Corso di dottorato di ricerca in studi linguistici e letterari

Ciclo (XXX)

Titolo della tesi

"Language assessment in childhood: cross-cultural and cross-linguistic adaptation of the BVL_4-12 to Russian"

Dottoranda
Nadezda Eliseeva

Supervisore
Giorgio Ziffer

Co-supervisore
Andrea Marini

Anno 2018

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Summary

Language is an essential basis of communication. Nowadays modern multilingual society expects its members to have a variety of well-developed language skills. Actively growing cross-cultural and cross-linguistic areas of research require a revision of the existing instruments that aim to assess language development in children speaking more than one language. The present work is a part of a larger project aimed at creating an innovative interdisciplinary scientific framework that consolidates the efforts of a wide range of specialists working in the area of child language research (CLR). One of the core components of CLR is language assessment. Many of the existing assessment tools were designed for monolingual children speaking different languages and then translated / adapted into other languages. However, not all of those instruments have solid theoretical and psychometric properties. The Battery for the assessment of language in children aged 4 to 12 (**"Batteria per la Valutazione del Linguaggio in bambini dai 4 ai 12 anni"; BVL_4-12**; Marini, Marotta, Bulgheroni, & Fabbro, 2015) was originally developed for speech and language assessment in Italian-speaking children. It is a norm-referenced standardized battery with proven validity characteristics. The BVL_4-12 consists of tasks assessing oral production, comprehension and repetition across a number of linguistic skills. It is currently under adaptation into several languages, including Spanish and Slovenian. The results of the BVL_4-12 adaptation into German are partially reflected in the dissertation by Rebecca Menghin (2016). The present dissertation describes the process of the BVL_4-12 adaptation into the Russian language (BVL_RU) and a series of pilot studies demonstrating its validity and reliability.

The first step toward BVL_4-12 application in multilingual settings was made by the author of the present dissertation, and outlined the potential areas of CLR in which it can be used. Working on the study, we examined the principles of BVL_4-12 organization, stimuli content, the protocol and the users' manual. **Administration of the original version of the Battery and a series of cognitive pre-tests in a group of Italian-English sequential bilinguals** permitted us to draw some conclusions about their native language development and the effects of early second language exposure on working memory functioning.

During the second stage, the **BVL_4-12 was adapted into Russian** in accordance with international standards for the adaptation of tests. Particular attention was dedicated, on the one hand, to maintenance of the semantic, idiomatic, experiential and conceptual equivalence of the instructions, and, on the other hand, to the creation of Russian stimuli fully corresponding to the characteristics of those used in the original version of the battery (i.e. their quantity, and

qualitative characteristics, such as frequency rate, parts of speech, semantic categories, number of syllables and sounds, etc.), so that the instrument is suitable for cross-cultural and cross-linguistic studies.

In order to test the capacity of the BVL_RU to distinguish between two groups of pre-school age children speaking Russian, known to differ in their native language development trajectories, the contrasting groups method of construct validation was used. A full set of tasks from the battery was administered to the participants. The results of the assessment confirmed the presence of mild language impairment in children from the experimental group. The conduction of these experiments and detailed investigation of the collected data permitted us to draw preliminary conclusions about the **construct validity** of the BVL_RU. Furthermore, to resolve concerns about the measures' consistency over time, **test-retest reliability** was checked. Finally, the BVL_RU permitted different **levels of gravity** of the impairment to be discriminated in two participants.

The first cross-cultural and cross-linguistic study with the application of both Italian and Russian versions of the BVL_4-12 was done with a sample of **Italian–Russian simultaneous bilinguals aged from 4 to 7.** The phonological, lexical and grammatical skills and narrative abilities of the participants inheriting Russian from their parents were described in detail.

Finally, the **internal consistency** of 16 subscales of the BVL_RU was explored. The database used for reliability investigation included observations on the performance of a group of monolingual Russian-speaking children with both typical and impaired language development, and a group of Russian–Italian bilinguals, from 4.06 to 10.10 years old.

Before the BVL_RU is accepted as a reliable tool for language assessment in monolingual and bilingual Russian-speaking children, a thorough investigation of its **sensitivity** and **specificity** is needed. Future studies might also further explore its constructive validity, applying the method of **convergent and discriminant validation** using the data collected from larger cohorts of participants. Finally, in order for the BVL_RU to become a useful research instrument for cross-cultural and cross-linguistic studies, it should first become a **norm-referenced** battery.

Key words: language assessment; language acquisition; language development; bilingualism; language skills; SLI; language impairment; Russian;

Parole chiave: valutazione del linguaggio; acquisizione del linguaggio; sviluppo del linguaggio; bilinguismo; compretenze linguistuche; DSL; disturbo di linguaggio; Russo;

Ключевые слова: оценка уровня развития языка; овладение языком; развитие языка; билингвизм; языковые навыки; Специфические расстройства развития речи и языка; языковые расстройства; русский.

Abbreviations

ACC – Accusative case;

ADHD - Attention deficit hyperactivity disorder;

ADV – Adverb;

ASD - Autism Spectrum Disorder;

BVL_4-12 - Batteria per la Valutazione del Linguaggio in bambini dai 4 ai 12 anni (Battery for language assessment in children from 4 to 12 years of age);

BVL_RU – Russian adaptation of the BVL_4-12;

CDT - Child development team;

CNS - Central nervous system;

CLR - child language research;

DAT – Dative case;

DIF - Differential item functioning;

EEG – Electroencephalography;

GEN – Genitive case;

INF – Infinitive;

INST - Instrumental case;

IRT - Item Response Theory;

L1 – First language;

L2 – Second language;

LI - Language impairment;

MLU – Mean length of utterance;

N – Number (amount);

NOM – Nominative case;

NWR – Nonword repetition;

O – Object;

PC - Personal computer;

PLI - Primary Language impairment;

PSTM – Phonological short-term memory;

S – Subject;

SD - Standard deviation;

SEM - Standard error of measurement;

SES - Socioeconomic status;

SLI – Specific language impairment;

TD - Typical development;

TLD – Typical language development;

V – Verb;

VSTM - Visual short-term memory;

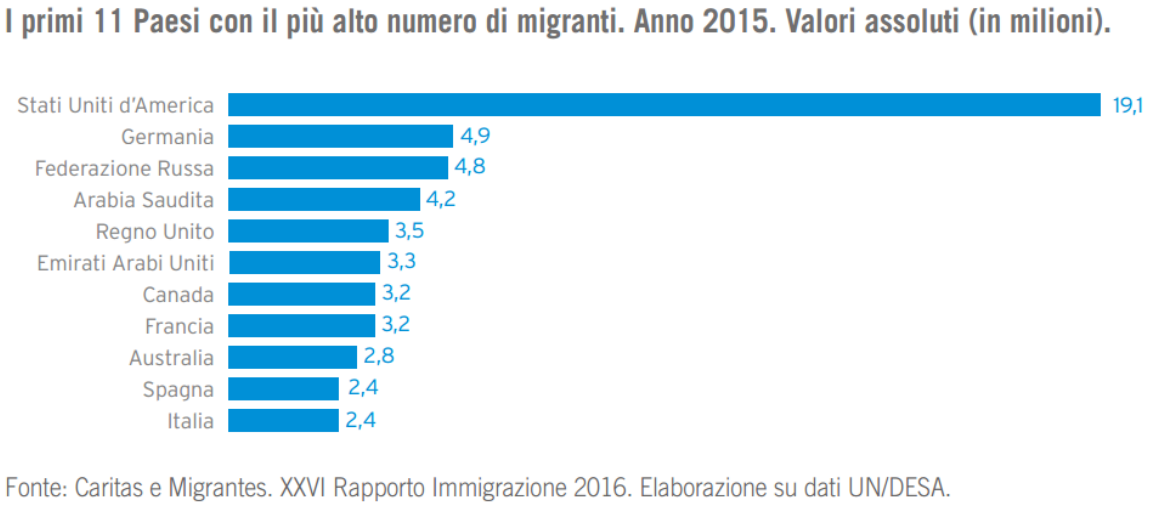
VWM – Verbal working memory;

WM – Working memory.

Some additional abbreviations are explained in the text of the dissertation.

Introduction

Globalization and active migration provide an opportunity for diverse language interactions across nations. Nowadays cultural, economical and language interchange in the global community is growing constantly. Bi-/multilingualism is becoming a norm rather than an exception. Building of global databases, creation of sources of internationally comparable data, creation of international standards in education – these are some of the current goals of UNESCO[1] determined by 21st-century realities. According to an official immigration report (*XXVI rapporto immigrazione 2016;* Caritas e Migrantes, 2016) 243,700,000 people live in countries other from those where they were born. Picture 1 shows a list of countries with the highest number of immigrants.



Picture I:1 Top 11 countries with the highest number of migrants in 2015. Adapted from an immigration report (Caritas e Migrantes, 2016).

Probably up to 2/3 of children and adults in the world are bilingual (Tucker, 1998; Baker, 2011). The European Commission (Eurobarometer, 2012) reports that more than half of European citizens are able to communicate in a language other than their mother tongue, approximately 1/4 of the population has mastered 2 more languages (in addition to their mother tongue), and finally, every tenth person speaks 3 additional languages. According to the report, German is a native language of 16% of Europeans. Italian is the second most widely spoken

[1] See http://uis.unesco.org/

mother tongue (13%), along with English, which 13% of the respondents called their native language. Moreover, 38% claimed that they speak English as a foreign language.

According to the All-Russia population census of 2010 (All-Russia population census, 2010), 137,494,893 citizens in Russia reported Russian as their mother tongue. Five percent of the European population speaks Russian, including 80% of the population in Lithuania, 67% of the population in Latvia and 56% in Estonia (Eurobarometer, 2012). The majority of the respondents believe that they speak it at a higher than basic level. Twenty-seven percent of the population in Latvia, and 19% of the population of Estonia, named Russian as their first language. According to the European Commission report, Russian is one of the top five most spoken foreign languages in Europe. It is one of the official languages of the United Nations and UNESCO.

Communication in one's mother tongue and in foreign languages have become essential competences for learning and successful interaction in a rapidly developing information society. A coalition of leading organizations in the educational sphere, businesses and policy makers (known also as P21) defined a list of 21st-century skills[2]. Cross-cultural understanding and communication[3] were described as core components and top skills in 21st-century learning. "Language skill is, ultimately, the ability to communicate" (Naglieri & Graham, 2003; p.103**)**. Effective usage of languages, both mother tongues and foreign languages, provides the basis for knowledge transfer and interchange. According to P21, the development of speech and language skills is crucial in the preschool and school educational process. However, the focus of current work is not on the improvement of language skills but rather on their assessment as a starting point for further development. Speech and language assessment in children is a crucial part of a general evaluation of their communicative skills. It permits strengths and weaknesses in overall language development to be identified and improvement strategies to be planned. In clinical settings, language assessment is a procedure necessary for identification of potential language impairments and further intervention planning. There is a clear need for new assessment methods in modern society. Multilingual societies require, among others, new multilingual tools in the area of child language research permitting cross-linguistic and cross-cultural assessment and comparison of the results across particular language combinations. Many of the existing assessment tools were designed for monolingual children speaking different languages and then translated / adapted into other languages in order to satisfy both

[2] See http://www.p21.org/our-work/4cs-research-series/communication
[3] See http://www.tonywagner.com/7-survival-skills/

the requirements of modern research and clinical communities. “The nature of specific language impairment (SLI) in languages other than English (both similar and dissimilar) is critical to our understanding of the underlying deficits characteristic of SLI” (Schwartz, 2017, p.22). Further investigation of the foundations underlying typical and atypical language acquisition trajectories in children speaking different languages seems ineffective without multidisciplinary international cooperation. An example of such collaboration might be ISCH COST Action IS0804 called “Language Impairment in a Multilingual Society: Linguistic Patterns and the Road to Assessment”. According to the description on the official website of the action: “The main objective of this Action is to profile bilingual Specific Language Impairment (SLI) by establishing a network to coordinate research on linguistic and cognitive abilities of bilingual children with SLI across different migrant communities”. The final conference of the Action took place in Poland in May, 2013. Four international working groups discussed the tools created as a result of this collaboration (e.g. Multilingual Assessment Instrument for Narratives - MAIN) and a list of topics related to language assessment in bilingual children; language impairments’ detection in children speaking different languages; appropriate tasks for language assessment (e.g. nonwords repetition; sentences repetition); the role of executive functions in children speaking more than one language and LI. The LITMUS (Language Impairment Testing in Multilingual Setting) became the main outcome of the Action (see Armon-Lotem, de Jong & Meir, 2015 for a description of the project and the studies conducted within the COST action).

Since the 1980s, assessment instruments developed in one language have been actively translated and adopted in countries and cultures speaking other languages (Naglieri & Graham, 2003; p.103). “The use of adapted instruments naturally enables a greater ability to generalize and also enables one to investigate differences within an increasingly diverse population” (Borsa, Damásio & Bandeira, 2012; p.424). Unfortunately, the existing instruments, both those originally created to be applied in one language and the adapted multilingual versions, do not all have solid theoretical and psychometric properties, and thus are not suitable for cross-linguistic and cross-cultural studies.

The **aim** of the current research project was twofold: first, to create a Russian version of an existing language assessment instrument with proven validity characteristics in order to fill both the gap in Russian child language research and that in the assessment of the bi-/multilingual population; Second – application of the BVL to target populations. The work done toward the achievement of this goal is reflected in the current dissertation. In order to

achieve this aim, the research literature on language development in mono- and bilingual children was overviewed. Both typical and deviant trajectories of language acquisition and development were discussed. Furthermore, the existing speech and language assessment instruments for mono- and bilingual children speaking different languages were analysed. The characteristics of the original and adapted instruments available for Russian language assessment were analysed in detail (Eliseeva, 2017). The common principles of test adaptation procedures are described at the end of the second chapter. The speech and language instrument under adaptation (BVL_4-12; Marini, Marotta, Bulgheroni, & Fabbro, 2015) is presented in the third chapter. Next, the application of the BVL_4-12 to studies with a bilingual population is demonstrated in the following chapter, describing an experiment with a cohort of Italian–English-speaking pre-schoolers (Marini, Eliseeva, & Fabbro, 2016). Chapter V presents the Russian version of the BVL_4-12 (BVL_RU) and describes the transadaptation procedures in detail. Finally, chapters VI and VII describe the results of the validity and reliability checks of the BVL_RU via a series of pilot studies with Russian-speaking monolingual and bilingual children both with and without LI (Eliseeva & Marini, 2016; Marini, Eliseeva, Gorobets, & Filippova, 2017; Eliseeva, Guts, & Marini, in press). The dissertation ends with a general discussion and conclusions. Supplementary materials (i.e. tables and graphs) are included in the Appendix.

One of the limitations of the present work is that the piloting of the tasks from the BVL_RU was done in the small groups of the participants from the target populations. Due to organizational difficulties, the author of this dissertation was not able to entirely cover the age range from 4.00 to 11.11. Moreover, only children with typical language development, those previously diagnosed with LI and bilingual children (Italian-Russian heritage speakers and Italian-English sequential bilinguals) participated in the studies described in this paper. The participants with other particular characteristics of language acquisition and development are subjects for future BVL_RU's application investigations.

Chapter I: Theoretical foundations. Trajectories of language development

The first chapter provides an overview of the trajectories of language development in children. The chapter includes two parts. The first part provides an overview of literature devoted to the acquisition and further speech and language development in children with TLD. We first focus on the prerequisites crucial for language acquisition. Different hypotheses about the nature of the language acquisition process are discussed here. Then we turn our attention to the milestones of language development common for children speaking different languages. This section deals with the description of the preverbal and verbal stages and their characteristics. A general overview of the main features of Russian language acquisition in monolingual children is also provided. The final section of the first part ends with an outline of the main characteristics of speech and language development in bi-/multilingual children.

The second part of this chapter aims to describe impaired language development in children. We first discuss the terminology currently used in clinical and research literature and then outline the main characteristics of developmental language disorders in children. Relevant studies on clinical markers of LI both in monolingual and bi-/multilingual children are broadly discussed at the end of the chapter.I.1. Language development in typically developing children acquiring diverse languages

I.1.1. Foundations and prerequisites for language acquisition

The acquisition of language is a specific and yet scarcely understood phenomenon. There is no one, universal, answer on how children acquire and then master using a conventional set of rules in the process of utterance creation. Numerous investigations have been conducted in order to explain the extraordinary speed and efficiency of first-language acquisition. There are two main hypotheses in modern language acquisition research. The first implies that language acquisition is a rather "automatic" biologically programmed process. According to the *nativist* point of view, human beings have genetically coded phonological and morphosyntactic "rules" valid for any language (e.g. Chomsky, 1993; Lidz, Waxman & Freedman, 2003; Lidz, Gleitman & Gleitman, 2003). Nativists claim that humans are born with a so-called Language Acquisition Device that contains universal grammar and is activated with verbal input, or might have a special language-making capacity needed for language acquisition (Palmer, 2000). The nativists' perspective is supported by the fact that all children, regardless

their cultural identity, pass the same language milestones at around the same age. On the other hand, some *empiricist* studies in the field underline the importance of the learning process itself and support their hypothesis by providing evidence of the importance of the amount and quality of the input received by a child (e.g. Yang, 2004). Finally, there is an *interactionist* point of view that claims that although language is biologically programmed to some extent, there are also multiple environmental influences on child language development (e.g. McKee & McDaniel, 2004).

In any case, language acquisition implies a certain level of brain development. Camarata and Nelson (2002), in their review, showed that language and cognitive abilities are closely connected (e.g. Walters & Chapman, 2000) and might heavily influence each other during assessment as language is a component of all strata of human cognitive abilities (Carroll, 1993; 1998). Pinker highlights that language development heavily relies on the overall brain maturation process (Pinker, 1994); thus, any kind of treatment might not even be necessary for children with language delay until their brains reach a certain level of maturation. It was shown that the brain structures required for language emergence and development mature at different times (e.g. Shafer & Garrido-Nag, 2007). There are three fundamental language acquisition stages closely related to the process of brain maturation: the period of babbling, the storage phase, and the analytical-computational stage (e.g. Locke, 1995). Any human language-speaker normally passes these stages in childhood. Children start babbling at around 6 months from birth. During this stage, a child produces various nonspecific sounds. The next stage (a storage phase) takes place from 6 to 20 months. During this period, words and sentences that a child hears are stored as unique prosodic sequences or "idioms". They cannot yet be consciously separated into independent meaningful pieces. From that age and on, during the third, analytical and computational, phase, children continue to learn several new words and start creating expressions based on morphosyntactic rules. Typically, so-called overgeneralisation takes place during this period (e.g. Al-Baldawi & Saidat, 2011; Cejtlin, 2001). Children tend to form nonexistent regular forms of irregular words. The contagion phenomenon (mimetic behaviour), echolalic behaviour and vocal accommodation are the key factors that allow for quick and efficient first-language acquisition (e.g. Hoff and Shatz, 2009). Mimetic behaviour is truly a human social instinct that is coded genetically. Children unconsciously imitate behaviour and facial expressions of others, and shortly after birth (at around 5 months of age) they develop an ability to produce some vowels; however, they are not able to do so voluntarily until 1 year of age. This automatic behaviour was recently

explained by the theory of mirror neurons (Rizzolatti and Sinigaglia, 2006). Another type of automatic behaviour, which does not necessarily require understanding, is echolalia. Unlike mimetic behaviour, echolalic behaviour consists of repeating verbal sequences. Such sequences might be words or sentences. This is a typical behaviour for children at the age of 2-3. Maturation of frontal lobes allows for inhibition and further internalisation of mimetic and echolalic behaviour in older children. Finally, vocal accommodation is a tendency to adjust vocal patterns to those of the interlocutor. Through vocal accommodation, children improve the articulatory characteristics of their speech until around 8 years of age. Overall, there are several factors that determine the algorithm of phonological development. First, it requires a certain maturation level of cognitive development in general, and articulatory skills in particular. Then, further development of articulatory skills comes via expanding their repertoire and increasing its complexity. Gradually a child forms a system of phonemic oppositions and their differential signs, and, thus, abolishes the previous paradigmatic and syntagmatic restrictions of his/her phonological system.

As for the grammatical sublevel of language development, it comprises syntactic and morphological components, which, in turn, are based on syntagmatic linguistic and successive cognitive operations, and paradigmatic linguistic and simultaneous cognitive operations respectively (Lurija, 2009). Unlike nativists, followers of the cognitive theory of language development suggest that acquisition of grammar mirrors behavior. Bruner (1975) analyzed the structure of mother-child interaction and hypothesized that grammar appeared as a set of rules derived from jointly regulated activities, and after that became codified in the culture of the particular language community. Thus, the process of language acquisition by a child is based on a series of cognitive mechanisms common to both verbal and non-verbal processes (Kornev, 2006a). The main stages of language development are discussed in part I.1.2 below.

I.1.2 The milestones of language acquisition

- **The preverbal stage (from fetus up to approximately 1 year old)**

Some studies showed that newborn babies are able to recognize their mother's voice (e.g. Mehler, Bertoncini, Barrière & Jassik-Gerschenfeld, 1978) and distinguish their mother's native language from others (e.g. Moon, Cooper & Fifer, 1993; Mehler, Lambertz, Jusczyk & Amiel-Tison, 1986). The study of Kisilevsky and colleagues (2003) confirmed that the heart rate of a fetus increased in response to its mother's voice and not to a stranger's voice. Thus,

even in the womb, a fetus is able to hear and learn sounds, and then recognize them in its mother's voice. It was experimentally proved that several days after birth newborns are able to "perceive the rhythm of disyllabic and trisyllabic stressed words, regardless of consonant variations, and to categorize words on the basis of their stress pattern" (Sansavini, Bertoncini & Giovanelli, 1997, p.9) so their sucking rate significantly changes. The first three months of the preverbal (or prelinguistic) stage is called the *first vocalizations phase* or *vegetative sounds stage.* During this stage, children communicate both non-verbally by touching things and changing facial expressions, and verbally via crying and cooing. Infants do discriminate basic phonemes, both consonants and vowels from the spectrum of any given language, can differentiate syllables, such as *ba* versus *pa,* and turn their head when hearing their own name by age around 4-5 months (Shaffer & Kipp, 2009). As for production, by the third month, sounds very similar to /k/ and /g/ and the vowels /a/ and /u/ appear in children's speech. The phonoarticulatory apparatus rapidly matures during this period. The larynx is lowering and the separation of the pharynx and the velum also takes place during this period.

The transactional short period between the first vocalizations phase and a genuine babbling phase received the following name: *rudimentary babbling phase*. This phase usually takes place between the sixth and seventh months of a child's life and manifests the production of the first adult-like syllables. The *canonical babbling phase* typically begins during the seventh month of a child's life. This phase comprises two types of babbling: *reduplicated* and *non-reduplicated babbling*. Reduplicated babbling is the production of a series of CV syllables (e.g. ma-ma-ma; ta-ta-ta). Unlike reduplicated babbling, non-reduplicated babbling consists in the production of CVC or VCV syllables (e.g. *pap*; *ada*). The sounds typical for this period are voiceless bilabial occlusive /p/, voiceless dental occlusive /t/, voiced dental occlusive /d/, bilabial nasal /m/, and open central /a/.

Until around 13 months of age, a child continues her verbal play with sounds and syllables. The last preverbal phase is called *variegated babbling*. During this period starting from around 10 months, children master their motor skills and produce a wide variety of consonants and vowels, changing length of syllables and intonations (Rozengart-Pupko, 1968). Children learn to produce VC syllables. They widen their phonemic repertoire by mastering the approximants [w] and [j], the nasals [m] and [n] and the voiceless alveolar fricative [s].

- **The verbal stage**

At an age ranging from 10 to 18 months *(*the *holophrase period)*, children start producing one-word-long meaningful utterances having true communicative intention. These words typically contain stressed syllables and end with a vowel (e.g. Lewis, Antone & Johnson, 1999; Cejtlin, 2000). Unlike content words (objects' names, actions' labels), function words are still missing; however, the child's vocabulary grows fast and will continue to expand during their lifetime. Rapid vocabulary building, both receptive and productive, results in a naming explosion – children realize that every object has its own label and can be called using this label. A number of studies in different languages showed that at around 14 months children understand approximately 140 words, and at 16 months, already around 200, until at the age of 6 they reach a receptive vocabulary of around 10,000 words (Ferreri, 2005; Nelson, 1973; Arkin, 1968); thus, their receptive vocabulary is much wider than the number of words they can produce. As for the conceptual basis of the lexicon, it was shown that at this period so-called *overextension* might take place (e.g. McDonough, 2002). In other words, children might use the same label for objects belonging to the same lexical category.

During the next developmental period, the phonetic repertoire is enriched with the voiceless palato-alveolar affricate [tʃ] and fricatives (e.g. Zmarich and Bonifacio, 2005; Shvachkin, 2004). Studies based on the results of surveys and systematic reviews of the parental reports of children speaking different languages show that by the second year the vocabulary storage of a child might be as big as 400 highly frequent words; however, this number varies a lot (see Rescorla & Achenbach, 2002 for English-speaking children). At this age children start to create their first short phrases. Also, by the end of this period a child acquires the main pragmatic rules and communication with her becomes much easier. From 18 to 24 months children move toward *telegraphic style speech*. It is called telegraphic due to the fact that children combine basic nouns and verbs in their speech in order to create two-to-three-word utterances, like *daddy drink milk*. Slobin and Green (1976, Table 2) analyzed the functional content of early two-word utterances produced by children speaking various languages (including Russian) and described the following types: a) place, name (e.g. "there book"); b) request, order (e.g. "more milk"; see also Cejtlin, 2000 on simple order comprehension); c) denial (e.g. "no wet"); d) description of an event or situation (e.g. "Bambi go"); e) indication of belonging (e.g. "my shoe"); f) definition, quality (e.g. "pretty dress"); f) question (e.g. "where ball"). Gordishevsky and Schaeffer (2008) showed that children aged 20-

30 months acquiring Russian first master the use of case markers in the singular and then in the plural.

The period between 24–36 and 60 months is called the “developing language stage” (Paul & Norbury, 2012) and corresponds to Brown’s stages II–V (Brown, 1973). When children are 30–40 months old they might use phrases containing 3-4 words (Camarata, 2014). Construction of more complex utterances requires further development of the language system. Children speaking languages with a case system usually start to acquire the nominative case first, then the accusative, genitive and dative, and finally the instrumental and prepositional cases (Gvozdev, 1961; Babyonyshev, 1993; Cejtlin, 2000; Povaljaeva, 2002). In the very beginning of case category acquisition, children might use so-called “frozen" grammatical constructions, that is, those that are borrowed from adults' speech as an integral unit. Soon, a child begins to realize the internal structure of such frozen units and to make mistakes while mastering using declensional endings. By approximately 30–49 months, the number category is mastered (Zapf & Smith, 2003). English-speaking children start to correctly use articles and auxiliary verbs and create well-formed questions at 35–38 months of age (Hoff-Ginsberg, 1997). At approximately the same time they start to add –s to mark plural nouns, use prepositions (in, on), and add –/s/ to describe possessive relations. Also, during this period children actively overgeneralize those new rules, on creation of new word forms. Active semantic development takes place at this period. By the end of this period children start to correctly interpret reversible passive constructions (e.g. The boy was hit by the girl; Shaffer & Kipp, 2009, p.415), use adjectives (e.g. big, little; Tribushinina, Voeikova & Noccetti, 2015) and learn to interpret non-literal meanings of words. At around 5 years of age children already demonstrate some phonological and grammatical awareness.

Starting from 5 years old, children are able to produce even longer and much more complex utterances. By this age children with typical development stop overgeneralizing. Instead, they master exceptions. At the age of 6 children understand up to 10,000 words, and at 10 approximately 40,000 (Anglin, Miller & Wakefield, 1993). Once children start to attend school, they rapidly develop metalinguistic awareness (Shaoying & Danling, 2004).

Shaffer and Kipp (2009) summarised the milestones of language development in shildren as follows:

Age (years)	Phonology	Semantics	Morphology/syntax	Pragmatics	Metalinguistic awareness
0–1	Receptivity to speech and discrimination of speech sounds Babbling begins to resemble the sounds of native language	Some interpretation of intonational cues in others' speech Preverbal gestures appear Vocables appear Little if any understanding of individual words	Preference for phrase structure and stress patterns of native language	Joint attention with caregiver to objects and events Turn-taking in games and vocalizations Appearance of preverbal gestures	None
1–2	Appearance of strategies to simplify word pronunciations	First words appear Rapid expansion of vocabulary after age 18 months Overextensions and underextensions of word meanings	Holophrases give way to two-word telegraphic speech Sentences express distinct semantic relations Acquisition of some grammatical morphemes	Use of gestures and intonational cues to clarify messages Richer understanding of vocal turn-taking rules First signs of etiquette in children's speech	None
3–5	Pronunciations improve	Vocabulary expands Understanding of spatial relations and use of spatial words in speech	Grammatical morphemes added in regular sequence Awareness of most rules of transformational grammar	Beginning understanding of illocutionary intent Some adjustment of speech to different audiences Some attempts at clarifying obviously ambiguous messages	Some phonemic and grammatical awareness
6–adolescence	Pronunciations become adultlike	Dramatic expansion of vocabulary, including abstract words during adolescence Appearance and refinement of semantic integrations	Acquisition of morphological knowledge Correction of earlier grammatical errors Acquisition of complex syntactical rules	Referential communication improves, especially the ability to detect and repair uninformative messages one sends and receives	Metalinguistic awareness blossoms and becomes more extensive with age

Table I.1.2:1 Important milestones of language development. Adapted from Shaffer and Kipp (2009, p.420)

Bedore and Peña (2008) reviewed a set of **cross-linguistic studies with children speaking different languages demonstrating similar milestones** of vocabulary acquisition and development (Thal, Jackson-Maldonado & Acosta, 2000 – for Spanish; Fenson, Dale, Reznick, Thal, Bates, Hartung... & Reily, 1993 – for English; Maital, Dromi, Sagi & Bornstein, 2000 – for Hebrew; Caselli, Bates, Casadio, Fenson, Fenson, Sanderl & Weir, 1995 – for Italian). However, such comparisons might be done cautiously when considering languages with complex inflectional systems, such as, for example, Icelandic (Thordardottir & Weismer, 1996). Moreover, even though the number of acquired words at a given age is similar across languages, the quality of vocabulary content might differ. It was shown that Hebrew-speaking children have more nouns in their lexicon at the earliest stages of language development than their English-speaking peers (Maital et al, 2000). The content of toddlers' vocabularies might

not only differ in terms of parts of speech, but also differ on a semantic level, as it was shown that Italian-speaking children might have significantly more social terms in their lexicons compared to English-speaking children of the same age (Caselli et al., 1995).

As for similarities and differences in morphosyntactic acquisition demonstrated by children speaking different languages, a typical gradual transition from single words to complex sentences was documented in children speaking English, Spanish, Italian and Japanese (Bedore & Peña, 2008; Slobin, 2017). However, the acquisition and correct use of particular morphemes might differ in time depending on languages. Potential explanations of such differences might lay in the phonetic salience of the morphemes, their frequencies in speech and the complexity of the transformational rules which need to be acquired. Interestingly, the process of narrative skills development probably has the most similarities across languages. Berman and Slobin (1994) compared the narratives produced by children speaking five different languages. Three-year-olds produced very simple, rather incomplete short stories. Five-year-olds produced more complex stories, with better descriptions of characters and events. The stories produced by nine-year-olds had complete composition and much more detail.

Eliseeva (2005) described the **milestones of Russian language acquisition** in monolingual children with typical development from birth up to 7 years of age. As for phonological elaboration of speech, Russian-speaking children start to produce syllables and imitate separate sounds during the first year of life. During the second year, they acquire the majority of the phonemes from the Russian phonemic repertoire. They omit and randomly swap sounds, and simplify consonant clusters. At the age of 3, children still tend to omit and swap sounds, but now only those particularly difficult for articulation (i.e. /c/, /tʃ/, /ʃ/, /ʒ/, /ʃ`/, /r/, /r`/, /l/, /l`/). From 3 years of age and on, metathesis of syllables as well as difficulties in articulation of particular sounds might still appear in children's speech, however, at this period pronunciation is rather stabilized. As for derivational morphology, Russian-speaking children start to create diminutive forms of nouns (Voejkova, 2011, pp.119-125) and add possessive suffixes to adjectives at around 2.6 years of age and by the age of 7 they fully master the majority of word formation models of the Russian language and stop overgeneralizing.

As for the development of vocabulary, typically, by the end of the first year of life, children might actively use 1-5 words and understand up to 60. By the end of the second year, their lexicon includes words from mothers' language ("child directed speech") and "frozen"

phrases. Their productive vocabulary rapidly grows. By the end of the third year "frozen" phrases disappear from their speech. They start to use synonyms, antonyms and polysemic words. During the period between 3 and 7 years of age children continue to acquire synonyms and antonyms, as well as abstract words, polysemic words, homonyms, some idiomatic expressions, and non-literal meanings of some words.

During the second year of life, children master the use of nouns, verbs, qualitative adjectives, pronouns, adverbs, short passive past participles, and some numerals. At the same time, they acquire the following grammatical categories: case and number of nouns, tense, number, person, and grammatical gender of verbs (see Voejkova, 2011 for Russian language). At the age of 2-3, they continue mastering the use of various parts of speech including prepositions and conjunctions. By that age, Russian-speaking monolingual children already demonstrate the ability to differentiate among verbs with different aspect characteristics, and nouns of masculine and feminine gender. However, they often mix case endings and overgeneralize number markers. Up to 5 years of age they might misuse derivational affixes. By the age of 5 they stop making errors in case endings (i.e. do not use inappropriate case endings); however, they sometimes might misuse endings of nouns belonging to different declensions. They occasionally create wrong forms of the comparative degree of adjectives and adverbs, and they might mix the suffixes of the imperative forms of verbs and suffixes of the participles. Also, up to 7 years of age children might use wrong affixes to create aspectual forms of the verbs (however, they clearly distinguish their meanings and use them properly). They might mix endings of plural forms of nouns in the genitive and prepositional cases and occasionally create wrong forms of participles.

As for syntactic elaboration of speech, Russian-speaking monolingual children with TLD start to produce multiword sentences at around 2-3 years of age, first without any conjunctions, later using *and, but, or, as.* During the same period, complex sentences with direct speech emerge, as well as coordinated and dependent sentences with *which, what, when, where, because, if*. At the age of 3-4, children begin to master the dialogue form of speech, and story-retelling, but may not yet properly use prepositions or case markers in oral speech production. The first stories created by children appear approximately at the age of 4.

As for metalinguistic skills, as early as at 2 years of age, children begin to correct themselves while speaking, and later correct other children and adults. At approximately 4 years of age, children realize the phenomenon of polysemic words. They actively develop their

pragmatic skills and consider the language abilities of their interlocutors. Finally, their phonological awareness rapidly develops.

I.1.3 Language development in bilingual children

There are different types of bilingualism (Davison, 2009); here we briefly describe language acquisition in simultaneous ("native") bilingual children.

"Developing bilinguals are children who receive regular input in 2 or more languages during the most dynamic period of communication development – somewhere between birth and adolescence" (Kohnert, 2013, p.86). The milestones of language development in dual language learners correspond to those in monolingual children, even though the individual trajectory of language acquisition might vary among bilingual children (Paradis, Genesee & Crago, 2011; Gagarina, 2013). Both monolingual and bilingual children with similar SES produce their first words and, later, utterances during the same developmental periods (e.g. Petitto & Holowka, 2002). It was shown that the number of lexical items acquired by bilingual children during each developmental period is approximately the same as that acquired by their monolingual peers (Holowka, BrosseauLapré & Petitto, 2002). However, the content of their **vocabulary** is spread between two languages. Bilingual children acquire both equivalent words in two languages (e.g. *dog* in English and *perro* in Spanish) and some lexical items from one of their languages only (e.g. a child might know how to say *blackboard* in English but not in Spanish and vice versa; Peña, Bedore & Zlatic-Giunta, 2002). Paradis and colleagues (2003) provided further evidence and showed that bilingual children might have more words with no equivalents in their dominant language, rather than in a weaker language.

Less is known about the development of **narrative** skills in bilinguals. Several studies explored story-telling styles of bilingual children in each of their languages (e.g. Protassova, Petrovskaja, & Ovchinnikov, 2011). Uccelli and Páez (2007) explored the development of vocabulary and narrative skills in a group of 24 Spanish-English speaking children with typical development. The children were assessed twice – first at the age of 5 and then 1 year later, as they entered a school. Interestingly, during the first assessment two children did not manage to deal with the narrative elicitation task in Spanish (their home language) and refused to produce a story. The narratives produced by children were analyzed on both micro- and macro levels. Overall, during the second assessment children tended to code-switch more than during the first assessment. More frequently they code-switched from Spanish to English (their school

language). It seems their narrative skills improved faster in English than in Spanish. In a recent longitudinal study on bilingual (English-Spanish) children with PLI and TLD, Squires and colleagues (2014) showed that children from these two groups demonstrated different gains in the development of macro- and microstructures of narratives in their two languages. Children with TLD significantly improved the macrostructure of their retells in both of their languages, and the microstructures in Spanish (their home language) in the first grade as compared to those when they were first assessed in a kindergarten. On the other hand, children with PLI did improve the microstructure of their narratives to some extent, but not the macrostructure at all.

Recently, there has been growing interest in the area of incomplete language acquisition in bilinguals (see Montrul, 2011; 2008b for a review of the studies devoted to linguistic competences in heritage speakers). Perotto and Niznik (Perotto & Niznik, 2014; Perotto, 2015) examined oral and written speech in heritage speakers of Russian aged 8-15 living in Italy. The studies documented a set of difficulties demonstrated by children at the level of morphology and narrative speech production in Russian. Children born in mixed families and isolated from a Russian language environment demonstrated the following difficulties: loss of animate / inanimate category attributes; errors in the use of verbs of movement, especially with regard to the choice of prefixes and prepositions following the verbs; a variety of borrowings from Italian; extension of the valence of the verb 'to do', делать (compare: *Fare il corso all'Università* – literally translated and used in oral speech as *делать курс в университете, impossible in standard Russian). Moreover, difficulties in using verb aspects were detected, as well as confusion in utilization of verbs expressing motion and state[4]. Children with non-dominant Russian more often asked for help to continue the story-telling. They demonstrated poorer vocabulary, and, as a result, often switched to Italian while speaking. Interestingly, children from this group preferred using only the present tense while telling a story. The difficulties with verb morphology experienced by bilingual children acquiring Russian were documented also by other authors (e.g. Gagarina, Armon-Lotem & Gupol, 2007).

Gagarina (2013) analyzed parallel acquisition of Russian and German from birth and described the following milestones: up to the age of 2, active accumulation of lexical items takes place. The utterances usually include two elements. At this age children master subject-verb agreement. During the next 3-5 months children begin to produce complex sentences and

[4] Probably in Italian the other trajectory of verbs of motion category acquisition takes place as it has different characteristics (Bertinetto, 1997).

master inflectional morphology. Starting from that age and on, a child learns to properly use both of her languages. A language dominance might first manifest during this period.

According to Paradis, Genesee and Crago, simultaneous bilingual children are "children who are exposed to, and given opportunities to learn, two languages from birth or shortly after" (2011, p.6). Usually, they acquire two languages at home and are equally exposed to both of them from birth. Does this mean that they have two language systems instead of one? Indeed, nowadays, the widely accepted hypothesis of the Dual Language System proposed by Genesee suggests that from the very beginning children create two closely related language systems (Genesee, 1989). The evidence from current research supports this hypothesis. It was shown that children raised in bilingual environment perceive subtle differences in particular phonemes' pronunciation as early as at 10-12 months of age (Burns, Yoshida, Hill & Werker, 2007; Sundara, Polka & Molnar, 2008). Furthermore, Paradis (2001) demonstrated that bilingual toddlers have separate phonological systems for each language they are acquiring, as well as separate vocabularies (Pearson, 1998; Pearson, Fernandez, & Oller, 1995). Finally, their morphosyntactic development was shown to fully coincide with that in their monolingual peers (Paradis, Nicoladis & Genesee, 2000; Meisel, 1994).

A potential explanation for why bilingual children, receiving half of the input in one of their languages, are still able to develop language competence comparable to monolingual norms, might be a **phenomenon of bilingual bootstrapping** which boosts the rate of language development. Fabiano-Smith and Goldstein proposed a hypothesis explaining the functioning of the bootstrapping on a phonological level in Spanish-English preschool-age bilinguals (2010). As the vocabulary in two languages shares same concepts and semantics, its development also might be described considering the effect of bilingual bootstrapping (e.g. Gathercole Mueller, 2007). MacWhinney (2005) showed that forms typical of both languages become more salient and more frequent in speech, whereas those which are unique to one language might be produced much less.

Paradis, Genesee and Crago (2011) summarized the main features of bilingual language development in children with typical development as follows: a) normally, they do not demonstrate late/delayed onset of first words/word combinations; b) when considering both of their vocabularies, the volume can be in some cases even bigger than that in their monolingual peers; c) the MLU produced by bilingual children usually is within the normal range demonstrated by age-matched monolingual children; d) it might take bilingual children longer

to master all elements of the two morphosyntactic systems than it usually takes their monolingual peers in one language; e) it is possible that bilingual children demonstrate the same vocabulary size and morphosyntactic skills in their dominant language as those monolingual children have, however, in their nondominant language they might be restricted to some extent; f) finally, such vocabulary size and morphosyntactic skill equivalence can only be reached if the level of exposure to one language is not less than 50% of the time. Kohnert (2013) discusses several factors that might affect language acquisition in dual-language learners. First, the age: specifically, the age when a child began to experience L2 exposure significantly contributes to their overall proficiency level. Second, the context in which such exposure takes place. Third, the social status of L2 and its support in the society. One more important factor is type of the acquiring languages (i.e. do they belong to the same language family? Do they share the same alphabet?). Finally, the purposes. What motivates L2 acquisition and how it is used in everyday life? Overall, these along with other factors shape dual-language acquisition trajectory and highly affect outcomes in bilingual children (Armon-Lotem, Walters & Gagarina, N. (2011).

I.2 Impaired language development

I.2.1. Description and terminology

The fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM–5; American Psychiatric Association, 2013) and The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD 10; World Health Organization, 2016) describe language-related disorders differently. The diagnostic category of communication disorders in DSM–5 comprises a list of disorders: language disorder (F80.2), speech sound disorder, childhood-onset fluency disorder (stuttering), social (pragmatic) communication disorder, and other specified and unspecified communication disorders (DSM-5, p. 41). Particular attention is devoted to speech, language and communication abilities assessment in bilingual populations, whose cultural and language background must be considered. Four diagnostic criteria are described for **Language disorder (F80.2)**. These are: A) difficulties in acquisition and use of language (including all layers of language). A) is manifested in deficits in comprehension (receptive ability) and production (expressive ability); thus, poor vocabulary is observed, as well as reduced sentence structure repertoire and limited narrative abilities (both monologue and dialogue forms of speech).

