National Research
Tomsk
State
University

ILLA
Linguistic Anthropology Lab.

International Workshop-Conference

Experimental Studies of Language and Speech: Bilingualism and Multilingualism (E-SoLaS)

1-5 October 2018

Hosts
Linguistic Anthropology Laboratory(http://illa.tsu.ru/)
Faculty of Philology, Tomsk State University, Russia (http://www.tsu.ru/)

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Working group:
Elena D. Nekrasova, Senior Research Fellow, Laboratory of Linguistic Anthropology
Lecturer of the Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology
Elizaveta Yu. Ershova, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Research Fellow, Linguistic Anthropology Laboratory
Andrei Stepanenko, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Junior Research Fellow, Linguistic Anthropology Laboratory
Timur E. Mashanlo, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Junior Research Fellow, Linguistic Anthropology Laboratory
Aleksandra S. Bub, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Junior Research Fellow, Linguistic Anthropology Laboratory
Angelina Borodina, MA student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Lab Assistant, Linguistic Anthropology Laboratory
Dariya Shestakova, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Linguistic Anthropology Laboratory
Ekaterina Nikulenko, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Laboratory of Linguistic Anthropology
Alina Vasilyeva, PhD student, Department of General, Slavonic and Russian Philology and Classical Linguistics, Faculty of Philology, Laboratory of Linguistic Anthropology

Conference Venue

Day 1

Main Building of Tomsk State University, Lenin ave, 36, room 229 will serve as a conference venue for the first day of the conference

Day 2

Building 4, Tomsk State University, Moskovskiy trakt, 8, room 022 will serve as a conference venue for the second day of the conference

Days 3-5

Building 3, Tomsk State University, Lenin ave, 34, room 15 will serve as a conference venue for the conference
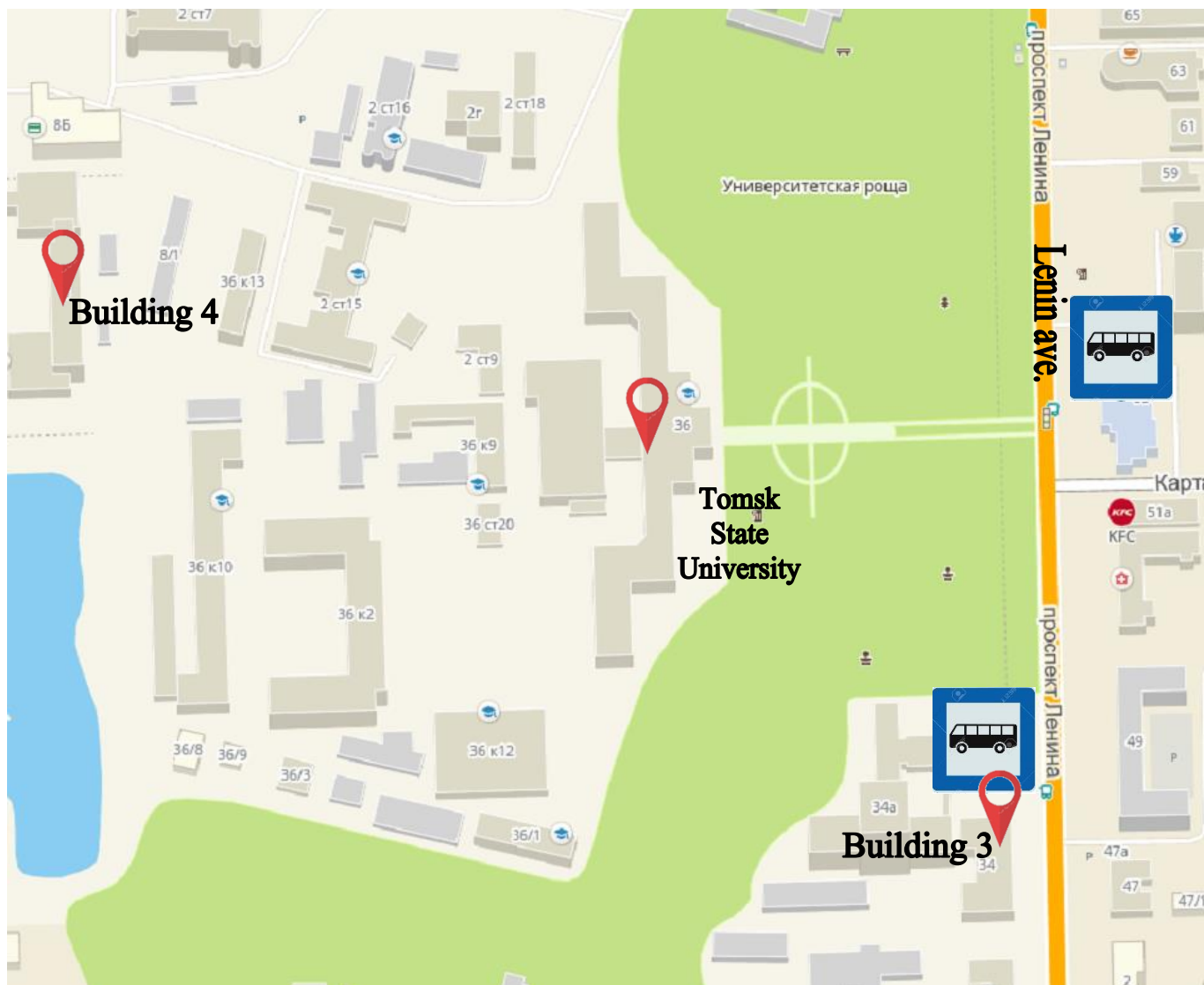
How to get there:

