anger, hate'	190	159	**6.18** (*1.59*)	**6.15** (*1.31*)	4.98 (*1.99*)	4.01 (*1.99*)	3.79 (***2.12***)	3.86 (***2.17***)	**6.47** (*0.96*)
20	*lõbu*	'pleasure, fun'	30	87	**5.66** (*1.36*)	4.94 (*1.59*)	4.63 (*1.72*)	4.52 (*1.79*)	4.26 (*1.86*)	**6.03** (*1.07*)	1.48 (*0.70*)
21	*pettumus*	'disappointment, frustration'	13	64	**5.49** (*1.78*)	**6.27** (*1.31*)	**5.46** (*1.75*)	4.39 (*1.92*)	3.38 (*1.97*)	1.97 (*1.05*)	**6.62** (*0.87*)
22	*kaastunne*	'pity, symphaty, compassion'	29	33	**5.39** (*1.61*)	**5.88** (*1.36*)	**5.88** (*1.41*)	4.71 (*1.87*)	3.98 (***2.31***)	4.82 (*1.69*)	4.50 (*1.76*)
23	*põlgus*	'contempt, disdain'	6	23	**5.00** (*1.87*)	**5.45** (*1.52*)	**5.81** (*1.34*)	4.56 (*1.97*)	3.29 (***2.09***)	3.22 (*1.61*)	**6.34** (*1.06*)
24	*üllatus*	'surprise, astonishment'	24	226	**6.06** (*1.29*)	**5.69** (*1.85*)	5.30 (*1.78*)	**2.99** (*1.95*)	3.47 (***2.10***)	**5.61** (*1.35*)	2.21 (*1.30*)

Note. F_1 – summary frequency in a series of seven specific list tasks (Vainik, 2001); F_2 – frequency in a text corpus of approximately 1 million words. The average ratings are given on a descending scale (7–1), value 4 pointing to the irrelevance of a scale and value 1 pointingto the maximum value of the opposite feature. Boldfaced are the values bigger than 5, values under 3 are underlined. Standard deviations are given in parentheses, values bigger than 2 are boldfaced.

TABLE OF FIGURES

Figure 1. Cognitive salience indices of conceptual items in Task A. 25
Figure 2. Cognitive salience indices of basic emotions at lexical and conceptual levels. 26
Figure 3. System of lexical antonyms in the Estonian emotion vocabulary. 27
Figure 4. System of contrasting concepts. 28
Figure 5. Position of the emotion category in the collective consciousness of Estonians. 39
Figure 6. Cognitive salience indices in the task of free listing of emotion terms (Task A). 41
Figure 7. The Estonians' folk category of emotions. 50
Figure 8. Distribution of men and women on the age axis. 59
Figure 9. Men's and women's common vocabulary of emotions as compared to its general salience (S) in Task A. 62
Figure 10. Men's and women's common vocabulary of emotions as compared to its general salience ($S_{general}$) in Task E. 63
Figure 11. Gender-based differences in the cognitive salience of emotion vocabulary as elicited by Tasks A and E ($S_a - S_e$). 65
Figure 12. Age variation of the salience of basic emotion terms in Task A. 66
Figure 13. Age-related variation of the basic emotions in Task E. 69
Figure 14. Age-related variation of general verbal productivity. 70
Figure 15. Age-related variation of expression variety. 71
Figure 16. Age-related variation of the production of coincidental expressions. 71
Figure 17. Age-related variation of the differences (S_a - S_e) between the saliences of basic emotion terms elicited by Tasks A and E. 72
Figure 18. Directions of correlations of the basic emotion terms in semantic emotion knowledge (Task A) and in episodic emotion knowledge (Task E). 78
Figure 19. Locations of 24 Estonian emotion concepts on a self-organizing map. 88
Figure 20a. The self-organizing maps of 24 Estonian emotion concepts by variables: non-distinctive features. 90
Figure 20b. The self-organizing maps of 24 Estonian emotion concepts by variables: distinctive features. 91
Figure 21. A self-organizing map of Estonian emotion terms with the scale of unpleasantness *(vs.* pleasantness) removed. 94
Figure 22. Self-organized Estonian concepts *rõõm* 'joy' and *õnn* 'happiness'. 97

Figure 23. Self-organized Estonian concepts *mõnu* ‘pleasure’ and *armastus* ‘love’. 98
Figure 24. Self-organized Estonian concepts *erutus* ‘excitement’ and *ärevus* ‘anxiety’. 99
Figure 25. Self-organized Estonian concepts *kurbus* ‘sadness’ and *masendus* ‘depression’. 100
Figure 26. Self-organized Estonian concepts *viha* ‘anger’ and *põlgus* ‘contempt’. 101
Figure 27. A self-organizing map of emotion concepts based on the relations of similarity and oppositeness. 105

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