The B) criterion indicates that language abilities are below age normatives and thus cause difficulties in communication-related activities and academic progress. Late onset of first words and phrases is the third criterion. Finally, this disorder cannot be explained by hearing loss or other neurological symptoms, intellectual disorders or global developmental delay. The diagnosis might support a positive history of language disorders in the family. The age of 4 is considered to be a time point at which language ability is fairly stable and might predict future outcomes. If children demonstrate speech/language loss before this age, related conditions (e.g. Landau-Kleffner syndrome, autism spectrum disorder, epilepsy) should be excluded first. Moreover, language disorder should be distinguished from comorbid neurodevelopmental disorders (e.g. learning disorder, ADHD).

Just like Language disorder (F80.2), **Speech sound disorder (F80.0)** also manifests its symptoms early in childhood, becomes a reason for ineffective communication and cannot be explained by other neurological conditions. The main characteristic of F80.0 is difficulty in speech sound production, i.e. proper articulation. Speech sound disorder can also be due to some genetic conditions (e.g. Down syndrome). Normally, children's speech becomes understandable by the age of 3; however, they continue mastering particular phonemes up to the age of 7-8. Lisping is also typical for F80.0. Differential diagnosis should exclude the presence of comorbid disorders (e.g. sensory impairments, dysarthria, selective mutism) and define whether speech sound disorder is due to a structural deficit in articulation apparatus.

Stuttering (or Childhood-onset fluency disorder; **F80.81**) is characterized by difficulties in proper time patterning of speech (dysfluency). Stuttering people tend to prolong sounds, repeat them, and make inappropriate pauses within a word and/or during narration. Stuttering causes anxiety and may also become a reason for ineffective communication and hindered academic progress. It typically appears around the age of 6. It is important to consider family history of stuttering and differentiate it from other conditions, such as Tourette's disorder, medical side effects, and speech-motor deficit.

Social (pragmatic) communication disorder (F80.89) is characterised by difficulties in using verbal and non-verbal communication instruments, maintenance of conversation rules, considering the context of conversation, and comprehension of figurative language. As in the case of F80.2 / F80.0 or F80.81, the symptoms manifest themselves early in childhood. Usually, F80.89 coexists with them, as well as with ADHD, and should also be differentiated from ASD, intellectual disability and social phobias.

Finally, DSM-5 briefly discusses cases in which a diagnosis of **Unspecified communication disorder (F80.9)** might be used.

Chapter V in ICD-10 is devoted to Mental and behavioural disorders, in particular, Disorders of psychological development (F80-F89) comprising those coded as F80 disorders, namely Specific developmental disorders of speech and language. All of them have their onset in early childhood, related to the process of maturation of the CNS, and might diminish over time. ICD-10 also describes F80 disorders as those that cannot be exclusively and fully explained by neurological abnormalities, mental delay or environmental context. **Specific speech articulation disorder (F80.0)** corresponds to Speech sound disorder (F80.0) described in DSM-5. However, in ICD-10 this category represents a set of diagnoses, namely: **Developmental phonological disorder; Developmental speech articulation disorder; Dyslalia; Functional speech articulation disorder; Lalling**. A detailed description for each diagnosis is not provided. The following diagnoses are not included here: speech articulation impairment due to: aphasia NOS (R47.0); apraxia (R48.2); hearing loss (H90-H91); mental retardation (F70-F79); language developmental disorder expressive (F80.1) or receptive (F80.2) and should not be contaminated with them.

According to ICD-10, **Expressive language disorder (F80.1; Developmental dysphasia or aphasia, expressive type)** is characterised by a lowered level of speech development. At the same time it is not characterised by any difficulties in language comprehension or articulation. **Receptive language disorder (F80.2; Developmental dysphasia or aphasia, receptive type; Congenital auditory imperceptions; Wernicke's aphasia; Word deafness)** is characterised by lowered comprehension abilities. Difficulties in pronunciation of words are typically present. F80.2 and F80.1 exclude each other and the presence of Landau-Kleffner syndrome; NOS type of developmental dysphasia / aphasia, elective mutism; mental retardation; and pervasive developmental disorders. F80.2 also excludes autism. DSM-5 unites Expressive and Receptive language disorders under the Language disorder (F80.2) label.

Acquired aphasia with epilepsy (F80.3; Landau-Kleffner syndrome) is not included in the Communication disorders category in DSM-5.

Other developmental disorders of speech and language (F80.8; Lisping) is not presented as an independent diagnostic item in DSM-5 but included in the description of Speech sound disorder (F80.0) as a common manifestation of the disorder.

Developmental disorder of speech and language, unspecified (F80.9; Language disorder NOS) corresponds to Unspecified communication disorder (F80.9) in DSM-5.

As for Stuttering (F80.81) and Social (pragmatic) communication disorder (F80.89) described in DSM-5's section devoted to Communication disorders, ICD-10 describes **Stuttering (F98.5)** as a disorder belonging to "Other behavioural and emotional disorders with onset usually occurring in childhood and adolescence" (ICD-10, p.297), probably due to a particular role played by anxiety. Poor communication skills are not allocated to a separate category in ICD-10. Their description is present as a part of symptoms of **F20.5** (**Residual schizophrenia); F71 (Moderate mental retardation); F73 (Profound mental retardation); F84.0 (Childhood autism); F84.1 (Atypical autism)** and **F84.3 Other childhood disintegrative disorder.**

Neither DSM-5 nor ICD-10 uses the term **Specific language impairment (SLI)**. This term is widely used in research, however (see Schwartz, 2017, p.3-5 for a discussion). The American Speech–Language–Hearing Association (ASHA) recommended omitting this term as a specifier in DSM-5 (ASHA, 2012). Reilly and colleagues (Reilly, Tomblin, Law, McKean, Mensah, Morgan, ... & Wake, 2014) traced the history of the emergence of the term SLI and its use in research literature. The authors note that Gall (1835) first described a condition that could be called SLI – language difficulties not accompanied by any other conditions. After that, different terms were used to label particular speech and language difficulties which children experience (e.g. "congenital aphasia" (Vaisse, 1866); "congenital verbal auditory agnosia" (Karlin, 1954). Leonard (1981) first introduced the term SLI. Since that time, that label has been widely used by clinicians and researchers (e.g. Leonard, 1998; 2014) along with other labels (e.g. primary developmental language disorder, DLD; Paul & Norbury, 2012). Several studies report that nowadays in clinical settings the majority of specialists from different countries still use a variety of labels to indicate language impairments in children (e.g. Roseby & Reilly, 2016, for the terms used in Australia; Clark et al., 2013, for the terms used in Scotland; Dockrell et al., 2006, for the terms used in England and Wales).

Reilly and colleagues revised the **exclusion criteria for SLI diagnosis** and marked the importance of considering SES when assessing children's language abilities, and the irrelevance of other criteria, such as, for example, episodes of otitis media or anomalies of the oral structure and oral motor function. As for the latter, the authors noted that "There is no empirical evidence to suggest that such structural defects per se will lead to language difficulties although they can be part of a syndrome and therefore may well impact broadly on

development and language" (Reilly et al., 2014, p. 424). The authors also call for reconsideration of bilingualism as one of the exclusion criteria, which in fact looks outdated considering modern bi-/multilingual societies and the fact that there is no evidence that it might somehow prevent someone being diagnosed with language impairment. Finally, Reilly and colleagues distinguished between ASD and SLI and emphasized that they actually might be co-morbid.

As for **evidence supporting SLI diagnosis**, Reilly and colleagues referred to "failure for specialization for language in the left hemisphere of the brain" (Reilly et al., 2014, p. 425), however, collected evidence is not enough to consider it as an inclusionary criterion yet. There are also some genetic markers that might potentially become biological markers of SLI (i.e. FOXP2 abnormalities; heritability of language and non-verbal IQ). Also, a list of indicative behavioral markers has been proposed (e.g. deficits in non-word repetition; sentence repetition; finite verb morphology). However, according to the authors, more research needs to be done in order to confirm that these markers are reliable and thus can be used in diagnostics of SLI and, probably most importantly, can distinguish between children with SLI and other disorders characterized by the presence of language impairments.

Camarata (2014) described some additional indicative characteristics of late-talking children. These are:

- Prevalence of male children;

According to Tomblin and colleagues (1997) the ratio of boys to girls with specific language impairment is approximately 2:1. Camarata reports that 523 out of 608 late-talking children in his dataset are boys (2014).

- Late-talking children tend to be "strong-willed".

This characteristic, even though it cannot be measured or calculated directly, is widely reported by parents and clinicians (including Camarata, 2014). It should be mentioned here because children's unwillingness to respond to questions or follow the instructions for the test can significantly distort final scores and thus affect the decision on the diagnosis.

Camarata (2014) also described other characteristics that might be observed in late-talking children, but they are less related to language. Such characteristics are that these children start to properly use the toilet approximately one year later than their peers. A similar pattern was also reported by Sowell (2002). They might stick to one kind of activity, such as

solving a puzzle, for a long period of time, as they prefer analytical activities to verbal ones (Camarata, 2014, p.31).

Even though some authors prefer to keep using the term specific language impairment (e.g. Bishop, 2014), in this dissertation, the term **Primary Language Impairment (PLI)** will be preferred to label a complex of speech and/or language difficulties experienced by children (Kohnert, 2010; Goral & Conner, 2013). According to the results of the review of dedicated literature, the following characteristics appear to be crucial for PLI diagnostics:

- childhood age;
- late onset of first words and phrases;
- primary nature of speech and language difficulties (i.e. not due to hearing loss or other neurological symptoms, intellectual disorders or global developmental delay);
- difficulties in all layers of language in various combinations and the degree of severity;
- manifestation in production and/or comprehension of speech;
- related communication and/or learning difficulties as an outcome.

The at-risk group might be male children who have cases of language impairments in the family.. Children speaking more than one language usually require more precise and deep diagnostics. SES of a family must be controlled for. Co-morbid conditions also must be considered and further excluded.

Kornev (2006a) described the current state of the problem with the terminology used in diagnostics of language disorders in children in Russia. There are several terms used in Russian logopedic literature to describe language impairments, such as "motor alalia," "sensory alalia," "expressive alalia" (e.g. Kovshikov & Jel'kin, 1980), "general underdevelopment of speech," and "delayed speech development" (e.g. Levina, 1968). According to Kornev, until the end of the 1960–1970s, language impairments were investigated exclusively in clinical settings, and since the late 60s and early 70s, researchers from the so-called "psychological-pedagogical" field of research began to create their own terminology and theoretical models of speech mechanisms. The author traces the history of terms' use both in the clinical field and in related fields of Russian research literature. For instance, the term *Dysarthria* (R47.1 in ICD-10), widely used nowadays in Russia to define LI in children, 30 years ago was used almost exclusively to describe speech in children with cerebral palsy. Indeed, "The term dysarthria is

used for speech disorder resulting from neurological injury, characterized by poor articulation and slurred, slow, and difficult to produce speech" (Baird, 2008, pp.6-7). Kornev highlights that even though it became a kind of "popular" term used by clinicians in diagnosis, a description of gravity levels of the impairment is still missing in Russian literature (2006a, p.92). The nature of *Dyslalia* (described in F80.0 in ICD-10) remains scarcely investigated even though the term itself has been actively used since the 70s (2006, p.92). Finally, the author concluded: "More than half of the states of total underdevelopment of speech do not have any diagnostic indication within the clinical classification … [nowadays] there is no section devoted to the pathology of speech development, that is, "clinical logopathology". Therefore, a clinically adequate language for describing the corresponding symptoms and syndromes has not been created; in children's psychiatry, the underdevelopment of speech is described in the section 'forms of intellectual disability' (Kovalev, 1995[5])" (Kornev, 2006a, p.93). Indeed, various terms are used nowadays among neurologists, specialists in logopedia, pedagogues, psychologists and researchers in the speech and language field to describe language impairments in Russian-speaking children. Levina (1968) first tried to differentiate such 'forms of underdevelopment of speech and language' as *phonetic underdevelopment* (in Russian – ФН); *phonetic-phonemic speech underdevelopment* (in Russian – ФФНР), *general underdevelopment of speech* (in Russian – ОНР). Thus, the authors attempted to terminologically differentiate speech (i.e. ФН) disorders from language ones (i.e. ФФНР and ОНР), however, clear diagnostic criteria for such differentiation are still missing even though almost 50 years have passed since the publication. Nevertheless, the terminology is still widely used for clinical, pedagogical and research purposes (e.g. Sharova, 2013; Almazova & Shibanova, 2013; Cherkashina & Patjukov, 2011; Lazebnik, Rumjanceva, Nazarenko, & Krasavceva, 2011; Semenova, 2008; Jurlova, Saburcev, & Krylov, 2008).

I.2.2. Language impairments in monolingual children

A variable percentage of children might not develop language skills as expected even in absence of relevant cognitive impairments or mental retardation. Such children might receive a diagnosis of Primary Language Impairment (PLI; e.g. Bishop, 2014). According to Tomblin and colleagues (Tomblin, Records, Buckwalter, Zhang, Smith, & O'Brien, 1997),

[5] Psihiatrija detskogo vozrasta: Ruk. dlja vrachej / V. V. Kovalev, 558,[2] s. il. 21 sm, 2-e izd., pererab. i dop. M. Medicina 1995. Available at http://infopedia.su/12x90f.html"

approximately 7% of preschool children might be diagnosed with PLI. Other studies showed an even higher percentage of preschool age children who might be diagnosed with SLI. Kesuma and colleagues (2014) studied a large cohort of 1,340 Indonesian children from 3 years to 5 years and 11 months old. SLI was detected in more than 12% of all children using the Specific Language Impairment Checklist. Similar figures have also been reported for school-age children (Reilly, Tomblin, Law, McKean, Mensah, Morgan, ... & Wake, 2014). Camarata conducted an informal survey of 608 families from different countries, including England, China, Brazil and others (Camarata, 2014, p.3-4). Children in these families received evaluations from different clinicians; however, 1/4 of them received the same diagnosis – simple speech delay. Twelve per cent received conclusions such as a general delay in development, and for 13% of children the reasons why they do not speak yet were not defined at all.

Recent estimates of the Russian population suggest that the percentage of children with linguistic delay and/or impairment might be even higher than those from international reports (e.g. Vishnjova, 2012). Considering these numbers, it is extremely important to have reliable batteries of tests suitable to characterize and quantify such linguistic impairments in affected children. To the best of our knowledge, however, there is a need for such standardized batteries of tests for the assessment of language in Russian-speaking children.

McCauley (2001, p.131-132) summarized the description of patterns of oral language impairment in children with SLI made by Leonard (1998) in a following table:

Patterns of Oral Language Impairment by Modality and Domain Reported in Children With Specific Language Impairment (SLI) (Leonard, 1998)

Domain	*Production*	*Comprehension*
Semantics		
Lexical abilities and early word combinations	• Delays in acquiring first words and word combinations • Delays in verb acquisition, with overuse of some common verbs (e.g., do, go, get, put, want) • Word-finding difficulties, especially noted in school-age children	• Deficient in learning to understand new words, particularly those involving actions
Argument structure	• Increased tendency to omit obligatory arguments (e.g., omission of object for transitive verb) or even the verb itself • Increased tendency to omit optional but semantically important information (e.g., adverbials providing information regarding time, location, or manner of action) and use of an infinitival complement (e.g., He wants to do this)	• Increased difficulty in acquiring argument structure information from syntactic information for new verbs
Grammatical morphology	• Grammatical morphology constitutes a relative and sometimes enduring weakness in children with SLI • Grammatical morphology related to verbs is especially affected • Errors most often consist of omissions rather than inappropriate use, but are likely to be inconsistent in either case	• Limited research suggests poorer comprehension of grammatical morphemes, especially for those of shorter duration, and poorer identification of errors involving grammatical morphemes
Phonology	• Although occasionally occurring alone, phonological deficits are almost always accompanied by other language deficits, and vice versa • Delays are most frequently seen with most errors resembling those of younger normally developing children. • Unusual errors in production occur rarely, but probably more often than in normally developing children • Greater variability in production than children without SLI at similar stages of phonological development	
Pragmatics	• Some evidence of pragmatic difficulties • Although these difficulties largely seem due to communication problems posed by other language deficits, independent pragmatic deficits may occur as well • Participation in communication is negatively affected when communication involves adults or multiple communication partners	• Limited research suggests that understanding of the speech acts of others may be affected • Comprehension of figurative language (e.g., metaphors, idioms) can be affected
Narratives	• Cohesion of narratives can be affected, and sometimes expected story components are absent	• Comprehension of narratives can be affected when inferences need to be drawn from the literal narrative content

Table I.2.2:1 Patterns of oral language impairment by modality and domain reported in children with SLI by Leonard (1998). Adapted from McCauley, 2001, pp.131-132)

Children with impaired language development usually start to speak later than their peers with TLD and experience difficulties both in speech comprehension and production (Peña & Bedore, 2009). They might demonstrate deficits in auditory and/or speech perception, have deficient elements of working memory, demonstrate slower processing speed on various linguistic and non-linguistic tasks, have lowered attentional control, and some might also demonstrate pragmatic impairments (Schwartz, 2017, pp.7-19). In addition, some of them might experience difficulties in interpreting emotions (Spackman, Fujiki & Brinton, 2006).

Bedore and Peña (2008) reviewed a series of studies devoted to **clinical markers of LI from a cross-linguistic perspective**. The authors noted that children with LI speaking different languages (Dutch 4-year-olds – van Daal, Verhoeven & van Balkom, 2004; longitudinal study with German-speaking children – Penner, Schulz & Wyman, 2003; and Cantonese-speaking children from 27 to 68 months of age – Klee, Stokes, Wong, Fletcher & Gavin, 2004) were

shown to expand their vocabularies more slowly than children with TLD. Moreover, a typical sign of LI might be difficulties with various morphological markers. English-speaking children, as well as Swedish- and French-speaking children, with LI demonstrate difficulties with verb morphology (Leonard, Eyer, Bedore, & Grela, 1997; Hansson & Leonard, 2003; Paradis & Crago, 2001; but see also Thordardottir & Namazi, 2007, for a discussion of the importance of verb markers in French-speaking children with LI). Children speaking Romance languages were shown to omit articles and clitics (for Italian see Junyent, Levorato, & Denes, 2010; Bortolini, Caselli, Deevy & Leonard, 2002; for Spanish see Jackson-Maldonado & Maldonado, 2017).

Kornev (2006a) summarized the results of speech and language assessment of 395 Russian-speaking children from 3 to 8 years old and described a set of errors typically produced both by children with TLD and PLI. The author divided all production errors into two types: 1) those demonstrated by children with TLD in the early stages of language acquisition and by children with PLI; and 2) errors – signs of pathological language development at any age. The following types of errors in **phonetic elaboration of speech** were documented in Russian:

- *skipping sounds*. Children might skip sounds that were not yet fully acquired or substitute them with similar ones (e.g. /uka/ – *рука* – 'hand'; /awbus/ – *арбуз* – 'watermelon');
- *distortion of sound characteristics* (selective and total); pronunciation of sounds adding non-normative phonetic characteristics. Usually distorted sounds are: sibilants , /r/ and /l/ (Pravdina, 1973). This stage is a part of typical language development. The errors are considered pathological when pronunciation of vowels (see also Shafer, Ponton, Datta, Morr & Schwartz, 2007 for an EEG study on vowel perception in children with LI) and other consonants is also distorted so that it becomes impossible to understand the meaning of the words;
- *regular sound substitutions* are substitutions of consonant sounds with an articulatory or phonologically close one (e.g. /pil'et/ – *билет* – 'ticket') and *4) irregular sound substitutions* are those randomly appearing in children's speech (e.g. /bagaban/ – *барабан* – 'drum'). Irregular substitutions take place among various phonologically/articulatorily unrelated sounds;
- *mixing sounds or sound alternation* is a pathological sign in children's speech related to impaired discrimination of phonemes;

- *assimilations* (progressive and regressive) usually take place in longer words. Might happen even though in shorter words all sounds are pronounced correctly (e.g. /tletka/ – *клетка* – 'cage');
- *omissions of syllables* normally disappears from children's speech by the end of the third or fourth year (e.g. /ki/ – *киса* – 'kitty'). It is considered to be pathological if presented in older children;
- *reduplication of syllables and simplification of the syllabic structure of the word* (e.g. /tititi/ – *кирпичи* – 'bricks'). All children pass through this stage. Normally, it passes at approximately 20-30 months of age;
- *metathesis of syllables* is another transition stage in normal speech development. Normally by the age of 3 children stop changing the order of the syllables in words (e.g. /vatobus/ – *автобус* – 'bus'). It is considered to be a sign of impaired language development if appears in older children.

Finally, the author noted that not only impaired perception of phonemes, phonological awareness and consequently poor production, but also poor intonation contour might be detected in some children with impaired speech development. Thus, phonetic elaboration of speech must be assessed not only considering separate words produced by a child and errors that took place inside those words (i.e. skipping, distortion, substitution, mixing, assimilation of sounds, and omission, reduplication or metathesis of syllables) but also the elaboration of utterances. The final decision on the phonetic skills of a child should be made by considering also her phonemic discrimination. If a child fails to distinguish minimal phonological pairs (see also Burlingame, Sussman, Gillam, & Hay, 2005), it might be a sign of impaired comprehension.

Morphosyntactic deficit is well documented in children with LI speaking different languages (Oetting & Hadley, 2017; Leonard, 2017; Stavrakaki, 2005). Russian is a language with a rich system of inflections and function words. According to observations made by Zhukova (1994) and Cejtlin (2000), inflections appear earlier in children's speech, and function words (e.g. prepositions) later. It was shown that Russian-speaking children, by approximately 3-4 years of age, do not produce errors related to case inflections (e.g. Babyonyshev, 1993); their omissions of function words or their substitutions in expressive speech might be signs of violation of correct **morphological elaboration of speech** (McGregor & Leonard, 1994). In children older than 5 years of age the presence of paragrammatisms in speech is considered to be a sign of impaired language development (Kovshikov, 2001). Spanish- and English-

speaking children with LI also demonstrate difficulties with functional morphemes of verbs (Bedore & Leonard, 2001; 2005). English-speaking children tend to omit particular morphosyntactic markers in oral speech production, such as –ed, a marker of past tense; –s for third person singular forms of verb; entire copular verbs (Rice, Wexler & Cleave, 1995; Schwartz, 2017); and case marking (Loeb & Leonard, 1991). Tribushinina and Dubinkina (2012) analyzed production of adjectives in Russian-speaking 7-10-year-old children with SLI and TLD. Children with SLI demonstrated particular difficulties when dealing with the degree markers of adjectives and produced errors in agreement inflections and affixal negations. Children with SLI tended to avoid using degree adjectives and less frequently used syntactic degree markers (degree adverbs). The authors believe that this category might be useful for diagnostic purposes in Russian-speaking children with impaired language development.

As for **grammatical comprehension** and related impairments, this aspect of language development in Russian-speaking children is scarcely investigated (e.g. Kiseljov & Lapshina, 2007; 2010). It was shown that even though children understand separate words and simple SVO structures, they might experience difficulties when processing syntactically more complex phrases, such as those with inverted structure (e.g. The dog was bitten by a wasp. A wasp was bitten by a dog) and those containing forms of words in oblique cases (e.g. The woman entered (into) the store$_{ACC}$. The woman left (out of) the store$_{GEN}$; Kornev, 2006a, p.159). In children older than 4, such difficulties might be a sign of impaired language development.

Kornev (2006a) considered the dominance of short utterances with simplified grammatical structures to be an attribute of poor **syntactic elaboration of speech** in Russian-speaking children. Deevy & Leonard (2004) showed that SLI children performed worse than their peers, matched on receptive vocabulary scores, on the processing of longer Wh-questions than on short ones (see also Fletcher & Frizelle, 2017). A longitudinal study with Greek-speaking children with SLI showed that they also experience difficulties on Wh-questions (Stavrakaki, 2006). Moreover, sentences with relative clauses and passive constructions were also shown to be difficult for processing for children with impaired language development speaking different languages (e.g. for Hebrew see Friedmann & Novogrodsky, 2004; for Swedish – Håkansson & Hansson, 2000; for English and Cantonese – Leonard, Wong, Deevy, Stokes, & Fletcher, 2006).

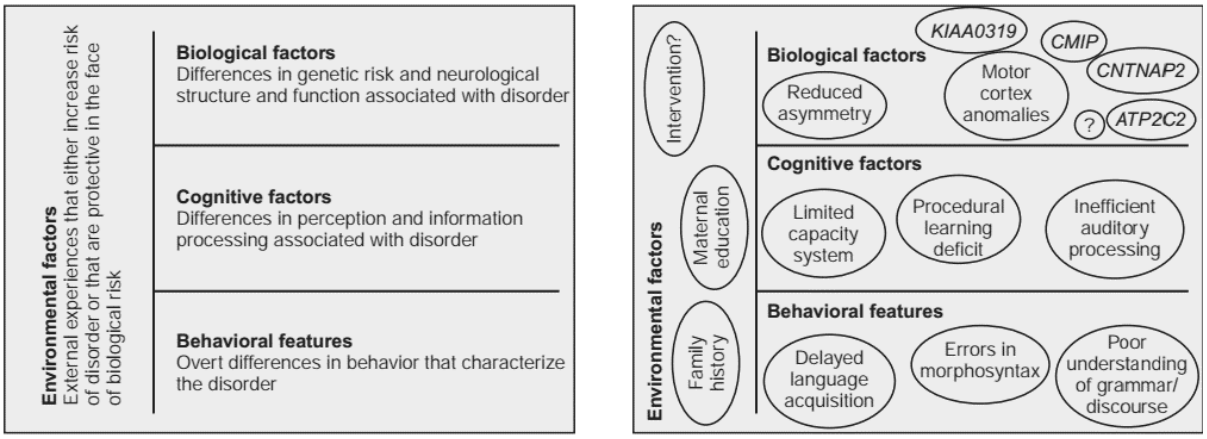
As for its **lexical elaboration,** verbal paraphasias (i.e. use of words which are semantically or grammatically inappropriate for a given context) and poor vocabulary (see also Johnston, Jon, & Paula, 2001, for the limited use of cognitive state predicates) and their delayed emergence are typical signs of impaired language development (Clarke & Leonard, 1996; MacGregor, 2017). Moreover, their lexical diversity might be less than that of their peers with typical language development (Watkins, Kelly, Harbers & Hollis, 1995). Finally, they were shown to learn new words more slowly than their peers with TLD (Alt, Plante & Creusere, 2004) and experience difficulties when interpreting figurative meanings (Norbury, 2004).

When creating or retelling stories, individuals with language impairments were shown to produce less coherent **narratives** (Reed, Patchell, Coggins, & Hand, 2007). They tend to omit important structural elements of the story and produce errors representing the difficulties they experience on different language levels (Botting, 2002; Fujiki & Brinton, 2017). Particularly challenging for children with LI might be formulating the goals, attempts and outcomes while telling a story (Boerma, Leseman, Timmermeister, Wijnen, & Blom, 2016).

A few studies investigated **repetition skills** in Russian-speaking monolingual children with LI. A recent study by Armon-Lotem and Meir (2016) demonstrated that nonword repetition, along with sentence repetition and forward digit recall, are useful tasks that permit differentiation among children with LI and TLD, as a group of children with LI lag behind their peers with TLD.

Late-talking children might grow out of their delay, especially if only the expressive side of language is delayed. Reliable evaluation is essential in order to distinguish whether a child is still at the regular stage of saying nothing or his/her problem is permanent. It has been documented that children with a history of SLI are at risk of lowered outcomes at school (St Clair, Pickles, Durkin, & Conti-Ramsden, 2011; Conti-Ramsden, Durkin, Simkin, & Knox, 2009; Snowling et al., 2006), they might demonstrate lowered social skills in adolescence (Conti-Ramsden & Botting, 2004; Tomblin, 2008; 2014); and, as adults, may be at higher risk of unemployment (Law, Rush, Schoon, & Parsons, 2009).

A list of potential explanations on why some healthy children develop speech problems comprises a diverse range of hypotheses. Such a list of explanations was summarized in two figures by Paul and Norbury (2012, p.10):



Picture I.2.2:1 A list of ponetnial explanations for Developmental language disorders summarised by R. Paul and C. Norbury (2012; p.10)

Some studies show that it might be due to a particular brain organization that differs from that of children with typical language development (e.g. Bernal & Altman, 2003; Whitehouse & Bishop, 2008; Vydrova, Komarek, Sanda, Sterbova, Jahodova, Maulisova... & Kyncl, 2015). Structural alterations of the language connectome in children with specific language impairment. Brain and language, 151, 35-41.); others reported a particular role of gender in the brain maturation process and processing of different tasks (e.g., Blum, 1997; Camarata & Woodcock, 2006; Halpern, 2013). This factor might be crucial in our understanding of the ratio of language impaired girls to boys. Occupation of parents, as well as other particular family members' characteristics, might also be significant. Observations by Camarata (2014) show that the fathers of more than half of children diagnosed with language development difficulties worked as engineers or computer scientists. Moreover, it appears that such children might be more frequently found in families whose members play musical instruments (e.g. Sowell, 2002). It seems that genetic factors also play a crucial role in the determination of language impairments causes (see Tomblin, 2017, for a discussion). According to Stromswold (1998; 2008), children with SLI were found to have a family history of language disorders four times more often than those without SLI.

I.2.3 Language impairments in bilingual children

Up to 10% of successive bilinguals might demonstrate impaired language development (Grimm & Schulz, 2014). However, even though the individual trajectory of language acquisition might vary among bilingual children, these differences should not be automatically considered as symptoms of a disorder. The reviewed literature suggests that there is no direct cause-and-effect relationship between bilingualism and language impairment, either in children with typical development (e.g. Armon-Lotem, 2012; Salameh, Håkansson & Nettelbladt; 2004; Paradis, Crago, Genesee, & Rice, 2003; see also Cheuk, Wong, & Leung, 2005, for contradictory conclusions) or in children with severe cognitive challenges (e.g. Bird, Cleave, Trudeau, Thordardottir, Sutton, & Thorpe, 2005).

The linguistic skills of bilingual children are lowered in both of their languages in the case of LI. Paradis, Genesee, & Crago (2011, pp. 203-204) described a series of experiments they conducted with French–English speaking 7-year-olds. Their studies showed that even though bilingual children with SLI lag behind their monolingual peers in **verb morphology and have shorter MLUs**, their performance does not differ from that demonstrated by age-matched monolingual children with SLI. Similar conclusions were drawn in the study on Spanish–English dual language learners with SLI by Gutiérrez-Clellen, Simon-Cereijido, & Wagner (2008). Spanish-speaking bilingual children with LI demonstrate error patterns similar to their monolingual peers (i.e. tend to omit clitics and articles – Jacobson & Schwartz, 2002; Restrepo & Gutiérrez-Clellen, 2001). On the other hand, bilingual children with LI might differ from their bilingual peers with TLD in particular patterns of grammatical production. Jacobson and Schwartz's study (2005) showed that bilingual children with TLD and LI produce different errors in past tense verb use in English. Bilinguals with TLD made errors in form choice (e.g. using the –ed marker or an irregular form of the verb). Bilinguals with PLI, instead, preferred using infinitive forms instead of past forms.

The **vocabulary** of bilingual children with LI is limited in both languages (Thordardottir, Weismer, & Smith, 1997). The development of the expressive and receptive vocabulary in Spanish–English bilingual children with PLI was analyzed by Ebert and colleagues (2014). The study showed that bilingual children with PLI are more vulnerable to L1 attrition as the exposure to L2 (English) increases. Both monolingual and bilingual children with LI demonstrate difficulties when learning new words (Restrepo & Kruth, 2000; Peña, Iglesias, & Lidz, 2001).

In a recent article, Fichman and colleagues (2017) analyzed the **narrative** abilities of Russian (L1) – Hebrew (L2) bilingual preschoolers (N=49). In particular, the authors were interested in the story grammar elements and causal relations in the narratives produced by children with SLI and children with TLD. The results of the analysis suggest that story grammar elements, and enabling and physical causal relations (Gagarina, Klop, Kunnari, Tantele, Välimaa, Balčiūnienė, ... & Walters, 2012), significantly differ between the two groups. Thus, these aspects of macrostructure of the produced narratives potentially might serve as clinical markers of LI in bilingual children. Earlier, using the same instrument, Boerma and colleagues (2016) evaluated the narratives produced by 5-6-year-old bilingual and monolingual children, with and without LI, speaking Dutch. The results of the analysis did not reveal any negative effects of bilingualism on narrative production and comprehension skills of the participants. However, on the measures aiming to assess vocabulary, morphology and syntax, bilingual children scored lower than their monolingual peers. Furthermore, the study showed that children with LI might experience difficulties when interpreting the feelings or the intentions of the story heroes. In addition, for the bilinguals it was challenging to operate with terms describing internal states.

Another potentially highly sensitive marker of SLI in Russian-speaking children was explored in a series of production and eye-tracking studies (Mak, Tribushinina, Lomako, Gagarina, Abrosova, & Sanders, 2017; Tribushinina, Dubinkina, & Sanders, 2015). The authors showed that monolingual pre-school age children with SLI, as well as their bilingual peers for whom Russian is a non-dominant language, experience difficulties when producing и (and) and a (and/but) connectives. However, when focusing on processing of the connectives, bilingual children use them as effectively as monolinguals with TLD (see also Tribushinina, Mak, Andreiushina, Dubinkina & Sanders, 2017).

The analysis of the performance of bilingual children with and without SLI on a set of **repetition** tasks revealed significant differences between groups (Armon-Lotem & Meir, 2016). A group of bilinguals with SLI lagged behind their peers with TLD both in Russian (L1) and in Hebrew (L2). A diagnostic accuracy of 94% was achieved when both the children's languages were considered.

Chapter II: Assessment of language development in children speaking different languages

The second chapter has provided an overview of assessment techniques which allow for the assessment of language development in children speaking different languages. The structure of this chapter is as follows: first, we discuss common principles of speech and language assessment in children. Then we list some of the various instruments currently available for evaluation purposes. Furthermore, we describe the properties of high quality language assessment tools. And finally, we discuss the challenges of speech and language assessment in bilingual children.

The second part of the chapter deals with the description of the instruments originally created for Russian language development assessment in monolingual and bilingual children. This part also includes the description of those instruments being adapted from other languages into Russian. The final part of the chapter introduces the common principles for adapting assessment instruments.

II.1. Language assessment techniques used across the world

Good intervention requires good assessment (Brinton & Fujiki, 2010, p.135)

Before receiving an evaluation from a speech therapist or other specially trained specialist, a child should pass medical exam in order to be sure that his/her speech delay is not related to medical problems, such as tumors, seizures (Camarata, 2014, p.11) or hearing-related conditions. As a next step, parents might be asked to fill out special checklists (e.g. Early developmental checklist; Child development team; The social communication questionnaire), which aim to systematize parents' concerns related to their child's speech development (Baird, 2008, p.4-6).

There are different reasons why children do not speak well at their age (Van der Lely, 2004; Ullman & Pierpont, 2005, for a discussion). It is important to distinguish profiles of late-talking children, children with autistic spectrum disorder (ASD), and children with Einstein

syndrome and other developmental disorders. All of them might lead to language disorders; however, treatment cannot be the same for all cases. Usually, parents first take a child who seems to have difficulties with language development to a pediatrician or family doctor. There are also developmental pediatricians who can check if these difficulties are due to developmental disabilities such as, for example, Down syndrome or autistic spectrum disorders. Furthermore, there are neurologists who can diagnose a child with ADHD or other conditions that also can cause impaired language development. Otolaryngologists are trained to assess hearing and rule out other conditions of the nose or throat, which also can be a cause of problems with language development. Child psychologists are also trained to assess the mental abilities of a child and potential conditions affecting language development (e.g. mental retardation). Finally, speech-language pathologists are the experts in language development. Speech therapists are nonmedical specialists who assess how much a child is able to comprehend and produce and whether his/her language development is within a normal range. The aim of this step is to exclude comorbid conditions. During this step, detailed anamnesis should be collected. The data should include as much as possible related to child development, family history, pregnancy history, child's behavior, executive functioning and motor skills.

Why is it reasonable to assess speech in children no earlier than at the age of 4? Camarata (2014) reviews studies speculating on late-talking children and notes that relatively slow language development before the age of 4 is not always a reliable predictor of long-term speech problems in older children, thus, in some cases it should be considered as a stage rather than a symptom (e.g. Rescorla & Dale, 2013; Dale, Price, Bishop, & Plomin, 2003; Fischel, Whitehurst, Caulfield, & DeBaryshe, 1989).

Early diagnostics is important and in some cases is extremely useful, however, clinicians tend to be very careful when assessing toddlers. The reason why is the huge variability in language development in young children. One thing remains clear – children should not receive any treatment based on diagnoses that are misleading. Sometimes children, having a delay in their speech development, might be diagnosed with autistic spectrum disorder and put into a special class for children with severe disabilities. There they receive special treatment, which in turn might lead to unexpected results. A systematic review published in 2011 in *Pediatrics* showed that intervention techniques for autism spectrum disorders and their outcomes vary across studies. This sector of research is relatively new and needs further development and deep investigation (Warren, McPheeters, Sathe, Foss-Feig, Glasser, & Veenstra-VanderWeele, 2011).This highlights the importance of proper diagnosis for the

selection of a suitable treatment for children with language difficulties, because false diagnosis and improper treatment might change a child's whole life.

Typically, a **clinical report** of speech and language evaluation includes the following parts: 1) Identifying information (biographical data, information about parents and source of reference); 2) Presentation of the problem (usually describing complaints and concerns of the parents or teachers of a child); 3) Historical information (anamnesis, pre- peri- and natal information, medical notes); 4) In the "examination findings" part, a clinician describes the results of collateral areas assessment, the scores achieved on standardized tests[6] and the results of non-standardized speech and language assessment; 5) Impressions of the tester of the test-taker's behavior during assessment procedures; 6) Summary (including prognosis); 7) Recommendations for intervention, with a detailed description of specific goals.

There are numerous **assessment tools** developed in order to assess language development in children speaking various languages. These tools are used both for clinical and research purposes. These are checklists, rating scales, informal probes, etc. There are complex instruments including language assessment as a part of larger batteries, namely, the Weschler scale (Wechsler, 2003), Kaufman Assessment Battery for Children – Second Edition (KABC-II; Kaufman and Kaufman, 2004); NEPSY – Second Edition (NEPSY-II; Korkman, Kirk and Kemp, 2007); on the other hand, there are batteries aiming to assess linguistic and communicative development specifically. Some of them are for preschool-age children (e.g. "CELF Preschool-2 – Semel, Wiig & Secord, 2004; EASIC-3 – Marcott, 2009"); others cover the age range from 5 up to 21 years of age (e.g. "CELF-4 – Semel, Wiig and Secord, 2003"); finally, there are batteries suitable for children from 4 years of age up to 12-16 years (e.g. "BVL_4-12 – Marini, Marotta, Bulgheroni, and Fabbro, 2015; DELV-ST – Seymour, Roeper, and de Villiers, 2003; FPSLST-2 – Fluharty, 2000"). Moreover, there are tests aiming to assess specific aspects of language development in children, such as, for example, Articulation Test (Rossi, 2001); Phonological Assessment of Child Language (PFLI; Bortolini, 2004); Figurative vocabulary test (Brizzolara, 1989); Grammatical comprehension test for children (TCGB; Chilosi & Cipriani, 1995); Boston Naming Test (BNT; Kaplan, Goodglass, & Weintraub, 1983); Phrase Repetition Test (TRF; Vender, Borgia, Cumer Bruno, Freo, & Zardini, 1981). A list of norm-referenced tests for language assessment in children speaking English took 8 pages

[6] This part is incomplete in the reports on Russian-speaking children assessment as there are no standardized, norm-referenced batteries of tests available for Russian speech and language development assessment in children. See the discussion in section II.2.1.

in Appendix A and B created by McCauley (2001, pp. 329-337). Standardized batteries are used in order to distinguish between typical and atypical performance (Brinton & Fujiki, 2010).

A list of **properties** defines high quality standardized (or norm-referenced) tests (described in McCauley, 2001; Peña, Spaulding, & Plante, 2006; Paul & Norbury, 2012; Friberg, 2010). They can be summarised as follows: first, a test (or a battery of tests) must have clear instructions and transparent scoring method described in detail in the user's manual. Second, the test's measures must be valid. Different kinds of validity might be reported in the manual (e.g. face validity, content validity, construct validity, criterion-related validity, etc.). If the manual does not provide any information with regard to validity measures, then the quality of the instrument might be doubt. Next, an extremely important characteristic of the test is its reliability. It should be confirmed by the results of test-retest procedures, inter-rater check, internal consistency check or odd-even reliability check.

The test must be diagnostically accurate and, thus, permit the tester to correctly distinguish the population under assessment according to the results of their performance. The measures of diagnostic accuracy might be: sensitivity, specificity, positive/negative likelihood ratio, and positive/negative predictive value (Dollaghan, 2004). A recent study by Spaulding and colleagues (2006) evaluated the information provided in 43 test manuals with regard to their sensitivity and specificity. Only five of the tests available for the assessment of language in English-speaking children were found to have an acceptable level of diagnostic accuracy (at least 80%).

Furthermore, the test's manual must describe standardization procedures (i.e. norming sample size; origin of the participants, their SES and ethnic backgrounds etc.), as well as measures of central tendency and variability, SDs and standard error of measurement (SEM). Finally, the description of norm-reference scores must be provided.

Narratives were shown to be a valid tool for identifying even subtle language problems among children speaking different languages (see for Swedish – Miniscalco, Hagberg, Kadesjö, Westerlund & Gillberg, 2007; English – Botting, 2002; Dutch – Duinmeijer, de Jong & Scheper, 2012; Gagarina et al., 2012). Duinmeijer, de Jong and Scheper (2012) found that narratives of SLI children had fewer plot elements than those from the control group; moreover, the MLU was lower, and overall, language impaired children produced fewer grammatically correct sentences. In addition, the study confirmed that SLI children experience difficulties at the macro-structural level of narrative (in line with previous studies, e.g. Reilly, Losh, Bellugi, &

Wulfeck, 2004). The narrative discourse production task allows evaluation of the children's narrative and descriptive abilities. A great amount of experimental data clearly indicates that tests of this kind allow allow collection of information that is otherwise difficult to acquire with traditional structural tests (see, for example, studies on children with Duchenne muscular dystrophy (Marini et al., 2007), specific language impairment (Marini et al., 2008), Down syndrome (Marini, 2008), Williams syndrome (Marini, Martelli, Gagliandi, Fabbro, & Borgatti, 2010) and children born prematurely (Guarini et al., 2013).

Several automatic tools have been developed in recent years in order to analyze children's speech samples produced in different languages, such as CHILDES (MacWhinney, 2000), CLEAR (Baker-van den Goorbergh, 1990), SALT (Miller & Iglesias, 2008), and Computerized Profiling (Long & Fey, 2004). There was also an attempt to create software aiming to assess overall language development in Russian-speaking children (Ciceron.LOGO diakorr 1 – Terecheva & Pavlova, 2008).