Bus stop Universitet

Buses: 2, 3, 4, 12, 19, 22, 23, 26, 31, 32, 33, 36, 37, 53, 112, 118, 442
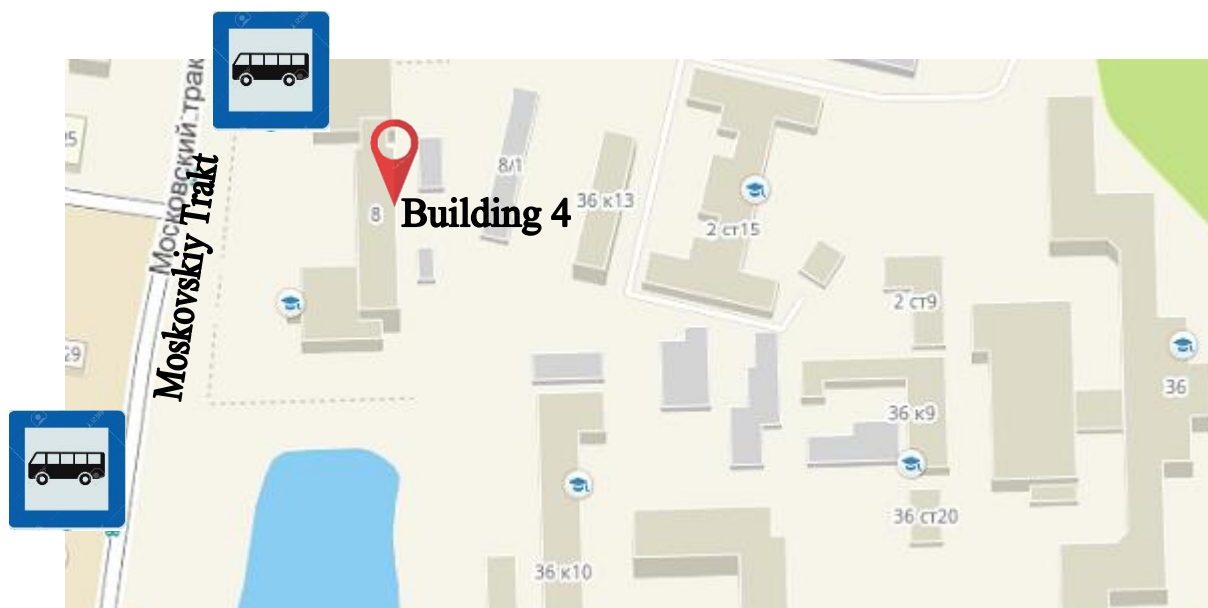
Trolleybus: 1, 3, 4

Bus stop Biblioteka TGU/TSU Library

Buses: 2, 3, 4, 12, 19, 22, 23, 26, 31, 32, 33, 36, 37, 53, 112, 118, 442

Trolleybus: 1, 3

Bus stop Yuridicheskiy Institut/Law Institute

Busses: 8, 9, 29

Programme overview

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10.35 Welcome address

10.45-12.00 Experimental Studies of Russian-Turkic Bilingualism: where we are now and where we are heading for? *Zoya Rezanova*

12.00-12.25 Coffee break

12.25-14.00 Turkic languages in multilingual environment *Anna Dybo*

14.00-15.30 Lunch

15.30-16.50 Language and ethno cultural variability of Southern Siberia: Sociolinguistic factors of language interaction and social significance of the project activities *Olga Nagel and Irina Temnikova*

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10.35-12.00 Using eye-tracking to study different aspects of written language processing *Jukka Hyona* (Lecture 1)

12.00 -12.25 Coffee break

12.25-14.00 Using eye-tracking to study different aspects of written language processing *Jukka Hyona* (Lecture 2)

14.00-15.30 Lunch

15.30-16.50 Mental Lexicon Modelling in Bilinguals: Current trends in the ML studies *Irina Ovchinnicova* (Lecture 1)

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10.35-12.00 L1 and L2 representation in bilinguals' ML *Irina Ovchinnikova* (Lecture 2)

12.00-12.25 Coffee break

12.25-14.00 The specifics of analyzing psycholinguistic data *Ivan Vankov*

14.00-15.00 Extended coffee break

15.00-16.30 Poster session

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10.00-12.00 Non-frequentist approaches to statistics *Ivan Vankov*