Speech and language assessment in bilingual children might be particularly challenging, as both of the child's languages must be considered (Ramos, 2007; Peña, Bedore & Rappazzo, 2003; Grech & Dodd, 2011). If a child demonstrates age-appropriate proficiency in at least one of his/her languages, then language impairment cannot be assumed. Various factors determine language development. In the case of bilinguals, a key concept might be language exposure. This, along with the information about context of the languages' acquisition, language dominance and use of each language should be considered when gathering a child's bilingual history (Cheng, 2006). Further assessment procedures include a screening, which can identify weak areas of overall language development. It was shown that bilingual children might demonstrate lower results on standardized tests, which aim to assess their vocabulary and grammar skills, in each of their languages separately when compared to those of their monolingual peers (e.g. Thordardottir, Rothenberg, Rivard, & Naves, 2006; Conboy & Thal, 2006; Pearson, Fernandez, & Oller, 1993). However, this evidence alone is not enough to suspect language impairment, as vocabulary size highly depends on the amount of exposure received in each language, and is limited by memory capacity. Moreover, balanced bilinguals might perform within age expectations in each language, as well as those children with unbalanced bilingualism in their dominant language (Paradis, 2010; Gutiérrez-Clellen & Simon-Cereijido, 2007). Nevertheless, bilingual children are often misdiagnosed (Paradis, 2005; Grimm & Schulz, 2014; Bedore & Peña, 2008; Salameh, Håkansson, & Nettelbladt; 2004).

The results demonstrated by children on standardized tests do not provide clinicians with clear intervention goals. A set of informal assessment tools can be used to assess the functioning of each language level separately. When language impairment is suspected, it is advisable to use language-general measures of language development rather than language-specific ones. An example of such a language-general measure might be nonword repetition, as it relies less on vocabulary knowledge, and taps PSTM, which is usually reduced in LI children (Gutiérrez-Clellen & Simon-Cereijido, 2010). Another symptom of LI is a delay in acquisition of narrative abilities. As it not only requires sufficient vocabulary and grammar skills development but also includes a cognitive component (e.g. logical structuring), story-telling might be another appropriate task (Cummins, 2000). Finally, difficulties in word retrieval, as well as difficulties with new word learning, might serve as cross-linguistic markers of LI (Bedore & Peña, 2008).

The assessment of bi-/multilingual children is complicated also for practical reasons, as there is a lack of standardized norm-referenced tests for many languages (Grimm & Schulz, 2014; O'Toole & Hickey, 2013; Stow & Pert, 2015). Misdiagnosis can occur, as many existing instruments appear to be ineffective in bilingual settings (Yagmur, Nap-Kolhoff, Topbas, & Yavas, 2010; Bedore & Peña, 2008). Stow and Dodd (2003) suggest using tests adapted into several languages and considering local norms (if available) when assessing bilingual children.

Other scoring methods might be used when assessing the results demonstrated by bilingual children on various semantic tasks. Several studies utilized conceptual scores to assess the responses given by children (Holowka et al., 2002; Peña et al., 2002; Bedore, Peña, Garcia, & Cortez, 2005). Bedore and colleagues (2005) analyzed the overlapping responses given by bilingual children aged 4 to 7 on semantic tasks in both of their languages (Spanish-English). The authors suggest that bilingual children might benefit from this method of scoring as their vocabulary is distributed across languages.

Armon-Lotem and Meir (2016) suggested using bilingual cut-off points when assessing the performance of bilingual children on repetition tasks. The authors tested the diagnostic accuracy of a set of repetition tasks, including nonword repetition and sentence repetition tasks, in groups of monolingual and bilingual children with and without SLI speaking Russian (L1) and Hebrew (L2) from 5.05 to 6.08 years of age (see also Meir, Walters & Armon-Lotem, 2016). The results of the study confirmed the diagnostic validity of both tasks in the groups of

monolingual children. However, when the same (monolingual) cut-off values were used assessing the performance of the bilingual groups, the accuracy appeared to be inadequate.

II.2. Assessment of language development in Russia and in Russian

According to the principle of differentiated evaluation of the development of speech and language subsystems formulated by Kornev (2006b, p.81), each component of the system should be assessed independently (see Table II.2:1).

<table>
<tr><td colspan="5">Level of psycho- and verbal activity
(indicators of general mental maturity, mental age)</td></tr>
<tr><td colspan="5">Level of communicative and verbal behaviour
(general communicative competence, language pragmatics maturity, coherent speech, age of verbal (speech) development)</td></tr>
<tr><td colspan="5">Level of the language system
(linguistic (language) competence on expressive and impressive levels)</td></tr>
<tr><td colspan="2">Phonological sublevel</td><td>Lexical sublevel</td><td colspan="2">Grammatical sublevel</td></tr>
<tr><td>Segmental level</td><td>Suprasegmental level</td><td></td><td>Morphological indicators</td><td>Syntactical indicators</td></tr>
</table>

Table II.2:1 Scheme of implementation of the system-level principle in the diagnosis of children with verbal pathology (translated and adapted from Kornev, 2006b)

It is absolutely necessary to qualitatively describe and quantitatively assess language and speech development in children considering all layers of the language system, in order to differentiate the level of gravity of an impairment if there is one. The assessment procedures should not be too demanding for children of a certain age; instead, the level of difficulty should be adequate for the age of a child. In practice, a speech therapist is the one who describes speech and language development accordingly. In the Russian Federation (s)he is a member of a multidisciplinary commission assessing a child, and gives educational recommendations and recommendations with regard to further speech treatment. The commission considers the results of prior medical assessment performed by neurologists, otolaryngologists and

psychologists. Interestingly, in the United Kingdom, only children with severe language impairments and comorbid conditions are assessed by the child development team (CDT; Baird, 2008, p.7). The instruments originally created for language and speech assessment in Russian-speaking monolingual children and widely used nowadays in Russia are discussed below.

II.2.1. Instruments originally created for Russian language development assessment in monolingual children

The results of an online survey of 53 speech specialists, including speech therapists and pathologists, neurologists, psychologists and language teachers, showed that there is no unified method of diagnostics of language impairments for Russian-speaking children from 4 to 12 years old. See Table II.2.1:1 for the results of the survey:

Number of the respondents mentioned a specific tool	**Responses given by the respondents (names of tools; authors of the tools; links to a specific tools used by the respondents; the description of the method used for language assessment in Russian speaking children). Latin equivalents of the authors' surnames are provided in brackets.**	**Number of unique tools mentioned by the respondents**
7	Фотекова (Fotekova)	1
6	Нищева (Nishheva)	2
6	Методика Волковой Г.А (Volkova) http://pedlib.ru/Books/6/0415/6_0415-1.shtml	3
5	Филичева (Filicheva)	4
4	Иншакова (Inshakova)	5
4	Безрукова (Bezrukova)	6
4	Коноваленко (Konovalenko)	7
3	Чиркина (Chirkina)	8
3	Серебрякова (Serebrjakova)	9

3	Ефименкова (Jefimenkova)	10
3	Мазанова (Mazanova)	11
2	Нейропсихологическая методика обследования речевой функции Микляева (Mikl'aeva)	12
2	Лалаева (Lalaeva)	13
2	О. Крупенчук (Krupenchuk)	14
2	Т. А Ткаченко (Tkachenko)	15
2	Методика Глухова В.П. (Glukhov)	16
2	Каше (Kashe)	17
1	Кабанова (Kabanova)	18
1	Методика выявления уровня развития речи Алексеевой и Яшиной (Alexeeva; Jashina)	19
1	Ястребова (Jastrebova)	20
1	Архипова Е.Ф. (Arkhipova)	21
1	Лебедевой по дисграфии (Lebedeva)	22
1	Клементовича Т. Ф. (Klementovich)	23
1	Коненкова (Konenkova)	24
1	Визель (Vizel')	25
1	Методика диагностки языковой способности Грибова, Бессонова (Gribova; Bessonova)	26
1	Азова (Azova)	27
1	Смирнова (Smirnova)	28
1	Жукова (Zhukova)	29
1	Арбекова (Arbekova)	30
1	О.Грибова (Gribova)	31
1	Илюк (Il'juk)	32

1	Фомичева (Fomicheva)	33
1	Ушакова (Ushakova)	34
1	Садовникова (Sadovnikova)	35
1	классификация/обобщение, слов.логич.мышление Экспресс диагн Павлова, Руденко (Pavlova, Rudenko)	36
1	Пятибратова (Pjatibratova)	37
1	А.М.Страунинга, М.А. Страунинга, ТРИЗ (Strauninga)	38
1	О. М. Дьяченко (D'jachenko)	39
1	С. В. К. Воробьевой (Vorob'jova)	40
1	Е. А. Алябьевой (Al'jab'jeva)	41
1	Зайцева (Zajceva)	42
1	Кононенко (Kononenko)	43
1	Русецкая (Ruseckaja)	44
1	Ахутина (Ahutina)	45
1	Бабина (Babina)	46
1	Васильев (Vasil'ev)	47
1	Цуканова (Cukanova)	48
1	Бетц (Bets)	49
1	Т.В. Ахутина, О.Б. Иншакова. Нейропсихологическая диагностика, обследование письма и чтения младших школьников (Akhutina; Inshakova)	50
1	Инновационные методики (http://www.ciceroncenter.ru/product1-about-ru.shtml)	51
1	Хвалова (Hvalova)	52
1	Стребелева (Strel'bova)	53

1	http://pedlib.ru/Books/1/0146/1_0146-37.shtml Филичева Т. Б., Чиркина Г. В. Подготовка к школе детей с общим недоразвитием речи в условиях специального детского сада: В 2 ч. Ч. I. Первый год обучения (старшая группа). Пособие для студентов дефектологических факультетов, практических работников специальных учреждений, воспитателей детских садов, родителей. М.: Альфа, 1993.-103 с. (Filicheva; Chirkina)	54
1	Просто обследую речь и занимаюсь постановкой звуков. В основном по методике Е.Ф.Рау. (Rau)	55

Table II.2.1:1 The results of an online survey about diagnostic tools used in the everyday practice of speech specialists in Russia

Overall, the respondents named 55 unique authors of diagnostic tools they use in their everyday practice. Some respondents noted that they prefer to combine tasks from several different sources because none of the existing methods developed for Russian-speaking children are perfect. Namely, some contain “outdated speech stimuli” or “too difficult visual stimuli”, have “inconvenient protocols”, or there is an “absence of the possibility to control for dynamic changes in the language development of a child”. Some complained about the “absence of electronic databases that can be used for research purposes” and “short manuals and the absence of clinical interpretations of the results”. The respondents also noted the “absence of age division in tests”. Finally, several respondents mentioned that “the absence of quantitative scales makes the process of deciding on the proper diagnosis difficult”. The majority of the existing language assessment procedures rely on qualitative evaluations and lack modern validating and standardizing procedures. Finally, the existing protocols vary a lot in different regions of Russia.

Here we discuss six of the most popular tools listed in the survey. These are complex batteries which aim to assess various aspects of language development. One of the most popular diagnostic tools assessing speech development in Russian-speaking monolingual children from 7 to 10 years of age was designed by **Fotekova** (2000). Interestingly, the author claims that the administration of the battery does not require utilization of any kind of visual materials (i.e. pictures). However, narrative speech assessment (i.e. story-telling) uses a series of 5 pictures (a "Bobik" story). Using any other sequence of 2-3 pictures is also allowed for this task.

The battery itself is a compilation of probes created by Lalaeva (1988), Lurija (1969) and Mal'ceva (1991). In the story-retelling task, the text "Pits" by Sadovnikova (1983) was used. Originally, the story was created as didactic material for dysgraphia correction in children. The battery consists of 6 series of probes (N=157). The author does not describe the selection criteria used during the items' creation. The word repetition task (first series, fourth group of probes) includes 10 words from 7 to 11 sounds long. The instructions suggest that a tester repeat the stimuli as many times as needed until a child is able to repeat them. Similarly, in the sentence repetition task (series 3, task 1) which, according to the author, aims to assess children's grammatical skills, the stimuli are presented more than once. One point is assigned if a child recalled all words in the sentence correctly. If a child omitted some words without distorting the meaning and structure of the sentence, then 0.5 of a point is assigned; finally, if parts of the sentence were omitted, and there is a clear distortion of the meaning and structure of the sentence, or if the sentence was not completed, 0.25 of a point is assigned. The true diagnostic aim and value of the tasks is not clear. In series 2 the responses given on the second or third attempt are penalized with lower scores.

Considering the task given to a child (e.g. to count how many words are in given sentence, to count how many syllables are in given words, etc.) it is possible that at some point a child might start guessing rather than actually counting.

The articulation task (first series, third group of probes) aims to assess articulatory skills in children. The items included in the task do not fully represent a repertoire of Russian phonemes. The author remarks that the missing sounds (i.e. /b/, /d/, /v/, /g/, /k/, /h/, /j/) might be assessed 'on the way' – during the performance on some other tasks from the battery.

The author admits that some of the tasks might be too difficult for children from 7 to 10 years old. (e.g. third series, fourth task; third series, fifth task; fourth series). The facilitation of those tasks is permitted. A tester is allowed to ask support questions, repeat the stimuli, or even use pictures.

A distinctive feature of the battery is the presence of the scoring system created by Peresleni and Fotekova (1993). It permits analysis of the collected data and an estimate the level of gravity of the impairment to some extent. However, the scoring system might look rather complicated. For the first (except for articulation), second, third and fourth series, the scores used to estimate the child's performance are: 1; 0.5; 0.25; or 0 points. As for articulation, it is estimated using the following scoring system: 3; 1.5; 1; or 0 points; When assessing the

results of the fifth series, the following scores are used: 1; 0.5 and 0 points. Finally, in the sixth part of the battery, performance is assessed using 5; 2.5; 1; or 0 points. The criteria for score assignment are somewhat subjective; for instance, in the sixth series (story-telling and story-retelling), performance is assessed using, among others, the following formula: *slight* distortion of the situation (2.5 points); a *significant* distortion of the meaning or the story is not *complete* (1 point); *adequate* use of vocabulary (5 points); *scarcity* of grammar, single cases of word search or *inaccurate* use of words (2.5 points); *there are* agrammatisms, distant verbal paraphasias, *inadequate* use of vocabulary (1 point). Similarly, in the verification of sentences task (third series, second task; the task is similar to the grammatical judgments task, however, a child is required not only to identify, but also to correct an error), 0.5 of a point is assigned to responses 'with *minor inaccuracies* (omission of words, replacement of words, substitution of words)'. It is not clear why, in the task aiming to assess grammatical skills, errors in sentence recall are penalized.

The authors propose to transform the raw scores, assigned in each series, into percentages and thus evaluate the assessed skills separately. Moreover, the authors suggest summarizing all the raw scores and transforming the result into a percentage. The obtained value is considered an index of a child's overall "success". Depending on the "success index" a child might be assigned into one of four "levels of success". However, the authors do not specify which cut-off they used during the "levels" assignment procedures described in the book. Overall, the authors provide a reader with six examples of linguistic profiles of the assessed children (i.e. Tanja V – case 1; Tanja K – case 2; Ruslan T – case 3; Andrej A – case 4; Oleg B – case 5; and Masha S – case 6) using the scoring method described above. According to the authors, case 1 received a raw score of 182.25, which resulted in 91.1% and the fourth, or highest, "level of success". Unlike case 1, case 2 (raw scores - 149.75 / 74.9%) was assigned the third "level of success". The author notes that case 2 has a severe speech disorder and attends special speech-school; however, the diagnosis she has (i.e. overall underdevelopment of speech) is inappropriate, as she demonstrated *lowered* results only on phonemic perception (first group of probes in the first series of tasks), speech motor skills (second series of tasks), articulation (third series of tasks) and narrative speech (sixth series of tasks). Again, the cut-off for differentiating "normal" and lowered" speech skills was not specified. Interestingly, case 3, also attending special speech-school, was assigned a raw score of 93.5 / 46.8%, the first (lowest) level of success, and a diagnosis of motor alalia. The description of his mental status (i.e. delay / retardation) is not provided in the text. Moreover, it is not clear what the sample

size of the groups of children under assessment was, and what their characteristics were (e.g. SES, gender, level of non-verbal reasoning). According to the author, there were four groups of children: 1) typically developing children; 2) children with impaired mental function; 3) children with overall underdevelopment of speech; and 4) children with mental retardation and speech pathology. Based on the collected observations, the author concludes that the results demonstrated by the children from the first group correspond to the fourth "level of success", those from the children from the second group correspond to the third 'level of success', those from the children from the third group correspond to the second "level of success", and, finally, the performance demonstrated by the children with mental retardation and speech pathology correspond to the first "level of success". The results are summarized in Table II.2.1:2:

Group of typically developing children (IVth 'level of success')	**Group of children with impaired mental function (IIIrd 'level of success')**	**Group of children with overall underdevelopment of speech (IInd 'level of success')**	**Group of children with mental retardation and speech pathology (Ist 'level of success')**
Mean - 89,7%; Range: 82,8% - 98,1%)	Mean - 66,2%; Range: 49,5 - 79%	Mean - 61,6%; Range: 25,8% - 77%	Mean: 48,5%, Range: 26,4% - 63,1%.

Table II.2.1:2 The results of the school age children assessment performed by Fotekova (2000)

The results demonstrated by the children from the groups with atypical development significantly overlap. As the battery is not norms-referenced and the criteria for 'levels' assignment are rather vague, one might hypothesize that some of the assessed children were misidentified. Thus, the sensitivity and the specificity of the discussed tool might be doubtful. Furthermore, the author does not provide a reader with any of the psychometric characteristics of the battery.

A modified version of the battery became a part of speech and language assessment in school-aged children (see Fotekova & Ahutina, 2007).

A number of logopedic and pedagogical books, brochures, recommendations, notes, and calendars, devoted, among others, to language impairments in Russian-speaking children, have recently been published by **Nishheva** (e.g. 2016; 2016a; 2016b). The widely known "Comprehensive educational program for preschool-age children with severe speech disorders" (Nishheva, 2016) includes a description of recommended pedagogical procedures for language assessment in children from 3 to 7 years old. The so-called "speech cards", which could be also called the protocols, became bestsellers in the internet book stores[7] (see Nishheva, 2008. The protocol consists of 12 parts. The first part describes biographical data of a child under assessment (i.e. surname, name of a child; date of birth, age; home address; home phone; referral source; information about the parents: mother (last name, first name, patronymic name, age at the time of the birth of the child); father (last name, first name, patronymic name, age at the time of the birth of the child); native language of a child; bilingualism). The second part describes the decisions made by an interdisciplinary commission (i.e. if a child should receive a speech treatment or leave a logopedic group in the kindergarten; members of the commission, etc); The third part, general anamnesis, aims to collect information about the factors that could have negatively affected overall development of a child; illnesses (up to a year; after a year); and if a child had head injuries or convulsions. The fourth part describes early stage development of a child (i.e. at what age a child started to hold up its head, sit independently, crawl, stand, walk, recognize relatives; when did the first teeth appear and their number at the age of 1). The fifth part presents the results of the neuropsychological and somatic assessment of a child copied from the medical records (i.e. the diagnosis and the observations made by a pediatrician, neurologist, neuropsychiatrist, otorhinolaryngologist, ophthalmologist, surgeon, or orthopedist). The sixth part describes a speech anamnesis (i.e. When did the child start babbling? When did the first words and phrases appear? Was the speech development interrupted, and if so, why? Does the child use gestures? Did the child receive logopedic treatment before the current assessment and what were the results? etc.) The seventh part describes the child's behavior and emotions (i.e. Does the child immediately start to interact others, selectively, or display negativity? Are her emotional reactions appropriate for the situation? Does the child demonstrate impulsivity or emotional stability?). The eighth part is an "investigation of nonverbal mental functions" (Nishheva, 2008, p.5) which includes: 1) auditory perception check (i.e. differentiation of the contrasting sound of several toys: pipes,

[7] https://www.labirint.ru/books/44910/
http://www.ozon.ru/context/detail/id/142052021/

bell, tambourine, maracas; determination of the sound direction; and the perception and reproduction of rhythm); 2) visual perception check (i.e. a child is supposed to point to toys with target colors. The tester names the colors aloud. The results of the probe are described according to the age of the child, e.g. at the age of 4 a child is supposed to know the names of six basic colors: red, yellow, blue, green, white, black; and at the age of 6, 12 colors); 3) differentiation of shapes (i.e. to point to a toy with a target shape. The tester names the shapes aloud. At the age of 4 a child is expected to recognise six shapes: circle, square, oval, triangle, sphere, cube; and at the age of 6, nine shapes); 4) space perception check (i.e. at the age of 4 a child is required to point to objects placed above, below, in front or behind something, according to the tester's instructions; moreover, show their left/right hand/leg, and assemble a puzzle consisting of 2-4 parts etc.) The ninth part describes the results of an articulatory apparatus check done by the tester; the tenth part describes the motor functioning of parts of the child's articulatory apparatus, hands, face muscles etc.; part 11 (see attachment II.2.1:1 in the Appendix) describes the results of **impressive speech assessment**. The part includes the following tasks:

- **Lexical comprehension** (i.e. a child is required to point to target pictures according to the tester's instructions. The task includes a series of probes aiming to assess comprehension of separate words – nouns and verbs, as well as short phrases, such as "a builder builds"; polygonal tissue for 6-year-old children);
- **Grammatical comprehension** (i.e. a child is required to point to target pictures according to the tester's instructions. The task includes a series of probes aiming to assess understanding of the differences between singular/plural number. A child hears a pair of words, for example, house – houses, and also a series of sentences, such as "a cat is sitting". Next, a tester reads aloud a series of short sentences with various prepositions and a child is supposed to point to the corresponding picture. Furthermore, a child has to listen to a series of word pairs including diminutive forms of words and point to the corresponding pictures. Finally, the understanding of verbs with various prefixes is checked. For example, at the age of 4 a child is presented with a series of pictures and asked to identify a picture corresponding to the following sentences: a girl pours water into the cup (in Russian – девочка **на**ливает воду в чашку); a girl pours water from the cup (in Russian – девочка **вы**ливает воду из чашки); a girl is watering flowers from the watering can (in Russian – девочка **по**ливает цветы из лейки);
- **Comprehension of phrases and stories** consists of two parts. The first part includes the following task for 4-year-olds: to point to the pictures corresponding to the

following sentences – The boy congratulates the girl; The girl congratulates the boy. Five-year-olds are offered the following reverse sentences: The dog chases the boy; The boy chases the dog. Finally, 6-year-olds are presented with the following sentences: The butterfly sits on a flower that has already blossomed; The butterfly sits on a flower that has not yet blossomed. The latter sentence includes a negation. The second part of the task assesses story comprehension. The stories are different for 4, 5, and 6-year-olds. The criteria for the stimuli selection, as well as the assessment criteria, are not specified in the protocol;

- **Phonological comprehension.** A child hears a series of minimal pairs (e.g. /кот/ — /кіт/) and is asked to point to the pictures corresponding to each word.

Part 12 (see attachment II.2.1:1 in the Appendix) describes the results of **expressive speech assessment**. The part includes the following tasks:

- **Productive vocabulary assessment** includes a **semantic fluency task**, in which a child has to name 4-5 nouns belonging to the target semantic categories (i.e. at 4 years old: toys; cutlery; clothes; footwear. At 5 years old: furniture; vegetables; fruits; birds. At 6 years old: berries; insects; animals; transport) and **naming** (i.e., using pictures, a child has to name parts of the body and objects. The set of pictures is different for 4 / 5 / 6-year-olds. Then, the child has to give the hypernym for a set of pictures representing 3 words belonging to 1 semantic category. Finally, only 6-year-olds are required to formulate antonyms for 3 nouns, 3 adjectives and 2 verbs. There is also a separate part of the naming task including pictures presenting actions (N=6 for 4-year-olds, N=8 for 6-year-olds); colors – same as used in part 8, task 2; and shapes);
- During the **assessment of grammar** a tester names a series of nouns in the singular number and a child is required to repeat the same noun but in the plural. Then, depending on the age of the child, a tester presents a particular set of pictures and asks a child questions related to those pictures, assuming that a child responds using a target word with a correct case inflection (e.g. What does the boy have? A ball$_{NOM}$; What does the boy not have? The ball$_{GEN}$)[8].

During the next stage of the assessment, a child is presented with a series of pictures and has to name them. It is assumed that a child describes pictures using a noun and a

[8] Jansen (2013) within the framework of the COST IS0804 project showed that Case Elicitation task might not be useful when assessing bilingual children, as it does not permit to distinguish SLI and the effects of bilingualism even though the category of case is acquired early at childhood (Gagarina & Voeikova, 2009).

corresponding adjective in the nominative case, singular (e.g. red ball). However, the nature of the task seems to be contaminated as it assesses vocabulary rather than grammar.

The next probe comprises different numbers of questions for children at different ages. Namely, a tester asks 4-year-olds three questions, expecting children to respond using prepositions suitable for the contextual information provided in the given picture (e.g. Where is the vase? On the table). Five-year-olds are given another 6 questions (e.g. Where is the bullfinch sitting? On the tree). Six-year-olds are asked 4 questions (Where is the ball? Under the table). Target prepositions partially overlap in the three age groups.

The next task is called "The use of numbers 2 and 5 with nouns," and contains no instructions for a child, nor for a tester.

As for the sixth task in this section, it aims to assess knowledge of diminutive forms of nouns. A child is presented with 4-5 pictures representing the full form of a target word and its diminutive (e.g. стол — столик). The child is asked to name a diminutive form of given nouns.

During the next task a tester lists names of animals and asks the child to respond with the names of their babies (e.g. a cat – a kitten). Again, the task seems to rely also on the vocabulary of a child, rather than purely on his/her grammatical skills.

Finally, there are four additional tasks for 6-year-olds only. They are offered a series of questions which aim to assess their ability to create qualificative and possessive adjectives (e.g. A table made of wood (is)…? – wooden; The glasses of the grandmother. Whose glasses? - grandmother's), verbs with various prefixes and perfect / imperfect aspects of verbs. The part with verbs has to be done using a set of pictures. A tester asks a child to describe given pictures with a short sentence, assuming that a child uses target words. For example, in the tenth task a child is expected to create the following sentences using a verb of motion (go) with various prefixes: Мальчик **вы**ходит из дома ('The boy leaves the house'); Мальчик **от**ходит от дома ('The boy moves away from the house'); Мальчик **под**ходит к магазину ('The boy comes close to the store'); Мальчик **пере**ходит улицу ('The boy crosses the street'); Мальчик **об**ходит лужу ('The boy bypasses the puddle'); Мальчик **в**ходит в дом ('The boy enters the house'). It was shown that different verbs of motion are acquired by children at different periods of language acquisition (Gagarina, 2009). It remains unclear how to assess the responses formulated using different verbs. What if a child describes the pictures correctly, always using 'go' (in Russian - идти)? For example, instead of saying Мальчик **вы**ходит из дома, saying Мальчик **идет** на улицу ('The boy goes to the street / goes out'). Should this

semantically and grammatically correct sentence be marked as an incorrect response in the grammatical assessment section? And if so, what kind of conclusion shall we draw using these results?

Narrative speech assessment consists of two parts: story retelling for 4- / 5-year-olds and story telling for 6-year-olds. As the principles of narrative analysis are not described in the protocol, we assume that the aim of the task is the documentation of the narratives produced by the children.

The last part of the battery is called **'Exploration of the phonological aspect of speech'.** The first block assesses repetition of words in 4-year-olds and repetition of words and sentences in 5- / 6-year-olds. The second block aims to assess articulation. The instructions are not provided for this task; however, the protocol lists the sounds to be assessed in isolation, embedded into words and into sentences. We failed to understand which stimuli should be used in this task.

The fifth part included in expressive speech assessment describes the **breath and voice** of a child. There are no tasks in this section. This section seems to be filled out using the tester's observations. Similarly, the sixth part aims to describe **prosodic characteristics** of the child's speech.

"Phonematic comprehension" (i.e. discrimination of phonemes in syllables) is assessed via repetition of a series of syllables (e.g. /ba-pa/; /sa-ʃa-sa/). Five-year-olds also have to name the stressed vowel in eight words. Finally, 6-year-olds not only have to repeat syllables, but also perform another four tasks: name the last consonant in six given words; name the first consonant in 11 words; list all the sounds in each of four given words; calculate the number of sounds in four given words. No instructions are provided for the tester in this section.

In sum, it remains unclear how to trace the development of language and speech in children, as well as how to determine the gravity of the language impairment using the given battery of tasks in the absence of a scoring system. Moreover, we failed to find a user's manual for the protocol with the description of stimuli selection procedures, psychometric properties, standardization procedures and normative camp description.

Like Nishheva (2008), a battery created earlier by **Volkova (1993)** includes several parts. The first part aims to collect contextual information (i.e. anamnesis). The second part explores the non-verbal functions of a child, which are: communication skills (by observing his/her behavior during the assessment); motor skills; vision; orientation in space; intellectual

abilities via story-telling (see part II.1.6). The criteria for story-telling assessment are to some extent subjective (e.g. level 2 – above average – is assigned if the story produced by a child corresponds *in general* to the situation depicted in the pictures. Basic plot elements are described; however, there are *minor omissions* of *secondary* plot elements. The sequence is not broken, only *some* cause-effect relations are not reflected. The semantic integrity is *insignificantly* violated). Part II.2 is devoted to impressive speech assessment. It lists various tasks that could be used by the testers assessing children at different ages. The next part of the battery aims to assess a child's expressive speech. It starts with the documentation of the tester's observations regarding the child's articulatory apparatus (e.g. detection of structural anomalies). The following block of tasks aims to assess articulation (i.e. repetition of isolated sounds; repetition of words, repetition of sentences). Stimuli selection criteria are not described. Instructions for children are not provided. Furthermore, to assess vocabulary, the author suggests using 50-60 pictures depicting various objects, actions, etc., which a tester can select according to his/her own taste. The assessment of grammatical skills, again, has to be done using any series of plot pictures. During story-telling, the tester is supposed to note the mean length of utterances (i.e. number of words in each utterance) and the presence of paragrammatisms. Also, the author lists various alternative methods of grammatical skill assessment. As the battery attempts to assess speech and language development not only in preschoolers, but also in school-age children up to 10 years of age, the battery includes assessment of writing skills. No information is provided about psychometric properties of the battery. The scoring system is absent in the majority of the tasks; thus, it is impossible to determine the gravity of the impairment, as well as to perform any quantitative analysis and to draw reasonable conclusions.

Approximately 10% of the respondents mentioned **T.B. Filicheva** as the author of a method of diagnostics they use when assessing speech and language development in Russian-speaking monolingual children. Professor Filicheva is a co-author of a series of textbooks for students and recommendations for speech therapists (e.g. Filicheva, Cheveleva, & Chirkina, 1989; Filicheva, Tumanova, & Orlova, 2015; Filicheva, Tumanova, & Chirkina, 2009; Zhukova, Mastjukova, & Filicheva, 2017). Filicheva describes the main principles of speech and language assessment in children (heavily based on those proposed by Levina, 1968) and the minimal competence cores (MCC; Stockman, 2008) for different ages, and provides lists of tasks that could be used by speech therapists when assessing vocabulary, grammatical skills, narrative skills, articulation, phonological awareness and repetition skills (e.g. Filicheva,

Tumanova, & Chirkina, 2009, pp.18-27). The method is not norm-referenced. No information about psychometric properties of the tasks or standardization procedures is provided. No scoring system is available.

Album for a speech therapist (**Inshakova**, 2015) presents illustrated material for the assessment of oral speech of children of senior preschool and primary school age (6-9 years old). It allows identification of potential speech disturbances in sound and syllabic structure of words, phonemic analysis and synthesis, vocabulary and grammatical skills of children. Visual material is used for every task in the battery. The battery consists of 6 blocks: block 1 – assessment of pronunciation; block 2 – phonematic comprehension, phonematic analysis and synthesis, and understanding of the syllabic structure of words; block 3 – syllabic structures; block 4 – vocabulary; block 5 – grammar; block 6 – narrative speech. The first block comprises 25 pictures representing "the most familiar words for children of this age" (Inshakova, 2015, p.3); however, it remains unclear which familiarity rate was used during the stimuli selection. The pictures represent words containing selected sounds from the Russian phonetic repertoire [s; s'; z; z'; c; ʃ; ʒ; tʃ; r; r'; l; l'; ы; m; n; b; d; v; k; k'; g; g'; h; h'] in various positions. In the second block, a child is required to point to a picture which represents a word containing a target sound (task 2) or to point to two pictures on a sheet of paper, while listening to a minimal pair of words (e.g. люк-лук; task 4). These tasks also seem to assess vocabulary size rather than only phonological skills. Further, there are 10 tasks aiming to assess the analytical skills of children by asking them to calculate how many sounds there are in a word, to identify the position of a target sound in a word, to count the number of instances of a target sound in a word, and others. On the other hand, synthesis is assessed via two tasks – a child is required to create a word using sounds given in the correct order and in a mixed order. Finally, the second block contains four phonological fluency tasks, which also could be called semantic-phonological fluency tasks due to the nature of the task (e.g. task 18 – to say the names of all berries starting with the [m] sound). Block 3 comprises 16 naming tasks. The stimuli are presented so as to increase syllabic difficulty (number of syllables, various syllabic types) through the task. The fourth block contains 53 naming tasks. The tasks in the block are divided into separate groups: tasks 1-33 – pictures representing nouns belonging to various semantic categories; tasks 34-36 – verbs; tasks 37-48 – qualitative and relative adjectives; tasks 49-50 – adverbs; tasks 51-52 – numbers; task 53 – pronouns. There are 20 tasks in the fifth block. The tasks are divided into 3 groups: speech comprehension tasks; words inflection/transformation; and tasks aiming to assess word formation skills. There are six tasks in the last, sixth block.

These tasks assess the abilities of a child to create various types of discourse with\without help of the tester. The are no criteria for the quantitative or qualitative assessment of the performance. A tester is not provided with any scales or instructions for the analysis of collected data. It is not clear how much time the administration of the whole battery might take. However, the battery remains one of the most popular tools for language assessment in Russia (see the results of the survey).

Method of determining the level of speech development of preschool children (Bezrukova & Kalenkova, 2008). The battery consists of 3 blocks comprising 22 tasks: block 1 contains eight short naming tasks; block 2 contains eight tasks aiming to assess grammatical (inflectional and word-building) skills; and finally, block 3 contains six tasks assessing the phonological skills of children (sound analysis and synthesis, phonetic and prosodic speech characteristics). The results describe children's lexicon, grammatical and phonological competences, and the so-called "psychological basis of speech" (i.e. verbal memory; logical thinking; verbal attention). Assessment of narrative is absent in the battery. There are no open source articles describing normative data or standardization procedures.

There are also tasks aiming to assess specific aspects of language development in Russian speaking children, such as the narrative assessment tool recently developed by **Gluhov** (2014). The author explored narrative speech in a total of 280 pre-schoolers (200 SLI children, 80 controls). The testing procedure included the following tasks: single utterances creation utilizing single pictures; single utterances creation using three pictures of the same topic; story retelling; story telling (using a series of pictures having a common plot); personal story telling (no pictures used); creation of a story with descriptions and "art elements". According to the author, all testing procedures were standardized. More than 900 pre-schoolers were tested during the standardization procedures (Gluhov, 2014. p.91). Unfortunately, the author does not provide the results of any statistical analysis. In any case, narrative tasks alone are not sufficient when assessing speech and language in children (Schneider, Hayward, & Dubé, 2006).

In sum, the aim of the tools discussed above is to establish particular weak areas of speech and language development and to identify intervention targets. They pursue both diagnostic and prognostic goals, and thus combine elements of questionnaires and criterion-referenced procedures, and include assessment of collateral areas (i.e. oral-motor assessment;

examination of the face, head, and velopharyngeal function and resonance; intraoral examination, along with examination of volitional oral movements, respiratory and phonatory function; diadochokinetic assessment). In a recent review on the existing neuropsychological diagnostic tools for Russian-speaking children, the authors compared Russian and non-Russian clinical assessment traditions (Astaeva & Berebin, 2012). The authors of the review concluded that, across these diagnostic tools, stimuli presentation procedures are not always well described (sometimes missing), and the psychometric properties, including reliability and validity, of the normative values of these tests are not always adequately described. More importantly, the assessment of linguistic skills in children is usually performed with short protocols: the so-called individual "speech cards" of children. The rigid nominal ("good" – "poor") and ordinal (0-1 scores) descriptors in the speech cards do not provide the possibility of "finding a point on the axis of the continuum" (Astaeva & Berebin, 2012, p.216) of language impairment.

Polinsky (2006), discussing exciting research literature on acquisition of Russian language, wrote: "The main emphasis in the Russian literature on acquisition has been on two major aspects of acquisition: developmental stages in the acquisition of morphological and syntactic patterns, and pedagogical recommendations for speech pathology and speech errors" (Polinsky, 2006, p.1). Polinsky noted that numerous publications on this topic are descriptive and rely on naturalistic sources of data (diaries) rather than on experimental data. The lack of reliable research and diagnostic instruments results in rare studies relying on quantitative experimental data. Indirect confirmation of the rare use of experimental techniques in Russian child language research comes from the sparse research materials presented in multilingual electronic databases, such as the CHILDES corpus (MacWhinney, 2000). Kornev and colleagues significantly contributed to the development of the corpus of spontaneous and elicited speech records in Russian (Kornev, Balchjuniene, Voejkova, Ivanova, & Jagunova, 2015); however, the quantity of the content in Russian is still rather limited.

None of the tools discussed above is suitable for cross-cultural and cross-linguistic studies, as they are not formal standardized norm-referenced tests with sound psychometric characteristics and have no adaptations into languages other than Russian. They can be categorised instead as criterion-referenced measures aiming to establish whether a child has the amount of linguistic knowledge considered normal at a given age. One of the purposes of the present dissertation was to fill the gap in a list of assessment tools available for Russian-speaking children by creating a Russian version of BVL_4-12, as it was shown that

"standardized testing is the **only** valid, reliable, and fair way to establish that a child is significantly different from other children" (Paul & Norbury, 2012, p.44).

II.2.2. Instruments originally created for Russian language development assessment in bilingual children

There is a separate group of instruments aiming to assess the development of Russian language in the bilingual population and to establish a level of proficiency in non-native Russian speakers, both children and adults (e.g. Tipovye testy po russkomu jazyku kak inostrannomu, 2002; Kalenkova & Feoktistova, 2009; Korchagina, 2010). Most of the tests, however, do not consider the test-takers' native language. The number of tests designed exclusively for bi-/multilingual children speaking Russian is rather limited. **Hamraeva (2013)** is designed to test the general skills and speech competence necessary for subsequent successful schooling in the Russian language. The battery assesses the child's overall readiness for communication in Russian, the ability to talk about himself and his family, and evaluates her development of motor skills, spatial thinking, and the ability to think logically and understand oral Russian speech. Responses given in other languages known by a child receive minimal score. This battery is suitable for pre-school age bilinguals living in Russia.

The set of tests developed by specialists at the Center for General Linguistics in Berlin (Germany) allows assessment of the level of Russian language proficiency in children aged from 2 years 1 month to 7 years 11 months (**Gagarina, Klasert, & Topazh, 2015)**. The battery is designed to assess heritage speakers of Russian (i.e. children for whom Russian is one of the mother tongues inherited from parents). Testing is aimed at evaluating active and passive vocabulary (consisting of verbs and nouns), the ability to use case endings of the accusative and dative cases, the use of personal verb endings (i.e. verbs of the present tense, imperfective, in the form of the first and second person singular), as well as comprehension of various grammatical structures. Assessment of narrative speech is not provided. The testing allows researchers to describe speech development in bilingual children without comparing the stages to those described for Russian language acquisition in monolingual children. In addition, a set of telling and retelling elicitation tasks is created as a separate tool (a part of Language Impairment Testing in MUltilingual Settings – LITMUS). The Multilingual Assessment Instrument for Narratives, (LITMUS-MAIN, available online at http://www.zas.gwz-berlin.de/zaspil56.html; Gagarina et al., 2012) permits cross-cultural research and comparison of the performance demonstrated by bi-/multilingual children from 3 to 9 years of age speaking 17 different languages.

Hamann and colleagues (Hamann, Ruigendijk & Chilla, 2013) created **sentence repetition task** for Russian-German bilingual children aimed to detect potential LI. Similarly to already existed sentence repetition tasks, created within the framework of the COST IS0804 project in English, Russian and French, the list of sentences contains 64 items. The study confirmed the utility of this type of the task for Russian speaking monolingual and bilingual children. Moreover, a **Non-word repetition task** was also created and piloted on a cohort of Russian-Hebrew Speaking pre-school children within the same COST project (Meir & Armon-Lotem, 2013). The NWR task was shown to be a useful tool in LI detection in Russian-speaking childen.

The battery developed by **Kudrjavceva and colleagues (2015)** is designed to consider ethnocultural characteristics and other languages of bi/multilingual children. As of 2017, this battery has been adapted to German, Polish, Tatar and Kazakh languages. The battery includes the following sections: speaking (for 3-14-year-old. children); listening (for 3-5-year-old and 4-14-year-old children); reading (for 5-14-year-old. children); writing (for 4-14-year-old children); and motor skills (for 3-5-year-old children). Tests are aimed at assessing the child's vocabulary, knowledge of diverse grammatical constructions, knowledge of particular communication norms, and intercultural competence in general. A distinctive feature of the battery is the consideration of indicators of the overall cognitive development of the child. Moreover, responses in languages other than Russian are considered in order to check overall language development and communicative competence.

None of the instruments briefly described in this group was designed for clinical settings, but rather for pedagogical purposes. They do not aim at distinguishing typical and pathological language development in bi-/multilinguals and do not provide normative data related to this aspect. None of the batteries is currently available in Italian.

II.2.3. Adapted instruments available for Russian language assessment in children

Several instruments aiming to assess language development in Russian-speaking children were recently adapted into the Russian language. Here we describe some of them:

Russian Language Development Assessment (RLDA), a new diagnostic tool for children aged from 3 to 9 that was ideated as a compilation of seven subtests from three different assessing tools originally developed for English native speakers (Prikhoda, 2016). This battery also includes tasks assessing sentence comprehension (“passive vocabulary”),

naming skills, and phonological awareness. Unfortunately, the normative sample is quite limited (N=86 children) and the internal consistency is extremely variable (ranging from .46 to .81) with the vast majority of the tasks having a Cronbach's alpha lower than .76. There is a lack of standardized procedures for the assessment of pragmatic and narrative discourse generation skills;

The **MacArthur Communicative Development Inventory** (MacArthur CDI; Fenson, Bates, Dale, Marchman, Reznick, & Thal, 2007) was adapted into several languages (e.g. Italian – Camaioni, Castelli, Longobardi, & Volterra, 1991) including Russian (Eliseeva, Vershinina, and Ryskina, 2017). The adapted version of the MacArthur CDI consists of two questionnaires for parents: a test of speech and communicative development of young children: words and gestures (from 8 months to 1 year and 5 months) and a test of speech and communicative development of young children: words and sentences (from 1 year 6 months to 3 years). So far, 655 questionnaires have been stored in the database and analyzed (Eliseeva & Vershinina, 2007).

The tools mentioned above partially meet the requirements for evaluation tools proposed at the National Consensus Conference on Specific Learning Disabilities (Milan, January 26, 2007). According to these general criteria, all assessment instruments must have clear sensitivity and specificity to the function they want to evaluate. They must also have shared standards of validity and reliability of measurement, which can be verified through the presence of very precise characteristics: adequate representation of the reference population (number of subjects in the sample; stratification based on socio-cultural characteristics; updating standards; presence of psychometric indexes of reliability and validity). It is advised to precede assessment of language skills with a global cognitive ability assessment. However, so far, such assessment tools, fully meeting these requirements, are missing for the Russian-speaking population.

Finally, there is one recently adapted instrument with a solid normative database including the results of more than 3000 children speaking Russian. **International Performance Indicators in Primary School (iPIPS)** is an instrument which aims to assess first-graders' cognitive and physical development. The instrument was developed in the UK in 1994 by a team from the University of Durham. The original version of the instrument was shown to be highly reliable tool (0.98 test-retest; 0.92 Cronbach's alpha) with good predictive

validity (0.6-0.7 correlations to performance at age 7 and 11). The project is being developed further, as the instrument is now being adapted into several other languages including Russian (by National Research University, Higher School of Economics, Moscow; e.g. Kardanova & Houker, 2014; Orel, Brun, Kardanova, & Ivanova, 2016; Ivanova, Kuznecova, Semenov, & Fedorova, 2016; Kuzmina, Ivanova, & Antipkina, 2017; Ivanova, Kardanova, Merrell, Tymss, & Hawker, in press). The complex assessment takes place twice during the first year at school. Teachers and parents of children fill out questionnaires regarding children's personal, social and emotional development and behavior, and their SES, and provide some other contextual information. Moreover, each child performs a series of tasks using an app on a tablet or smart phone, or on paper. The procedure takes approximately 20 minutes per child. The cognitive assessment part includes the following language-related parts (see http://www.ipips.org/the-ipips-study/the-pips-assessment for a full description of the instrument): handwriting; vocabulary (the child is asked to identify objects embedded within a series of pictures); ideas about reading; phonological awareness (rhymes and repetition of a list of 13 words and non-words from 3 to 12 letters); letter identification; word recognition and reading.

The investigation of currently available tools for Russian language development assessment showed that even though there are instruments designed for Russian-speaking children, both originally developed in Russian and adapted from other languages, currently, there is no unique tool permitting cross-cultural and cross-linguistic studies and investigation of language development in bilingual children acquiring Russian with solid psychometric characteristics and a big enough collected normative database which would permit assessment of comprehension, production and repetition skills, along with narrative skills, in children from 4 to 12 years old.

II.3. Common principles of assessment instruments' adaptation

According to Cohen and colleagues, "Test transadaptation (translation and adaptation) is the process whereby a test constructed in one language and culture is prepared for use in a second language and culture" (Cohen, Gafni & Hanani, 2007, p.2). The final goal of the transadaptation process, then, is the creation of an instrument in a language other than the source language, fitting a different cultural context, by insuring items' semantic equivalence and solid psychometric characteristics (ITC guidelines, 2010; Hambleton, Merenda, & Spielberger, 2004). The literature suggests at least five steps necessary for successful

transadaptation of psychological tools. These steps were summarized by Borsa and colleagues in Figure 1:

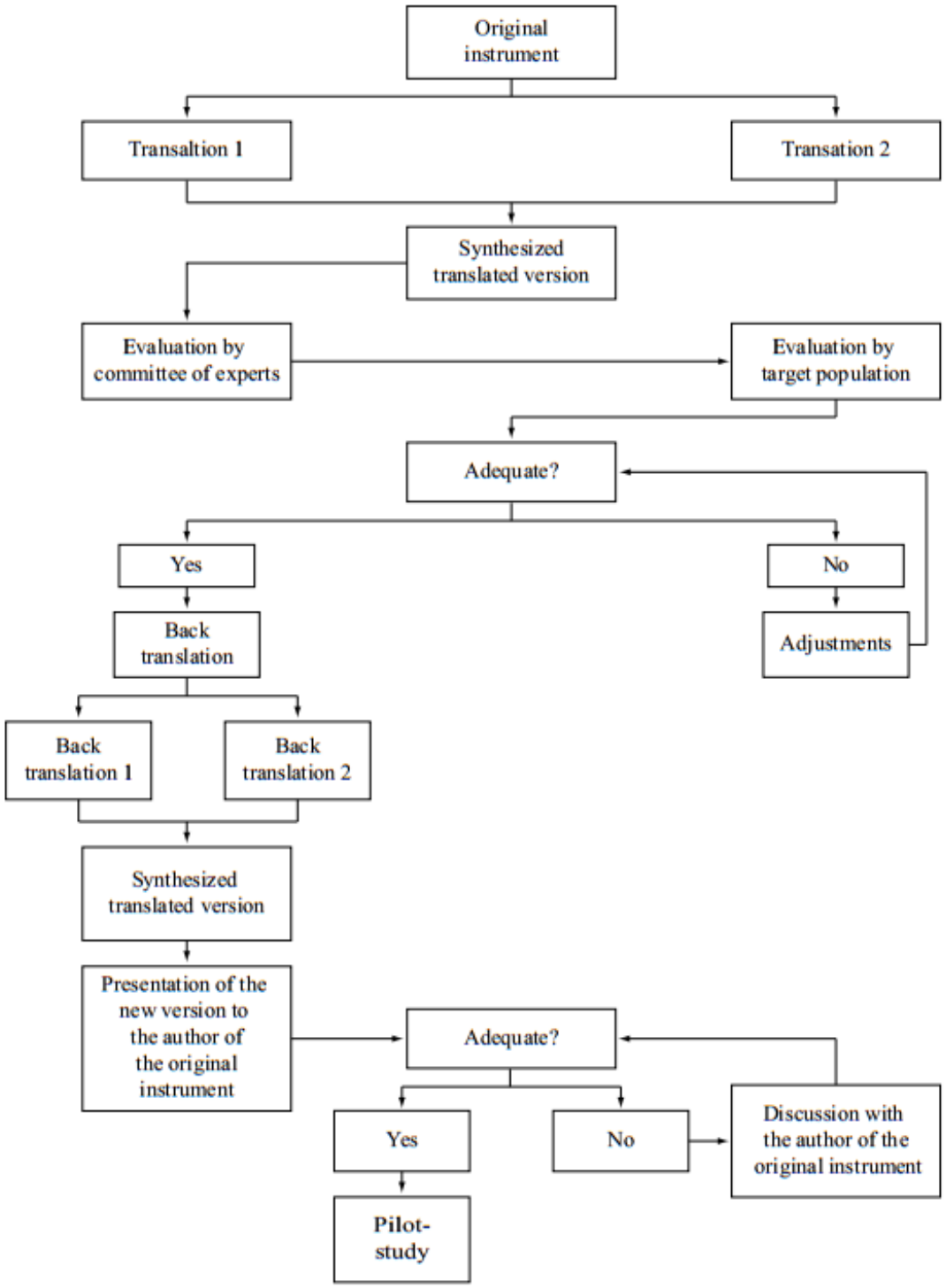


Figure 1. Procedures for cross-cultural adaptation of psychological instruments.

Figure 1 Procedures for cross-cultural adaptation of psycholofical instruments proposed by Borsa, et al., 2012, p.427

The authors propose instead a seven-step structure by adding "instrument evaluation by the target population" and a "structure check" step, which "… involves the evaluation of the factorial structure of the instrument, which is accomplished by statistical procedures, including exploratory and confirmatory factor analyses" (Borsa et al., 2012, p.424).

Any instrument's adaptation begins with the first stage – translation of the original version of the tool into the target language. The main aim of this step is to achieve suitability of the new version of the tool in a new cultural context, while remaining, at the same time, consistent with the original version. It is advisable to avoid literal translation of the content and the instructions and instead adapt them so as to reach the goal of the overall process (Hambleton et al., 2004). This approach assumes certain characteristics of the translator, such as fluency in the source language and a native-speaker level of proficiency in the target language (Beaton, Bombardier, Guillemin, & Ferraz, 2000); and understanding of the measured construct (Hambleton et al., 2004; ITC, 2010).

During the second stage of the adaptation process, the translation should be checked (usually) by the external expert/judge/committee. The purpose of the check is to achieve semantic, idiomatic, experiential and conceptual equivalence between the original and translated versions of the instrument. Some translation improvements might be suggested.

The third stage is the evaluation of the new instrument by a group of experts. A committee evaluates both the content and the instructions, and establishes their adequacy and clarity. Next, the same should be evaluated by the target population, possibly including evaluators of different ages and various regions of residence. Goral and Conner emphasize "If stimulus characteristics, such as frequency, length, and presence of foils (e.g., phonologically similar words), play a role in the structure of the test, these need to be adapted to the target language amid cross-language differences" (Goral & Conner, 2013, p.2). Thus, when transadapting language tests, particular attention should be dedicated to the selection criteria used for the original content creation. These criteria cannot be ignored when creating an adapted version of the test.

Back-translation (also known as blind backward translation or double blind translation; Sousa & Rojjanasrirat, 2011), the fifth stage of the process, is intended to identify potential inconsistency between the original and the adapted versions of the instrument. The procedure is widely accepted in health care research, and the adaptation of pure psychological and educational tests. It requires cooperation between translators and the authors of the original version of the instrument.

During the next stage, one or a series of pilot studies with a small sample recruited from the target population should be performed in order to estimate the appropriateness of the new instrument. Beaton and colleagues suggested 30-40 participants as an approximate sample size for the "pre-testing" procedure (Beaton at al., 2000, p.3187).

Finally, Borsa and colleagues (2012) proposed a validity check as a concluding step. Even though there is no consistency among studies with regard to the exact procedures for estimating the validity of the adapted version of the instrument, the authors suggest two main areas of interest: 1) the instrument's functioning in a new cultural and linguistic context; 2) its functioning in cross-cultural studies. According to the authors, the former might be estimated via a structural consistency check, by exploratory and confirmatory factor analysis. As for the latter, as it involves "different versions of the same instrument" (Borsa, et al., 2012, p.428), one of the suitable methods for construct equivalence estimation might be differential item functioning (DIF), proposed by Item Response Theory (IRT). However, the studies which applied the DIF method usually report the results of analysis based on large samples (e.g. Sireci, Yang, Harter, & Ehrlich, 2006, based their analysis on the results of 30,000 participants in an English-speaking group, 531 and 510 in Italian-speaking groups, and 2,465 and 1,739 in Polish-speaking groups).

Ideally, each instrument intended to be used in a new cultural / cross-cultural context should undergo all the steps of transadaptation described above. Some researchers also consider it necessary to conduct an additional series of small-scale studies using focus groups to resolve potential translation bias (Miller & Chandler, 2002); others highlight the importance of creating a detailed user manual for the new language version of the instrument (Hambleton et al., 2004). In any case, since no consensus on the exact procedure has been reached in the dedicated literature, each adaptation project might vary in its adaptation trajectory. Maneesriwongul and Dixon (2004) reviewed 47 studies describing adaptation of instruments used in nursing research from English into other languages. All methods of adaptation were classified into the following six categories, from the simplest to the most sophisticated: a) forward-only translation (total number of studies = 2); b) forward translation with testing (N=7); c) back translation; d) back translation and monolingual test (N=18); e) back translation and bilingual test (N=3); f) back translation and monolingual and bilingual tests (N=4). The authors identified four reasons influencing the selection of adaptation trajectory. The choice of strategy highly depends on the available budget, time limits and the purposes of the adaptation. The authors highlight that none of the methods is perfect if applied separately. For example, even though they insist on the importance of back translation (Brislin, 1970), they admit that,

like any other method, it has disadvantages: "… a target language version resulting from poor translation might still retain much of the source language's structure, so that is easy to back-translate correctly despite translation errors" (Maneesriwongul & Dixon, 2004, p. 176; see also Naglieri & Graham, 2003, p.107). Thus, only a combination of several adaptation techniques may lead to a proper outcome from the entire procedure.

Chapter III. Presentation of the BVL_4-12

The focus of this chapter is on the original version of the BVL_4-12 - "Batteria per la Valutazione del Linguaggio in bambini dai 4 ai 12 anni" (Marini et al., 2015). The three parts of the battery are described in detail. Specifically, we discuss the structure of all the tasks included in each part of the battery, the purposes of each task, the stimuli and their selection criteria, the method of administration, and the scoring method.

Here we describe the general characteristics of the BVL_4-12 (Marini et al., 2015). It is a comprehensive battery of tests with solid theoretical and psychometric properties. The Battery was originally developed to assess language development and detect potential language disorders in Italian-speaking children and consists of tasks assessing oral production, comprehension and repetition across a number of linguistic skills. Normally, the BVL_4-12 can be administered in two 45-minute sessions. The BVL_4-12 kit includes a USB flash drive containing the digital application necessary for calculating the score for the multilevel evaluation of narrative and phonological discrimination tests, and for listening to the audio stimuli for the linguistic prosody comprehension and emotional prosody comprehension tests. The Battery is designed so to assess the development of the phonematic, lexical, syntactic, morphological and pragmatic language subsystems.

The Battery can be divided into three parts:

Part 1 includes the following tasks:

- Naming and articulation (for children from 4 to 6.11 years of age) and Naming (for children from 7 to 11.11 years of age);
- Phonological fluency;
- Semantic fluency;
- Sentence completion;
- Narrative discourse production.

Part 2 includes the following tasks:

- Phonological discrimination;
- Lexical comprehension tasks for children aged from 4 to 5.11 years old and for older children (from 6.00 to 11.11 years of age);
- Grammatical comprehension;

- Grammatical judgment;
- Comprehension of idiomatic expressions;
- Comprehension of linguistic prosody;
- Comprehension of emotional prosody.

Part 3 includes the following tasks for assessing **repetition skills:**

- Word repetition;
- Non-word repetition;
- Sentence repetition at pre-school age;
- Sentence repetition at school age.

III.1. Part 1 of the Battery

III.1.1. Naming and articulation (for children from 4 to 6.11 years of age)

The tasks from Part 1 aim to assess **production skills.** The **naming and articulation task** evaluates the ability of children age 4 to 6 years and 11 months to access target words in their mental lexicon and to properly articulate them. The words that this task consists of have been selected according to their frequency and their grammatical and semantic categories (see Bertinetto et al., 2005). Words with a frequency greater than 100 were considered very frequent (N = 27). Words with a frequency between 99 and 20 were considered high frequency (N = 34). Words with a frequency lower than or equal to 19 were considered low frequency words (N = 16). The stimuli comprise 70 nouns and 7 verbs. The 70 nouns are divided into 16 semantic categories: clothing (4 stimuli); dwellings (2 stimuli); animals (19 stimuli); furniture (3 stimuli); words related to recreational activities (3 stimuli); colours (3 stimuli); home appliances (1 stimulus); celestial phenomena (1 stimulus); transport (3 stimuli); drinks (1 stimulus); food (3 stimuli); words related to nutritional activities (3 stimuli); body parts (6 stimuli); plants (6 stimuli); tools (4 stimuli); words not belonging to the categories listed above (8 stimuli).

All 7 verbs are verbs of action with variable frequency of use.

The words have been assembled in order to make a child articulate a total of 202 consonantal phones:

- 74 occlusive consonants: 18 bilabials, 10 of which are voiceless and 8 are voiced; 32 dentals, 25 voiceless and 7 voiced; 24 velars, 18 voiceless and 6 voiced;

- 28 fricatives: 11 alveolars, 7 voiceless and 4 voiced; 14 labiodentals, 6 voiceless and 8 voiced; 3 voiced palato-alveolars;
- 16 affricates: 5 alveolars, 2 voiceless and 3 voiced; 11 palato-alveolars, 6 voiceless and 5 voiced;
- 35 nasals: 9 bilabials; 23 alveolars with their various realisations (dental, velar, pre-palatal, etc.); 2 palato-alveolars; 1 alveolar occlusive nasal;
- 29 laterals: 26 alveolars; 3 palato-alveolars;
- 23 polyvibrants.

The words were selected so as to present the various phones in different positions (initial, final, internal, geminate), especially coarticulatory positions. It is thus possible to contemporarily obtain information on the child's denominating capacity and articulatory skills.

The examiner uses the Book of Stimuli 1 to do three trials and then start to administer the real task. As the administration of the test proceeds, the examiner turns the pages of the book of stimuli, indicates the target picture to the child and transcribes the supplied answers on the notepad (in the "Answer" column). For every picture or colour to denominate, the child has 10 seconds. If the child does not succeed in supplying the corresponding word to the stimulus picture, the examiner shall tell them and ask them to repeat it out loud. What the child repeats shall be accurately transcribed. If the child supplies an inadequate answer, identifying part of the stimulus (e.g. *nail* instead of *finger*), they shall be asked to reformulate their answer. Diminutives (e.g. *doggie* instead of *dog*) are considered correct. The total of correct denominations (independently from articulatory accuracy) is scored in *Denomination*. The total of correct articulations and repetitions is scored in *Articulation*. If 5 consecutive answers are incorrect or not supplied for denomination, scoring in *Denomination* shall be interrupted but scoring in *Articulation* shall proceed. If there are 5 consecutive mistakes in articulation, the test shall proceed. In the "Annotations" field, the examiner inserts considerations about the strategies apparently deployed by the child to complete the task or about possible attention difficulties that might affect the child's performance.

Two different scores can be derived from the *naming and articulation* task. Thus, during the same test it is possible to evaluate both lexical selection capacity (*Naming* score) and access to phonological information with relative planning and articulatory execution (*Articulation* score). The *Naming* score examines the ability to select items within the mental lexicon, and

produce the correct word. The score is calculated by summing all the times when the child denominated a stimulus picture correctly. Correct answers correspond to the target words and related lexical variations. The former as well as the latter shall be listed in the notepad for every item to be denominated. More precisely, 1 point is scored for every correctly denominated picture and 0 points are scored for every picture for which an incorrect name/verb has been supplied or no answer has been given. The final score consists of the sum of every correct answer produced. The highest possible score is 77. As this score concerns the child's capacity to identify the target word within the mental lexicon, articulatory accuracy is irrelevant to the *Denomination* score. Therefore, 1 point shall be scored for a well-articulated correct answer (e.g. *cow*) as well as for a correct answer that is inaccurate from an articulatory point of view (**tow*).

The *Articulation* score measures the child's ability to articulate the words they produce properly. It is calculated by summing all the times when the child correctly articulated the target word. 2 points are scored if the child correctly names and articulates the word on the first try, 1 point if (s)he is not able to name the word but can correctly repeat it after having heard it from the examiner, and 0 points if (s)he does not supply any answer or do not properly articulate the target word, even when repeating it. The highest possible score thus is 154.

III.1.2. Naming (for children from 7 to 11.11 years of age)

In older children (7.0-11.11 years old) the ability to access target words is evaluated through the administration of a series of 67 drawings from the Book of Stimuli 1 that depict commonly used objects, pieces of clothing, means of transport, animals, fruit, colours, and actions. The stimuli were selected according to their frequency of use (Bertinetto et al., 2005). The stimuli to be denominated are 51 nouns and 16 verbs. The 51 nouns are split in to 15 semantic categories: clothing (4 stimuli); animals (11 stimuli); furnishings (5 stimuli); words related to recreational activities (3 stimuli); colors (4 stimuli); home appliances (2 stimuli); celestial phenomena (1 stimulus); geometric shapes (1 stimulus); professions (2 stimuli); words related to nutritional activities (3 stimuli); body parts (4 stimuli); vegetables (5 stimuli); transport (3 stimuli); substances (1 stimulus); stimuli not belonging to the categories listed above (2 stimuli).

The 16 verbs are action verbs with variable frequency of use.

The method of administration is similar to that described above for younger children, however, if the child does not provide an answer, the test shall proceed to the following question without repetitions. Responses that are not correctly articulated but in which it is possible to recognise the target are to be considered correct. The examiner scores 1 point for every correctly denominated picture and 0 point for every picture for which an incorrect name/verb has been supplied or no response was given. Correct responses must correspond to the target words and related lexical variations. The final score consists of the sum of every correct response given. The highest possible score is 67.

III.1.3. Phonological fluency

The phonological fluency task allows the examiner to determine the child's ability to access words in the mental lexicon using a phonological strategy. It is thus possible to evaluate not only lexical abilities but also the capacity to focus on the task, inhibiting inappropriate words and selecting only those compatible with the instructions provided by the examiner. The examiner asks the child to produce the highest possible number of words beginning with a specific phoneme over a 1-minute time span: 1 minute for the /f/ phoneme; 1 minute for the /s/ phoneme. All the words produced by the child are to be transcribed on the notepad in the designated area ("Produced words"). For each of the two conditions the examiner scores 1 point for every correctly produced word. Proper nouns and repeated or derived words are not to be scored as correct words (e.g. in the sequence fog, foggy, fogged only the first produced word is to be scored as correct). The examiner thus obtains a partial score pertaining to fluency for words beginning with the /f/ phoneme and another pertaining to fluency for words beginning with the /s/ phoneme. These two scores are to be summed to deduce the final score for phonological fluency.

III.1.4. Semantic fluency

The next task in the first part of the Battery is the **semantic fluency task**. It allows the examiner to determine the child's capacity to select target words belonging to specific semantic categories in the mental lexicon. The examiner asks the child to produce as many words as possible belonging to a specific semantic category over a 1-minute time span: 1 minute for the ANIMALS category; 1 minute for the OBJECTS category. The words to be produced must all be common nouns (proper names must not be produced). All the words produced by the child

are transcribed on the notepad in the designated area ("Produced words"). In each of the two parts of the test, the examiner scores 1 point for every correctly produced word. The production of extinct animals' names is to be considered correct (e.g. dinosaurs, pterodactyls, etc.). Repeated words or the simple repeating of words previously provided as examples by the examiner are not to be considered correct. If, after they have said a specific word, the child provides derived forms of it, the latter are not to be scored as correct answers (e.g. for the sequence *dog, doggie, puppy*, only 1 point is scored for the first word: *dog*) unless a different referent is introduced per gender (e.g. *rooster, hen* = 2 points). On the other hand, if the child produces words that are not phonologically well-formed, but are semantically ascribable to the correct conceptual category, these words are to be considered as correct answers (e.g. *tangaroo instead of kangaroo, *tocrodile instead of crocodile, or *gat instead of cat).

In the OBJECTS category, even words referring to objects that carry out very specific functions in the house are accepted (e.g. stove, fireplace, door, bathtub, sink, bidet, toilet, switch, shower, cabinet). On the contrary, room names (e.g. bathroom, kitchen, living room, etc.), food names (e.g. pasta, bread, etc.), drink names (e.g. water, Fanta, etc.), plants or animals are not to be considered correct. The examiner thus obtains a partial score pertaining to fluency for the ANIMALS category and another pertaining to fluency for the OBJECTS category. These two scores are summed to deduce a final semantic fluency score.

III.1.5. Sentence completion

The sentence completion task allows the examiner to evaluate the child's capacity to elaborate aspects linked to the derivational and flexive morphology of verbs, in a completion task of 14 sentences of increasing length and complexity. The stimuli have been selected in order to progressively increase the difficulty of the task. The first 5 stimulus sentences evaluate the elaboration of flexive morphology with linked morphemes. From the sixth stimulus on, flexive morphology is also evaluated using potential auxiliaries (therefore free and potentially linked morphology). Various forms of derivational and flexive flexions have been taken into account while selecting the stimuli, including active (n = 3) and passive transitive verbs (n = 2 action verbs), unaccusative (n = 2) and unergative intransitive verbs (n = 4), and reflexive verbs (n = 3).The examiner asks the child to listen to some sentences and then to complete others. The answers supplied by the child are to be recorded on the notepad in the designated area

provided next to each item. If the child makes 5 consecutive mistakes, the test shall be interrupted.

The examiner scores 1 point for each correctly completed sentence, and notes when the child introduces the target word (indicated on the right), and scores 0 points for each uncompleted or incorrectly completed sentence. As the focus is on verb flexion, the way in which the child re-elaborates the other components of the sentence is irrelevant. Therefore, if they make phonological or articulatory mistakes, they are not penalised. The final score is obtained from the sum of the correct answers. The highest possible score is 14.

III.1.6. Narrative discourse production

The narrative discourse production task allows the examiner to evaluate the child's narrative and descriptive abilities. It is important to underline that the language samples produced by the children can be analysed on two levels: a more superficial one that only provides information on the child's lexical and grammatical production abilities, and a more in-depth one that also gives information on their discursive and, in a broader sense, communicative abilities.

The examiner presents to a child the Book of Stimuli 1 and asks the child to carefully observe the illustration composed of six coloured scenes (Storia del nido [Story of the nest] modified by Paradis, 1987, p.75).

Transcription and analysis procedures are thoroughly described in detail in Marini and Carlomagno (2004) and Marini et al. (2011).

Level I analysis

- **Productivity** (Number of produced words. Narrative fluency (words per minute: [produced words / time] * 60); Mean length of utterance (MLU: [produced words / utterances]);
- **Lexical elaboration** (% of phonological mistakes ([phonological mistakes / units] * 100); % of semantic paraphasias ([semantic + verbal paraphasias / produced words] * 100); % of paragrammatisms ([paragrammatisms / produced words] * 100);
- **Grammatical elaboration** (% of complete sentences ([complete sentences / total utterances produced] * 100).

Level II analysis

- **Speech elaboration** (% of cohesion mistakes ([cohesion mistakes / total utterances produced] * 100); % of local coherence mistakes ([local coherence mistakes / total utterances produced] * 100); % of global coherence mistakes ([global coherence mistakes / total utterances produced] * 100);
- **Functional evaluation** (% of lexical informativity ([lexical informativity / total utterances produced] * 100).

The multilevel evaluation of narrative provides information on many of the child's linguistic skills. Firstly, it allows evaluation of their ability to produce an adequate quantity (neither excessive nor too limited) of words with adequate fluency and the production of utterances of a normal length for their age. If a child produces too many words relative to expectations, it means they are very verbose, especially in cases in which these data are associated with an excessively low percentage of lexical informativity. Such cases might signal difficulties in selecting relevant words in context, or potential difficulties in accessing the information contained in the words within the mental lexicon (production of semantic paraphasias, phonological mistakes, paragrammatisms, full lexical pauses, undefined words, repeated words) or difficulties in managing speech coherence (words present in tangential utterances, in semantically incorrect formulations, in repeated or filler utterances). A low score in narrative fluency can indicate difficulties in lexical access, whichin turn can be further explored with the denomination and articulation, denomination, semantic fluency, and phonological fluency tests. An MLU below expectations might indicate a reduced capacity of phonological working memory (children would produce shorter utterances since they are able to simultaneously manage only a limited quantity of information), but also difficulties in managing aspects of morphology or syntax. In this respect, a comparison with other indicators, such as the percentage of complete sentences, can be helpful.

With regard to the elaboration aspects that are more linked to the ability to access the information contained in lexical entries, a low score in the percentage of phonological mistakes indicates problems with access to the phonological information contained in the activated lexical entries. Further information on phonological and articulatory abilities can be obtained by administering the denomination and articulation and phonological discrimination tests. The production of semantic paraphasias and paragrammatisms indicates, respectively, difficulties in lexical selection and in accessing the morphological and morphosyntactic information

contained in lexical entries. Further information on these two aspects can be derived by administering, respectively, the denomination and articulation, denomination, semantic fluency and phonological fluency tests, and the sentence completion, grammatical comprehension and grammatical judgement tasks. In relation to grammatical elaboration, a low score in the percentage of complete sentences indicates the presence of difficulties in managing the morphosyntactic and morphological information within lexical storage, with the relative production of utterances with omissions of functors or content words or characterised by the replacement of morphemes or function words.

With regard to the measures that evaluate the organisation of the narrative level, the presence of numerous cohesion and local and/or global coherence mistakes indicates a scarce capacity to manage the information conveyed within a speech in a coherent way, introducing utterances that are contextually inappropriate or otherwise inefficient from a communicative point of view. Finally, a low percentage of lexical informativity reveals an incapacity of a child to convey relevant and informative words in an appropriate way during the process of production.

III.2. Part 2 of the Battery

III.2.1. Phonological discrimination

The tasks included in Part 2 aim to assess **comprehension skills.**, **The phonological discrimination task** aims at evaluating the child's capacity to recognise phonologically identical words and discriminate between minimal pairs, i.e. words that only differ in one single phoneme. This test permits extrapolation of a percentage of phonological discrimination. This is an extremely important metaphonological skill that, in general, children tend to acquire relatively early during the course of their development. It can provide a very important indication of auditory and/or phonological perception disorders in the case of an insufficient performance.

The stimuli were selected so to present a child with 10 pairs of identical words and 20 minimal pairs. The stimuli words were selected to subject the child to a task of discriminating a large number of phones with different manners (e.g. occlusives, fricatives, affricates, nasals, etc.) and places of articulation (dentals, bilabials, verlars, labiodentals, etc.). Overall, a list of 30 pairs of words is read aloud to a child during the task. Each time a child identifies the words

as identical, (s)he is supposed to say *yes*, and if the stimuli are not identical, *no*. If the child answers incorrectly, the same pair of words must be read to them a second time, but asking the child to simply repeat it. In this case, no points are scored even if the repetition is correct. The examiner scores 1 point for each pair correctly identified as different or identical.In the event of an incorrect answer, 0 points are scored. At the end of the task, the examiner calculates the number of correctly identified unidentical pairs (correct answers, with a maximum number of 20) and the number of possible identical pairs of words that were incorrectly recognised as unidentical (false alarms, with a maximum number of 10). They are thus able to extrapolate the percentage of correct answers and the percentage of false alarms and to obtain a percentage of phonological discrimination calculated by subtracting the percentage of false alarms from the percentage of correct answers.

III.2.2. Lexical comprehension tasks for children aged from 4 to 5.11 years old

Lexical comprehension at pre-school age. This task evaluates lexical comprehension abilities in children of pre-school age from 4 years to 5 years and 11 months old. It consists of 18 stimuli of high and very high frequency. For every target stimulus, three distracting stimuli are introduced that are carefully matched in order to provide a phonological distractor (a word that is phonologically similar to the target word), a semantic distractor (a word that is semantically similar to the target word) and an unrelated distractor. Consequently, this test can also determine whether the child does not manage to comprehend the meaning of the perceived word because they confuse phonologically similar words (choosing phonological distractors), is not able to inhibit words that belong to similar semantic field (choosing semantic distractors), or has general lexical comprehension difficulties (chaotically choosing the target or one of the three distracting stimuli).

The stimuli used for this test, all nouns, have been carefully selected and checked for frequency of use (Bertinetto et al., 2005): 10 words with very high frequency of use (with a frequency greater than 100), 7 words with high frequency of use (between 99 and 20) and 1 word with low frequency of use (lower than or equal to 19).

As the administration of the test progresses, the examiner turns the pages of the book of stimuli and pronounces the target word to the child. For each stimulus the child has 10 seconds at their disposal. If the child does not answer, the examiner ticks “0” and goes on to the next question. If 5 consecutive answers are incorrect or not supplied the test must be

interrupted. The examiner scores 1 point for each correctly recognised word and 0 points for each answer that is incorrect or not supplied for a total of 18 correct answers.

III.2.3. Lexical comprehension tasks for older children (from 6.00 to 11.11 years of age)

This task evaluates lexical comprehension abilities in children aged 6 to 11 years and 11 months. It is composed of 42 stimuli of low, medium and high frequency. As in the lexical comprehension at pre-school age test, for every target stimulus, three distracting stimuli are introduced. The stimuli were matched so to provide a phonological distractor (a word that is phonologically similar to the target word), a semantic distractor (a word that is semantically similar to the target word) and an unrelated distractor. The stimuli used for this test are 31 nouns, 10 verbs and 1 adjective. The stimuli were carefully selected and checked for their frequency of use (Bertinetto et al., 2005) so that the child is exposed to a comprehension task of only 4 words with very high frequency of use (with a frequency greater than 100: *patto, fuga, fonte, pieno*), 8 words with high frequency of use (between 99 and 20: *tazza, lettore, organo, fetta, leva, polso, allargare, inserire*) and 30 words with low frequency of use (lower than or equal to 19: *giglio, alga, pungere, velare, basco, spiga, calco, scartare, felce, zappa, cervo, saggio, mischiare, cubo, salice, mulo, annusare, accostare, nuocere, lavagna, struzzo, cocco, panca, belva, tacchino, pezza, colletto, vesto, falco, dama*). The method of administration is the same as for younger children. The examiner scores 1 point for each correctly recognised word and 0 points for each answer that is incorrect or not supplied, for a total of 42 correct answers.

III.2.4. Grammatical comprehension

The grammatical comprehension task evaluates, in children between 4 and 12 years old, the ability to comprehend the meaning of sentences with the most diverse grammatical structures. It is thus possible to establish the maturation level of the receptive grammatical system achieved by the child. A series of 40 sentences of variable grammatical complexity should be read out loud to a child. Children are required to indicate which one of four drawings (one target and three distractors) depicts the meaning of the sentence they listened to. For this test, 40 sentences of variable syntactic complexity have been selected. Each target sentence is matched with three distracting drawings. Only one drawing depicts the meaning of the sentence

read by the examiner (target drawing), while the other three contain modified elements of inflectional morphology and syntactic organisation.

For each stimulus, the child has 10 seconds at his/her disposal. If the child does not answer, the examiner shall tick "0" and go on to the next sentence. If 5 consecutive answers are incorrect or not supplied, the test must be interrupted. It is essential that, when reading the various stimuli sentences, the examiner articulates them while maintaining a linear prosodic pace, without unnaturally emphasising some portions of the sentence rather than others.

For each correctly recognised sentence, 1 point should be assigned, and 0 points for each sentence for which an incorrect answer has been supplied or in cases where the child has not supplied an answer within 10 seconds. The maximum possible score is 40 correct answers. The qualitative aspect, on the other hand, derives from the possibility of knowing if a possible lower-than-expected performance in this test stems from difficulties in discriminating between specific distractors and the target picture.

III.2.5. Grammatical judgment

The grammatical judgment task allows the examiner to evaluate the child's ability to make judgements of grammatical acceptability on a total of 18 sentences of variable length and syntactic complexity. A poor performance on this test might indicate a problem in the development of the child's metagrammatical abilities.

For this task, 18 sentences of variable length and syntactic complexity have been selected. Overall, 9 grammatically unacceptable sentences and 9 grammatically well-formed sentences have been created. The sentences have been chosen so as to evaluate adjective-noun agreement (items 1 – *La bimba è buono* and 16 – *La mela è rossa*), subject-verb agreement (items 2 – *I bambini lava i denti* and 14 – *La macchina corre sulla strada*), article-noun agreement (items 4 – *Il bambino mangia le mela* and 9 – *La mamma pettina la bimba*), the use of the third person pronoun (items 5 – *A lei comprano la bambola* and 12 – *Lui ci piace la televisione*), the organisation of affirmative (items 3 – *La mamma è baciata dal papà* and 6 – *Il gatto è mordendo dal cane*) and negative (items 7 – *Il cane è non morso dal gatto* and 11 – *L'acqua non è bevuta dal bimbo*) sentences in the passive voice, sentences in the active voice (items 13 – *La pasta non è sul piatto* and 17 – *Il bambino sveglia la mamma non*) and relative clauses (items 8 – *Il bambino che leggono i libri è grande* and 18 – *Il gelato che la bimba*

mangia è buono), and dislocation to the left (item 10 – *È la ragazza che baciano il ragazzo* and item 15 – *È il ragazzo che beve l'acqua*).

For each stimulus, the child has 10 seconds at his/her disposal. If the child does not answer, the examiner shall go on to the next sentence. If 5 consecutive answers are incorrect or not supplied, the test must be interrupted. It is essential that, when reading the various stimuli sentences, the examiner articulate them while maintaining a linear prosodic pace, without unnaturally emphasising some portions of the sentence rather than others.

The examiner scores 1 point every time the child answers correctly and 0 points every time they have not answered within the 10 seconds or have supplied an incorrect answer. The maximum score is 18 points.

III.2.6. Comprehension of idiomatic expressions

Comprehension of idioms evaluates the child's ability to comprehend the indirect meaning conveyed by a series of 10 idioms by choosing the correct one among the various alternatives. The task consists of reading the idiom to the child and then giving them three possible alternative interpretations: one is correct; one is semantically close to the meaning of the target idiom but pragmatically inappropriate; the last one coincides with the literal meaning of the idiom. These alternatives are indicated in the notepad in the "Answer alternatives" column. The correct answer is highlighted in bold. If there is no answer within 10 seconds, the examiner scores "0" and proceeds to the next question. In the event of a correct answer 1 point shall be scored, for a total of 10 correct answers. If 5 consecutive answers are incorrect or not supplied, the test must be interrupted. An insufficient score at this test can derive from the incapacity to comprehend the indirect meaning conveyed by idioms, but can also derive from difficulties of a perceptive or phonological nature, from problems with lexical and/or grammatical comprehension, or from phonological working memory disorders.

III.2.7. Comprehension of linguistic prosody

Linguistic prosody comprehension evaluates the child's capacity to perceive and interpret the linguistic prosody of a sentence by determining if it is a question, an order or a statement. The examiner plays on the PC or a laptop a total of 12 sentences composed of an independent clause without dependent clauses. Each sentence's prosody has been modulated in

order to produce a statement, an order or a question. If no answer is given within 10 seconds, the examiner shall go on to the next sentence. If necessary, the examiner may repeat the question about whether the stimulus is an order, a statement or a question. 1 point is scored for each correctly interpreted sentence, for a total of 12 correct answers. 0 points are scored for each sentence the child has incorrectly evaluated or if the child has not supplied an answer within 10 seconds from the end of listening to the stimulus sentence. If 5 consecutive answers are incorrect or not supplied, the test is to be interrupted.

III.2.8. Comprehension of emotional prosody

Comprehension of emotional prosody. This task evaluates the child's ability to perceive and interpret the emotional prosody of a sentence by determining if a produced sentence has a happy, sad or angry intonation. The digital application contains 12 prerecorded items for emotional prosody comprehension. The sentences are composed of an independent clause without dependent clauses. Each sentence's prosody has been modulated so to produce a happy, sad or angry intonation. The scoring method is the same as described for linguistic prosody comprehension.

III.3. Part 3 of the Battery

III.3.1. Word repetition

The tasks from Part 3 aim to assess **repetition skills. The word repetition task** allows the examiner to evaluate the child's ability to correctly perceive and repeat some simple words of Italian. For this task, 15 words (14 nouns and one adjective) have been selected in order to provide:

- four monosyllabic stimuli consisting of only one free morpheme formed, respectively, by two phonemes [1 stimulus], three phonemes [1 stimulus], and four phonemes [2 stimuli];
- five bisyllabic stimuli consisting of two bound morphemes formed, respectively, by four phonemes [2 stimuli], five phonemes [2 stimuli], and six phonemes [1 stimulus];

- five trisyllabic stimuli consisting of words consisting of two morphemes formed, respectively, by five phonemes [2 stimuli], six phonemes [2 stimuli], and seven phonemes [1 stimulus];
- one stimulus consisting of 4 syllables and 10 phonemes [1 stimulus].

For each word correctly repeated on the first try, the examiner scores 1 point, for a total of 15 correct answers. A word is considered correctly repeated if all consonants and vowels have been reproduced faultlessly. Possible cases of rhotacism (difficulty with the /r/ sound) and sigmatism (difficulty with the /s/ sound) are not to be considered mistakes. If the word repeated by the child presents additions, replacements and/or omissions of phonemes, 0 points are scored. It will thus be possible to evaluate the possible presence of articulatory disorders. If the child makes 5 consecutive mistakes, the test must be interrupted.

III.3.2. Non-word repetition

The non-word repetition task allows evaluation of the child's ability to correctly perceive and repeat some simple sequences of phonemes that do not form words that actually exist in the Italian language even if they present a legal phonotactic organisation. They are, therefore, plausible sequences for Italian. For this task, 15 sequences of phonemes have been selected that form a total of 15 non-words, legal in this language's system, of increasing length from one to four syllables: 3 stimuli consist of one syllable composed of three phonemes [3 stimuli]; 6 stimuli consist of two syllables composed of 4 phonemes [1 stimulus], 5 phonemes [4 stimuli], and 6 phonemes [1 stimulus]; 3 stimuli consist of three syllables composed of 6 phonemes [2 stimuli] and 7 phonemes [1 stimulus]; 3 stimuli consist of four syllables composed of 8 phonemes [1 stimulus], 10 phonemes [1 stimulus], and 11 phonemes [1 stimulus]. For each correctly repeated sequence, the examiner scores 1 point, for a total of 15 correct answers. A word is considered correctly repeated if all consonants and vowels have been reproduced faultlessly. Possible cases of rhotacism (difficulty with the /r/ sound) and sigmatism (difficulty with the /s/ sound) are not to be considered mistakes. If the sequence repeated by the child presents additions, replacements and/or omissions of phonemes, 0 points are scored. If the child makes 5 consecutive mistakes, the test must be interrupted.

III.3.3. Sentence repetition at pre-school age

Sentences repetition at pre-school age allows evaluation of the ability of children aged 4 to 5 years and 11 months to correctly perceive and repeat a series of 20 sentences of increasing length: 17 simple sentences, consisting of 1 in the passive voice, 1 negative, 1 with the verb in the imperative form, 2 with copular constructions, and 12 affirmative; and 3 complex sentences, consisting of 1 cleft sentence and 2 dependent). After having read each sentence, the examiner waits for the child to repeat it. For each correctly repeated sentence, the examiner scores 1 point, for a total of 20 correct answers. A sentence is considered correctly repeated when its words have been reproduced in the correct order. If the child reproduces the sentence in an appropriate way but, while doing so, makes phonological or articulatory mistakes (e.g. phonological paraphasias, phonetic paraphasias, or false starts), the sentence under examination is to be considered correct and the point shall be scored. If, on the other hand, the sentence repeated by the child presents additions, replacements, omissions or reformulations, 0 points shall be scored. In the event of an incorrect repetition, what has been repeated by the child must be transcribed in the designated area underneath each item. If the child makes 5 consecutive mistakes, the test is to be interrupted.

III.3.4. Sentence repetition at school age

Sentence repetition at school age allows the examiner to evaluate the ability of children aged 6 to 11 years and 11 months to correctly perceive and repeat a series of 20 sentences of increasing length (8 simple sentences: 3 negative, 1 copular constructions, 4 affirmative; 12 complex sentences: 3 dependent of which 1 negative, 2 comparative, 2 cleft sentences, 1 causal, 1 declarative, 1 adversative, 1 exclusive, 1 hypothetical). The rules for the tasks' administration and scoring are the same as those for younger children.

Thus far, I have presented the Battery originally created for speech and language assessment in Italian-speaking children from 4 to 12 years of age. In the following chapter, we demonstrate BVL_4-12 application in bilingual settings.

Chapter IV. Application of the BVL_4-12 in bilingual settings: first experiment

Chapter IV describes the application of the BVL_4-12 in academic research and investigations in the educational sector, both in mono- and bi-/multilingual settings. It is especially valuable considering the growing attention that is focused nowadays on the various side effects of bilingualism in general and second language learning in particular. Recently, the impact of early second-language exposure on the development of first language and memory was explored in bilingual children by administering the BVL_4-12 (Marini, Eliseeva, & Fabbro, 2016). The study, involving 64 preschoolers acquiring and developing language in two different ways, will be described in this chapter.