12.00-12.25 Coffee break

12.25-14.00 Avoiding some of the pitfalls in doing empirical research *Ivan Vankov*

14.15-15.30 Lunch

15.30-17.00 Avoiding some of the pitfalls in doing empirical research *Ivan Vankov*

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City tour

Departure

Using Eye-Tracking to Study Different Aspects of Written Language Processing

Jukka Hyönä

University of Turku

Tomsk State University

The lectures will showcase how the registration of readers' eye movements can be successfully applied to study different aspects of written language comprehension, from word recognition via syntactic parsing to text comprehension. Regarding word recognition, I will focus on how morphologically complex words are identified during reading with a particular focus on compound word processing. The pattern of results obtained for Finnish support the dual-route race model, according to which the morphological decomposition route and the holistic route work in tandem. Regarding grammatical processing, I will focus on how case and number agreement within modifier-head noun phrases is utilized in sentence processing. The main conclusion is that grammatical agreement between the modifier and the head facilitates the processing of the head at the syntactic integration level but not at the lexical access level. Regarding text comprehension, I present evidence about how the global topic structure of long multi-topic expository texts is utilized during text comprehension. The main conclusion is that adult readers, at least the most strategic readers, make use of topic sentences and topic headings as mental frames around which more detailed text information is integrated. Finally, I present differences and similarities in reading alphabetic versus logographic script.

Analyzing Psycholinguistic Data

Ivan Vankov

New Bulgarian University

Lecture 1. The specifics of analyzing psycholinguistic data

Data obtained in psycholinguistic studies have several specifics. First, the nature of the problems investigated implies that psycholinguistics are interested in establishing effects which generalize both across people and language entities. Second, the designs of psycholinguistic studies, especially in the sub-field of bilingualism, often involve factors which are nested in one another. Third, the stimuli used in psycholinguistic studies are hard to be controlled for. These problems render conventional statistical tools, such Student t-tests and the analysis of variance (ANOVA), inappropriate for analyzing psycholinguistic data. In this talk, I will present the idea of linear mixed models and will show they can be used to address the requirements of psycholinguistic research.

Lecture 2. Non-frequentist approaches to statistics

The frequentist approach to interpreting experimental data have long dominated in the field of the behavioural and social sciences. However it can be shown that frequentists methods often fail to meet specific research goals. Moreover, it has been argued that the theory and the assumptions of frequentist statistics are poorly understood by researchers and therefore often misused. In this talk I will present several alternatives to frequentist statistics - Bayes factors, Bayesian parameter estimation and bootstrapping - and will demonstrate how they can be used in practice.

Lecture 3. Avoiding some of the pitfalls in doing empirical research

There is a growing concern that the research practices in processing and interpreting behavioural and neuroscientific data are compromised. A number of problems have been identified, such as publication bias, p-hacking, forking, selective reporting, HARKing, misusing statistical tools and running underpowered studies. I will go over these issues and will illustrate how alarmingly easy it is for the analysis of data to go wrong. I will present several considerations which may help improving the quality of research output.

Mental Lexicon Modelling in Bilinguals

Irina Ovchinnikova

Haifa University

Lecture 1. Current trends in the ML studies

Mental lexicon (ML) is considered to be the core component of the language mental representation. Interpreting the ML as a verbal semantic memory, researchers debate about a unit of the storage (a word? a morpheme? an idiom? a single type of units or different types to store and to operate?) and relation of the ML to the mental grammar (MG). Depending on the key statements about stored units and systems of the language mental representation, the ML modelling includes: (a) two systems (ML + MG); (b) one system: ML and rules for generating combinations of words / morphemes that are deduced from the communication experience; (c) two systems with a specific status of the ML and set of rules for regular grammar forms derivation; (d) a network of units connected in clusters based on the different criteria as in connectionism (as Multiplex model of mental lexicon - 2018). The diversity of the approaches to the ML modelling reveals the complexity of the phenomena as well as the dependence of results upon experimental design. However, the experimental data from different languages show the variability of the ML structure in native speakers. The differences in the ML structure are related to the procedures and operations needed to access the verbal semantic storage, while the storage itself works the same way for native speakers of different languages. A unit of the storage probably differs in inflectional and strongly agglutinative languages. Therefore, the ML study and modelling requires fresh data and relevant resources. The connectionist models of language processing in humans doubt even the fact of the ML existence (Baayen's models). Connectionists presuppose the declarative semantic memory to be the only storage for verbal and nonverbal abstract units. A speaker grasps derivation models and rules for generating syntax constructions due to his / her language input and communication experience. Thus, in bilinguals, the time limits of languages input, forcing the involvement of different zones of the brain in the process of speech perception and production, evoke development of the metalinguistic skills and intuition to deduce the rules.