IV.1 Description of the experiment

Several studies have documented the cognitive advantages of bilinguals of different ages (e.g., Prior & MacWhinney, 2010; Bialystok, Craik, & Freedman, 2006 – for adults' advantages; Yoshida, Tran, Benitez, & Kuwabara, 2011; Carlson & Meltzoff, 2008; Bialystok & Martin, 2004 – for positive side effects in children, and even infants raised as simultaneous bilinguals described in Kovács & Mehler, 2009; Bosch & Sebastián-Gallés, 1997). The origin of such advantages, however, remains a highly disputable topic. Rapidly growing evidence suggests that these advantages cannot be explained in isolation from overall executive system functioning and memory systems in particular. Several studies independently described advantages demonstrated by groups of bilingual participants over those consisting of monolinguals on a series of tasks assessing shifting and inhibition as parts of overall executive control (Blumenfeld & Marian, 2014; Krizman, Skoe, Marian, & Kraus, 2014; Prior & MacWhinney, 2010; Bialystok & Martin, 2004; Bialystok, 1999). The role of specific memory components (i.e. verbal short term and WM) in language acquisition and development is currently under intensive exploration. Both verbal short term and WM were shown to correlate with language learning processes (e.g., Verhagen & Leseman, 2016) and to be crucial for language development (e.g. Stokes & Klee, 2009). Moreover, they are related to lexical acquisition and grammatical processing in both L1 and L2 language learners (e.g. Engel de Abreu & Gathercole, 2012; Kormos & Sáfár, 2008; Baddeley, Gathercole & Papagno, 1998). However, the results provided by those few studies directly comparing the performance of

mono- and bilinguals on tasks assessing VST and verbal working memory are rather controversial (see Linck et al., 2014; Blom et al., 2014; Bialystok et al., 2004). Some of them did not reveal a significant difference in the performance of the two groups of participants (e.g. Engel de Abreu, 2011), but others did (e.g. Morales et al., 2013). However, considering the differences in study designs (i.e. applied tasks and different elements of memory assessed via those tasks) and participants' characteristics (i.e. age and socio-economic status), such diverse results and further interpretations are rather expected. Other factors affecting performance on diverse memory tasks were listed in the literature (e.g. type of bilingualism – Namazi & Thordardottir, 2010).

Milestones of one native language acquisition process are well described in developmental psychology and linguistics. Less is known about acquisition of more than one language, simultaneously or sequentially, and interference-related effects on overall cognitive development. It was shown that bilinguals might experience difficulties in lexical selection and access, have smaller vocabularies than monolinguals in their L1, and, thus, lag behind their monolingual peers on tasks assessing lexicon size (e.g. Bialystok, Luk, Peets, & Yang, 2010; Michael & Gollan, 2005; Gollan, Montoya, & Werner, 2002; Engel de Abreu, 2011; Rosselli et al., 2000). Among various factors affecting parallel acquisition of languages, this might be due to unbalanced frequency of exposure to two (or more) languages (see Grosjean, 2010; Cattani, Abbot-Smith, et al., 2014).

The current study **aimed** to analyze the impact of early L2 immersion on PST- and WM and on L1 development. Additionally, with this study we aimed at investigation of BVL_4-12 application in bilingual context. It was hypothesized that such L2 immersion might to some extent affect the development of PST- and WM as it receives additional load. Moreover, based on the existing literature devoted to the bilingual language development in children, we hypothesized that it might change the trajectory of L1 development. The resources of the original Italian version of BVL_4-12 were utilized, along with a set of cognitive tasks. The performance of a cohort of 4 to 5-year-old monolingual Italian-speaking children was compared to that of a group of sequential bilinguals, who started to acquire their L2 from the age of 3, when they entered international kindergarten, where the language of instruction and interpersonal communication was English. All children were born and raised in Italy; however, children included in the control group were speaking exclusively Italian, and those in the experimental group had to use English approximately 40% of the week while talking to their teachers and friends at school. At the same time, bilingual children continued being exposed to

Italian while communicating with family and friends (approximately 60% of the week). It was hypothesized that such unbalanced constant exposure to the L2 might lead to enhancement of their PST- and WM skills, while the development of L1 might remain intact, because they were raised in a monolingual Italian environment until the age of 3.

IV.1.1. Participants

For the purposes of the study, a cohort of 62 Italian-speaking children with TD and similar SES was split into control and experimental groups carefully matched for chronological age, level of formal education, sex, handedness, SES based on parental education, and non-verbal logical reasoning as measured by administering Raven's progressive matrices (see Table IV.1.1:1). School records and parents' reports confirmed the absence of any known history of psychiatric or neurological illness, learning disabilities, or hearing or visual loss in children. Information regarding the children's daily language usage was provided both by parents and teachers. All parents released their informed consent to the participation of their children in the study and to the treatment of the data.

The experimental group consisted of 31 sequential bilinguals aged between 4.02 and 5.11 years (mean: 4 years and 6 months, standard deviation: .50) who started to attend an international kindergarten in Northeast Italy at the age of 3. The native language of all the children was Italian. Since entering the school, they had been exposed to English for 8 hours a day and used it with schoolmates and teachers every day with the exception of weekends (40.8% of the week). For the rest of the week (59.2%) they were still exposed to Italian.

The control group was formed of 31 participants of the same age ($t(60)=-.013$; $p=.990$). These children were attending monolingual kindergartens where they were almost exclusively exposed to their mother tongue (Italian) and only marginally (2 hours a week) to English. They were selected from a larger sample of 1,300 children recruited for the standardization of the BVL_4-12.

	Monolingual group (N=31)	**Bilingual group** (N=31)
Age	4.61 (.50) – Range: 4.02-5.11	4.60 (.50) – Range: 4.02-5.11
Years of Formal Education	2.48 (.51) – Range: 2-3	2.48 (.51) – Range: 2-3
Parental Education	16.71 (2.22) – Range: 13-18	16.71 (2.22) – Range: 13-18

Sex	M = 12 (38.7%)	M = 13 (41.9%)
Handedness	Right-handed = 28 (90.3%)	Right-handed = 28 (90.3%)
Raven's Matrices	17.48 (3.88) – Range: 12-26	15.61 (3.92) – Range: 8-26

Table IV.1.1:1 Means (and SDs) showing the main characteristics of the two groups of participants

As shown in Table IV.1.1:1, all participants performed within normal range on Raven's progressive matrices (Raven, 1938), the NWR subtest of the BVL_4-12, and on the forward and backward digit recall subtests of the Wechsler Scales (Wechsler, 1993). The groups had the same education level (t(60)=.000; p=1.000), SES based on parental education (t(60)=.000; p =1.000), and level of logical non-verbal reasoning as measured with Raven's progressive matrices (t(60)= -1.888; p=.064). Furthermore, they did not differ in handedness (χ^2 = 1.200; p = .549) nor sex (χ^2 = .067; p= .796).

The assessment of children's PST- and WM, as well as of their linguistic skills, was delivered by trained developmental psychologists in a quiet room at the children's schools. All participants received 3 tasks assessing their PST- and WM (two simple span tasks: the forward digit recall subtest of the Wechsler Scales (Wechsler, 1993), and the NWR subtest of the BVL_4-12; one complex span task: the backward digit recall subtest of the Wechsler Scales (Wechsler, 1993).) In the forward digit recall test, children were asked to repeat spoken sequences of digits in the correct serial order. The sequences ranged from 1 to 9 digits that the examiner produced at the rate of 1 digit per second. The backward digit recall test is identical to the forward digit recall test, but the child is asked to repeat the sequence of spoken digits in reverse order. The administration of linguistic tasks occurred in 2 sessions of approximately 45 minutes each. In the first session, children received a cohort of tasks assessing linguistic and narrative production. In the second session, they received tasks assessing repetition and comprehension skills. Thus, the participants performed all the age-appropriate tasks from the BVL_4-12 in Italian. For the specific purposes of this study, the performance of these children on relevant tasks assessing lexical and grammatical production (i.e. naming and articulation; sentence completion task) and comprehension (i.e. phonological discrimination; lexical and grammatical comprehension tasks) is discussed below. The performance on the tasks appeared to be too difficult for the children of given age (e.g. idioms comprehension) is not discussed in this study.

IV.2. Results

Group-related differences on measures assessing children's phonological short-term and working memory (i.e., non-word repetition, forward digit recall, and backward digit recall) were analyzed with a one-way between-groups multivariate analysis of variance. Three dependent variables were used: non-word repetition, forward digit recall and backward digit recall. The independent variable was a group (children who attended the international school and children attending the monolingual school). Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no significant violations noted. Effect sizes were calculated in terms of partial eta squared. There was a significant group-related difference on the combined dependent variables: $F (2, 55) = 9.809$; Wilk's Lambda = .737; $p < .001$; partial eta squared = .263. When the results for the dependent variables were considered separately, the level of statistical significance was set at $p < .025$ (.05/2 dependent variables) after a Bonferroni correction for multiple comparisons. This analysis showed that the two groups differed only on forward digit recall [$F (1, 56) = 18.441$; $p < .001$; partial eta squared = .248] and non-word repetition [$F (1, 56) = 7.229$; $p < .009$; partial eta squared = .114]. An inspection of the mean scores presented in Table IV.2:1 showed that the group of children attending the international school performed better than those attending the monolingual school in both tasks.

As for the measure of phonological working memory (i.e. backward digit recall), a preliminary inspection showed that the distribution of the scores was positively skewed in both groups. Among bilinguals, 10 children (32.3%) could not perform the task (i.e., scored 0), 4 (12.9%) scored 1, 10 (32.3%) scored 2, 4 scored 3 (12.9%), and only 3 of them (9.7%) scored 4. Among monolinguals, there were more children who could not perform the task at all (N=16, 51,6%) and fewer children who scored 1 (N=3, 9.7%), 2 (N=7, 22.6%), 3 (N=3, 9.7%), and 4 (N=2, 6.5%). As the extreme scores (0 and 4) were the same for both groups, in order to control for group-related differences on this continuous scale we ran one Moses extreme reaction test. This analysis showed a significant group-related difference in the dispersion of scores ($p<.008$): among monolinguals the possibility of scoring 0 (i.e., not to be able to perform this complex span task) was higher and the possibility of scoring 4 was lower than in bilinguals.

Verbal Short-Term and Working Memory	Monolingual group	Bilingual group
Forward Digit Recall*	5.15 (2.09) – Range: 0-11	7.16 (1.46) – Range: 5-10
Non-Word Repetition*	13.23 (2.31) – Range: 7-15	14.55 (1.34) – Range: 8-15
Backward Digit Recall*	1.10 (1.33) – Range: 0-4	1.55 (1.34) – Range: 0-4

Table IV.2:1 Mean (standard deviations) and ranges of the performance of the two groups of participants on tasks assessing their phonological short-term and working memory. Asterisks (*) show when the group-related differences were significant

Assessment of linguistic production skills

The performance of the two groups of participants at the three tasks assessing linguistic production skills (i.e., articulation, naming, and sentence completion) is shown in Table IV.2:2. Also in this case, the group-related differences were analyzed with a one-way between-groups multivariate analysis of variance. Two dependent variables were used: non-word repetition and forward digit recall. The independent variable was a group (children who attended the international school and children attending the monolingual school). Preliminary assumption testing was conducted to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no significant violations noted. Effect sizes were calculated in terms of partial eta squared. No significant group-related difference was found on the combined dependent variables: $F(3, 58) = 1.431$; Wilk's Lambda = .931; $p = .243$; partial eta squared = .069. When the results for the dependent variables were considered separately, the level of statistical significance was set at $p < .017$ (.05/3 dependent variables) after a Bonferroni correction for multiple comparisons. This analysis confirmed the absence of any group-related difference in these three dependent variables, as children attending the international school performed in the same way as those attending the monolingual school.

Linguistic production	Monolingual School	Bilingual School
Articulation	137.74 (9.27) – Range: 103-150	136.71 (11.71) – Range: 108-152
Naming	64.16 (4.45) – Range: 57-73	62.03 (5.86) – Range: 53-75
Sentence Completion	7.61 (2.29) – Range: 4-12	7.97 (3.14) – Range: 3-14

Table IV.2:2 Mean (standard deviations) and ranges of the performance of the two groups of participants on tasks assessing their linguistic production skills in Italian

Analysis of linguistic comprehension skills

As preliminary analyses showed that the assumption of the homogeneity of variance-covariance matrices had been violated (Box's Test of Equality of Covariance Matrices: $p<.001$) for measures assessing linguistic comprehension (i.e., phonological discrimination, lexical comprehension, grammatical comprehension), group-related differences were analyzed with a series of independent-samples t-tests. The level of statistical significance was set at $p < .017$ (.05/3 dependent variables) after a Bonferroni correction for multiple comparisons. Effect sizes were calculated in terms of Cohen's d. As can been seen in Table IV.2:3, the two groups did not differ in phonological discrimination ($t(60)=1.327$; $p=.190$; $d= .342$) or grammatical comprehension ($t(60)=-.287$; $p=.775$; $d= -.074$). However, children attending the monolingual school performed better than children attending the international school in lexical comprehension ($t(60)= -2.502$; $p<.015$; $d=-.646$).

Linguistic comprehension	Monolingual group	Bilingual group
Phonological Discrimination	27.29 (4.50) – Range: 10-30	28.55 (2.77) – Range: 17-30
Lexical Comprehension*	15.32 (1.14) – Range: 13-18	14.48 (1.48) – Range: 11-17
Grammatical Comprehension	29.58 (5.33) – Range: 10-37	29.10 (7.73) – Range: 10-37

Table IV.2:3 Mean (standard deviations) and ranges of the performance of the two groups of participants on tasks assessing their linguistic comprehension skills in Italian. The asterisk (*) shows when the group-related differences were significant after Bonferroni correction for multiple comparisons ($p < .017$)

IV.3. Discussion

Overall, the results of the study support the hypothesis that early and adequate exposure to a L2 in sequential bilinguals exerts a positive effect on the cognitive development of 4-to-5-year-olds. We hypothesized that L2 immersion might affect the development of PST- and WM in children. Indeed, it boosts the development of PST- and WM while not hampering their articulatory, phonological, and grammatical development in L1. As for their lexical skills in L1, the analyses provided mixed results, with normal performance on a naming task and significantly inferior performance on a lexical comprehension task. This finding apparently supports previous studies where bilinguals performed significantly lower than monolinguals in semantic fluency (e.g., Portocarrero et al., 2007), and had smaller vocabularies than monolingual peers, especially if only one of their languages is considered (e.g. Namazi & Thordardottir, 2010; Bialystok et al., 2010; Carlson & Meltzoff, 2008; Thordardottir et al., 2006; Michael & Gollan, 2005; Gollan et al., 2002; Rosselli et al., 2000; Pearson, Fernandez, & Oller, 1993). Lexical weakness might depend on the reduced frequency of exposure to the L1 (Grosjean, 2010). However, a qualitative inspection of the performance of these children against normative data reported in Marini et al. (2015) suggests that the performance of bilingual children, although significantly lower than that observed in the group of monolinguals, was still in the normal range for the age. This likely reflects the nature of the stimuli used in the current study (almost exclusively words with high frequency in the participants' home language).

This study adds to the literature reporting that the exposure to the two languages also exerted a positive effect on the development of PST- and WM. A qualitative inspection of the children's performance at the forward digit recall task confirmed that all the bilinguals could perform the task, whereas 5 participants in the monolingual group (16%) could not perform the task at all. The complex span task (which reflects the functionality of the processing component of WM) was more difficult for both groups of children as it likely relies on executive processes that are still not fully functioning at this age (Gathercole and Hitch, 1993; Siegel, 1994; Gathercole et al., 2004). The findings from previous studies which did not report any bilingual effect on VSTM and VWM as measured with similar tasks might be the consequence of imperfect matching between groups in terms of SES and type of bilingualism, both shown to affect performance on such tasks (see Hackman et al., 2015; Engel de Abreu, 2011).

The good performance of the bilingual participants on the NWR task lends further support to the hypothesis of a positive effect of early L2 exposure on cognitive development. Such an advantage is likely related to the fact that, in sequential bilinguals, the need to exert continuous executive control on their two languages might improve their ability to retain active phonological information through a process of active rehearsal. A recent investigation showed that early exposure to a L2 might enhance basic auditory perceptual skills and even improve auditory sustained attention (Krizman et al., 2012). Furthermore, some studies show that NWR is predictive of L2 vocabulary acquisition in the context of an early L2 school immersion program, a situation similar to the one investigated in this study (see Nicolay & Poncelet, 2013). This hypothesis has been recently supported also by Messer, Leseman, Boom, & Mayo (2010) who compared the performance of 60 Turkish-Dutch bilingual and 67 Dutch monolingual children of 4 years of age on a task of lexical comprehension and one of NWR. The authors showed that phonotactic knowledge (calculated as the difference in recall of non-words with high versus low phonotactic probability) was a significant predictor of the extension of their vocabulary in both languages.

It is possible that sequential bilinguals need to recruit additional resources in their short-term memory in order to manage the processes of L1 and L2 acquisition while monitoring the use of both languages (e.g., Hernandez & Meschyan, 2006). Finally, the role of PST- and WM was shown to be greater in less proficient bilinguals (Lanfranchi & Swanson, 2005; Service, Simola, Metsaenheimo, & Maury, 2002); thus, enhanced VSTM capacity and VWM skills revealed in bilinguals participatin the current study are in line with the findings described in the existing research literature.

In conclusion, our findings support the hypothesis that early and intensive exposure to a L2 might boost VSTM and VWM skills in sequential bilinguals while not lowering their linguistic performance in L1. However, this study has also some empirical limitations. First of all, the linguistic analyses were conducted only on the children's first language (i.e., Italian). While theoretically sound for the aims of this study, this did not allow us to explore the characteristics of the L2 (i.e. English) in the bilingual group. Nonetheless, these children had been consistently exposed to their L2 for at least two years and no difficulties in its mastery and use had been reported by their teachers. A second limitation concerns the reduced number of individuals in the bilingual group. Future studies should explore whether these findings can also be obtained with larger samples of participants. This would enable scholars to perform more sophisticated statistical analyses, such as factorial designs or regression models, in order

to adequately explore the potential interconnections between language and cognitive functioning in preschool children learning a L2.

This study with a cohort of mono- and bilingual children permitted us to fully realize the potential areas of application of BVL_4-12. In the following chapters, we will discuss the procedures of the BVL_4-12 adaptation into Russian, as well as a series of pilot studies that were done in order to explore the validity and reliability of the newly created instrument for the assessment of speech and language in Russian-speaking monolingual and bilingual children.

Chapter V. Presentation of the adapted version of BVL_4-12 for Russian-speaking children

This chapter provides a detailed description of the translation and adaptation techniques used during the BVL_4-12 adaptation into Russian. A series of pilot studies done during the adaptation process are discussed in the subsequent sections. The chapter ends with the description of the results of the preliminary reliability check of the BVL_RU.

V.1. Part 1 of the Battery

Here we describe the general characteristics of the Russian adaptation of the BVL_4-12 (BVL_RU). The BVL_RU aims to assess oral production, comprehension and repetition in Russian-speaking children aged 4 to 12.

V.1.1. Naming and articulation (for children from 4 to 6.11 years of age)

In the BVL_RU, the task **Naming and articulation** for 4-6.11-year old children received the following title: **"Номинация и артикуляция"**. In order to preserve the structure of the original Battery, several criteria for stimuli selection were considered for the naming and articulation task, as well as for the naming task for older children. First of all, frequency of use: in the BVL_4-12, the naming and articulation task comprised 27 words with high frequency of use, 34 words with medium frequency and 16 stimuli with low frequency of use. Second, the stimuli there were divided into 16 semantic categories, in order to present different concepts covering diverse spheres of life (e.g. colors; animals). Third, all stimuli were selected so to present all the sounds of Russian phonetic system in different positions in the words. Fourth, the task comprises 70 nouns and 7 verbs. Finally, the stimuli words were selected to be converted into simple black and white drawings on paper; thus, abstract concepts could not be included.

The stimuli words that the Russian version of the task consists of have been carefully selected according to their frequency and their grammatical and semantic categories. The National Russian Corpus available online at http://www.ruscorpora.ru/ that contain written text produced by adult Russian native speakers (including mid-18th-century texts) was not used for adaptation purposes. Instead, following recent studies in Russian language (e.g. Gagarina, Klassert and Topaj, 2010; Malyutina, Iskra, Sevan & Dragoy, 2014; Markina, 2011) the New frequency dictionary of Russian lexis was utilized (Ljashevskaja & Sharov, 2009). The

dictionary includes modern texts of various authors: journalism and other genres of non-fiction, as well as records of oral speech. Words with a frequency rate not lower than 1000 have been considered very frequent (n = 27 [*рука; книга; стол; комната; письмо; окно; семья; сердце; лицо; плечо; точка; очередь; лес; мальчик; глаз; школа; дом; машина; деньги; дверь; зеленый; черный; считать; ждать; лежать; слушать; ехать*]). Words with a frequency between 1000 and 7000 have been considered of medium frequency (n = 34 [*дождь; крыша; звонок; царь; кресло; дно; цветок; больница; одежда; чай; птица; остров; зима; ящик; часы; бабушка; шея; живот; вагон; махать; целовать; желтый; яблоко; буква; автобус; рыба; зуб; лужа; гора; слеза; учитель; ключ; хлеб; пуговица*]). Words with a frequency lower than or equal to 7000 have been considered low frequency words (n = 16 [*огрызок; бобер; пианино; овца; закат; дупло; бахрома; улей; сачок; хлыст; балалайка; сом; лупа; гамак; пуговица; парашют; кожура*]).

The stimuli comprise 70 nouns and 7 verbs ([*считать; ждать; лежать; слушать; ехать; махать; целовать*]). The 70 nouns are divided into 10 semantic categories (city; musical instruments; things at home; nature; food; family; parts of the body; school; colors; others):

1. city ([*дом; очередь; больница; школа; машина; вагон; автобус; лужа*]);
2. musical instruments ([*пианино; балалайка*]);
3. things at home ([*книга; стол; комната; окно; крыша; звонок; кресло; цветок; одежда; ящик; часы; дверь; бахрома; ключ; гамак*]);
4. nature ([*дождь; лес; дно; птица; остров; зима; бобер; овца; гора; закат; дупло; улей; сачок; хлыст; сом*]);
5. food ([*чай; яблоко; рыба; огрызок; хлеб; кожура*]);
6. family ([*семья; мальчик; бабушка*]);
7. parts of the body ([*рука; сердце; лицо; плечо; глаз; шея; живот; зуб; слеза*]);
8. school ([*письмо; точка; буква; учитель; лупа*]);
9. colors ([*зеленый; черный; желтый*]);
10. others ([*царь; деньги; пуговица; парашют*]).

The words have been assembled in order to make a child articulate a total of 233 consonantal phones:

81 plosives:

- 19 bilabials ([p] – n=6; [p’] – n=2; [b] – n=10; [b’] – n=1), of which 3 are palatalized and 16 plain; 8 voiceless and 11 voiced;
- 32 dentals ([t] – n=12; [t’] – n=11; [d] – n=7; [d’] – n=2), of which 13 are palatalized and 19 plain; 23 voiceless and 9 voiced;
- 30 velars ([k] – n=22; [k’] – n=0; [g] – n=7; [g’] – n=1), of which 1 is palatalized and 29 plain; 22 voiceless and 8 voiced.

67 fricatives:

- 11 labiodentals ([f] – n=3, [v] – n=5, [v’] – n=3), of which 3 are palatalized and 8 plain; 3 voiceless and 8 voiced;
- 23 dentals ([s] – n=13; [s’] – n=3; [z] – n=5; [z’] – n=2) of which 5 are palatalized and 18 plain; 16 voiceless and 7 voiced;
- 8 voiceless postalveolars – [ʃ];
- 7 voiced palato-alveolar sibilants – [ʒ];
- 2 voiceless alveolo-palatals – [ɬ̡];
- 11 palatal approximants ([j] – n=6; [ɻ̡] – n=5);
- 5 voiceless velars – [h].

19 affricates:

- 9 plain dentals – [c];
- 10 voiceless postalveolars - [tʃ].

24 nasals:

- 11 labiodentals ([m] – n=10; [m’] – n=1), of which 1 are palatalized and 10 plain;
- 13 alveolars ([n] – n=9; [n’] – n=4), of which 4 are palatalized and 9 plain.

26 aterals: ([l’] – n=11; [l] – n=15): 11 palatalized, 15 plain.

16 alveolar trills: ([r] – n=12; [r’] – n=4): 4 palatalized, 12 plain.

The words were selected so to present the various phones in different positions (initial, final, internal), especially coarticulatory positions (see Table V.1.1:1 for a complete phonological description of the stimuli content).

stimuli	**plosives**	**fricatives**	**affricates**	**nasals**	**laterals**	**trills**	**stimuli**	**plosives**	**fricatives**	**affricates**	**nasals**	**laterals**	**trills**
1. рука	/k/					/r/	40. считать	/t/ /t’/	/ʃ’/				
2. лицо			/c/		/l'/		41. ждать	/d/ /t’/	/ ž/				
3. глаз	/g/	/s/			/l/		42. лежать	/t’/	/ž/			/l’/	
4. живот	/t/	/ ž/ /v/					43. слушать	/t’/	/ʃ/ /s/			/l/	
5. дом	/d/			/m/			44. ехать	/t’/	/h/ /j’/				
6. машина		/ ʃ/		/m/ /n/			45. махать	/t’/	/h/		/m/		
7. деньги	/d'/ /g’/			/n’/			46. целовать	/t'/	/v/	/c/		/l/	
8. вагон	/g/	/v/		/n/			47. зеленый		/z’/ /î̯/		/n/	/l’/	
9. дверь	/d/	/v’/				/r’/	48. черный		/î̯/	/č'/	/n/		/r/
10. книга	/k/ /g/			/n’/			49. желтый	/t/	/ž/ /î̯/			/l/	
11.стол	/t/	/s/			/l/		50. яблоко	/b/ /k/	/j’/			/l/	
12.комната	/k/ /t/			/m/ /n/			51. буква	/b/ /k/	/v/				
13.письмо	/p’/	/s’/		/m/			52. автобус	/t/ /b/	/f/ /s/				
14. дождь	/d/ /t’/	/ʃ/					53. рыба	/b/					/r/
15. окно	/k/			/n/			54. зуб	/p/	/z/				
16. семья		/s’/ /j'/		/m'/			55. огрызок	/g/ /k/	/z/				/r/
17. крыша	/k/	/ʃ/				/r/	56. лужа		/ž/			/l/	
18. сердце		/s’/	/c/			/r/	57. бобер	/b/					/r/

								/b’/					
19. звонок	/k/	/z/ /v/		/n/			58. пианино	/p’/			/n’/ /n/		
20. плечо	/p/		/č'/		/l’/		59.овца		/f/	/c/			
21. точка	/t/ /k/		/č'/				60. гора	/g/					/r/
22. царь			/c/			/r’/	61.закат	/k/ /t/	/z/				
23. очередь	/t’/		/č'/			/r’/	62.дупло	/d/ /p/				/l/	
24. лес		/s/			/l’/		63. бахрома	/b/	/h/		/m/		/r/
25. мальчик	/k/		/č'/	/m/	/l’/		64.улей		/î̯/			/l/	
26. кресло	/k/	/s/			/l/	/r’/	65. слеза		/s/ /z/			/l’/	
27. дно	/d/			/n/			66. сачок	/k/	/s/	/č’/			
28. цветок	/t/ /k/	/v'/	/c/				67. хлыст	/t/	/h/ /s/			/l/	
29. больница	/b/		/c/	/n’/	/l'/		68.балалайка	/b/ /k/	/j’/			/l/ /l/	
30. одежда	/d'/ /d/	/ ž/					69. учитель	/t’/		/č’/		/l’/	
31.чай		î̯	/č'/				70. ключ	/k/		/č’/		/l’/	
32.птица	/p/ /t’/		/c/				71.сом		/s/		/m/		
33. остров	/t/	/s/ /f/				/r/	72. хлеб	/p/	/h/			/l’/	
34. зима		/z’/		/m/			73.лупа	/p/				/l/	
35.ящик	/k/	/ʃ’/ /j’/					74.гамак	/g/ /k/			/m/		
36.часы		/s/	/č'/				75.пуговица	/p/ /g/	/v’/	/c/			
37.школа	/k/	/ʃ/			/l/		76.парашют	/p/ /t/	/ʃ/				/r/
38. бабушка	/b/ /b/ /k/	/ʃ/					77.кожура	/k/	/ž/				/r/
39.шея		/ʃ/ /j'/					**total**	**83**	**66**	**19**	**24**	**26**	**16**

Table V.1.1:1. Phonetic description of the stimuli for the naming and articulation task in BVL_RU

The descriptions of the phonemic content have been done according to the classification developed by Leningrad Phonetic School (ЛФШ). It is wiedly accepted in modern Russian linguistic tradition (see Valgina, Rozental', Fomina, 2002; Bondarko, Verbickaja & Gordina, 2004) and based on classical work by Lev Shherba (Shherba, 1957, p.144-179).

For the purposes of the BVL_RU, 77 black and white simple pictures were created. See Table V.1.1:2 for a complete list of stimuli and their frequency, semantic and morphological characteristics, created for Russian version of the BVL_4-12:

stimuli	**frequency numerical**	**frequency categorical**	**semantic category**	**part of speech**
1. рука	74	high	part of body	noun
2. лицо	104	high	part of body	noun
3. глаз	110	high	part of body	noun
4. живот	1831	med	part of body	noun
5. дом	108	high	city	noun
6. машина	187	high	city	noun
7. деньги	178	high	others	noun
8. вагон	1703	med	city	noun
9. дверь	210	high	things at home	noun
10. книга	230	high	things at home	noun
11.стол	237	high	things at home	noun
12.комната	327	high	things at home	noun
13.письмо	333	high	school	noun
14. дождь	1490	med	nature	noun
15. окно	370	high	things at home	noun
16. семья	378	high	family	noun
17. крыша	1456	med	things at home	noun
18. сердце	432	high	part of body	noun
19. звонок	1606	med	things at home	noun
20. плечо	452	high	part of body	noun

21. точка	460	high	school	noun
22. царь	1637	med	others	noun
23. очередь	511	high	city	noun
24. лес	512	high	nature	noun
25. мальчик	597	high	family	noun
26. кресло	1310	med	things at home	noun
27. дно	1685	med	nature	noun
28. цветок	1324	med	things at home	noun
29. больница	1263	med	city	noun
30. одежда	1308	med	things at home	noun
31.чай	1136	med	food	noun
32.птица	1294	med	nature	noun
33. остров	1278	med	nature	noun
34. зима	1147	med	nature	noun
35.ящик	1626	med	things at home	noun
36.часы	1670	med	things at home	noun
37.школа	315	high	city	noun
38. бабушка	1185	med	family	noun
39.шея	1449	med	part of body	noun
40. считать	206	high	others	verb
41. ждать	271	high	others	verb
42. лежать	312	high	others	verb
43. слушать	445	high	others	verb
44. ехать	560	high	others	verb
45. махать	4597	med	others	verb
46. целовать	2764	med	others	verb
47. зеленый	958	high	color	прил
48. черный	293	high	color	прил
49. желтый	1582	med	color	прил
50. яблоко	2230	med	food	noun
51. буква	1896	med	school	noun
52. автобус	1862	med	city	noun

53. рыба	1436	med	food	noun
54. зуб	1032	med	part of body	noun
55. огрызок	19983	low	food	noun
56. лужа	4596	med	city	noun
57. бобер	19923	low	nature	noun
58. пианино	9836	low	musical instruments	noun
59.овца	5460	low	nature	noun
60. гора	1040	med	nature	noun
61.закат	5268	low	nature	noun
62.дупло	19779	low	nature	noun
63. бахрома	19688	low	things at home	noun
64.у лей	19652	low	nature	noun
65. слеза	1056	med	part of body	noun
66. сачок	19597	low	nature	noun
67. хлыст	19222	low	nature	noun
68.балалайка	19920	low	musical instruments	noun
69. учитель	1060	med	school	noun
70. ключ	1584	med	things at home	noun
71.сом	18797	low	nature	noun
72. хлеб	1130	med	food	noun
73.лупа	18639	low	school	noun
74.гамак	18546	low	things at home	noun
75.пуговица	4993	med	others	noun
76.парашют	8255	low	others	noun
77.кожура	17844	low	food	noun

Table V.1.1:2 Frequency, parts of speech and lexical categories description of the stimuli created for the naming and articulation task in BVL_RU

Finally, in order to achieve equivalence between the source instructions for the administration of the task and those in the adapted version of the Battery, they were symmetrically translated into Russian as follows:

Сейчас я покажу тебе картинки. Ты должен(а) сказать, что на каждой нарисовано. Например, тут…Еще я могу спросить тебя, какого цвета эта картинка. Например, какого цвета эта картинка? Иногда я буду спрашивать тебя, что человек на картинке делает. Например, что делает эта девочка? Готов(а)? Начинаем!

In the original version of the Battery:

Ora ti mostrerò delle figure. Per ogni fgura tu mi dovrai dire che cosa rappresenta. Ad esempio, qui c'è un ... In altri casi potrò chiederti di dirmi il colore di un disegno. Ad esempio, che colore è questo? In alcuni casi ti potrò chiedere di dirmi che cosa fa una persona. Ad esempio, che cosa fa questa bambina? Sei pronto? Cominciamo!

V.1.2. Naming (for children from 7 to 11.11 years of age)

In older children (7.0-11.11 years old) the capacity to access target words is evaluated through the administration of a series of 67 drawings that depict commonly used objects, pieces of clothing, means of transport, animals, fruit, colors, and actions. In the BVL_RU, the naming task for children from 7 to 11.11 years old received the following title: **"Номинация"**. In order to preserve the structure of the original Battery, several criteria for stimuli selection were considered for the naming task (as well as for the naming and articulation task described above). First of all, frequency of use: in the BVL_4-12 the naming task comprised 17 words with high frequency of use, 23 words with medium frequency and 27 stimuli with low frequency of use. Second, the stimuli were divided into 15 semantic categories, in order to present different concepts covering diverse spheres of life (e.g. colors; animals). Third, the original task comprises 16 verbs. Finally, the stimuli words were selected to be converted into simple black and white drawings on paper; thus, abstract concepts could not be included.

During the first stage of the adaptation procedure, all the stimuli words were translated from Italian into Russian. The literal translation revealed that 3 Italian words have no full equivalents in Russian. Namely, there is no special word for *scrivania* in Russian. There are 2 words in Italian– *scrivania* and *tavolo* (both included in the task). However, in Russian both of them are translated as *стол* (table). In the case of *scrivania,* the Russian equivalent would be *письменный стол* (desk), and in the case of *tavolo, обеденный стол* (dinner table). Thus,

both translations contain descriptives, however, the target word is the same – table. Similarly, *incorona* (to crown), literally translated as *надевать корону* (put a crown onto) and *pedala* – ехать на велосипеде (ride a bike). Finally, the frequency rates of these verbs also differed significantly: *incorona* and *pedala* – low, *надевать* – medium and *ехать* – high. Thus, these words were excluded from the Russian version of the task.

The second stage of the adaptation included a frequency check of all translated stimuli words. A new online frequency dictionary of Russian lexis (Ljashevskaja & Sharov, 2009) was used in order to check the frequency rate of all the Russian words. The words with a frequency rate not lower than 1000 have been considered very frequent. The words with a frequency between 1000 and 7000 have been considered of medium frequency. Finally, the words with a frequency lower than or equal to 7000 have been considered low frequency words. See Table V.1.2:1 for the results:

Stimuli in Russian	**Frequency in Russian**	**Frequency in Italian**	**Stimuli in Italian**
стол	high	altissima	tavolo
оранжевый	med	bassa	arancione
мяч	med	altissima	palla
пчела	low	alta	ape
спать	high	altissima	dorme
ремень	med	alta	cintura
желтый	med	altissima	giallo
бабочка	med	alta	farfalla
лить	low	alta	versa
рука	high	altissima	mano
розовый	med	altissima	rosa
велосипед	med	alta	bici
бутылка	med	alta	botiglia
нога	high	altissima	piede
играть	high	altissima	gioca
корова	med	bassa	mucca
поезд	med	altissima	treno
красный	high	alta	rosso

ухо	high	altissima	orecchio
штаны	med	altissima	pantaloni
морковь	low	alta	carota
писать	high	altissima	scrive
лыжи	low	alta	sci
готовить	med	alta	cucina
рыба	med	altissima	pesce
слон	med	alta	elefante
кушать/есть	med	altissima	mangia
вентилятор	low	bassa	ventilatore
юла	low	bassa	trottola
мыться	low	bassa	si lava
купаться/плавать	med	alta	nuota
пылесос	low	bassa	aspirapolvere
верблюд	med	bassa	camello
веник	low	bassa	scopa
дуть/выдувать мыльные пузыри	med	alta	soffia
картина	high	altissima	quadro
шить	med	bassa	cuce
виноград	low	bassa	uva
доить	low	bassa	munge
копать	med	bassa	sotterra\scava
рисовать	med	bassa	disegna\progetta
осьминог	low	bassa	polipo
камин	low	bassa	camino
водоросль	low	bassa	alga
индейка\индюк	low	bassa	tacchino
кубик	low	bassa	cubo
воск	low	alta	cera
лошадь	med	altissima	cavallo
кровать	high	altissima	letto

ботинок	med	alta	scarpa
официант	med	alta	cameriere
повар	med	alta	cuoco
галстук	med	alta	cravatta
помидор	med	alta	pomodoro
грузовик	med	alta	camion
лев	med	alta	leone
стол	high	alta	scrivania
ложка	med	alta	cucchiaio
олень	med	alta	renna
надеть (корону)	med	bassa	incorona
топор	med	bassa	ascia
комета	low	bassa	cometa
кожура	low	bassa	buccia
пятка	med	bassa	tallone
ехать (на велосипеде)	high	bassa	pedala
мыть	med	bassa	lava
сено	med	bassa	fieno

Table V.1.2:1 Translation of the stimuli words for the naming and articulation task and the results of the frequency rate check.

Overall, the frequency rate of 27 words differed between Russian and Italian. In the translated version of the task, the distribution of the frequency rate was as follows: 12 words with high frequency rate (instead of 17 words in the original version), 36 words with medium frequency rate (instead of 23) and 19 words with low frequency rate (instead of 27 words for this category in the original version of the task). In order to preserve the frequency rate balance in the adapted version of the task, we had to redistribute the stimuli inside of the categories.

Eventually, 17 highly frequent words ([*стол; лицо; спать; читать; слушать; рука; машина; нога; играть; красный; ухо; писать; книга; картина; дом; звезда; кровать*]) were included in the Russian version of the task. Ten of them have equivalents in the Italian version of the task (tavolo; dorme; mano; piede; gioca; rosso; orecchio; scrive; quadro; letto).

The medium frequency category included 23 words: *оранжевый; мяч; ремень; тумбочка; желтый; бабочка; розовый; велосипед; бутылка; корова; поезд; штаны;*

готовить; рыба; слон; кушать/есть; купаться/плавать; верблюд; дуть/выдувать мыльные пузыри; каблук; шить; копать; рисовать. All stimuli were also present in the Italian version of the task.

Finally, 27 low frequency words ([*парашют; кожура; пчела; муравей; лить; сундук; морковь; лыжи; пружина; вентилятор; юла; мыться; пылесос; веник; морщина; кепка; виноград; доить; осьминог; камин; штора; молоток; водоросль; индейка\индюк; кубик; воск; огрызок*]) were included in the Russian version of the task. Eighteen of them have equivalents in the Italian version of the task (scodella; ape; versa; carota; sci; ventilator; trottola; si lava; aspirapolvere; scopa; uva; munge; polipo; camino; alga; tacchino; cubo; cera). Overall, 76% of the original stimuli set was preserved in Russian version of the BVL_4-12.

The stimuli to be denominated are 51 names and 16 verbs ([*мыть; спать; читать; слушать; лить; играть; писать; готовить; кушать/есть; мыться; купаться/плавать; дуть/выдувать мыльные пузыри; доить; копать; рисовать; шить*]).

The 51 names are split in to 10 semantic categories:

1. city ([*машина; поезд; дом*]);
2. toys ([*мяч; юла; кубик*]);
3. clothes, shoes ([*ремень; штаны; кепка; галстук*]);
4. things at home ([*стол; сундук; вентилятор; книга; пылесос; веник; картина; камин; штора; дверь; молоток; пружина*]);
5. nature ([*пчела; муравей; бабочка; корова; слон; лев; звезда; осьминог; водоросль; индюк; рыба*]);
6. food ([*бутылка; кожура; морковь; виноград; огрызок*]);
7. sport ([*велосипед; лыжи; парашют*]);
8. colors ([*оранжевый; желтый; розовый; красный*]);
9. parts of body ([*лицо; рука; нога; ухо; морщина*]);
10. others ([*воск*]).

See Table V.1.2:2 for a complete list of stimuli and their characteristics, created for the Russian version of the naming task of the BVL_4-12:

Russian stimuli words	**Semantic category**	**Part of speech**	**Frequency in Russian**	**Equivalent in BVL_4-12**
1. кожура	food	noun	low	scodella
2. стол	things at home	noun	high	tavolo
3. лицо	parts of body	noun	high	
4. парашют	sport	noun	low	
5. оранжевый	colour	adjective	med	arancione
6. мяч	toys	noun	med	palla
7. пчела	nature	noun	low	ape
8. спать	other	verb	high	dorme
9. читать	other	verb	high	
10. ремень	clothes	noun	med	cintura
11. галстук	clothes	noun	med	cravatta
12. желтый	colour	adjective	med	giallo
13. слушать	other	verb	high	
14. муравей	nature	noun	low	
15. бабочка	nature	noun	med	farfalla
16. лить	other	verb	low	versa
17. рука	parts of body	noun	high	mano
18. машина	city	noun	high	
19. розовый	colour	adjective	med	rosa
20. велосипед	sport	noun	med	bici
21. бутылка	food	noun	med	botiglia
22. нога	parts of body	noun	high	piede
23. играть	other	verb	high	gioca
24. корова	nature	noun	med	mucca
25. поезд	city	noun	med	treno
26. красный	colour	adjective	high	rosso
27. ухо	parts of body	noun	high	orecchio
28. сундук	things at home	noun	low	
29. штаны	clothes	noun	med	pantaloni
30. морковь	food	noun	low	carota

31. писать	other	verb	high	scrive
32. лыжи	sport	noun	low	sci
33. готовить	other	verb	med	cucina
34. рыба	food	noun	med	pesce
35. пружина	other	noun	low	
36. слон	nature	noun	med	elefante
37.кушать/**есть**	other	verb	med	mangia
38. вентилятор	things at home	noun	low	ventilatore
39. книга	things at home	noun	high	
40. юла	toys	noun	low	trottola
41. мыться	other	verb	low	si lava
42. купаться/**плавать**	other	verb	med	nuota
43. пылесос	things at home	noun	low	aspirapolvere
44. лев	nature	noun	med	leone
45. веник	things at home	noun	low	scopa
46. **дуть**/выдувать мыльные пузыри	other	verb	med	soffia
47. картина	things at home	noun	high	quadro
48. морщина	parts of body	noun	low	
49. мыть	other	verb	med	lava
50. кепка	clothes	noun	low	
51. шить	other	verb	med	cuce
52. виноград	food	noun	low	uva
53. дом	things at home	noun	high	
54. доить	other	verb	low	munge
55. копать	other	verb	med	sotterra
56. рисовать	other	verb	med	Disegna \ progetta
57. звезда	nature	noun	high	
58. осьминог	nature	noun	low	polipo
59. камин	things at home	noun	low	camino
60. штора	things at home	noun	low	

61. кровать	things at home	noun	high	letto
62. молоток	things at home	noun	low	
63. водоросль	nature	noun	low	alga
64. индейка\индюк	nature	noun	low	tacchino
65. кубик	toys	noun	low	cubo
66. воск	other	noun	low	cera
67 огрызок	food	noun	low	

Table V.1.2:2 A list of stimuli created for the Russian version of the naming task of the BVL_4-12. Lexical characteristics, distribution of the speech parts of Russian stimuli and their Italian equivalents

The instructions for the administration of the naming task were translated into Russian. The structure and the meaning of the instructions were preserved.

In Italian version:

Ora ti mostrerò delle figure. Per ogni fgura tu mi dovrai dire che cosa rappresenta. Ad esempio, qui c'è un ... In altri casi potrò chiederti il colore di un disegno. Ad esempio, che colore è questo? In alcuni casi ti potrò chiedere di dirmi che cosa fa una persona. Ad esempio, che cosa fa questa bambina? Sei pronto? Cominciamo!

In Russian version:

Сейчас я покажу тебе картинки. Ты должен(а) сказать, что на ней нарисовано. Например, тут…Еще я могу спросить тебя, какого цвета эта картинка. Например, какого цвета эта картинка? Иногда я буду спрашивать тебя, что человек на картинке делает. Например, что делает эта девочка? Готов(а)? Начинаем!

V.1.3. Phonological fluency

In the BVL_RU, the phonological fluency task received the following title: **"Фонологическая беглость"**. For BVL_RU, *С* and *П* were selected as the most frequent in the Russian language. Moreover, the instructions for the administration of the phonological fluency task were translated into Russian. The structure and the meaning of the instructions were preserved. Here is an example of the instructions for *С*.

In the Italian version:

Mi puoi dire i nomi che conosci che iniziano con la lettera “S”? Per iniziare, ad esempio, io dico sandalo. Adesso dimmi tu tutti i nomi che iniziano con la “S”. Non mi devi dire nomi propri, come ad esempio Simone o Stefano. Sei pronto? Cominciamo!

In Russian version:

Можешь сказать мне слова, начинающиеся с С, которые ты знаешь? Для начала, например, я говорю сандалии. А теперь ты мне скажи все слова, которые начинаются с С. Нельзя называть имена, например, Соня, Саша. Готов(а)? Начинаем!

V.1.4. Semantic fluency

In the BVL_RU, the semantic fluency task received the following title: “Семантические категории”. The instructions for the administration of the semantic fluency task were translated into Russian. The structure and the meaning of the instructions were preserved. Here is an example of the instructions for the Animals category.

In the Italian version:

Mi puoi dire i nomi di tutti gli animali che conosci? Per iniziare, ad esempio, io dico cane. Adesso dimmi tu il nome di tutti gli altri animali che conosci. Non mi devi dire nomi propri, come ad esempio Fido, Topolino o Pluto. Sei pronto? Cominciamo!

In Russian version:

Можешь перечислить всех животных, которых ты знаешь? Для начала, например, я тебе скажу собака. А теперь ты мне назови других животных, которых знаешь. Только не называй имена, например, Пеппа, Мишка, Совунья. Готов(а)? Начинаем!

Popular in Italy cartoon heroes’ names (i.e. Fido, Topolino o Pluto) were substituted with those widely known in Russia (i.e. Пеппа, Мишка, Совунья).

V.1.5. Sentence completion

In the BVL_RU, the sentence completion task received the following title: **“Завершение предложений”**. The structure of the original version of the Battery was preserved. The stimuli were created so as to progressively increase the task difficulty.

However, due to fundamental differences in Russian and Italian grammar, the content of the task was significantly modified.

Just like in the BVL_4-12, sentences 1-6 are those of low difficulty. None of these sentences requires a child to change the aspect of the verb in their response. All verbs are presented in the active voice. In the very first sentence the verb is in the third person singular. The child's response is expected to be of the same person but in the plural form. In the Italian version:

1. La mamma cucina. Le mamme…cucinano

However, the literal translation of the stimulus into Russian appeared to be diagnostically invalid:

1. Мама гото́вит. Мамы…гото́вят

Due to the tiny acoustical differences between the inflections of the two forms of the verb. These two verb forms can hardly be distinguished because of the stress pattern of the word. The inflections in this case are unstressed.

Therefore, the verb was replaced with one with a clearly different pronunciation:

1. Мама сиди́т. Мамы сидя́т

In this case, the vowels in the inflections are stressed, so the stimulus will be valid.

The second stimulus contains a verb in the past tense, masculine gender. A response will be considered correct if the child modifies only the gender of the verb, keeping the other characteristics of the stimulus the same (*открыл* > *открыла*). The correct response for the third stimulus requires a child to modify the person of the verb of motion (*идешь* > *идет*). The verbs in sentences 4,5 and 6 must change their tense in the child's response to be scored as correct. Specifically, in the fourth sentence a verb is presented in the simple present tense and should be modified into a complex form of the future tense (*гуляю* > *буду гулять*); in the fifth sentence a verb is presented in the past tense (imperfective aspect) and should be modified into the present form keeping the same aspect characteristic *(плакала* > *плачет)*; in the sixth sentence a verb is presented in the past tense (perfective aspect) and should be modified into a simple form of the future tense keeping the same aspect characteristic (*прочитал* > *прочитает*).

The sentences from 7 to 11 are of moderate difficulty. Sentences 7 and 10 contain reflexive verbs. In the seventh sentence a verb is presented in the first person singular and should be modified into the form of the second person plural (*расчесываюсь* > *расчесываетесь*). Sentences 8 through 10 test the child's ability to transform verbs considering their aspect-tense characteristics. All the verbs in these sentences are in the present tense, imperfective aspect. In order to respond correctly on the eighth probe, the child is supposed to change a verb form into a future simple perfective form (*хочу нарисовать* > *нарисую*); and in the ninth and tenth, into the past perfective form (*читает* > *прочитал и умывается* > *умылась*). A correct response for the 11th stimulus requires a child to use the postfix *ся*. A stimulus is presented in the active voice and should be consequently modified into passive in the child's response *(проверяет* > *проверяется).*

The sentences from 12 to 14 are the most difficult. In the 12th sentence, the child has to work on the verb of motion. When transforming it, the child has to change the root of the stimulus *(ходит* > *пойдет)*, the tense (from present into future) and, finally, its aspect into perfective. In the 13th sentence, the child is asked to transform an active voice verb, masculine gender into passive form, feminine (*спас* > *спасена*). Finally, in the 14th sentence, the child has to modify three markers of the following grammatical categories: voice (active into passive), tense (present into past) and aspect (imperfective into perfective) – *награждает* > *был награжден*. See Table V.1.5:1 for a complete list of stimuli created for the Russian version of the sentence completion task of the BVL_4-12:

	Grammatical categories to be changed in the response:								**Verbs of motion with different roots**	**Difficulty rate**
Stimuli (prime…target)	Tense	Tense and aspect	Tense and voice	Tens, voice, aspect	Voice	Number	Gender	Person		

1. Мама сидит. Мамы…сидят;						+				1
2. Марк открыл дверь. Маша тоже…открыла дверь;							+			1
3. Ты идешь в кино. Он тоже...идет в кино;								+		1
4. Я гуляю. Завтра я тоже…буду гулять	+									1
5. Она плакала всю ночь. И сейчас она тоже… плачет;	+									1
6.Ребенок сегодня прочитал 1 сказку. Завтра ребенок тоже... прочитает;	+									1
7. Я расчесываюсь. Вы тоже... расчесываетесь;						+		+		2
8. Я хочу нарисовать домик. Завтра		+								2

я…нарисую домик;										
9. Этот мальчик читает журнал. А этот мальчик уже…прочитал;		+								2
10. Эта девочка сейчас умывается. А эта девочка уже…умылась;		+								2
11.Мама проверяет домашнее задание. Обычно домашнее задание... проверяется мамой;					+					2
12.Папа всегда ходит на работу. Завтра папа тоже… пойдет;		+							+	3
13.Мальчик спас девочку. Девочка					+		+			3

была... спасена мальчиком;										
14.Тренер всегда награждает Мишу. В прошлом месяце Миша тоже… был награжден;				+						3

Table V.1.5:1 Difficulty rate and a list of stimuli, correct responses and grammatical categories to be modified, in the Russian version of the sentence completion task of the BVL_4-12

Thus, the adapted version of the task covers all the main grammatical categories of Russian verbs, namely, tense, voice, aspect, number, gender and person. It includes reflexive verbs, and also verbs of motion.

The instructions for the task were translated from Italian as follows:

Сейчас ты услышишь несколько предложений, которые тебе надо будет закончить. Например, если я тебе говорю *Петя каждый день играет в теннис. Вчера он тоже*… и ты должен(а) сказать - *играл в теннис*. Сначала немного потренируемся. Готов(а)? Начинаем!

In the BVL_4-12 the instructions were:

Ora sentirai alcune frasi con una parte mancante e tu dovrai cercare di completarle. Ad esempio, se ti dico: Piero gioca a tennis ogni giorno. Anche ieri lui ...tu devi dire: ha giocato a tennis oppure giocava a tennis. Facciamo un po’ di prove. Sei pronto? Cominciamo!

V.1.6. Narrative discourse production

In the BVL_RU, multilevel evaluation of narrative received the following title: ”Многоуровневый анализ связности речи”. It is important to underline that, just like in

the original version of the Battery, the language samples produced by the children can be analyzed on two levels: a more superficial one and a more in-depth one. For the Russian adaptation of the BVL, we preserved the original procedure for the administration of the task. Following the original instructions (Marini, et al., 2015), also using the Russian version of the Battery, the testers must transcribe the **false starts** (**фальстарты**, words started but not finished), **phonological paraphasias** (**фонологические парафазии,** i.e. words in whose pronunciation a phoneme was inserted, omitted, replaced or inverted) and **neologisms** (**окказионализмы**; completely invented words in which the target word is unrecognisable). These productions absolutely must not be normalized in the transcription but must be reported as pronounced. The only things that should not be inserted are **filled pauses (перерывы в потоке речи)**, i.e. interruptions in the speech flow consisting of syllabic groups such as "*эм*", "*ммм*", "эээ", in which the absence of an actual lexical target is evident, but that constitute moments in which the person describing is thinking about the story or about the choice of the most appropriate words. In the transcription, these pauses must be replaced by three ellipsis dots that indicate the presence of the pause (…). All pauses, including **empty** ones (**пустые паузы,** i.e. those in which the speaker does not insert any phonological material but simply stays silent), must, however, be marked by inserting the ellipsis dots and, between brackets, their duration if greater than or equal to **2 seconds,** as in the following example: "The man … (5 seconds) enters the shop".

The transcription must start with the beginning of the story and end at the moment when the child does not produce any information that is useful for its comprehension anymore. It is therefore required not to insert possible initial or final comments (naturally removing the corresponding time). For example, in the following sequence: "~~So … (5 seconds) or maybe … (2 seconds) this is a picture in which … (3 seconds)~~ a man climbs up the tree and hurts himself" (Так…(5 секунд) или может… (2 секунды) на этой картинке тут… (3 секунды) дядя лезет на дерево и ударяется in the Russian version of the transcript), time calculation and transcription must start when the child under scrutiny has said "a man climbs up the tree". Similarly, the examiner shall not take into consideration, in time calculation and transcription, possible comments at the end of the story, as in the following example: "... two men are looking at a nest … he goes up the tree to take it but he falls … (3 seconds) and he hurts himself … the birds are hurt too ~~… end of the story … it is really sad~~". The same is valid for the transcripts in Russian: "двое смотрят на гнездо… он лезет на дерево чтоб его взять но падает… (3 секунды) и он ударился… птички тоже пострадали…~~конец истории…грустная история~~". Segmentation into utterances in the BVL_RU follows the same rules as described in the

original version and in the adaptations for other languages. The utterances are to be inserted in between strokes (/.../). There are different interpretations of the concept of utterance. According to some authors, it would be advisable not to go beyond using a mere acoustic criterion (considering only the intonation curve of what is produced by a speaker and the presence of empty / filled pauses that will serve as the limitations of the utterances). According to this criterion, for example, a sequence such as /Дядя симпатичный и тётя красивая/ could be treated as a single utterance. However, this method does not include in the definition of an utterance other fundamental aspects of verbal communication, such as those associated with the semantic (i.e. clausal) organization of utterances or their syntactic structure. From a semantic and grammatical point of view, an utterance could in fact coincide with the concept of clause (simple or complex). According to this approach, utterances could be separated on the basis of the presence of independent or dependent clauses. For example, two simple coordinated clauses pronounced without relevant pauses could be separated. In the case of the previously mentioned example, the sequence would be segmented as follows: / Дядя симпатичный /и тётя красивая/. In the experience of the Udine research group, an accurate division into utterances cannot be performed without taking into consideration multiple factors simultaneously (Marini et al., 2011; Marini, Boewe, Caltagirone and Carlomagno, 2005; Marini and Carlomagno, 2004, Marini and Urgesi, 2012). Specifically, when segmenting into utterances, a series of qualitatively different criteria should be considered: an acoustic criterion, a semantic one, a grammatical one and a phonological one. According to the **acoustic criterion (акустический критерий)**, an utterance is a sound wave between perceptible pauses with a duration of at least 2 seconds. This means that, from an acoustic point of view, a sequence in Russian such as “Дядя … (3 секунды) лезет на дерево” must be segmented into two separate utterances: /Дядя … (3 секунды)/лезет на дерево/. The acoustic criterion should be accompanied by a **semantic criterion (семантический критерий)**, according to which an utterance is a homogeneous conceptual unit (i.e. a simple or complex clause). This means that the end of an utterance is counted every time a concept is reformulated. An example in Russian would be /Там две птички /наверно птенчики/ – /Там двое человек /мальчик и девочка смотрят/. In these two examples, even though there are no pauses within the two sequences (a violation of the acoustic criterion), two utterances per sequence are marked, since the semantic criterion is used. The second sequence /наверно птенчики/ effectively reformulates the concept of birds present in the first utterance. On the other hand, in the second example /мальчик и девочка смотрят/, “мальчик и девочка” reformulates the concept of “двое человек”. According to the **grammatical criterion (грамматический критерий)**, if a

sentence consists of an independent clause followed by a series of dependent clauses that are well-formed from a grammatical point of view, the utterance shall be considered single, for example /*Там дядя который ни с того ни с сего полез на дерево и ударился ногой об об об ветку*/.

An utterance is to be considered closed when a sentence is followed by a filled lexical pause (i.e. by words that do not provide any new information on the story but only "take time"), as in the case of "I presume", "I believe", etc. (e.g. /Он ногу сломал/ я так думаю/). When two independent clauses follow each other linked by a conjunction, two utterances are counted even if there are pauses longer than 2 seconds (according to the semantic criterion: /мальчик лезет на дерево/и девочка смотрит на птичек/).

When it comes to the **phonological criterion (фонологический критерий)**, every time a word is started but not completed (false start) the end of an utterance is counted (e.g. /*и и он п-*/*птичек бе-*/берет их /его подруга/).

A few considerations were added by the authors to these criteria. If a word is repeated, a separate utterance shall not be counted (e.g. /*и он он перестает лезть*/) unless there is a pause at least 2 seconds long between the two words (acoustic criterion, e.g. /*я вижу тут ... (2 seconds)*/*мальчика*/). If a full lexical pause is inserted, for example "да", and then the word is repeated, the end of an utterance shall be counted (e.g. /*она* /*да*/ *она настойчиво так показывает*/). If a preposition is reformulated while modifying its content, the end of an utterance shall be counted (e.g. /*и он перестает лезть на* /по/на *дерево*/). If a concept is reformulated, even within a sentence, the end of an utterance shall be counted (semantic criterion, e.g. /*и она в ужасе*/в страхе *смотрит на него*/). Finally, in the case of direct speech, the end of an utterance shall be counted (e.g. /*девочка говорит ему:*/*"посмотри на птичек*/*я хочу их погладить*").

Language sample analysis

The language samples produced by the children, appropriately transcribed and separated into utterances, can at this point be analyzed. The analysis can be performed on two levels: a more superficial analysis (**level I analysis – анализ первого уровня**) that will allow information to be obtained about the child's productivity (words, fluency, average length per utterance) and their lexical and grammatical abilities; and a more in-depth analysis (**level II analysis – анализ второго уровня**) that will allow extending the evaluation to discursive and functional aspects as well.

Level I analysis

After having counted the utterances and inserted the duration of the language sample (**narrative time**, in seconds), a calculation of the produced **units (произнесенные блоки)** is required. Units designate everything that has been produced by a child, including false starts (e.g. *п-птички*), phonological paraphasias (e.g. *тиськи*) and neologisms (e.g. *уси дива*). It is then possible to identify within the language sample all the mistakes of a phonological-articulatory nature (phonological-articulatory analysis), counting false starts, phonological paraphasias and neologisms. Using the number of produced units and the phonological mistakes produced, it is possible to derive the number of phonologically well-formed words produced by the child (**produced words=произведенные слова**) by simply subtracting the number of phonological mistakes from the number of units. Therefore, if a child has produced 72 units, of which 2 are false starts, 3 are neologisms and 2 are phonological paraphasias (for a total of 7 phonological mistakes), the number of *produced words* will be equal to 72 (units) – 7 (phonological mistakes) = 65 words. As a result, written words that have been segmented into several units are also segmented into several words.

At this point, it is possible to proceed to the **lexical analysis**. This consists in identifying the cases in which a word that refers to a specific character or event in the story is repeated (**word repetition=повторение сло́ва**). Please observe the following example: /*мальчик … (4 секунд)*/~~мальчик~~ лезет на дерево/. In this case, the second utterance starts with two repeated words, since, in this context, they refer to the same man as in the first utterance. Consider, however, that it is not necessary for the exact same words to be reintroduced in the repetition: /*мальчик … (4 seconds)*/~~*он*~~ *goes up the tree*/. In this case, the child has used a pronoun instead of the sequence “мальчик”. However, it should be noted that the pronoun in question does not add anything new to the story, but only reformulates the previous concept. In this case too, a word repetition shall be marked.

During the narrative production, the child will be using the same words many times to refer to different characters or events during the same story. In these cases, obviously, such words shall not be considered as lexical repetitions but informative words as in the following example: /*мальчик лезет на дерево*/*потом мальчик ударился пока с дерева падал*/. In this example in the second utterance neither the syntagma “мальчик” nor the syntagma “дерево” are to be counted as repetitions, since they refer to a different event from the one described in the first utterance.

In the lexical analysis, we then go on to identifying possible **filled lexical pauses (заполнители)**, i.e. words that do not carry any relevant information for the comprehension of the story, but reveal a moment of reflection or decision making on the clauses to convey or

the words to select in order to describe the events of the story. For example, in the sequence /*тетя смотрит*/*она пугается*/он упал с дерева/~~*о господи*~~ *(5 seconds)*/~~*ужас какой что случилось*~~/ the words comprising the penultimate and the last utterances are all filled lexical pauses in that they do not introduce any new information relevant to the comprehension of the story. Some deictic adverbs (e.g. *тут, там*) and demonstrative pronouns (e.g. *этот* or *тот*) should also be considered as filled lexical pauses, since the use of this type of word requires a shared referent (which is not possible given that the examiner does not see the illustration the child is describing), as in the following utterances: /~~*тут вот*~~ *мальчик по дереву лезет*/ – /*двое людей*/~~*этот*~~ *человек лезет на дерево*/.

If a child starts the description with a filler expression such as /~~*на первой картинке*~~ *двое человек*/. In these cases the first words (*на, первой, картинке*) shall be considered full lexical pauses. Other lexical mistakes can consist in producing undefined words or semantic or verbal paraphasias.

An **undefined word (неопределенное слово)** is a word used as a *passe-partout* (e.g. words like "thing", "stuff"). On the other hand, the concepts of **semantic (семантическая парафазия)** and **verbal paraphasia (семантически несвязанная (вербальная) парафазия)** refer to cases in which a target word is replaced by a word that is semantically related (semantic paraphasia: *тарелка* instead of *стакан*) or not related (verbal paraphasia: *кот* instead of *стакан*). Therefore, in the case of the sequence /*мальчик лезет на цветочек*/, the word *цветочек* shall be considered a semantic paraphasia and therefore not be inserted in the count of the informative words.

One last type of mistake in lexical access consists in producing **paragrammatisms (парагрaмматизмы)**, i.e. words that are incorrect because of the replacement of a linked morpheme (e.g. an inflectional morpheme, as in the sequence /*Мальчики лезет на дерево*/) or of a function word – /*Мальчик лезет к дерево*/. In the first example, the target word "*лезут*" has been replaced by the incorrect word "*лезет*" that contains an inflectional singular morpheme instead of the expected inflectional plural morpheme. In the second example, on the other hand, the problem lies in the selection of an incorrect function word (the preposition *к* instead of the expected preposition *на*).

With regard to **grammatical analysis**, only utterances without evident omissions of words or mistakes of a phonological or syntactic nature shall be considered **complete sentences (полные высказывания)**. Consequently, both a sequence such as /*он лезет на дерево и берет птичек*/, and a sequence which is simpler but contains an well-formed independent clause such as /*он полез на дерево*/, shall be considered complete sentences; whereas

sequences such as /*он лезть на дерево*/ or /*он лезет к дерево*/ or /*он лезет дерево*/ are not utterances that shall be considered complete sentences.

Level II analysis

At this point it is possible, where considered necessary, to proceed to analysing the narrative and functional aspects (speech analysis). For this purpose, possible mistakes in cohesion and in local and global coherence should be identified. The former, **cohesion mistakes (ошибки в когезии)**, refer to problems with managing the connection between contiguous utterances using appropriate linguistic mechanisms. From this point of view, we can identify problems with the use of cohesive functors and cases of aposiopesis (sudden interruptions of utterances).

An **incorrect use of cohesive functors (неправильное использование средств связи)** shall be marked every time the child has used a conjunction to wrongly link two contiguous utterances, as in the following case: /*мальчик падает с дерева*/*но он ударился*/. Obviously, the use of *но* is incorrect in that it wrongly connects the two utterances. Sometimes an incorrect use of cohesive functors can also be paragrammatism in the use of functors: e.g. /*Он видел девочку/и с ними поговорил*/ – in *ними* there are two types of mistakes even though they occur on two different levels.

Aposiopesis (апозиопезис), on the other hand, is counted every time an utterance has been abruptly interrupted. Consider the following example: /*мальчик лезет … (5 секунд)* /*лезет на дерево*/. The first utterance ends with an aposiopesis since it is interrupted. Consequently, this utterance is not to be considered a complete sentence.

It is important to underline that aposiopesis is also to be counted every time an utterance ends with a false start, as in the sequence /*м-…/ма-…*/, where both utterances end with a false start and an aposiopesis. Similarly, an aposiopesis is also to be marked in non-ended utterances as in the following examples: /*потом …* / (3 seconds) /*а здесь наоборот …* /(4 seconds).

Local coherence mistakes (**ошибки в связности изложения = локальной когерентности**) refer to cases in which mistakes of a conceptual nature occur between two contiguous utterances. In this case, two types of mistakes can be counted: absence of referent and topic shift. **Absence of referent (отсутствие референта)** refers to cases in which the referent of a word inserted in the description is not clear, or essential information to understand who is referred to is omitted. An example of the first type consists in the sequence: /*стоят двое человек*/*он лезет на дерево*/. In the second utterance, the pronoun *он* does not allow the person listening to understand which one of the two characters that were referred to in the first utterance goes up the tree.

This condition makes it so that even a sequence like the following contains an absence of referent: /*мальчик лезет на дерево*/*потом он падает с ветки*/*они его берут*/*и уносят*/. In the third and fourth utterances, it is not clear who takes him (*они*) and carries him away. While looking at the illustration of the "Story of the nest", it is clear that it is some nurses who arrive, put him on a stretcher, and carry him to the hospital. All of this, however, cannot be inferred from the utterances produced by the child. It is important to observe that in both the third and the fourth utterances, in addition to the absence of referent, there is also an **omission (пропуск)** which makes the two utterances incomplete sentences. Both adverbs and demonstrative pronouns (e.g. *тут*, *там, этот, тот*) are to be considered not only filled lexical pauses but also an absence of referent.

Another type of local coherence mistake are **topic shifts (смены темы)**. This term refers to the cases in which an utterance is interrupted during the course of its elaboration. From the viewpoint of cohesion it is, therefore, an aposiopesis. However, if one of the subsequent utterances reproduces the concepts expressed in the interrupted utterance and completes them, the mistake is only in cohesion and not in local coherence. If, on the contrary, the subsequent utterances introduce new topics while leaving open the ones conveyed in the interrupted utterance, then the problem is also of a conceptual nature and a topic shift is noted. In the sequence /*дядя …* / *(3 секунды)* /*дядя лезет на дерево*/, at the end of the first utterance we note an aposiopesis but not a topic shift, since the second utterance reproduces the topic left open in the first one. In this case there is a cohesion mistake but not a local coherence mistake. In the sequence /дядя … / *(3 секунды)* /*птички улетели*/, however, there is a cohesion mistake (aposiopesis) at the end of the first utterance and also a local coherence mistake (topic shift), since the second utterance does not reproduce the topic left open but introduces a new one.

With regard to the production of **global coherence** (**глобальная когерентность)** mistakes, i.e. the production of utterances that somehow impede the correct conceptual organization of the story, one type of mistake consists in producing **tangential utterances (отступления от темы)**. An utterance is defined as tangential when it presents a concept that is not in line with the contents of the story but somehow derives in an uncontrolled way from concepts present in it. For example, */мужчина лезет на дерево/*<u>*мне очень нравятся деревья/ они коричневые и зеленые/зеленый меня расслабляет*</u>/. The underlined utterances must be considered tangential, since they do not introduce any new information relevant to the unfolding of the story, but somehow derail from the plot of the story. In this case, to the examiner can insert in the "registration sheet for the multilevel evaluation of narrative" three tangential utterances (occurrences) consisting of 11 words which, therefore, will not be

considered informative words.

Semantically incorrect formulations (ложные описания) shall be considered very similarly. These are utterances in which concepts are reported that are not present in the story but that are not triggered by tangential derailments, as in the underlined utterance in the following example: /*мужчина лезет на дерево/*<u>*использует лестницу*</u>/. When observing the "Story of the nest" it can clearly be seen that the man has not used a ladder, but has climbed onto the tree. Consequently, the underlined utterance shall be considered a semantically incorrect formulation composed of 2 words (that, as in the case of those contained in tangential utterances, are not to be counted as informative words).

Global coherence mistakes also include **filler utterances (высказывания-заполнители)** and **repeated utterances (повторяющиеся высказывания)**, provided that the words they contain are inserted, respectively, among filled lexical pauses or word repetitions. When there are filled lexical pauses that effectively form a filler utterance (e.g. /*как его там /не могу сейчас вспомнить*/), in addition to taking into consideration 7 filled lexical pauses, 2 filler utterances shall be noted. A filler utterance is also registered when the utterance only consists of a neologism or of a false start. Similarly, if an utterance consists entirely of word repetitions, it shall be considered a repeated utterance. For example, in the sequence / *мужчина лезет на дерево/ лезет на дерево* /, the second utterance is composed of 3 repeated words, and so forms a repeated utterance.

In order to calculate the **lexical informativity** level (**информативность текста**), it is necessary to determine the number of **informative words (информативные слова)**, i.e. phonologically well-formed words that were not dismissed during the speech analysis (word repetitions, full lexical pauses, semantic or verbal paraphasias, paragrammatisms, undefined words, incorrect use of cohesive functors, absence of referent, or words contained in utterances that constituted global coherence mistakes, are not taken into account). These words form the basic informative units of narration and represent the child's communicative competence.

The data extrapolated from the multilevel evaluation of narrative allows information to be derived about the child's levels of **productivity** (**продуктивность**; *Produced words* = **всего слов произведено**; *Narrative fluency* = **беглость повествования**; *Mean length of utterance*, MLU = **средняя длина высказывания, СДВ**), **lexical elaboration** (**лексический уровень**; *% of phonological mistakes* = **% фонологических ошибок;** *% of semantic paraphasias* = **% парафазий;** *% of paragrammatisms* = **% парагрmaммatизмов**), **grammatical elaboration** (грамматический уровень; *% of complete sentences* = **% полных высказываний**), **pragmatic elaboration of speech** (**дискурсивный уровень =**

построение связного текста; *% of cohesion mistakes* = % **ошибок в когезии**; *% of local coherence mistakes* = **% ошибок в локальной когерентности**; *% of global coherence mistakes* = % **ошибок в глобальной когерентности**) and **functional evaluation** (**функциональный уровень**; *% of lexical informativity* = **информативности текста**).

See Table V.1.6:1 for a grid:

«История о гнезде»	**показатели**
Анализ 1 уровня	
Продуктивность	
Всего слов произнесено	
Беглость повествования (слов в минуту: [все произнесенные слова/общее время повествования]*60)	
Средняя длина высказывания (СДВ: [все произнесенные слова/общее кол-во высказываний])	
Лексический уровень	
% фонологических ошибок ([фонологические ошибки/ общее кол-во блоков])	
% парафазий ([кол-во парафазии/все произнесенные слова]*100)	
% парагранматизмов ([парагранматизмы/все произнесенные слова]*100)	
Грамматический уровень	
% полных высказываний ([законченные высказывания/общее кол-во высказываний]*100)	
Анализ 2 уровня	
Дискурсивный уровень (построение связного текста)	
% ошибок в когезии ([ошибки в когезии/общее кол-во высказываний]*100)	
% ошибок в локальной когерентности ([ошибки в локальной когерентности/общее кол-во высказываний]*100)	
% ошибок в глобальной когерентности ([ошибки в связности изложения /общее кол-во высказываний]*100)	
Функциональный уровень	
% информативности текста ([информативные слова/ все произнесенные слова]*100)	

Table V.1.6:1 A grid of narrative analysis results developed for speech samples in the Russian language

The original instructions for the task were adapted as follows:

In Italian:

Ora vedrai una storia sotto forma di immagini. Io non conosco questa storia. Tu dovrai raccontarmela. Non c'è un modo giusto o sbagliato di raccontarla. Puoi parlare tanto o poco. Solamente, ti chiedo di non usare parole come, ad esempio, *qui* o *questo*, ma di essere chiaro. Sei pronto? Cominciamo!

In Russian:

Сейчас ты увидишь историю в картинках. Я не знаю, о чем тут речь. Ты мне должен(а) рассказать эту историю. Смотри и рассказывай так, как понимаешь. Можешь рассказывать коротко или длинно. Постарайся сделать так, чтобы мне было понятно, не используй «тут», «это» и т.д. Готов(а)? Начинаем!

V.2. Part 2 of the Battery

V.2.1. Phonological discrimination

In the BVL_RU, the phonological discrimination task received the following title: "Фонетический слух". The stimuli were selected so to present a child with 10 pairs of identical words (Цапля – цапля; Рис-рис; Ком-ком; Чаща-чаща; Эпоха-эпоха; Рейка - рейка; Быль-быль; Ёж-ёж; Юрга-Юрга; Штаб-штаб) and 20 minimal pairs (**Б**алка-**п**алка; **Д**ёма-**Т**ёма; **В**аза-**ф**аза; **Ж**ест-**ш**ест; **Г**ид-**к**ит; Б**ы**л-б**и**л; В**о**з-в**ё**з; Сад**ы**-сад**и**; **З**ал-в**з**ял; К**л**он-к**л**ён; **М**ыло-**м**ило; **з**абор - **с**обор; Бар**ж**ой-бор**з**ой; Бро**ш**ка-бро**с**ко; **В**одить-**с**адить; **Л**ес-**в**ес; **Р**ама-**я**ма; **Ч**ага-**т**яга; Про**ш**ить - про**с**ить; **Р**ак-**л**ак). The stimuli words were selected to require the child to discriminate a large number of phones with different manners (e.g. occlusives, fricatives, affricates, nasals, etc.) and places of articulation (dentals, bilabials, verlars, labiodentals, etc.).

The original instructions for the task were adapted as follows:

In Italian:

Ora sentirai due parole alla volta. Tu mi dovrai dire se queste parole sono uguali. Ad esempio, se senti casa-casa, devi dirmi: Sì. Se invece senti pala-palla, devi dire: No. Sei pronto? Cominciamo!

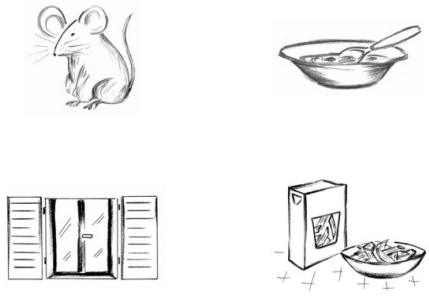
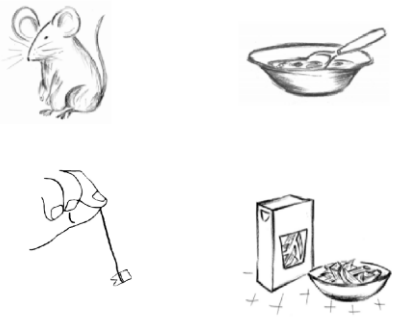
In Russian:

Сейчас ты услышишь несколько пар слов и должен(а) будешь мне сказать, одинаковые эти слова или нет. Например, если слышишь дом-дом, то должен сказать мне *да*. Если же слышишь почка-дочка, должен(а) сказать *нет*. Готов(а)? Начинаем!

V.2.2. Lexical comprehension tasks for children aged from 4 to 5.11 years old

In the BVL_RU, lexical comprehension at pre-school age received the following title: **“Проверка устной дифференциации у дошкольников”**. This task evaluates lexical comprehension abilities in children of pre-school age from 4 years to 5 years and 11 months old. There are two principles for stimuli selection: particular frequency of use and part of speech of the words.

The original version of the Battery consists of 18 stimuli of diverse frequency: 10 highly frequent words (pallone, naso, sacco, maglia, cane, cena, borsa, vino, foto, festa), 7 medium (cuoco, penna, toro, minestra, ballo, mela, lago) and 1 word with low frequency rank (rana). As for parts of speech, all stimuli are nouns. Each trial is organised so to provide four pictures: one picture representing the target word; one phonological distractor (a word that is phonologically similar to the target word); one semantic distractor (a word that is semantically similar to the target word) and one unrelated distractor (see Pictures V.2.2:1 and V.2.2:2).

	
Picture V.2.2:1 An example of stimuli from Lexical comprehension task for preshool age children (BVL_4-12)	Picture V.2.2:2. An example of adapted stimuli from Lexical comprehension task for shool age children (BVL_RU)

For example, for a target word minestra (soup), there is a phonological distractor – finestra (window), a semantic distractor – pasta (pasta), and an unrelated distractor – topo (mouse). The target stimuli (minestra in Italian and *суп* in Russian) have the same frequency rate – medium. The same semantic and unrelated distractors were used in the adapted version of the task. The phonological distractor was modified in order to sound similar to the target word – *зуб* (tooth).

During the first stage of adaptation, all the Italian stimuli were literally translated into Russian (see Table V.2.2:1). The frequency rate of each translated target stimulus was checked (Ljashevskaja & Sharov, 2009).

Item	Type of stimuli	Italian version (frequency rate)	Letters in T	Russian translation (frequency rate)	Letters in T	Semantic category of the T
example	T	Pasta	5	Лапша	5	food
	PD	Posta		Почта		
	SD	Bistecca		Бифштекс		
	UD	Casa		Дом		
1	T	Cane (high)	4	Собака (high, 909)	6	nature
	PD	Pane		Хлеб		
	SD	Gatto		Кот		
	UD	Porta		Дверь		
2	T	Pallone (high)	7	Мяч (medium, 4007)	3	toys
	PD	Tallone		Пятка		
	SD	Palloncino		Шарик		
	UD	Pasta		Лапша		
3	T	Cuoco (medium)	5	Повар (medium, 6721)	5	professions
	PD	Fouco		Огонь		
	SD	Cameriere		Официант		
	UD	Bicchiere		Стакан		
4	T	Maglia (high)	6	Рубашка (medium, 2524)	7	clothes
	PD	Pallone		Мяч		
	SD	Giacca		Кофта (куртка/пиджак)		
	UD	Fieno		Мусор (сено)		

5	T PD SD UD	Penna (medium) Renna Matita Cancelli	5	Ручка (medium, 2067) Олень Карандаш Ворота	5	school
6	T PD SD UD	Toro (medium) Coro Gallo Tavolo	4	Бык (medium, 4593) Хор Петух Стол	3	nature
7	T PD SD UD	Minestra (medium) Finestra Pasta Topo	8	Суп (medium, 3922) Окно Лапша Мышь	3	Food and drinks
8	T PD SD UD	Cena (high) Cera Colazione Matita	4	Ужин (medium, 3030) Воск Завтрак Карандаш	4	Food and drinks
9	T PD SD UD	Ballo (medium) Gallo Cantare Botiglia	5	Танец (medium, 2192) Петух Пение Бутылка	5	other
10	T PD SD UD	Sasso (high) Tacco Sacchetto Colomba	5	Мешок\камень (medium, 1973) Каблук Пакет Голубь	5	other
11	T PD SD UD	Festa (high) Testa Corsa Albero	5	Праздник (medium, 1049) Голова Бег Дерево	8	other
12	T PD SD UD	Vino (high) Pino Aqua Tulipano	4	Вино (medium, 1528) Сосна Вода Тюльпан	4	Food and drinks

13	T PD SD UD	Naso (high) Nano Orecchio Biscotto	4	Нос (high, 863) Карлик Ухо Печенье	3	Parts of body
14	T PD SD UD	Borsa (high) Corsa Zaino Giornale	5	Сумка (medium, 2145) Бег Рюкзак Газета	5	school
15	T PD SD UD	Foto (high) Moto Cornice Libro	4	Фотография (medium, 1255) Мотоцикл Картина\рамка Книга	10	other
16	T PD SD UD	Mela (medium) Vela Pera Occhiali	4	Яблоко (medium, 2230) Парус Груша Очки	6	Food and drinks
17	T PD SD UD	Rana (low) Tana Pesca Torta	4	Лягушка (low, 7928) Нора Рыба\рыбалка Торт	7	Nature
18	T PD SD UD	Lago (medium) Mago Mare Limone	4	Озеро (medium, 2166) Маг Море Лимон	5	Nature

Table V.2.2:1 Italian stimuli for the lexical comprehension task for preschool-age children and their literal translations into Russian. Semantic categories of the stimuli, and their length in letters. T – target word; PD – phonological distractor; SD – semantic distractor; UD – unrelated distractor

Overall, 8 out of 18 literally translated stimuli had different frequency rates in Russian: pallone (high) – *мяч* (medium); maglia (high) – *рубашка* (medium); cena (high) – *ужин* (medium); sasso (high) – *мешок* (medium); festa (high) – *праздник* (medium); vino (high) – *вино* (medium); borsa (high) – *сумка* (medium); foto (high) – *фотография* (medium). In the Russian

version of the task, the stimuli words were selected to maintain the original frequency distribution, so it was necessary to substitute some targets.

None of the translated phonological distractors corresponded to the translated target stimuli, so the original phonological distractors were not used.

It was impossible to create proper phonological distractors for many target words translated literally from Italian, due to rare particular combinations of letters in Russian words or word length, for example, *праздник* [pr/\z'n'ik]; *фотография* [f/\t/\gr/\f'ijъ]. Overall, only the target stimuli from the original version of the Battery for which corresponding phonological distractors are salient in Russian were used in the adapted version.. The residual Italian targets served as unrelated distractors.

Several repetitive stimuli were revealed in the original version of the task: matita (items 5 and 8); pallone (items 2 and 4); pasta (items 2 and 7); gallo (items 6 and 9); and corsa (items 11 and 14). The Russian version of the task has been made to avoid repetitive stimuli.

Finally, all stimuli in the original version of the task can be divided into 8 semantic categories: food (5 items); nature (3 items); school (2 items); clothes (1 item); body parts (1 item); toys (1 item); professions (1 item) and others (4 items). In order to maintain a semantic distribution similar to the original, all targets used in the adapted version of the task were also divided into semantic categories: food (1 item); nature (5 items); school (3 items); clothes (1 item); body parts (3 items); professions (1 item) and others (4 items).

The original distribution of parts of speech was also preserved. The stimuli used for the adapted version of the task were 18 nouns. Their frequency rate was checked using a Russian language corpus (Ljashevskaja & Sharov, 2009), so that the child is exposed to a comprehension task of 10 words of high frequency of use ([*газета; волос; врач; стена; лист; рука; лицо; телефон; дерево; гости*]), 7 words with medium frequency of use ([*корова; кот; луна; коза; суп; ворота; шапка*]), and 1 word with low frequency of use ([*лак*]).

See Table V.2.2:2 for a full list of stimuli and distractors created for the Russian version of the lexical comprehension task for school age children:

Target stimuli (T)	**Phonological distractor (PD)**	**Same category distractor (SD)**	**Unrelated distractor (UD)**	**T freq. nume-rical**	**T freq. categorical**	**T semantic category**

оса	коса	муравей	ручка	17589	low	nature
корова (modified T from item 6 in BVL_4-12)	корона	петух (SD from item 6 in BVL_4-12)	стол (UD from item 6 in BVL_4-12)	2558	med	nature
газета (UD from item 14 in BVL_4-12)	розетка	книга (UD from item 15 in BVL_4-12)	сумка (T from item 14 in BVL_4-12)	449	high	other
кот (SD from item 1 in BVL_4-12)	рот	собака (T from item 1 in BVL_4-12)	ужин (T from item 8 in BVL_4-12)	2793	med	nature
лак	рак	помада	мяч (T from item 2 in BVL_4-12)	7989	low	other
волос	колос	лысина	яблоко (T from item 16 in BVL_4-12)	842	high	Parts of body
луна	лупа	солнце	рубашка (T from item 4 in BVL_4-12)	2525	med	nature
врач	грач	повар (T from item 3 in BVL_4-12)	стакан (UD from item 3 in BVL_4-12)	653	high	professions
стена	спина	пол	ручка	400	hi	school

			(T from item 5 in BVL_4-12)		gh	
коза	роза	бык (T from item 6 in BVL_4-12)	торт (UD from item 17 in BVL_4-12)	5784	med	nature
лист	аист	бумага туалетная	танец (T from item 9 in BVL_4-12)	939	high	school
рука	река	нога	фотография (T from item 15 in BVL_4-12)	74	high	Parts of body
лицо	кольцо	затылок	озеро (T from item 18 in BVL_4-12)	104	high	Parts of body
телефон	телевизор	ноутбук	нос (T from item 13 in BVL_4-12)	676	high	other
суп (T from item 7 in BVL_4-12)	зуб	лапша (SD from item 7 in BVL_4-12)	мышь (UD from item 7 in BVL_4-12)	3922	med	food
ворота (modified ND from item 5 in BVL_4-12)	ворона	дверь (UD from item 14 in BVL_4-12)	мешок (T from item 10 in BVL_4-12)	2018	med	school
дерево	дрова	тюльпан	лягушка	659	hi	nature

(PD from item 12 in BVL_4-12)		(UD from item 12 in BVL_4-12)	(T from item 17 in BVL_4-12)		g h	
шапка	шайба	шлем велосипедный	очки (T from item 16 in BVL_4-12)	2772	m e d	clothes
гости	кости	очередь	бутылка (UD from item 9 in BVL_4-12)	579	h i g h	other

Table V.2.2:2 A list of stimuli and distractors (phonological, lexical and unrelated) and frequency characteristics of the target stimuli, created for Russian version of the lexical comprehension task for preschool age children

The instructions of the task were translated as follows:

In Italian:

Ora ti dirò una parola e tu mi devi mostrare la figura che corrisponde alla parola che ti ho detto. Se non sei sicuro di conoscere la parola che ti ho detto, devi lo stesso mostrarmi la fgura che ti sembra più giusta. Facciamo una prova. Sei pronto? Cominciamo!