Lecture 2. L1 and L2 representation in bilinguals' ML

In bilinguals, ML contains access to words / morphemes of L1 and L2, however, the activation of the units takes more time than in monolinguals. The activation of a language in bilinguals depends on contextual and cultural cues besides a speaker's intention (Timmer & Bialystok's model). The activation of L1 and L2 clusters in the bilinguals' ML in a communication act depends on objects in environments and nonverbal signs connected with one of the familiar languages. The objects and signs provoke involuntary activation of a language that is not in use in the communicative situation. Meanwhile the links among L1, L2, L3 clusters in the bilinguals' ML are influenced by the similarity of the languages (in typology and language families) that impacts the speech processing in unbalanced bilinguals. The L2 network / cluster differs in structure and has incoherent organization compared to the L1 network / cluster.

The resources for the semantic network and ML modelling in bilinguals (besides National Corpuses)

Tools to process semantics and select a semantic component:

• http://wordnet.princeton.edu/
• http://globalwordnet.org/
• http://multiwordnet.Vk.eu/online/ multiwordnet.php
• http://www.psych.rl.ac.uk/
• http://babelnet.org/

BabelNet

https://www.babelnet.org/news#n12 covers 284 languages and is obtained from the automatic integration of more than 10 databases and wordnets.

Examples of research projects based on the resources:

Stella, M., Beckage, N. M., Brede, M., & De Domenico, M. (2018). Multiplex model of mental lexicon reveals explosive learning in humans. Scientific reports, 8(1), 2259.

https://www.nature.com/articles/s41598-018-20730-5

Zemla, J. C., & Austerweil, J. L. (2018). Estimating semantic networks of groups and individuals from fluency data. Zemla, Jeffrey C, and Joseph L Austerweil."Estimating Semantic Networks of Groups and Individuals from Fluency Data". PsyArXiv, 9.

https://alab.psych.wisc.edu/papers/files/ZemlaAusterweil2018.pdf

Utsumi, A. (2015). Multilingual Distributional Semantic Models: Toward a Computational Model of the Bilingual Mental Lexicon. In EAPCogSci.

http://ceur-ws.org/Vol-1419/paper0041.pdf

Borodkin, K., Kenett, Y. N., Faust, M., & Mashal, N. (2016). When pumpkin is closer to onion than to squash: The structure of the second language lexicon. Cognition, 156, 60-70. Bovi, C. D., & Navigli, R. (2017). Multilingual semantic dictionaries for natural language processing: The case of BabelNet. *Encyclopedia with Semantic Computing and Robotic Intelligence,* 1(01), 1630015.

Turkic Languages in Multilingual Environment
Anna Dybo
Institute for Oriental and Classical Studies
Higher School of Economics
Lecture 1

Brief characteristic of genealogic and geographic position of Turkic languages. The history of migrations and of linguistic contacts of Turkic peoples in the last two thousand years. Recent sociolinguistic situation of different Turkic languages in Russia and in other countries.

Lecture 2

Typological features of Turkic languages. Phonetic features: consonantic restrictions of Anlaut, vowel harmony. Contact-initialized processes in phonetics. Morphology: the structure of Turkic wordform. Grammatical classes. Main features of Turkic agglutination. Syntax: left-branching; "Altaic" polypredication. Main contact-induced phenomena. Some examples of contact-induced phenomena in lexical semantics.

Linguistic and Psycholinguistic Aspects of Russian-Turkic Bilingualism
studied within the project *Language and ethno cultural variability of Southern Siberia: Language and culture interaction*
Zoya Rezanova
TSU, Deputy Head of the Linguistic Anthropology, Head of the Laboratory for Cognitive Studies of Language
The lectures will show how the objectives of the project are being achieved. The main aim of our team in the project is to study linguistic, sociolinguistic and psycholinguistic factors of the Russian and Turkic languages interference.

Lecture 1 Linguistic aspects of Russian-Turkic bilingualism.

In the first lecture I will discuss theoretical and methodological approaches chosen to study the language aspects of interference.

Theoretical bases of the interference factors in the research.

The research is based on the study of interconnectedness and interrelatedness of three basic factors determining language and culture interaction and interference. The difference in typological features of the Turkic and Russian languages is interpreted as a linguistic factor. The main features of bilingual unbalanced language situations are considered as the main sociolinguistic factor influencing the

diversity of linguistic interference and cognitive types of bilingualism. Sociolinguistic factors are regarded in tight connection with psycholinguistic factors.

Methods of research.

Questionnaires and surveys are employed to obtain sociolinguistic and psycholinguistic portraits of studied bilinguals.

Recorded interviews are used to create linguistically marked corpus of spoken texts of Russian-Turkic bilinguals (Russian-Tatar, Russian-Shor bilingualism) (*in Russian*).

The following structure of the developed Russian spoken texts corpus will be discussed:

- Typological features of the corpus: bimodal, monolingual, marked (morphological marking and marking of errors). Bases of the typology of errors.
- Meta- marking of the corpus: the influence of psycholinguistic factors on the implementation of interference.
- Use of questionnaire data in the corpus.
- Technical solutions used in the corpus.

Lecture 2. Psycholinguistic aspects of Russian-Turkic bilingualism.