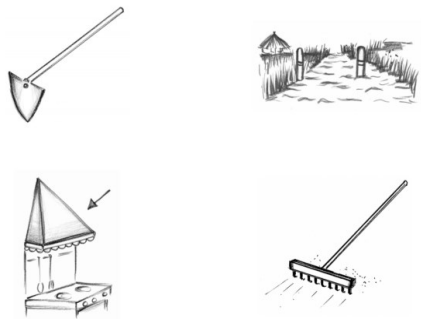
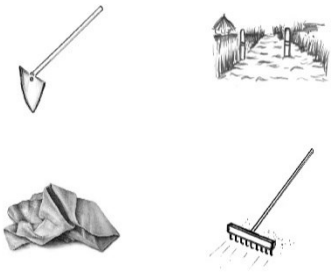
In Russian:

Сейчас я буду говорить тебе разные слова, и ты должен(а) выбрать соответствующую им картинку. Если ты не уверен(а), что знаешь это слово, которое я сказал(а), выбери картинку, которая, как тебе кажется, лучше всего передает смысл этого слова. Потренируемся. Готов(а)? Начинаем!

V.2.3. Lexical Comprehension tasks for older children (from 6 to 11.11 years of age)

In the BVL_RU, the phonological discrimination task at school age received the following title: **“Проверка устной дифференциации у школьников”**. During the first stage of the adaptation of the Italian version of the Battery into Russian, we analyzed the structure of the original task. There are two principles for stimuli selection: particular frequency of use and part of speech of the words. Overall, four words with a high frequency rate were included in the original version of the task (patto, fuga, fonte, pieno), 8 medium frequency words (lettore, organo, fetta, leva, polso, allargare, inserire) and 30 words with low frequency of use (giglio, alga, pungere, velare, basco, spiga, calco, scartare, felce, zappa, cervo, saggio, mischiare, cubo, salice, mulo, annusare, accostare, nuocere, lavagna, struzzo, cocco, panca, belva, tacchino, pezza, colletto, vesto, falco, dama). As for parts of speech, there are 31 nouns, 10 verbs and 1 adjective. Each trial is organized so as to provide four pictures: one picture representing a target word, one phonological distractor (a word that is phonologically similar to the target word), one semantic distractor (a word that is semantically similar to the target word) and one unrelated distractor (see Picture V.2.3:1).

For example, for a target word zappa (hoe), there is a phonological distractor – cappa (hood, cape), a semantic distractor – rastrello (rake), and an unrelated distractor – canale (channel, canal). The target stimuli (zappa in Italian and *тяпка* in Russian) have the same frequency rate – low. The same semantic and unrelated distractors were used in the adapted version of the task. The phonological distractor was modified to sound similar to the target word – *трянка* (rag, shred), see Picture V.2.3:1.

	
Picture V.2.3:1. An example of stimuli from Lexical comprehension task for shool age children (BVL_4-12)	Picture V.2.3:1. An example of adapted stimuli from Lexical comprehension task for shool age children (BVL_RU)

During the first stage of adaptation, all Italian stimuli were literally translated into Russian (see Table V.2.3:1). The frequency rate of each translated target stimulus was checked (Ljashevskaja & Sharov, 2009).

Item	Type of stimuli	Italian version (frequency rate)	Letters in T	Russian translation (frequency rate)	Letters in T	Semantic category of the T
example	T PD SD UD	Pasta Posta Bistecca Casa	5	Лапша Почта Бифштекс Дом	5	Food
1	T PD SD UD	Cocco (low) Fiocco Banana Rotto	5	Кокос (low, >20000) Бабочка (бант) Банан Поломка	5	Food (fruit)
2	T PD SD UD	Falco (low) Talco Piccione Arancia	5	Ястреб (low, 16457) Тальк Голубь Апельсин	6	Nature (bird)
3	T PD SD UD	Patto (high) Gatto Lite Cocco	5	Рукопожатие (low, 13397) Кот Ссора Кокос	11	Other
4	T PD SD UD	Tazza (medium) Mazza Calice Aereo	5	Чашка (medium, 3298) Бита Фужер Самолет	5	Cutlery
5	T PD SD UD	Salice (low) Calice Abete Banana	6	Ива (low, 12776) Фужер \ кубок Ель Банан	3	Nature (tree)
6	T PD	Fuga (high) Ruga	4	Побег (medium, 4505) Морщина	5	Other

	SD UD	Nascosto Cucire		Скрытый Шить		
7	T PD SD UD	Spiga (low) Spina Papavero Calzino	5	Колос (low, 15438) Розетка/вилка Мак (цветок) Носок	5	Nature (plant)
8	T PD SD UD	Fonte (high) Fante Torrente Canale	5	Водопад (low, 10080) \источник\ключ\ручей Слуга Ручей Канал	7	Nature (water)
9	T PD SD UD	Mulo (low) Muto Zebra Fieno	4	Осел (low, 9929) Немой Зебра Мусор\сено	4	Nature (animal)
10	T PD SD UD	Lettore (medium) Rettore Scrittore Calamaio	7	Читатель (medium, 1052) Ректор Писатель Чернильница	8	School
11	T PD SD UD	Pieno (high) Fieno Vuoto Uva	6	Полный кувшин(high,250) Мусор Пустой Виноград	6	Other
12	T PD SD UD	Zappa (low) Cappa Rastrello Canale	5	Мотыга (тяпка; low, >20000) Вытяжка Грабли Канал	6	Instrument
13	T PD SD UD	Calco (low) Falco Orma Etichetta	5	Отпечаток (medium, 6785) Ястреб След Этикетка	9	Nature (bird)

14	T PD SD UD	Vesto (low) Cesto Riposo Pantofole	5	Одежда (medium, 1308) Корзина Отдых Тапки	6	Clothes
15	T PD SD UD	Pungere (low) Mungere Esplodere Vestire	7	Кусать (колоть; low, 9101) Доить Взрываться Одеваться	6	Other
16	T PD SD UD	Cubo (low) Tubo Scatola Toro	4	Куб (low, 11954) Труба Коробка Бык	3	Shape
17	T PD SD UD	Nuocere (low) Cuocere Curare Galleggiare	7	Вредить (разрушать; low, 12745) Готовить Лечить Держаться на воде	7	Other
18	T PD SD UD	Panca (low) Panda Divano Badile	5	Скамейка (medium, 3725) Панда Диван Лопата	8	Furniture
19	T PD SD UD	Organo (medium) Argano Pianoforte Lavandino	6	Орган (low, >20000) Лебедка Пианино Раковина	5	Musical instruments
20	T PD SD UD	Colletto (low) Folletto Manica Braccialetto	8	Воротник (medium, 5396) Эльф Рукав Браслет	8	Clothes
21	T PD SD	Belva (low) Selva Colomba	5	Зверь – (medium, 2382) Лес (чаща) Голубь	5	Nature (animals)

	UD	Guinzaglio		Поводок		
22	T PD SD UD	Lavagna (low) Lasagna Cornice Scrivania	7	Доска (medium, 1797) Лазанья Рама Письменный стол	5	School
23	T PD SD UD	Felce (low) Selce Salice Pecore	5	Папоротник (low, 16040) Кремень (камень) Ива Овца	10	Nature (plant)
24	T PD SD UD	Velare (low) Gelare Sotterrare Progettare	6	Надевать вуаль/фату (-) Замерзать Закапывать Проектировать	-	Other
25	T PD SD UD	Tacchino (low) Facchino Gallo Lama	8	Индюк (low, >20000) Носильщик Петух Лезвие (нож)	5	Nature (animals)
26	T PD SD UD	Giglio (low) Ciglio Tulipano Cometa	6	Лилия (low, 8654) Край Тюльпан Комета	5	Nature (flower)
27	T PD SD UD	Fetta (medium) Vetta Boccone Forbici	5	Кусок (часть; medium, 1599) Пик (горы) Кусок (порция) Ножницы	5	Food
28	T PD SD UD	Cervo (low) Servo Renna Ciclista	5	Олень (medium, 5968) Служитель / слуга Северный олень Велосипедист	5	Nature (animals)
29	T PD SD	Alga (low) Alba Corallo	4	Водоросль (low, 8867) Восход Коралл	9	Nature (plant)

	UD	Presepe		Рождение		
30	T PD SD UD	Struzzo (low) Spruzzo Pavone Camino	7	Страус (low, 18036) Фонтанчик (спрей) Павлин Камин	6	Nature (animals)
31	T PD SD UD	Pezza (low) Pozza Coperta Ortica	5	Заплатка (low, >20000) Лужа Покрывало / одеяло Крапива	8	Clothes
32	T PD SD UD	Leva (medium) Lava Maniglia Gabbiano	4	Рычаг (medium, 5153) Мыть Дверная ручка Чайка	5	Instruments
33	T PD SD UD	Polso (medium) Polpo Gomito Fuoco	5	Запястье (low, 8294) Осьминог Локоть Огонь	8	Body parts
34	T PD SD UD	Dama (low) Lama Scacchi Edera	4	Шашки (low, >20000) Лезвие Шахматы Плющ	5	Toys
35	T PD SD UD	Basco (low) Casco Cilindro Chiodo	5	Берет (low, 13443) Шлем (каска) Цилиндр Гвоздь	5	Clothes
36	T PD SD UD	Saggio (low) Paggio Stolto Impiegato	6	Мудрец (medium, 4016) Паж (слуга) Глупец Работник	6	Other
37	T PD SD UD	Annusare (low) Accusare Assaporare Galleggiare	8	Обонять (low, >20000) \ нюхать Обвинять Смаковать	7	Other

				Держаться на плаву		
38	T PD SD UD	Accostare (low) Appostare Incollare Incoronare	9	Приближаться (medium, 2742) Лежать (ждать) в засаде Приклеивать Надевать корону	12	Other
39	T PD SD UD	Allargare (medium) Divaricare Allarmare Sporgersi	9	Увеличивать (medium, 5088) / расширять Распространять Давать сигнал тревоги Наклоняться	11	Other
40	T PD SD UD	Inserire (medium) Ingerire Estrarre Bomba	8	Вставлять (low, 8639) Глотать Вытаскивать Бомба	9	Other
41	T PD SD UD	Scartare (low) Scattare Incartare Pedalare	8	Разворачивать (low, 10622) Щелкать (кликать; делать фото) Заворачивать Крутить педали (педалировать)	13	Other
42	T PD SD UD	Mischiare (low) Rischiare Separare Incrociare	9	Смешивать (low, 12187) Рисковать Разделять Скрещивать	9	Other

Table V.2.3:1 Italian stimuli for the lexical comprehension task for school-age children and their literal translations into Russian. Semantic categories of the stimuli, and their length in letters. T – target word; PD – phonological distractor; SD – semantic distractor; UD – unrelated distractor

Overall, 14 out of 42 literally translated stimuli had different frequency rates in Russian (Patto (high) – *рукопожатие* (low); fuga (high) - *побег* (medium); fonte (high) - *водопад* (low); calco (low) - *отпечаток* (medium); vesto (low) - *одежда* (medium); panca (low) – *скамейка* (medium); organo (medium) - *орган* (low); colletto (low) – *воротник* (medium); lavagna (low) - *доска* (medium); cervo (low) - *олень* (medium); polso (medium) - *запястье* (low); saggio (low) - *мудрец* (medium); accostare (low) - *приближаться* (medium); inserire (medium) - *вставлять* (low). In the Russian version of the task, the stimuli words were selected to maintain the original frequency distribution, so it was necessary to substitute some targets.

The majority of the Italian stimuli are 4-5-letter words (23 out of 42). Only 8 stimuli contained 8-9 letters. Fourteen of the translated stimuli appeared to be long words in Russian, so it was impossible to create proper phonological distractors for them, for example, 2 root words: patto – *рукопожатие*; fonte – *водопад*; other long words with 8-13 letters lettore – *читатель*; panca – *скамейка*; calco – *отпечаток*; felce – *папоротник*; alga – *водоросль*; pezza – *заплатка*; polso – *запястье*; accostare – *приближаться*; allargare – *увеличивать*; scartare – *разворачивать*; inserire – *вставлять*; mischiare – *смешивать*.

Some Italian stimuli could only be translated using descriptive constructions instead of single words, for example, velare – *надевать фату/вуаль*; galleggiare – *держаться на воде*; scrivania – *письменный стол*; incoronare – *надевать корону*; allarmare – *давать сигнал тревоги*; pedalare - *крутить педали*; incollare - *лежать (ждать) в засаде*. These stimuli were not included in the adapted version of the task.

Only one of the translated phonological distractors corresponded (sounded similar) to its translated target stimulus – *обонять – обвинять*. This item was included as a whole in the adapted version of the task. The rest of the original phonological distractors were not used.

It was impossible to create proper phonological distractors for many target words translated literally from Italian, due to rare particular combinations of letters in Russian words, for example, falco – *я**стр**еб*; struzzo – ***стр**аус*; and for others due to the fact that their the most plausible phonological distractors were abstract concepts, thus, they could not be drawn on paper, for example – vesto - *одежда* [ʌdʒ́Ždъ] – *надежда* [nʌdʒ́Ždъ] - ‘hope’; salice – *ива* [ívъ]- *криво* [kr’ívъ] - crookedly; nuocere – *вредить* [vr’id’ít’] – *бредить* [br’ɔ́d’ít’] - to rave. However, some of them served as unrelated distractors in the Russian version of the task.

Finally, probably because some words are borrowings from other languages, they have no close phonological equivalents in standard Russian, for example – cocco – *кокос* (borrowed

from Portuguese); tacchino – *индюк* (borrowed from Latin via Polish). However, they were used as unrelated distractors in the adapted version of the task.

Overall, only the target stimuli from the original version of the Battery for which corresponding phonological distractors are salient in Russian were used in the adapted version. The residual Italian targets served as unrelated distractors.

Several repetitive stimuli were revealed in the original version of the task: cocco (Items 1 and 3); calice (Items 4 and 5); banana (Items 1 and 5); fieno (Items 9 and 11); canale (Items 8 and 12); falco (Items 2 and 13); salice (Items 5 and 23); falleggiare (Items 17 and 37); lama (Items 25 and 34). The Russian version of the task is created so to avoid repetetive stimuli.

Finally, all stimuli in the original version of the task can be divided into 12 semantic categories: food (2 items); nature (12 items); cutlery (1 item); school (3 items); instruments (2 items); clothes (4 items); shape (1 item); furniture (1 item); musical instruments (1 item); body parts (1 item); toys (1 item) and others (13 Items, mostly verbs). In order to maintain a semantic distribution similar to original, all targets used in the adapted version of the task were also divided into semantic categories: school (3 items); nature (13 items); furniture (1 item); instruments (2 items); musical instruments (2 items); clothes (1 item); toys (1 item); food (1 item); cutlery (2 items) and professions (3 items), and other (13 items).

The original distribution of parts of speech was also preserved. The stimuli used for the adapted version of the task were 31 nouns, 10 verbs and 1 adjective. Their frequency rate was checked using a Russian language corpus (Ljashevskaja & Sharov, 2009), so that the child is exposed to a comprehension task of only 4 words with very high frequency of use ([*солдат; волос; площадь; стена*]) 8 words with medium frequency of use ([*кубок; колонна; изящная; рычаг; гвоздь; почка; матрос; протекать*]) and 30 word with low frequency of use ([*бивень; чаща; плот; софа; колос; обонять; дудка; полено; пень; цапля; гайка; пружина; осел; крупа; клоп; кусать; стеречь; копыто; першить; баян; точить; лак; шаркать; богатырь; укрощать; блюдце; шалаш; шалфей; вить; чавкать*]).

See Table V.2.3:2 for a full list of stimuli and distractors created for the Russian version of the lexical comprehension task for school age children:

target stimuli (T)	**phonological distractors (PD)**	**same category distractors (SD)**	**Unrelated distractors (UD)**	**T freq. numerical**	**T freq. categorical**	**T semantic category**
кубок	кубик (T from item 16 in BVL_4-12)	медаль	бык (UD from item 16 in BVL_4-12)	4453	med	School
бивень	ливень	клык	кувшин (T from item 11 in BVL_4-12)	>20 000	low	Nature
чаща	чаша	поле	след (T from item 13 in BVL_4-12)	13792	low	Nature
колонна	корона	высотка	скамейка (T from item 18 in BVL_4-12)	2715	med	School
плот	плед	корабль	воротник (T from item 20 in BVL_4-12)	9520	low	Nature
софа	сова	стул	папоротник (T from item 23 in BVL_4-12)	19192	low	Furniture
колос (T from item 7 in BVL_4-12)	волос	цветок-мак (SD from item 7 in BVL_4-12)	индюк (T from item 25 in BVL_4-12)	15438	low	Nature
полный	потный	худой	ива	4739	h	Other

(T from item 11 in BVL_4-12)			(T from item 5 in BVL_4-12)		i g h	
рычаг (T from item 32 in BVL_4-12)	рычать	гаченый ключ	чайка (UD from item 32 in BVL_4-12)	5153	m e d	Instruments
обонять (T from item 37 in BVL_4-12)	обвинять (PD from item 37 in BVL_4-12)	смаковать (SD from item 37 in BVL_4-12)	плавать (UD from item 37 in BVL_4-12)	>20 000	l o w	other
дудка	утка	свисток	кокос (T from item 1 in BVL_4-12)	>20 000	l o w	musical instruments
полено	колено	дерево	доска (T from item 22 in BVL_4-12)	12470	l o w	Nature
пень	тень	листок	олень (T from item 28 in BVL_4-12)	8602	l o w	Nature
берет (T from item 35 in BVL_4-12)	берег	цилиндр (SD from item 35 in BVL_4-12)	гвоздь (UD from item 35 in BVL_4-12)	13443	l o w	clothes
шашки (T from item 34 in BVL_4-12)	шишки	шахматы (SD from item 34 in BVL_4-12)	читатель (T from item 10 in BVL_4-12)	>20 000	l o w	toys

солдат	салат	полицейский	водопад (T from item 8 in BVL_4-12)	839	high	professions
тяпка (T from item 12 in BVL_4-12)	тряпка	грабли (SD from item 12 in BVL_4-12)	канал (UD from item 12 in BVL_4-12)	7355	low	instruments
площадь	лошадь	улица	тапочки (UD from item 14 in BVL_4-12)	808	high	other
осел (T from item 9 in BVL_4-12)	оса	зебра (SD from item 9 in BVL_4-12)	мусор (UD from item 9 in BVL_4-12)	9929	low	Nature
чашка (T from item 4 in BVL_4-12)	шашка	фужер (SD from item 4 in BVL_4-12)	самолет (UD from item 4 in BVL_4-12)	3298	med	Cutlery
лилия (T from item 26 in BVL_4-12)	линия	тюльпан (SD from item 26 in BVL_4-12)	комета (звезда) (UD from item 26 in BVL_4-12)	8654	low	Nature
клоп	хлоп	бабочка	Разворачивать, подарок (T from item 41 in BVL_4-12)	10787	low	Nature

кусать (T from item 15 in BVL_4-12)	чесать	взрываться (SD from item 15 in BVL_4-12)	одеваться (UD from item 15 in BVL_4-12)	9101	low	other
стеречь	стереть	воровать	мешать (T from item 42 in BVL_4-12)	14802	low	other
кусок (T from item 27 in BVL_4-12)	носок (ND from item 7 in BVL_4-12)	порция (SD from item 27 in BVL_4-12)	ножницы (UD from item 27 in BVL_4-12)	1599	med	food
зверь (T from item 21 in BVL_4-12)	дверь	голубь (SD from item 21 in BVL_4-12)	повадок (UD from item 21 in BVL_4-12)	2382	med	nature
копыто	копилка	кошачьи лапы	водоросль (T from item 29 in BVL_4-12)	7812	low	nature
першить	перчить	болеть	увеличивать (T from item 39 in BVL_4-12)	> 20 000	low	other
баян	баран	балалайка	вор (T from item 6 in BVL_4-12)	13636	low	Musical instruments
точить	топить	пилить	высовываться (свешиваться) (UD from item 39 in BVL_4-12)	13417	low	other
стена	спина	пол	птица-ястреб	400	h	school

			(T from item 2 in BVL_4-12)		i g h	
лак	рак	помада	соглашение руки (T from item 3 in BVL_4-12)	7989	l o w	other
шаркать	чиркать	бежать	вставлять (T from item 40 in BVL_4-12)	13974	l o w	other
богатырь	богач	солдат в танке	мудрец (T from item 36 in BVL_4-12)	8027	l o w	professi ons
укрощать (тигра)	украшать (елку)	гладить (кота)	шить (UD from item 6 in BVL_4-12)	>20 000	l o w	other
матрос	матрас	летчик	отпечаток (T from item 13 in BVL_4-12)	4610	m e d	professi ons
блюдце	блузка	чашка	страус (T from item 30 in BVL_4-12)	12539	l o w	Cutlery
шалаш	шаль	палатка	банан (UD from item 5 in BVL_4-12)	12709	l o w	Nature
шалфей	фея	роза	штаны (T from item 31 in BVL_4-12)	>20 000	l o w	Nature
вить	лить	строить дом	скрещивать (UD from item 42 in BVL_4-12)	>20 000	l o w	other
чавкать	тявкать	глотать	прыгать	18841	l o	other

					w	
протекать	протыкать	капать в нос	проектировать (UD from item 24 in BVL_4-12)	5532	m e d	other

Table V.2.3:2 A list of target stimuli (T) and distractors (phonological (PD), lexical (SD) and unrelated (UD) and frequency characteristics of the target stimuli, created for the Russian version of the lexical comprehension task for school age children

The instructions of the task were translated as follows:

In Italian:

Ora ti dirò una parola e tu mi devi mostrare la figura che corrisponde alla parola che ti ho detto. Se non sei sicuro di conoscere la parola che ti ho detto, devi lo stesso mostrarmi la fgura che ti sembra più giusta. Facciamo una prova. Sei pronto? Cominciamo!

In Russian:

Сейчас я буду говорить тебе разные слова, и ты должен(а) выбрать соответствующую им картинку. Если ты не уверен(а), что знаешь это слово, которое я сказал(а), выбери картинку, которая, как тебе кажется, лучше всего передает смысл этого слова. Потренируемся. Готов(а)? Начинаем!

V.2.4. Grammatical comprehension

In the BVL_RU, the grammatical comprehension task received the following title: **“Понимание синтаксических структур речи”**. The grammatical comprehension task in the BVL_4-12 evaluates understanding of the following structures:

- 3 sentences in which the nominal gender (male versus female) or number (singular versus plural) contrast is presented (item 5 - la bambina tiene il libro; item 11 - il bambino tiene il libro; item 14 - la bambina tiene i libri);
- 6 sentences in which the number of verbs and adjectives is modified (item 1 - l’uccello vola; item 3 - gli uccelli volano; item 2 - il bambino sporco; item 4 - la bambina sporca; item 6 - i bambini sporchi; item 7 - le bambine sporche);

- 4 sentences with clitic pronouns (item 17 - la bambina lo tiene; item 15 - il bambino li tiene; item 16 - il bambino la spinge; item 20 - la bambina le tiene);
- 5 affirmative reversible sentences in the active voice (item 33 - il bambino spinge la bambina; item 8 - il gatto rincorre il cane; item 23 - il cane rincorre il gatto; item 35 - il bambino lava la mamma; la mamma item 25 - lava il bambino);
- 2 affirmative reflective sentences in the active voice (item 10 - il bambino si lava; item 31 - la mamma si lava);
- 4 affirmative reversible sentences in the passive voice (item 9 - la bambina è spinta dal bambino; item 12 - il bambino è spinto dalla bambina; item 28 - il cane è rincorso dal gatto; item 21 - il gatto è rincorso dal cane);
- 4 negative sentences in the active voice (item 36 - il cane non corre; item 37 - il bambino non mangia il gelato; item 29 - il bambino non dorme; item 32 - la bambina non mangia);
- 3 declarative negative sentences in the passive voice, including 1 reversible item - 40 (item 13 - la mela non è presa dalla bambina; item 38 - la macchina non è lavata dal bambino; item 40 - il cane non è rincorso dal gatto);
- 4 declarative sentences in the active voice with double negation and adversity (item 19 - né il bambino né la bambina mangiano; item 26 - né il cane né il gatto stanno correndo; item 34 - la bambina ma non il bambino sta correndo; item 39 - il bambino ma non la bambina sta mangiando);
- 5 declarative sentences in the active voice containing relative clauses (item 24 - il bambino che è sul tavolo mangia il gelato; item 18 - il bambino magro rincorre la bambina che è grassa; item 27 - il topo che il gatto rincorre ha il formaggio in bocca; item 22- il gatto salta sul topo che è sulla sedia; item 30 - il bambino che è in bicicletta rincorre la bambina che è a piedi)

Each target sentence was matched with three distracting drawings. Only one drawing depicts the meaning of the sentence read by the examiner (the target drawing), while the other three contain modified elements of inflectional morphology and syntactic organization. For this task, 40 sentences of variable syntactic complexity were created. Here we describe the characteristics of the target stimuli:

- 2 declarative sentences in the active voice. The sentences differ in the gender of the pronoun or number of the noun: the sentence №5 – ***Она*** *держит книгу*; and the number of the noun - the sentence №14 – *Она держит книг****и***;

- 2 declarative sentences in the active voice, with various tense-aspect characteristics: the sentence №11 - *Мальчик* ***падает*** (present tense, imperfective verb); sentence №30 - *Дети* ***будут обедать*** (complex future, imperfective verb);
- 2 sentences in which the number of verbs is modified (sentence №1 - *Птичка летит*; sentence №3 - *Птички летят*);
- 1 declarative sentence in the active voice, containing a participle in present tense, imperfective form, sentence №2 - *Мальчик,* ***сидящий*** *на кровати, читает книгу*;
- 1 declarative sentence in the active voice, containing an adverbial participle formed with the suffix *–в* in the past tense – sentence number 4 - *Мальчик бежит* ***подпрыгивая***;
- 2 declarative sentences in the active voice, containing various prepositions of place: sentence №6 - *Собаки сидят* ***перед*** *столом*; sentence №7 - *Люстра висит* ***над*** *столом*;
- 4 declarative sentences in the active voice, containing an object in the accusative case, singular or plural number and various gender characteristics. The predicate is always expressed using transitive verbs: sentence №15 – *Мальчик держит их*; sentence №20 – *Девочка держит их*. The difference between the 15th and 20th stimuli is in the set of the provided distractors (see Table V.2.4:1 in the Appendix for the details). Sentence №16 – *Мальчик толкает* ***его***; Sentence №17 – *Девочк****и*** *держат* ***ее***;
- 5 declarative reverse sentences in the active voice: sentence №8 - *Кот догоняет собак****у*** (S_{NOM}-V-O_{ACC}); №33 - *Мальчик толкает девочк****у*** (S_{NOM}-V-O_{ACC}); №35 - *Мальчик моет мам****у*** (S_{NOM}-V-O_{ACC}); №23 - *Собак****у*** *догоняет кот* (O_{ACC}-V- S_{NOM}); №25 - *Мальчик****а*** *моет мама* (O_{ACC}-V- S_{NOM});
- 2 declarative reverse sentences in the active voice, containing reflexive verbs: sentence №10 - *Мальчик умывает****ся***; sentence №31 – *Мама моет****ся***;
- 4 declarative reverse sentences in the passive voice: sentence №9 - *Комната хорошо проветривает****ся***. In the sentence a verb has –ся postfix and a Subject is not expressively defined. Sentence №12 - *Картина нарисова****н****а художником*. Passive voice is realized in a short form of passive participle in Past tense. In the sentence №21 - *Рабочие назначают****ся*** *бригадиром;* №28 - *Ученики исключают****ся*** *из школы директором*, verbs have – *ся* postfixes and both Subject and Object belong to animate category of nouns;

- 4 declarative negative sentences in the active voice: sentence №29 - *Мальчик **не** спит*; sentence №32 - *Девочка **не** ест*; sentence №36 - *Собака **не** бежит*; sentence №37 - *Мальчик **не** ест мороженое*;
- 3 declarative negative sentences in the passive voice: sentence №13 - *Яблоко **не** сорван**о** девочк**ой*** (O_{NOM} - $V_{\text{negative passive short form of participle with H suffix}}$- S_{INSTR}); №38 - *Машина не моет**ся** мальчиком* (O_{NOM}-$V_{\text{negative passive form of a imperfective verb with –ся postfix}}$- S_{INSTR}); №40 - *Девочка не причесывает**ся** мамой* (O_{NOM}-$V_{\text{negative passive form of a imperfective verb with –ся postfix}}$- S_{INSTR}) reverse sentence, both nouns in the sentence belong to animate category;
- 2 declarative sentences in the active voice with double negation: sentence №19 - ***Ни** мальчик, **ни** девочка **не** едят*; sentence №26 - ***Ни** кот, **ни** собака **не** бегут*);
- 2 declarative negative sentences in the active voice, containing conjunctions expressing contrast: sentence №34 - *Девочка, **а** не мальчик бежит*, sentence №39 - *Мальчик, **а** не девочка ест*;
- 4 declarative sentences in the active voice, containing dependent clauses expressing various meanings: sentence №18 - *Девочка объясняет, **почему** она разбил чашку*; sentence №22 - *Кошка перепрыгивает через мышку, **которая** сидит на стуле*; sentence №24 - *Мальчик, **который** сидит на столе, ест мороженое*; sentence №27 - *Кошка ищет, **где** спряталась мышка*)

Table V.2.4:2 summarizes the types of stimuli in the original and adapted versions of the grammatical comprehension task:

types of sentences	**BVL_4-12**	**BVL_RU**
the gender (male vs. female) or number (singular versus plural) contrast is presented;	items 5, 11, 14	items 5, 14
the number of verbs and adjectives is modified;	items 1, 2, 3, 4, 6, 7	items 1,3
containing 3^{d} person pronouns;	items 15, 16, 17, 20	items 15, 16, 17, 20
affirmative reversible sentences in the active voice	items 8, 23, 25, 33, 35	items 8, 23, 25, 33, 35

affirmative reflective sentences in the active voice	items 10, 31	items 10, 31
affirmative reversible sentences in the passive voice	items 9, 12, 21, 28	items 9, 12, 21, 28
negative sentences in the active voice	items 29, 32, 36, 37	items 29, 32, 36, 37
declarative negative sentences in the passive voice	items 13, 38, 40	items 13, 38, 40
declarative sentences in the active voice with double negation and adversity	items 19, 26, 34, 39	items 19, 26, 34, 39
declarative sentences in the active voice containing relative clause	items 18, 22, 24, 27, 30	items 18, 22, 24, 27
declarative sentences in the active voice, with various tense-aspect characteristics;	-	items 11, 30
declarative sentence in the active voice containing a participle in present tense, imperfective aspect;	-	item 2
declarative sentence in the active voice containing an adverbial participle;	-	item 4
declarative sentences in the active voice containing various prepositions of place	-	items 6, 7

Table V.2.4:2 Summary of the types of stimuli in the original and adapted versions of the grammatical comprehension task

Overall, all categories (sentence types) included in the task in the original battery are preserved in the adapted version of the task. The number of items in each category in some cases was reduced. This was done in order to include types of sentences that exist in Russian but not in Italian. The structure of the original version of the task was also preserved, so for each target stimulus, three distractors were created.

Picture V.2.4:1 demonstrates an example of the task stimulus (item 1). This item represents a sentence type that is common to Italian and Russian; thus, the same picture was used in the adapted version of the task. In the case of a unique type of sentence (present in Russian only), new pictures were created (e.g. Picture V.2.4:2 for item 11).

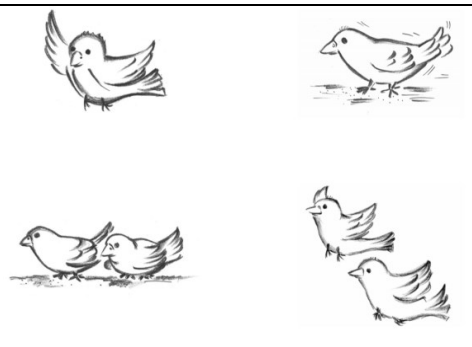
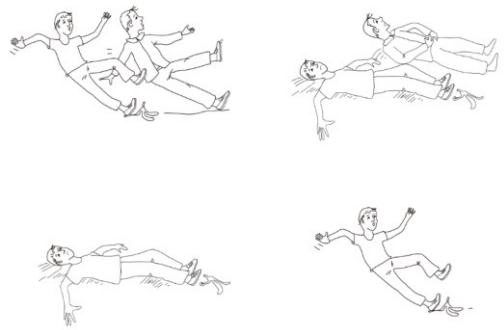
	
Picture V.2.4:1. An example of stimuli from Grammatical comprehension task (same in BVL_4-12 and BVL_RU)	Picture V.2.3:2. An example of stimuli from Grammatical comprehension task (absent in BVL_4-12)

Table V.2.4:1 (see appendix) describes a complete list of the target stimuli (which are read aloud to a child) and the distractors (which a child only observes in a picture) created for the grammatical comprehension task in Russian. The procedures used for distractor creation are also described in the Table V.2.4:1.

The instructions for the task were translated from Italian:

Ora ti leggerò una frase e tu dovrai indicarmi quale fra questi disegni corrisponde alla frase che ti ho letto. Se non sei sicuro, devi lo stesso mostrarmi la figura che ti sembra più giusta. Facciamo una prova. Sei pronto? Cominciamo!

into Russian:

Сейчас я буду читать тебе предложения, и ты должен(а) выбрать картинку, которая им соответствует. Если ты не уверен(а), выбери картинку, которая, как тебе кажется, больше всего передает смысл того или иного предложения. Потренируемся. Готов(а)? Начинаем!

V.2.5. Grammatical judgment

In the BVL_RU, the grammatical judgments task received the following title: ”Грамматические суждения”. For this task, 18 sentences have been created, consisting of 9 grammatically unacceptable sentences and 9 grammatically well-formed sentences, of variable length and syntactic complexity. The sentences have been chosen so as to evaluate adjective-noun agreement (item 1 - *Девочк**а** хорош**ий***; item 16 – *Красное яблоко*), and subject-predicate agreement (item 2 ***Дети** чищ**у** зубы*; item 14 - *Машина едет по дороге*). These types of sentences were shown to be acquired by Russian speaking children already be the age of 3 (Voejkova, 2004). The original, Italian, version of the Battery also comprises grammatical judgments related to the (un)acceptability of the article-noun agreement (items 4 and 9), however, in the Russian language this grammatical category is absent. Thus, instead, item 4 (*Он уже **сходил** в магазин и **нес** продукты*) and item 9 (*Мама причесывает девочку*) has been created so to test (un)acceptability of sentences containing verbs with different aspect characteristics. In item 5, 5 (*Ей покупают куклу*) and item 12 (*Её нравилось смотреть телевизор*) – the use of the third person pronoun must be judged. The organization of affirmative (item 3 - *Письмо написано папой* and item 6 - *Кот укушен собак**у***) and negative (item 7 - *Письмо не доставлено адреса**т*** and item 11- *Вода не выпита мальчиком*) sentences in the passive voice, and negative sentences in the active voice (item 13 - *Лапша не на тарелке* and 17 - *Мальчик будит маму **не***) must be assessed; Subject-predicate agreement in complex sentences with relative clauses is assessed in item 8 - ***Мальчик**, который чита**ют** книги, большой* and item 18 - *Мороженое, которое ест девочка, вкусное*. Finally, item 10 - *Один мальчик читает книгу, а другой спит* and item 15 - *Одна девочка ест мороженое, **но** другая пьет сок* are complex sentences with diverse conjunctions. Items 10 and 15 were created to reflect recent advances in Russian SLI research (Tribushinina, Dubinkina & Sanders, 2015).

See Table V.2.5:1 for a list of sentences created for the grammatical judgments task:

Stimuli		Correct response
1.	Девочка хороший	1. INcorrect
2.	Дети чищу зубы	2. INcorrect
3.	Письмо написано папой	3. Correct
4.	Он уже идет в магазин и принес продукты	4. INcorrect
5.	Ей покупают куклу	5. Correct
6.	Кот укушен собаку	6. INcorrect
7.	Собаку не укушена котом	7. INcorrect
8.	Мальчик, который читают книги, большой	8. INcorrect
9.	Мама причесывает девочку	9. Correct
10.	Один мальчик читает книгу, а другой спит	10. INcorrect
11.	Вода не выпита мальчиком	11. Correct
12.	Её нравилось смотреть телевизор	12. INcorrect
13.	Лапша не на тарелке	13. Correct
14.	Машина едет по дороге	14. Correct
15.	Одна девочка ест мороженое, но другая пьет сок	15. Correct
16.	Красное яблоко	16. Correct
17.	Мальчик будит маму не	17. INcorrect
18.	Мороженое, которое ест девочка, вкусное	18. Correct

Table V.2.5:1 A list of stimuli and correct responses for the grammatical judgments task of the adapted version of the BVL_4-12

Where possible, the literally translated sentences were used as stimuli in the Russian version of the task (items 1, 2, 5, 8, 11, 13, 14, 17, and 18). In other cases, the original sentences were slightly modified, namely item 3 – La mamma è baciata dal papa (the mom is kissed by the dad), which in literal Russian translation would be - *Мама поцелова**н**а папой*. In Italian, such constructions are widespread and used much more frequently in speech. Even though grammatically correct, in Russian such sentences are extremely rare in real speech, so it was substituted with *Письмо написано папой* (A letter was written by the dad), which represents the same syntactical structure, but sounds much natural in Russian.

Item 6, Il gatto è mordendo dal cane, contains an incorrect verb form (gerund instead of past participle – morso). In Russian, a verb form conveying the same meaning would be

укушен – a short participle in the past tense, passive voice, perfect aspect. Considering that the sentence must contain an error, we modified an inflection of the second noun – *кот укушен собаку*. The structure of the sentence thus became S_{NOM}-V-O_{ACC}, as if it were a sentence in the active case, instead of the passive – S_{NOM}-V-O_{INST} (*кот укушен собакой*). Thus, it became possible to evaluate the child's ability to judge the organization of affirmative sentences in the passive voice and, also, to include the category of case, missing in Italian, in the task.

In the original version of the task, Item 7 (Il cane è non morso dal gatto) contains an error. A correct sentence would be Il cane non è morso dal gatto. The error is in the word order. In Russian grammar, a link-verb corresponding to è (essere) is normally omitted. So, literally translated, the sentence – *Собака не укушена котом* – contains no errors. In order to create a grammatically incorrect stimulus and to preserve the structure of the original task, we modified the case mark of the subject – *Собак**у** не укушена котом* (S_{ACC}-negV-O_{INST}).

Item 12, Lui ci piace la television, was adapted so as to maintain the same type of error – the use of the third person pronoun. ***Её*** *нравилось смотреть телевизор* in the Russian version, represents an error in the case of the third person pronoun (её - ACC instead of the correct ей - DAT).

The word order in Item 16 was inverted in the Russian version of the task, due to the fact that the usual order of the components is the preposition of the adjective with respect to the noun (Shvedova, 1980 p.203).

Thus, in the adapted version of the task, all the sentence types common to both languages were preserved. See Table V.2.5:2 for a comparison of the adapted and the original version of the grammatical judgments task:

types of sentences	**BVL_4-12**	**BVL_RU**
the adjective-noun agreement	items 1 and 16	items 1 and 16
the subject-verb agreement	items 2 and 14	items 2 and 14
the article-noun agreement	items 4 and 9	-
the use of the third person pronoun	items 5 and 12	items 5 and 12
the organisation of affirmative sentence sentences in the passive voice	items 3 and 6	items 3 and 6

the organisation of negative sentence sentences in the passive voice	items 7 and 11	items 7 and 11
the organisation of negative sentences in the active voice	items 13 and 17	items 13 and 17
relative clauses	items 8 and 18	items 8 and 18
'dislocazione a sinistra'	items 10 and 15	-
the organisation of sentences comprising verbs having different aspect characteristics	-	items 4 and 9
the organisation of the complex sentences comprising diverse conjunctions	-	items 10 and 15

Table V.2.5:2 Adaptation of the grammatical judgments task

The instructions for the task were translated from Italian:

Ora ti leggerò alcune frasi. Per ogni frase dovrai dirmi se è corretta o sbagliata. Quindi, invita il bambino a giudicare due frasi a titolo di esempio. Ad esempio, se ti dico la frase Il bambino gioca con la palla, la frase è ben formata e quindi mi risponderai: Sì, è giusta. Se invece ti dico la frase Il bambino giocano con la palla, la frase è sbagliata e tu mi devi dire: No, è sbagliata. Sei pronto? Cominciamo!

into Russian:

Сейчас я прочитаю тебе несколько предложений. Каждый раз ты должен(а) сказать мне, правильное это предложение или нет. Например, если я говорю тебе Мальчик играет с мячиком, тут все правильно, и в этом случае ты мне говоришь: Да, верно. Если я говорю тебе, например, Мальчик играют с мячиком, это неправильно, и ты говоришь мне: Нет, неверно. Готов(а)? Начинаем!

V.2.6. Comprehension of idiomatic expressions

In the BVL_RU, comprehension of idiomatic expressions received the following title: **“Понимание идиом”**. There are several factors determining (un)successful comprehension of idiomatic expressions either in L1 or L2 (e.g. Krasnoluckaja & Malysheva, 2012; Liu, 2008). Liu (2008) divided them into 2 major groups: 1) Factors relating to idioms and their use and 2) Factors relating to language users (internal and external factors). Internal factors are those entirely depending on the idiom itself. These factors include: frequency; decomposability; syntactic analyzability; and presence or absence of context in which they appear. External factors, on the other hand, comprise the age and overall cognitive development of the interpreter; their so-called “learner cognitive style”; and “culture-specific source” knowledge (Liu, 2008, p.87). The internal factors determined the selection of stimuli for the idioms comprehension task in BVL_RU. Considering the organization of the task in the original version of the BVL (presentation of the stimuli in the absence of any context), the factor determining the selection procedure was frequency. During the final stage of the stimuli selection procedure, the stimuli were controlled for their decomposability and syntactic analyzability characteristics.