In the second lecture I propose to discuss two major directions chosen by our team members to study psycholinguistic aspects of Russian-Turkic bilingualism:

A. Psycholinguistic database creation.

I will discuss theoretical basis: the theory of embodied cognition & the theory of linguistic relativity & the theory of bilingualism, the interaction of languages in the mental lexicon of bilinguals. I will look at our strategies to combine psycholinguistic, linguistic and sociolinguistic data, our sources and methods used to collect data. Technical solution developed to create psycholinguistic database serving the aim of our project.

B. Experimental studies of language interaction and interference.

I will consider two main directions of experimental research that have been implemented by the members of our project team. These two directions are compared based on the focus of research interests

Within the first direction (it prevails), the influence of structural features of Turkic languages on the processing of Russian language units is studied. We are interested in: 1) the influence of the structural features of the Turkic and Russian languages on the reading processes (on the example of reading one and the multimorphous words of the Russian language by Russian-Turkic bilinguals); 2) the influence of a) grammatical, derivational, lexical and lexical-phraseological systems on cognitive processing of linguistic units and on categorization processes by bilinguals.

The second group of experiments focuses on the study of the influence of bilingual experience on cognitive processes: switching attention, extracting linguistic information.

The lecture will give a general description of the experiments conducted and their contribution to the solution of the project objectives. More detailed information about the experiments will be presented during a poster session.

Lecture 3 Sociolinguistic factors of language interaction and social significance of the project activities
(Nagel O., Temnikova I.)

The lecture will present how the study of language situation and types of bilingualism in the studied regions and сonditions leading to prevailing unbalanced bilingualism in the regions led to the development of educational subobjective of the project implemented in the creation and launch of a MOOC titled "Language and culture interaction: preserve and extend your identity (studying Tatar as a native and a foreign language)" https://www.coursera.org/learn/tatar-language-and-culture#%20

The authors of the course will present the philosophy of the course, discuss its aims, content and technicalities focusing of its social significance as well as its contribution to the conducted research studies within the project.

Poster Session

Second Language Acquisition and Creativity Development

Christina Aparina
Tomsk State University

Recently, interdisciplinary research of multilingualism and cognitive processes has been intensively developing. Many researchers are engaged in the study of the relationship between the second language acquisition and creative thinking. Language and thinking are closely related. Cognitive processes are partly mediated by general intelligence and are enhanced by the study and use of two or more languages, while creative thinking depends on the intensity of cognitive processes. Creativity is part of the cognitive structure that is associated with imagination and memory. We assume that the second language acquisition has an impact on the development of creativity.

We reviewed several articles with similar goals. In most cases, they confirm the correlation between second language acquisition and the development of creativity. However, this happens at different levels when compared with monolinguals. Verbal and nonverbal elements, such sections of creativity as fluency, flexibility, originality, elaboration were considered. Techniques used in these cases varied: autobiographical and background questionnaires, the Torrance tests of creative thinking, Guildford test, Raven matrices test, etc.

In our study, we plan to use:

1. Background questionnaire (to take into account the socio-cultural and socioeconomic status of the participants)

2. Creativity checklist (Johnson D.L., modified by E.E. Tunik) simultaneously with EEG (there we can measure the activity of alpha rhythms and the hippocampus activity in solving creative tasks)

3. Interactive and analytical tasks with eye tracker (there we can measure perception and use of first and second language)

The sample will be formed from three groups: students of different genders who study the second language, who use the second language and monolinguals. The background questionnaire will allow taking into account the socio-cultural and socioeconomic status of the participants.

Expected results: If there are no differences in bilingual and monolingual responses, a null hypothesis will be adopted (the second language acquisition is not related to the development of creativity). If the results differ in some parameters, an experimental hypothesis will be accepted (the second language acquisition influences the development of creativity).

It is also desirable to conduct a longitudinal study for preschool children, schoolchildren and students. Here we will be able to study second language acquisition and the formation of creative thinking in the conditions of early development and later initiation.

Verbal Working Memory (VWM) in Individuals with Autism

Angelina Borodina
Tomsk State University

The article is dedicated to the research of the functioning of verbal working memory (VWM) in individuals with ASD. Previous research showed that differences in the functioning of working memory are mostly associated with spatial WM, while the verbal WM does not practically differ in individuals with autism and individuals without any cognitive disfunctions. The aim of the current work is to examine this hypothesis. The series of experiments was conducted to test VWM (N-back tasks). Preliminary results are presented.

Word Emotionality and its Correlation with Other Psycholinguistic Factors: Bilingual Aspect (Russian-Turkic Bilingualism)

Alina Vasilyeva
Tomsk State University

The paper presents the study results of the perception of Russian words-diminutives emotionality by native speakers of Russian and Russian-Turkic bilinguals (Russian-Shor, Russian-Tatar, Russian-Khakass bilingualism) in relation to the estimates of evaluation, frequency, typical variants of contextual implementation, age of acquisition.The presence of statistically significant correlations of the selected parameters is proved, the hypothesis of the interaction of the emotionality factor with other psycholinguistic characteristics of emotional and neutral words is confirmed, the correlation specificity of these parameters in the group of diminutives in comparison with the words of other classes is determined. Besides, the material shows the presence of the relationship between the second language and emotionality, namely the originality of the evaluation of these units by bilinguals compared to monolinguals.

Eye Movements in Reading Russian Sentences with Global Syntactic Ambiguity in L1 Russian learners of L2 English: An Implicit Prosodic Boundary Effect

Mikhail Vlasov, Alexander Savostyanov, Oleg Sychev, Alexander Saprygin
Shukshin Altai State Humanities Pedagogical University

A great number of studies verified different prosodic cues to relative-clause (RC) attachment in English as L1 and L2 (Fodor, 1998, 2002, Maynell, 2000; Carlson et. al. 2001; Jun, 2003; Dussias, 2003, Dekydtspotter et.al. 2008; Hwang et. al. 2011; Zahn & Scheepers, 2015). The controversial one is informative prosodic boundary between main and relative clause (Clifton et al., 2002) that reliably biased L1 English listeners to assume a high-attachment (HA) interpretation in global syntactic ambiguity resolution. The eye-movement study was conducted to verify an *implicit prosodic boundary effect* in L2 sentence processing by L1 Russian learners of L2 English because of well-researched different RC-attachment preferences in these languages: high-attachment for L1 Russian and low-attachment (LA) for L1 English. Hence, in reading the subjects could perform either L1 or L2 strategy in sentence processing. An implicit prosodic boundary indicated by a comma before the relative clause was assumed to be facilitating factor for NP1 and NP2 reading times as opposed to "no comma condition". Also, in "comma condition" NP1 should gain more prosodic prominence and fixation times in silent reading than NP2 because of informative prosodic boundary (Clifton et al., 2002). Using linear mixed-effects models, the study showed that implicit prosody effect appeared only in late eye-movement measures: NP1 and NP2 total reading times were shorter in "comma condition" but not in "no comma condition". Also, there were less fixations on NP1 and NP2 in "comma condition" as opposed to "no comma condition" (b=-0,59; SE=0,17; p<0,0008). Early measures (gaze durations) were longer at NP1. This NP1 early activation in silent reading confirms the priority of early closure (high attachment preference) in early processing of L2 English sentences with global syntactic ambiguity by L1 Russian speakers. However, no significant RC-attachment preference was observed in offline questionnaire.

Morphological Structure as A Predictor of Initial Landing Position in Words during Reading Russian

Daniil Gnetov*, Timur Mashanlo*, Jukka Hyönä**, Seppo Vainio**
*Tomsk State University; **University of Turku; **University of Turku

The preferred fixating position during reading tends to be near the center of a word. The saccade programming is governed by low-level information of word length and by orthographic irregularity that is gained from parafoveal vision. Recent studies by Yan et al. (2014) and Hyönä et al. (2017) have observed an effect of morphological complexity on initial landing position (ILP) during reading Uighur and Finnish — languages with rich morphological systems and different writing scripts. Moreover, another study by A. Stoops & K. Christianson (2017) have found that inflectional morphology in Russian is processed parafoveally during silent reading. The present study is aimed at replicating the effect of morphological

complexity on ILP found in Finnish and Uighur. Furthermore, we were interested to see whether an effect of word frequency on ILP can be obtained in Russian. Russian is typologically different than both Finnish and Uighur in terms of morphological structure, different writing scripts are used for all three languages, and, finally, all three languages belong to different language families. If observed, these effects would provide new evidence for high-level guidance of eye movements during reading as a phenomenon generalizable across different writing systems and languages. Native Russian speakers silently red 96 single sentences each containing a target word, either a monomorphemic noun or a length (7–10 letters) and frequency-matched two-morpheme noun (stem + one inflectional suffix).

The Effect of Morphological Family Size on Response Latency in Lexical Decision Task
Daniil Gnetov *, Aki-Juhani Kyröläinen**
*Tomsk State University; **McMaster University and Brock University

The morphological family size of a word is the type count of all the complex words in which the word appears as a constituent. Words with larger morphological families elicit shorter response latencies. The morphological family size effect is highly correlated with word frequency, but it is still present after having controlled for the effects of word frequency. The locus of this effect is at the semantic level: the exclusion of opaque family members from the family counts improves the correlation with response latencies; homonyms show differential family size effects when presented in a disambiguating context. The morphological family size effect has been observed in a number of languages: English, German, Chinese, Hebrew, Dutch and Finnish. Moreover, Moscoso del Prado Martín et al. (2004) have found that response latencies in one language can be predicted from the other language's family sizes of the corresponding translation equivalents even after frequency and family size are partialed out and vice versa. The present study aims to observe the morphological family size effect in a language with rich morphology – Russian. The morphological families for 300 base nouns have been obtained and calculated. A total number of 40 participants have taken part in a lexical decision experiment. The results are analyzed in R using multiple regression models. Semantic vector models are also used to define morphological family based on semantic similarity. The preliminary results of the experiment are presented and future prospects are discussed.

Measuring the Lexical Component of the Language Faculty: Age Differences
Aleksandra Dusheiko
Tomsk State University

The paper presents the results of the test designed for measuring the lexical component of pupils' language faculty. It describes age differences in the acquired vocabulary of pupils of the third, fifth and sixth, and eighth grade.

Iconicity in Word Processing
Ekaterina Ershova
Tomsk State University

This article is devoted to studying the difference in processing of iconic and non-iconic words. The type of iconicity that was studied was onomatopoeia, as such words have the strongest connection between its form and meaning. The method of a behavioral experiment was chosen.

Reading 'Sky' and Listening to High Pitch: Cross-Modal Mapping between Pitch and Word Meaning
Aleksandr Zdorovets
Tomsk State University

It has been shown that auditory features such as high and low pitch could be mapped into visual stimuli such as circles presented in upper and lower parts of the screen (Evans & Treisman, 2010). Such findings demonstrated the ability of the brain to combine information from different perceptual sources

and to employ modality combination for performance enhancement. The purpose of the current study was to test whether perceptual features such as high and low pitch would be linked with words that convey spatial meaning directly ('up' and 'down') and non-directly, i.e. words that have referents with typical space localization (e. g. 'moon' and 'grass'). We conducted five experiments asking participants to judge the pitch (high or low) whilst observing visual stimulus on the screen. The results revealed incorporation of word meaning and pitch: when participants saw the directional word 'up', they were faster in judging of the high pitch than the low pitch (vice versa with the word 'down'). The interaction between pitch and non-directional words, however, is not a clear case as the cross-modal effect was not found when non-directional words were placed in the center of the screen. The effect appeared only after we manipulated the position of the words (upper/lower part of the screen) or task itself (Stroop-like instead of pitch evaluation, experiment 5). The results suggest a linkage between 'real' auditory modality and visual modality, simulated by word meaning, or, in other words, simulated and actual perceptual experience. Automaticity of such linkage, however, should be proposed with caution.

Cognitive Control in Functional Bilinguals
Alina Zotova
Tomsk State University

Motivation. In the past decade, there has been an upsurge of research on bilingualism that reveals some influence of studying languages on cognitive functions. For instance, some researchers (Abutalebi, J. & Green, D. W. Bilingual language production: The neurocognition of language representation and control, 2007) suggest that problems of representation and control are intimately connected and research groups all over the world are researching cognitive processes that might be involved in human communication (see Cognitive Control Communication and Perception Group - https://iri.hse.ru/post_cccp2018).

Increasing diversity of bilinguals makes the research community conduct studies taking into account characteristics of bilingual speakers and their language proficiency as well as linguistic features of language pairs.

In our study we research whether the characteristic of students being functional bilinguals influence their performance in a traditional Stroop Task and advance the hypothesis that functional bilinguals will be faster in their reaction time.

Experiment. The experiment was aimed to reveal differences in cognitive control in bilingual and monolingual students using the Stroop Task. The hypothesis of this study was to prove that bilinguals would show better reaction time than monolinguals. There are different test variants. The variation of Stroop Task in which the written color name differs from the color ink it is printed in and where the participant must report on a characteristic of a written word was used. The experiment included 12 words in Russian and in 3 colors (blue, red, green). One word was written in 3 different colors and was shown 4 times on the screen, 2 times of them in the color the word represents and 2 another times in a different color.

Participants. 37 students of TSU (7 male and 32 female) participated in the experiment. There were 2 groups of students who were divided according to their levels of English classifying a group with English level from A1 to B1 as monolinguals and a group with English from B2 to C1 as functional bilinguals. We had to remove the data of one participant because of a large number of wrong answers. Therefore, there were only 36 participants aged from 18 to 23. One of them was in the English speaking country for more than 3 months, more than 50% of participants know another foreign language.

Results. 444 responds were received. The reaction time dependence on the nature of participants showed that monolinguals needed on average 100 ms more than bilinguals to pass the test. Thus, the hypothesis about bilinguals reaction time of the research was partially confirmed. During the Test the group of bilinguals showed indeed better reaction time than another group (about 110 ms faster) but two groups faced the challenges with words when the color didn't match the name of the word.

Implications. The data showed that functional bilinguals were more efficient in the Stroop task conflict resolution displaying implication of higher cognitive flexibility than monolinguals. We anticipate that the

context of everyday foreign language use and language learning might influence respondents' cognitive control but more research involving more detailed characteristic of the chosen participants is required.

Cognitive Processing of Nouns with "Temperature" Meaning: Experimental Research

Veronika Klobukova
Tomsk State University

The paper raises the question whether there is a connection between conceptual knowledge and a physical metaphor. The stimuli were nouns that are associated with a 'warm' and a 'cold' sensation (e.g. summer vs. winter), painted in blue and red colors, which in turn also has an association with a cold / warm perception. It was assumed that if the connection exists, the 'warm' nouns would be processed faster in red 'warm' color than in 'cold' blue, and the pattern with cold ones would be reversed.

Do our Bodies Influence our Thoughts?

Irina Korshunova
Tomsk State University

Do our bodies influence our thoughts? According to the body-specificity hypothesis (Casasanto, 2009), the types of our bodies make us think differently. Casasanto considered that right-handed people associate the right side with easy accessibility. So right-handed people correlate right side with good and left side with bad. In this article we tried to find out whether the association right-handed people have between positive and negative valence is automatic? The experiment was conducted on the material of negative and positive adjectives selected according to the questionnaires. The method of a behavioral experiment was taken. Participants performed a categorizing task. Adjectives appeared one at a time in the center of a computer screen. Then it was a figure in the left or right part of a screen. Participants indicated whether the figure was in the right or in the left part. The results showed that the influence was not statistically significant. Maybe it happened because people did not pay enough attention to the words, so the next experiment should include the word related task.

Learning to Read Chinese: an Eye-tracking Study of Russian Learners of Chinese

Timur Mashanlo
Tomsk State University

Russian and Chinese writing systems differ in the way they map the sounds of the language to the respective writing units. Russian utilises a phoneme to grapheme correspondence, while Chinese makes use of a morpheme to grapheme correspondence. The latter sound-mapping principle increases the total number of writing units used in writing. That could prove to be a difficult problem for late learners to overcome. The results of the previous study suggest that Russian learners of Chinese might reach a peak in their Chinese reading performance relatively early on in their studies. The present study is aimed to investigate the progression curve of the first and second year students learning to read Chinese. For this, I set up a 4-stage longitudinal study in which students who have no previous exposure to Chinese read 120 sentences while their eye movements are being recorded. The results of the second stage are presented: the performances of two groups are compared against each other, the performance in the second stage is also compared to the one in the first stage.

Audial Perception of Words with Modal Semantics

Polina Mordvinova
Tomsk State University

This article is devoted to the study of differences in cognitive processing of words with different modes of perceptual semantics. Research interests focus on auditory perception of words with visual and auditory semantics. The coincidence of modal semantics and the modality of representation of the word

reduces the time on the processing of verbal stimulus in comparison with the cases of mismatch. The method of behavioral experiment is used as a leader in the study.

Audiovisual Perception of Words with Visual and Auditory Semantics

Elena Nekrasova
Tomsk State University

Previous research has been shown that there is the interconnection between perceptual channels (e.g. auditory, visual) and modal semantics of words (e.g. auditory: loud, sonorous; visual: yellow, red, etc.). The current study was aimed to examine perception of audiovisual word processing in the situation of audiovisual perception. Participants were presented words visually on the screen and auditory through the headphones simultaneously. The stimuli were the word pairs with visual semantics or auditory semantics (red vs. loud). Participants should judge whether one of the words in the pair could describe human appearance or voice. Results demonstrated that compatibility of channel and semantics (visual vs. visual) made word processing faster. However, role of perceptual channels for word processing was not equal. Specifically, experiment showed preference of visual channel when word with visual semantics was presented. In this condition information coming from auditory channel was not relevant. Nevertheless, when participant was presented the word with auditory semantics on the screen, auditory channel was «switched on» and affected word processing.

Cognitive Processing of Gender-Marked Words

Valeriya Paliy
Tomsk State University

The article is dedicated to the researching of the cognitive processing of masculine, feminine and neutral gender in nouns. Found differences are explained according to the social point (every word relates to the specific gender sphere) and morphological point (whether the word is marked or not). The method if behavioral experiment is used.

Let me not to See my Hands: the Influence of the Hands' Position at the Processing of the Words with Hands/Legs Movement Meaning

Alina Shmakova, Oksana Tsaregorodtseva

It has been shown previously that hands' position has an impact on processing of the objects, presented on the screen (Bush & Vecera, 2014). Specifically, the speed of object identification was increased when participants held they hands near the screen in the comparison with the condition, when hands were not seen.

Another field of research investigated effector specific response activation (hand as an effector) during processing of some groups of words, including action words such as 'kick' or 'grasp' (Ahlberg, Dudschig, & Kaup, 2013). Such studies follow theory of embodied cognition that proposed that sensorimotor processes are engaged in language comprehension processes.

Combining two lines of research we asked a question whether hands' position could affect processing of the words with hands/legs movement meaning. We manipulated word meaning (hands movement vs. legs movement) and position of the participants' hands (in front of the screen vs. under the desk). At first, we hypothesized that action words that mean hands movement would be processed faster than action words with legs movement meaning when participants' hands were placed near the screen (on the keyboard). Secondly, we expected that hands position under the desk would have larger effect on hands movement words than on legs movement words.

However, the results did not show any interaction between word meaning and hands' position. Nevertheless, there was a main effect of hands' position that revealed that all words were processed faster when hands were placed under the desk. It could be simply explained by attentional process in the sense

that hands on the keyboard could play role of distractors while in hands-under-the-desk condition there were no distractors in the visual field. Even so, the effect of hands' position should be examined on other group of words.

Implications: Further we are going to research the influence of the hand's position at the processing speed nouns having a real position in the space.