Frequency of use (or familiarity – the term which Liu (2008) uses as asynonym (p.78)) reflects how often an idiom is used by speakers. It was shown that familiar idioms are processed more accurately (e.g. Cronk & Schweigert, 1992). There are frequency dictionaries for single words, e.g. for English, the Corpus of Contemporary American English, which can be found online at http://www.wordfrequency.info/; or for Russian, http://dict.ruslang.ru/freq.php (see Ljashevskaja & Sharov, 2009). Normative data for 171 English idiomatic expressions, their familiarity, compositionality, predictability, and literality, was described by Titone and Connine (1994). Moon (1998) calculated the frequency of selected English idiomatic expressions using a corpus-based approach. The author explains: “The frequency of fixed expressions (including idioms) as recorded in the database is simply the number of times the string occurred in OHPC” (p. 59). However, to the best of our knowledge, there are no open frequency dictionaries or similar descriptive databases for Russian idiomatic expressions. In order to select idioms for inclusion in the BVL_RU, a dictionary of Russian idiomatic expressions (Fedorov, 2008) was used. The dictionary contains 13000 idiomatic expressions. A list was made of 40 idiomatic expressions, randomly taken from the dictionary. However, to be sure that Russian native speakers actually use these idioms in daily life, a double-check was performed. Idioms are a subtle part of spoken language, and the frequency of their utilization in written and oral speech significantly varies due to the personal preferences of the speaker

and the type of situation. Two frequency-checking methods were combined during the checking procedure: an automatic one, and a traditional survey method. First, the selected idioms were checked for their presence/absence in the General Internet Corpus of Russian language (GICR). GICR is a megacorpus that includes text data from the largest Russian Internet resources. Only resources containing data from a Russian social network (VKontakte) and a blog (LiveJournal) were used for the checking procedure, as these sources reflect up-to-date Russian speech. News sites were not included as databases for our check, due to their stylistic peculiarities. The results were sorted according to their frequency of occurrence in written texts. Furthermore, an online survey was launched. Adult Russian native speakers were asked to assess how frequently they use particular idiomatic expressions in their speech or hear their friends/relatives using them. The participants of the survey (N=420) were controlled for age (within a range of 20-60+), education (school/college/university/scientific degree) and profession (philologist/not philologist). They assessed the idioms on a three-point scale (0 points – never use it/hear someone else use it; 1 point – sometimes; 2 points – often.) Then, the results of the survey were compared to those from the GICR database. Moreover, since it was previously shown that children first acquire short IEs relevant for their social life (Bestugina, 2005), this variable was also accounted for during the selection process. Finally, the top 10 idioms were selected. These 10 idioms have the highest frequency rate and thus can potentially occur in the real speech or writing of Russian native speakers, so children can hear or read them and then use them in their own speech. In order to provide a diversity of stimulus material, the decomposability and syntactic analysability characteristics of the selected idioms were identified and described in the manual for the Russian version of the BVL (see Table V.2.6:1).

Decomposability (also called the semantic clarity or literalness of given idiomatic expressions) in other words, how easily the overall idiomatic meaning of these expressions can be interpreted using the literal meanings of their individual lexical parts. This factor is closely related to transparency of the figurative meaning, so sometimes these terms are used synonymously. Indeed, the degree of transparency directly depends on how much the literal meanings of the individual words contribute to successful retrieval of the idiomatic meaning. According to Gibbs (1991) there are 3 such degrees, so IEs can be 1) decomposable, which means that their figurative meaning is heavily based on the literal meanings of the individual units; 2) abnormally decomposable (the individual units indirectly contribute to the overall figurative meaning of the idiom); or 3) non-decomposable, or opaque (the individual words do not help to interpret the idiomatic meaning at all. The example here would be an idiom given in most of the textbooks – Kick the bucket). It was previously shown that decomposability

significantly affects idiom comprehension in children speaking diverse languages (e.g. Caillies & Le Sourn-Bissaoui, 2006; Levorato & Cacciari, 1999; Gibbs, 1987). According to this criterion, four of the selected idioms are non-decomposable, four are abnormally decomposable and two are decomposable.

One more characteristic describing idiomatic expressions is their **syntactic analyzability**, in other words, each idiom might be characterized as syntactically frozen or syntactically abnormal depending on "the degree to which the formation of an idiom violates established syntactic rules" (Liu, 2008, p.81). As for the Russian language, classical theoretical studies on semantic and syntactic analysability are represented in studies by Vinogradov (1977) and Shanskij (1996). It was shown that this characteristic could also affect comprehension of idioms (e.g. Abrahamsen & Burke-Williams, 2004). According to this characteristic, all the stimuli were divided into frozen – "ill-formed" and flexible – "well-formed" (Philip, 2011, p. 18). Overall, the BVL_RU includes 4 frozen idiomatic expressions and 6 flexible ones:

Idiomatic expression	**Decomposability rate**	**Syntactic Analysability**
1. В одно ухо влетело, в другое вылетело	abnormally decomposable	flexible
2. Ни пуха ни пера	non-decomposable	frozen
3. Бежать сломя голову	abnormally decomposable	flexible
4. Считать ворон	non-decomposable	flexible
5. Глаза разбежались	non-decomposable	frozen
6. Ходить по пятам	decomposable	flexible
7. Уши развесить	abnormally decomposable	flexible
8. Мухи не обидит	abnormally decomposable	flexible
9. Душа в пятки ушла	non-decomposable	frozen
10. Как две капли воды	decomposable	frozen

Table V.2.6:1 Decomposability rate and syntactic analyzability of the idiomatic expressions selected for the idiomatic expressions comprehension task of the BVL_RU

The final part of the stimuli selection procedure was a pilot study (two experiments) with Russian-speaking monolingual children aged 4.04 to 11.11. The participants were asked to identify the correct non-literal meaning of a series of the 10 previously selected IEs. For each item a child had three potential explanations (one correct, one literal, and one wrong) and was asked to choose the one that she thought to be correct or explain them in their own words. The results of this study were described in a series of short articles (see Eliseeva & Marini, 2016; Eliseeva, Guts, & Marini, in press). Overall, the results of the pilot experiments indicate that children of the target age do understand the task instructions and are able to identify the correct meanings of the given idiomatic expressions. The ability progressively improves with age. See Table V.2.6:2 adapted from (Eliseeva, Guts, & Marini, in press) for the results of the second experiment:

Age-Group (N=20 per Group)	**Sex**	**Total Correct answers**	**Total Literal answers**	**Total Wrong answers**
1 (mean age - 4;61 (.49) Range: 4;04-5;11)	F=10	2.6 (2.30)	3.45 (1.57)	2.85 (1.79)
2 (mean age - 6;28 (.43) Range: 6;00-7;02)	F=10	4.2 (2.21)	3 (2.49)	1.9 (1.12)
3 (mean age – 8;29 (.43) Range: 8;01-9;04)	F=13	7.75 (1.94)	0.9 (1.17)	1.3 (1.45)
4 (mean age – 10;56 (.52) Range: 10;01-11;11)	F=10	7.9 (2.71)	0.9 (1.17)	0.6 (.82)

Table V.2.6:2 Performance of the four groups of participants on the comprehension of idiomatic expressions task. Data are expressed as means (and standard deviations)

The results from the pilot studies suggest that monolingual children with typical development can already process some IEs at pre-school age, but tend to split them into individual words and interpret them literally: up to the age of 7 they were able to produce approximately 40% of correct responses, with 30% of literal responses. On the other hand, these data also suggest that the first key age when children significantly improve their comprehension of figurative language is around 7-8 years. By the age of 12, children were able to provide a correct response, on average, in 8 out of 10 cases, almost reaching ceiling level. A

similar trend has been reported in other investigations focusing on children with different languages (e.g., Levorato, Nesi, & Cacciari, 2004; Cain & Towse, 2008).

The studies allowed improving the 3 options presented to the children during the administration of the task, considering their own explanations. Some of the original options were modified accordingly. See Table V.2.6:3 for a list of idioms selected for the comprehension of idiomatic expressions task:

Stimuli (idioms)	**Explanations (exp.s) of the given stimuli (options) used deuring a pilot study**	**Final versions of the exp.s of the given stimuli (options) adapted according to the results of pilot study**	**Changes done in the exp.s of the given stimuli (options) considering the results of the pilot study**	**type of response**
1. В одно ухо влетело, в другое вылетело	1. Слушать очень внимательно; 2. Простудить уши на ветру и заболеть; 3. Ничего не запомнить.	1. Слушать внимательно; 2. Простудить уши на ветру; 3. Ничего не запомнить.	1. The exp. is shortened; 2. The exp. is shortened; 3. The exp. was not modified.	1. wrong; 2. literal; 3. correct.
2. Ни пуха ни пера	1. О голой птице; 2. Об очень чистой, хорошо убранной комнате; 3. Пожелание успеха.	1. О птице без перьев; 2. Об очень чистой, хорошо убранной комнате; 3. Пожелание удачи, успеха.	1. The exp. was modified; 2. The exp. was not modified. 3. The exp. was expanded.	1. literal; 2. wrong; 3. correct.
3. Бежать сломя голову	1. Бежать очень-очень быстро; 2. Бежать трудно и медленно;	1. Бежать очень-очень быстро; 2. Передвигаться трудно и медленно; 3. Поранить голову.	1. The exp. was not modified; 2. The exp. was modified.	1. correct; 2. wrong; 3. literal.

	3. Поранить голову.		3. The exp. was not modified.	
4. Считать ворон	1. Смотреть по сторонам; 2. Вести подсчет ворон или других птиц. 3. Быть очень внимательным, серьезным.	1. Смотреть по сторонам, крутиться, отвлекаться, бездельничать. 2. Вести подсчет ворон или других птиц. 3. Быть очень внимательным, серьезным.	1. The exp. was expanded; 2. The exp. was not modified. 3. The exp. was not modified.	1. correct; 2. literal; 3. wrong.
5. Глаза разбежались	1. Иметь воспаление глаз; 2. Говорят про человека, который из многого не может выбрать что-то одно; 3. Испугаться чего-то.	1. Заболеть, иметь воспаление глаз. 2. Говорят про человека, который из многого не может выбрать что-то одно. 3. Испугаться чего-то очень сильно.	1. The exp. was expanded; 2. The exp. was not modified. 3. The exp. was expanded.	1. literal; 2. correct; 3. wrong.
6. Ходить по пятам	1. Никуда не отходить от кого-то; 2. Наступать кому-то на пятки; 3. Не обращать внимания на кого-то.	1. Везде ходить за кем-то, как хвостик, никуда не отходить от кого-то. 2. Наступать кому-то на пятки. 3. Не обращать внимания на кого-то.	1. The exp. was expanded; 2. The exp. was not modified. 3. The exp. was not modified.	1. correct; 2. literal; 3. wrong.
7. Уши развесить	1. Не слушать; 2. Иметь длинные уши; 3. Верить всему, что говорят.	1. Не слушать; 2. Иметь длинные уши; 3. Верить всему, что говорят или подслушивать.	1. The exp. not modified; 2. The exp. was not modified;	1. wrong; 2. literal; 3. correct.

			3. The exp. was expanded.	
8. Мухи не обидит	1. Очень добрый, безобидный человек; 2. Человек, который любит насекомых; 3. Злой человек.	1. Очень добрый, безобидный человек; 2. Человек, который любит насекомых: мух, комаров; 3. Злой человек.	1. The exp. not modified; 2. The exp. was expanded; 3. The exp. was not modified.	1. correct; 2. literal; 3. wrong.
9. Душа в пятки ушла	1. Говорят о том, кто очень испугался; 2. Говорят о том, у кого заболели пятки; 3. Ничего не бояться, быть смелым.	1. Говорят о том, кто очень испугался; 2. Говорят о том, у кого заболели пятки; 3. Ничего не бояться, быть смелым.	1. The exp. not modified; 2. The exp. was not modified; 3. The exp. was not modified.	1. correct; 2. literal; 3. wrong.
10. Как две капли воды	1. Практически ничего не пить; 2. Сильно отличаться; 3. Быть очень похожим.	1. Мало пить; 2. Сильно отличаться; 3. Быть очень похожим.	1. The exp. was shortened; 2. The exp. was not modified; 3. The exp. was not modified.	1. literal; 2. wrong; 3. correct.

Table V.2.6:3 A list of stimuli, and response options and their characteristics for the comprehension of idiomatic expressions task of the adapted version of the BVL_4-12

Overall, 12 out of a total of 30 explanations of the 10 given stimuli were changed based on the results of the pilot study:as follows: the wrong and literal explanations of item 1 were shortened; as for item 2, its literal explanation was modified and its correct explanation was expanded; in item 3, the wrong explanation was modified; the correct explanation for item 4 was expanded; in item 5, the correct and literal explanations were expanded;the correct

explanations for items 6 and 7 were expanded; as for item 8, its literal explanation was expanded; finally, the literal explanation in item 10 was shortened.

The original instructions were translated from Italian:

Ora ti leggerò delle frasi e ti chiederò di dirmi cosa vogliano dire. Per aiutarti ti leggerò tre possibili signifcati e tu dovrai scegliere quello che ti sembra più giusto. Sei pronto? Cominciamo!

into Russian as follows:

Сейчас я буду читать тебе фразы, а ты мне скажешь, что имеется в виду. Чтобы помочь тебе я прочитаю 3 варианта, из которых тебе просто нужно быдет выбрать один, который лучше всего объясняет значение фразы. Готов(а)? Начинаем!

V.2.7. Comprehension of linguistic prosody

In the BVL_RU, the linguistic prosody comprehension task received the following title: **“Понимание лингвистической просодии”**. The task evaluates the child's capacity to perceive and interpret the linguistic prosody (intonation) of a sentence by determining if it is a question, an order or a statement. There are 7 types of intonation contours in Russian (IC-1-7; Shvedova, 1980, Vol. I , p.97). Phonetically, their differences are determined by the changes in the level and the direction of the tone. The place where such changes begin is called the intonation center. Depending on the semantic conditions, the center can be in the beginning, in the middle or at the end of the utterance. IC-1 is a typical statement intonation. An example of IC-1 would be:

Какие у них обычаи.

The intonation center in this example is ы. The tone goes down after the intonation center and stays low until the end of the utterance.
IC-2 is usually used to convey imperative meaning and questions:

Какие у них обычаи?

The tone is flat or going down. The stressed vowel of the intonation centre is emphasized.
IC-3 is an intonation typical for questions:

Какие у них обычаи?

The tone is abruptly raised on the intonation centre.

During the first phase of the adaptation, all the stimuli were literally translated into Russian. Then, all the verb forms were unified so as to have the same grammatical forms across the task (third person, singular, present tense). All names were changed into typical Russian ones. The intonation centers of the sentences were marked according to the intonation type. Finally, the stimuli were recorded using a Tascam DR-22WL audio recorder.
See Table V.2.7:1 for a list of created and recorded sentences for the linguistic prosody comprehension task:

Original stimuli in Italian	**Translated version of the stimuli**	**Adapted version of the stimuli (marked intonation centers)**	**Characteristics of the stimuli**
1. Carlo, paga il conto!	1. Карло, оплати счет!	1. К**а**тя, оплачивает счет!	1. Order (IC-2);
2. Stefano regala il libro a Giulio.	2. Стефано дарит книгу Джулио.	2. Стёпа дарит кн**и**гу Даше.	2. Statement (IC-1);
3. Marco cucina?	3. Марко готовит?	3. Саша гот**о**вит?	3. Question (IC-3);
4. Livia bada ai bambini piccolo.	4. Ливия ухаживает за маленькими детьми.	4. Лида присм**а**тривает за малышами.	4. Statement; (IC-1);
5. Giulia, va a casa!	5. Джулия, иди домой!	5. Лена идет дом**о**й!	5. Order (IC-2);
6. Carlo paga il conto?	6. Карло, оплачивает счет?	6. Катя оплатила сч**е**т?	6. Question (IC-3);
7. Marco, cucina!	7. Марко, готовь!	7. С**а**ша готовит!	7. Order (IC-2);

8. Stefano regala il libro a Giulio?	8. Стефано дарит книгу Джулио?	8. Стёпа дарит книгу Д**а**ше?	8. Question (IC-3);
9. Giulia va a casa.	9. Джулия идет домой	9. Лена идет дом**о**й	9. Statement (IC-1);
10. Livia bada ai bambini piccoli?	10. Ливия ухаживает за маленькими детьми?	10. Лида присматривает за малыш**а**ми?	10. Question (IC-3);
11. Stefano, regala il libro a Giulio!	11. Стефано, подари книгу Джулио!	11. Ст**ё**па дарит книгу Даше!	11. Order (IC-2);
12. Carlo paga il conto.	12. Карло оплачивает счет.	12. Катя оплат**и**ла счет.	12. Statement (IC-1).

Table V.2.7:1 A list of stimuli and their characteristics Linguistic prosody comprehension task of the adapted version of the BVL_4-12

The task instructions were translated from Italian:

Ora sentirai delle frasi e mi dovrai dire se sono domande, come ad esempio *Vieni da noi?*, ordini, come nel caso di *Vieni da noi!* o affermazioni, come in *Vieni da noi*. Facciamo una prova. Sei pronto? Cominciamo!

into Russian as follows:

Сейчас ты услышишь несколько фраз и должен(а) будешь мне сказать, вопросы это (как, например, *Ты идешь к нам?*, приказы *Ты! Идешь к нам!*, или ни то, ни другое, а просто утверждения *Ты идешь к нам*. Потренируемся. Готов(а)? Начинаем!

V.2.8. Comprehension of emotive prosody

In the BVL_RU, comprehension of emotive prosody received the following title: ”Понимание эмотивной просодии”. The adapted versions of the stimuli created for comprehension of linguistic prosody were recorded with either happy, sad or angry intonation using a Tascam DR-22WL audio recorder. See Table V.2.8:1 for a list of sentences for the emotive prosody comprehension task:

Original stimuli in Italian	**Translated version of the stimuli**	**Adapted version of the stimuli**	**Characteristics of the stimuli**
1. Carlo paga il conto;	1. Карло оплачивает счет;	1. Катя оплачивает счет;	1. Angry;
2. Stefano regala il libro a Giulio;	2. Стефано дарит книгу Джулио;	2. Стёпа дарит книгу Даше;	2. Sad;
3. Marco cucina;	3. Марко готовит;	3. Саша готовит;	3. Happy;
4. Livia bada ai bambini piccolo;	4. Ливия ухаживает за маленькими детьми;	4. Лида присматривает за малышами;	4. Sad;
5. Giulia, va a casa;	5. Джулия идет домой;	5. Лена идет домой;	5. Angry;
6. Carlo paga il conto;	6. Карло оплачивает счет;	6. Катя оплатила счет;	6. Happy;
7. Marco cucina;	7. Марко готовит;	7. Саша готовит;	7. Angry;
8. Stefano regala il libro a Giulio;	8. Стефано дарит книгу Джулио;	8. Стёпа дарит книгу Даше;	8. Happy;
9. Giulia va a casa;	9. Джулия идет домой;	9. Лена идет домой;	9. Sad;
10. Livia bada ai bambini piccoli;	10. Ливия ухаживает за маленькими детьми;	10. Лида присматривает за малышами;	10. Happy;
11. Stefano, regala il libro a Giulio;	11. Стефано, подари книгу Джулио;	11. Стёпа дарит книгу Даше;	11.Angry;
12. Carlo paga il conto;	12. Карло оплачивает счет;	12. Катя оплатила счет.	12. Sad.

Table V.2.8:1 A list of stimuli and their characteristics for the emotional prosody comprehension task of the adapted version of the BVL_4-12

The task instructions were translated from Italian:

Vedi questo foglio? Qui sono raffgurati una faccina o un ragazzo triste [si indicano le due immagini superiori del foglio], una faccina o un ragazzo felice [si indicano le due immagini al centro del foglio] e una faccina o un ragazzo arrabbiato [si indicano le due immagini più in basso]. Ora sentirai alcune frasi pronunciate in modi diversi. Alcune in modo triste, altre in modo felice o arrabbiato. Tutto quello che ti chiedo è di ascoltare le frasi e indicare, di volta in volta, se sono state dette in modo triste, felice o arrabbiato. Facciamo una prova. Sei pronto? Cominciamo!

into Russian as follows:

Видишь эту страничку? Здесь изображены несколько картинок с лицами. На первой картинке лицо мальчика грустное [показываются два изображения вверху листа]. На второй – лицо мальчика счастливое [показываются два изображения в центре листа]. На третьей – мальчик сердится [показываются два изображения ниже]. Сейчас ты услышишь фразы, произнесенные по-разному. Некоторые – грустно, другие – весело, счастливо, третьи – сердито. Послушай внимательно и скажи, как они были произнесены - грустно, радостно или сердито. Потренируемся! Готов(а)? Начинаем!

V.3. Part 3 of the Battery

V.3.1. Word repetition

In the BVL_RU, the word repetition task received the following title: “Повторение слов”. The word repetition task evaluates the children’s ability to correctly perceive and repeat some simple words of Russian. For this task, 15 content words (all nouns and one adjective) have been selected in order to provide:

- 4 monosyllabic stimuli consisting of only one free morpheme formed, respectively, by two phonemes (ре); three phonemes (газ); and four phonemes (лорд, фильм);
- 5 bisyllabic stimuli consisting of two bound morphemes formed, respectively, by four phonemes (рама, ужин), five phonemes (котлы, цапля), and six phonemes (страна);
- 5 trisyllabic stimuli consisting of two morphemes formed, respectively, by five phonemes (аисты, озеро), six phonemes (бумага, новая), and seven phonemes (щеколда);

- 1 stimulus formed by four syllables and 10 phonemes (магнитофон).

See Table V.2.8:1 for a list of Italian and Russian stimuli (translated and adapted) for the word repetition task and their characteristics:

Original stimuli in Italian	**Translated version of the stimuli**	**Adapted version of the stimuli**	**Characteristics of original and adapted stimuli**
1. Re	1. Ре	1. Ре	Monosyllabic, 2 phonemes
2. Gas	2. Газ	2. Газ	Monosyllabic, 3 phonemes
3. Nord	3. Север	3. Лорд	Monosyllabic, 4 phonemes
4. Film	4. Фильм	4. Фильм	Monosyllabic, 4 phonemes
5. Alto	5. Верх	5. Рама	Bisyllabic, 4 phonemes
6. Cena	6. Ужин	6. Ужин	Bisyllabic, 4 phonemes
7. Zuppa	7. Суп	7. Котлы	Bisyllabic, 5 phonemes
8. Circo	8. Цирк	8. Цапля	Bisyllabic, 5 phonemes
9. Grasso	9. Толстый	9. Страна	Bisyllabic, 6 phonemes
10. Abito	10. Платье (предмет одежды)	10. Аисты	Trisyllabic, 5 phonemes
11. Bugia	11. Ложь	11. Озеро	Trisyllabic, 5 phonemes
12. Angolo	12. Угол	12. Бумага	Trisyllabic, 6 phonemes
13. Favola	13. Сказка	13. Новая	Trisyllabic, 6 phonemes

14. Candella	14. Свеча	14. Щеколда	Trisyllabic, 7 phonemes
15. Lampadario	15. Люстра	15. Магнитофон	4 syllables, 10 phonemes

Table V.2.8:1 A list of Italian and Russian stimuli (translated and adapted) for the word repetition task and their characteristics

The instructions for the task were translated from Italian:

Ora ti dirò delle parole, una alla volta. Appena avrai sentito una parola tu la dovrai ripetere. Sei pronto? Cominciamo!

into Russian:

Сейчас я тебе буду говорить слова. Одно за раз. Ты должен послушать слово и потом повторить его. Готов(а)? Начинаем!

V.3.2. Non-word repetition

In the BVL_RU, the non-word repetition task received the following title: **“Повторение псевдослов”**. The non-word repetition (NWR) task evaluates the children's ability to correctly perceive and repeat some simple sequences of phonemes that do not form words that actually exist in their language, even if they present a legal phonotactic organization. They are, therefore, plausible sequences for the Russian language. It was shown to be a reliable tool both in LI and TLD differentiation (Estes, Evans & Else-Quest, 2007; in Russian and Hebrew, Armon-Lotem & Meir, 2016), and in distinguishing children whose language differs from a standard (i.e. dialect), who thus might receive lower scores on standard tests, from those with language disorder (Windsor, Kohnert, Lobitz, & Pham, 2010). The non-word repetition task not only provides researchers and clinicians with the accuracy scores but also reflects a cognitive load level. Reaction times obtained during a NWR might be signals of a deficit of WM. Several studies showed that there are diverse independent variables that might affect overall performance on this task, such as stimuli length (e.g. Botting & Conti-Ramsden, 2001; Gathercole & Baddeley, 1990). However, such variables have not yet been clearly defined for the Russian language. It was shown that stimuli length in syllables and phonemes, and type of

syllable, affect NWR in both children with SLI and TLD (e.g. Kavitskaya, Babyonyshev, Walls, & Grigorenko, 2011).

In order to create pseudowords for inclusion in the BVL_RU, first, the structure of the original task was analyzed. There are 15 nonwords in the task: 3 stimuli consist of one syllable composed of three phonemes; 6 stimuli consist of two syllables composed of four phonemes, five phonemes and six phonemes; 3 stimuli consist of three syllables composed of six phonemes and seven phonemes; and 3 stimuli consist of four syllables composed of eight phonemes, 10 phonemes, and 11 phonemes. Second, we created 100 pseudowords considering the characteristics described above. Third, an online survey was launched. Adult Russian native speakers (n=617) estimated the phonotactic probability of the created stimuli. The results of the survey are presented in separate graphs for each type of stimuli (see Graphs V.3.2:1-4 in the Appendix).

The top 50 nonwords with the highest rates of phonotactic probability were selected. A pilot study with 24 Russian-speaking children was conducted, to control for the adequacy of the NWR task (Eliseeva & Marini, 2017). Twelve children diagnosed with PLI and 12 age-matched peers with TLD (see main characteristics of the groups in Table V.3.2:1) were required to repeat 50 nonwords after a tester.

General description of the participants	TLDs (N=12)	PLIs (N=12)
Age	5.75 (.45)	5.75 (.45)
Gender	M=75%	M=75%
Education	Preschoolers	Preschoolers
Digit Span Forward (raw)	---	4.92 (1.44)

Table V.3.2:1 Main characteristics of the partcipants of the pilot NWR study

Each nonword had been previously read aloud by the examiner with a flat tone and a normal pace. Each session was audio recorded. Each response was transcribed and coded into an Excel spreadsheet. Using Sound Forge, the time boundaries of each response of each participant were marked. Thus, the two main measures in the task were accuracy and reaction times. As for accuracy, a list of variables describing the children's performance was created, namely: amount of correct repetitions, real words instead of non-words, errors caused by articulatory problems, absence of any response, and correct repetitions for shorter (1-2 syllables long) non-words, versus longer non-words consisting of 3-4 syllables.

Five out of six measures revealed differences in the performance of the two groups. Children with primary language impairment performed worse overall on non-word repetition.

They produced more real words instead of non-words (Dollaghan, Biber, & Campbell, 1995; Gathercole, 1995). This might reflect the process of automatic triggering and the failure to inhibit real word forms activated in mental lexicon. The results clearly indicate that the major part of the errors in the task are due to the articulatory problems these children have.

Finally, the performance of the two groups was statistically analyzed (the results are summarized in Table V.3.2:2). Indeed, children with SLI showed lowered results compared with those of children with SLI (p= <.001).

Accuracy at the NWR	TLDs	PLIs
Correct Repetitions*	45.42 (4.74)	30.67 (12.12)
Errors_Real Words*	.67 (.98)	2.92 (1.98)
Errors_Articulation*	3.67 (4.40)	15.67 (11.77)
Missing Repetitions	.25 (.45)	.75 (1.29)
Correct Repetitions 1_2Syllables*	.92 (1.12)	.69 (.27)
Correct Repetitions 3_4Syllables*	.87 (.14)	.49 (.28)

Table V.3.2:2: The results of pilot study on NWR task with 50 stimuli (accuracy)

As for accuracy, the children with PLI repeated fewer non-words than controls, and made more errors (both real words and mispronunciations). Interestingly, their difficulty was equally evident with both shorter and longer sequences, suggesting the presence of a massive difficulty on this task.

RTs at the NWR	TLDs	PLIs
Total RTs	.34 (.12)	-1.01 (3.43)
RTs 1_2Syllables	.35 (.10)	.06 (.85)
RTs 3_4Syllables	.32 (.15)	-2.08 (6.69)

Table V.3.2:3 reflects the reaction times on the NWR task

RTs of children with typical language development are consistent across the task. It usually took them around 340 milliseconds to process the stimulus and produce the response. Unlike those with TLD, children with impaired language development often couldn't maintain the sequence of phonemes in working memory and tried to say it back faster. In the case of 3-4-syllable nonwords, they failed to let the tester finish a sequence, resulting in immediate recall. That is why negative RTs can be observed in the Table. It seems children were afraid to lose track, so they started repeating each sound right after hearing it. Often, due to the length of the stimuli, they failed to remember the end of the nonword and so failed to finish the repetition anyway.

All in all, this study confirmed that NWR is a reliable tool for short-term memory assessment in the Russian language as well, and provided evidence for a link between a

difficulty in inhibiting lexical items triggered by the NWR stimuli and a higher rate of production of "errors with real words" in children with PLI (see also Schwartz, Scheffler, & Lopez, 2013, for the effect of lexical knowledge, and Schwartz, 2017, p.15 for a discussion of similar results).

Finally, considering the results of the pilot study, 15 sequences of phonemes of increasing length from one to four syllables, similar to real Russian lexical items, have been selected (see Table V.3.2:4)

Stimuli	**Word form similar to**	**Syllabic structure**	**Syllables**	**Phonemes**
хря	noun	ccv	1	3
сеп	noun	cvc	1	3
дос	noun	cvc	1	3
упем	verb	vcvc	2	4
тучок	noun	cvcvc	2	5
ашний	adjective	vccvc	2	5
вокра	noun	cvccv	2	5
тумка	noun	cvccv	2	5
укреть	verb	vccvc	2	6
вятые	adjective	cvcvcv	3	6
кузыра	noun	cvcvcv	3	6
курячить	verb	cvcvcvc	3	7
некузяво	adverb	cvcvcvcv	4	8
какарбанка	noun	cvcvccvccv	4	10
продублонить	verb	ccvcvccvcvc	4	11

Table V.3.2:4 A list of stimuli and their characteristics (part of speech similarity; syllabic structure; amount of syllables and phonemes) created for the non-word repetition task of the adapted version of the BVL_4-12

The instructions for the task were translated from Italian:

Ora ti dirò delle parole che in italiano non esistono. Tu devi ripetere quello che hai sentito, anche se sono parole che non vogliono dire niente. Sei pronto? Cominciamo!

into Russian:

Сейчас я тебе буду говорить слова, которые не существуют в русском языке. Ты должен послушать слово и потом повторить его. Слова могут вообще ничего не значить, но это неважно. Готов(а)? Начинаем!

V.3.3. Sentence repetition at pre-school age

In the BVL_RU, the sentence repetition task received the following title: “Повторение предложений”. The task was shown to be a reliable tool for differentiation among children with LI and those with TLD speaking Russian (Armon-Lotem & Meir, 2016). The original version of the task consists of 20 stimulus sentences. The structure of the original task is preserved in the adapted version. A list of the original and adapted stimuli and their characteristics is presented in Table V.3.3:1:

Sentence characteristics in Italian		**Original Italian stimuli**	**Adapted Russian stimuli**	**Sentence characteristics in Russian**
17 simple sentences	passive voice	Item 5 – Il signore e tirato dalla capra	item 6 – Письмо написано мной	passive voice
	negative	item 2 – Il ragazzo non dorme	item 10 – Ему не спалось	negative (O_{DAT} - $_{neg}V_{inf}$ structure)
	with the verb in the imperative form	Item 18 – Non correre	item 1 – Не беги!	with the verb in the imperative form
	with copular constructions	item 3 – Le mamme sono contente	item 4 – Мамы довольны	with copular constructions (a predicate is a short form of an adjective, plural number)
	with copular constructions	Item 9 – Il loro cesto è pieno di frutta	item 13 – Их корзина полна фруктов	with copular constructions (containing a Subject (a noun with a possessive pronoun) and

				a compound predicate – a short form of an adjective and a noun)
	affirmative	item 1 – La bambina corre	item 2 – Девочка бежит	Affirmative (S_{NOM}-V structure, where the predicate is a verb in present tense, imperfective aspect, 3^{d} person, singular number)
	affirmative	Item 4 – La macchina correra veloce	item 5 – Машина едет быстро	Affirmative (S_{NOM}-V structure. A predicate is a verb in present tense, imperfective aspect, 3^{d} person, singular number, and the Adverbial convey “modus operandi” meaning)
	affirmative	Item 6 – Le nonne dei bambini si siedono sulla panca	item 3 – Мальчик оделся;	affirmative (S_{NOM}-V structure, where the predicate is a reflexive verb in past tense, imperfective aspect, 3^{d} person, singular number)
	affirmative	Item 7 – Il papa di Marco da il pallone alla bambina	Item 7 – Бабушки детей разговаривают	affirmative ($S_{NOM+GEN}$-V structure comprising compound subject (2 nouns) and a predicate expressed in a verb in present tense, imperfective aspect, 3^{d} person, plural number)
	affirmative	Item 8 – Il bambino mette i fiori sul tavolo	item 12 – Мальчик ставит цветы на стол	affirmative (S-V-O-ADV structure containing an Adverbial (a noun with a preposition) that conveys “locus” meaning)
	affirmative	Item 10 –	Item 8 –	Affirmative

		Il cane vuole ancora un osso	Марк идет спать	(1 sentence of S_{NOM}-V structure comprising compound Verb predicate)
	affirmative	Item 11 – I nipotini raccolgono i fiori con la nonna	item 14 – Внуки собирают цветы с бабушкой	affirmative (a logical compound Subject is split into 2 parts - 1 is in the beginning of the sentence and the 2^{d} one is in the end of the sentence)
	affirmative	Item 12 – Il ragazzo suona la chitarra per gli amici	item 15 – Мальчик играет на гитаре для друзей	affirmative (S-V-O-O structure containing 2 direct objects, which are expressed in 2 nouns with 2 diverse prepositions)
	affirmative	Item 13 – Il cacciatore guarda l'indiano che fuma	item 9 – Я буду доктором	Affirmative (S_{NOM}-V-O_{INST} structure)
	affirmative	Item 14 – Lo sceriffo sta attraversando il fiume a cavallo	item 16 – Солдат переезжает через реку на лошади	affirmative (S-V-O-O structure containing 2 direct objects, which are expressed in 2 nouns with 2 diverse prepositions. The predicate is a verb of motion)
	affirmative	Item 15 – Gli scolari entrano in classe dopo la maestra	item 18 – Ах, если бы я только была на твоем месте!	affirmative (conjunctive mood containing interjection, 2 particles, a conjunction and a preposition)
	affirmative	Item 17 –	item 11 –	affirmative

		Quella tua amica è molto simpatica	Ребята танцуют и поют	(S_{NOM}-V and V structure containing 2 homogenous predicates expressed in 2 verbs in present tense, imperfective aspect, 3^{d} person, plural number)
3 complex sentences	cleft	Item 16 – È Mario a finire i disegni per primo	-	-
	dependent	Item 19 – Il gatto che corre sotto il tavolo è molto grande	item 17 – Маша сказала, что не пойдет гулять	dependent (containing a compound Predicate (2 verbs), conjunction and a particle. An indirect speech)
	dependent	Item 20 – Il gelato che stai mangiando non è un granché	item 20 – Шоколадка, которую ты ешь, несвежая, потому что на ней серая пленка	dependent (comprising compound clause and an adverbial clause of reason)
	dependent	-	item 19 – Кот бегает по двору, а собака сидит в своей конуре	Dependent (containing a coordinating adversative conjunction. Containing conjunction and 2 prepositions)

Table V.3.3:1 A list of the original and adapted stimuli for the sentence repetition task at pre-school age, and their characteristics

The instructions for the task were translated from Italian:

Ora ti dirò delle frasi, poi me le ripeterai proprio come te le ho dette io. Prima di cominciare a ripetere, aspetta che io abbia fnito. Sei pronto? Cominciamo!

into Russian as follows:

Сейчас я тебе прочитаю несколько предложений. Ты должен(а) послушать каждое и повторить его в точности, как я сказал(а). Готов(а)? Начинаем!

V.3.4. Sentence repetition at school age

In the BVL_RU, the sentence repetition task received the following title: “Повторение предложений”. The task evaluates the ability of children age 6 to 11 years and 11 months to correctly perceive and repeat a series of 20 sentences of increasing length. The structure of the original task is preserved in the adapted version. A list of the original and adapted stimuli and their characteristics is presented in Table V.3.4:1:

Sentence characteristics in Italian		**Original Italian stimuli**	**Adapted Russian stimuli**	**Sentence characteristics in Russian**
8 simple sentences	negative	Item 6 – La macchina di Luca non va veloce	Item 6 – Машина Николая быстро не ездит	Negative. extended
	negative	Item 8 – Non ci crederete	item 1 – Вы не поверите	Negative. nonextended
	negative	Item 20 – Il marciapiedi non è usato dai pedoni	item 8 – Тротуар не используется пешеходами	Negative. extended
	copular	Item 4 – La signora è laggiù	item 4 – Ты будешь хорошим доктором	copular

	affirmative	Item 1 – Il ragazzo siede vicino alla finestra	item 2 – Мальчик сидит рядом с окном	affirmative sentence of the S-V-ADV structure, containing place adverbial and a preposition
	affirmative	Item 2 – La macchina è posteggiata davanti al condominio	item 5 – Машина припаркована перед домом	Affirmative. The passive voice
	affirmative	Item 3 – Quel treno viaggia tra Roma e Milano	item 12 – Этот поезд ездит из Москвы в Санкт-Петербург и обратно	Affirmative extended sentence, containing manner adverbial. The sentence comprises a demonstrative pronoun, 2 prepositions, conjunction and an adverb
	affirmative	Item 5 – La zia di Marco si asciuga i capelli	item 3 – Тетя Сережи сушит волосы	affirmative sentence of the S-V-O structure containing compound Subject (a noun in Nominative case and a noun in Genitive;
12 complex sentences	Dependent. Negative	Item 18 – La pizza che stai mangiando non è stata cucinata da quel signore	item 14 – Пицца, которую ты ешь, была приготовлена не этим поваром	Dependent. Negative. Containing a subordinating conjunction ‘который’ and a demonstrative pronoun
	Dependent	Item 7 –	item 7 – Девочка, которая	complex dependent sentences containing subordinating

		La bambina che è in classe li tiene	находится в классе, держит их	conjunction - ‘который’
	Dependent	Item 14 – Il signore che è in bicicletta insegue il ladro che ha rubato la borsa alla signora	item 15 – Мужчина на велосипеде гонится за вором, который украл у девушки сумочку	complex dependent sentences containing subordinating conjunction - ‘который’
	Dependent	-	item №13 – Этот игрок, который бежит к корзине, оказался быстрее	Dependent containing a subordinating conjunction ‘который’, a demonstrative pronoun and an adjective in comparative degree. This stimulus is a translated and modified version of the italian item 10.
	comparative	Item 12 – Il gelato che mangia Maria è meno buono di quello che ha scelto Lisa	item 16 – Мороженое, которое ест Мария, не такое хорошее, как то, которое выбрала Лиза;	Comparative containing 2 subordinating conjunctions ‘который’ and a demonstrative pronoun
	comparative	Item 11 – Il comodino che è vicino al letto di Francesco è più grande di	item 17 – Тумбочка, которая стоит рядом с кроватью Феди, больше, чем та,	Comparative containing 2 subordinating conjunctions ‘который’ and a demonstrative pronoun

		quello in camera di Luca	которая стоит у Люси	
	Cleft	Item 10 – È il giocatore più giovane che corre verso il canestro	-	-
	cleft	Item 15 – A tuffarsi in quel lago è proprio la figlia di quel tuo amico che ho incontrato I'altro giorno	-	-
	causal	Item 13 – Dal momento che è stanco, l'amico di tuo fratello smette di correre	item 11 – Так как подруга твоего брата устала, она остановилась	causal containing an adverbial clause of reason containing a compound conjunction 'так как'
	declarative	Item 16 – Spero che tu sia consapevole di esserti ritrovato solo a gestire questo problema	item 19 – Если бы ты могла вмешаться, ты бы сказала что-нибудь	declarative conditional sentence
	declarative	-	item 20 – Иметь два дня отпуска – это все равно что не иметь	Declarative containing a copular construction convening comparative meaning

			его вообще	
	adversative	Item 17 – La mamma di Giulia ma non sua figlia sta mangiando gli spaghetti	item 9 – Мама Кати, а не ее дочь, ест лапшу	compound sentence with an adversative conjunction ‘А’
	exclusive	Item 9 – Né il signore che lava la macchina né la bambina che lo guarda sono magri	item 18 – Ни женщина, моющая машину, ни девочка, на которую я смотрю, не помогают мне	A sentence containing a subordinating conjunction ‘который’, double negation and a participle
	hypothetical	Item 19 – Se non la mangi subito, la tua minestra si raffredderà	item 10 – Если ты не съешь суп прямо сейчас, то он остынет	a sentence with an adverbial clause of condition, containing a compound conjunction ‘если …,то’

Table V.3.4:1 A list of sentence structures included into the original and adapted versions of the Sentence repetition task for school-age children

The instructions for the task were translated from Italian:

Ora ti dirò delle frasi, poi me le ripeterai proprio come te le ho dette io. Prima di cominciare a ripetere, aspetta che io abbia fnito. Sei pronto? Cominciamo!

into Russian as follows:

Сейчас я тебе прочитаю несколько предложений. Ты должен(а) послушать каждое и повторить его в точности, как я сказал(а). Готов(а)? Начинаем!

Overall, all tasks form the BVL_4-12 were adapted for Russian language, including stimuli material and tasks' instructions. In order to preserve the structure of the original Battery, several criteria for stimuli selection were considered. As for **Naming and articulation** for 4-6.11-year old children and **Naming** for 7.0-11.11-year old children, following selection criteria were maintained: frequency of use; semantic categories; full repertoire of phonetic system in different positions in the words; parts of speech. Just like in the original version in the **Sentence completion** task, the stimuli were created so, the task difficulty progressively increases. The content of the task was significantly modified. The stimulus picture for **Narrative discourse production** task was not changed. The stimuli for **phonological discrimination** task were selected so to present a child with 10 pairs of identical words and 20 minimal pairs, as it is in the Italian version of the task. The content of the task completely modified. As for **lexical comprehension** tasks, particular frequency of use of the stimuli words and their parts of speech were controlled. Since the frequency of use does not coincide in Italian and Russian, a part of the content was modified in BVL_RU. A set of structures evaluated in **grammatical comprehension task** is modified so to present the structures typical for Russian language and absent in Italian. Those typical for both languages were preserved. Some of the sentences in **grammatical judgments** task were modified so, to present valid for Russian stimuli material. The content of **comprehension of idiomatic expressions** task was completely modified considering a list of internal and external factors that might potentially affect their comprehension. The content for the **linguistic prosody comprehension** task was created considering intonation contours in Russian. The stimuli for **comprehension of emotive prosody** task were slightly adapted (e.g. modified proper names). The characteristics of stimuli in **words repetition** task were preserved (i.e. number of syllables and phonemes, parts of speech. A new set of nonwords was created for **NWR** task in Russian. Where possible the sentence characteristics in the **sentence repetition** tasks were preserved in the Russian version of the Battery. Moreover, the number of stimuli is preserved in each task. The instructions are carefully translated and adapted (see the following paragraphs in this chapter). For all the tasks using picture material the simple black and white drawings were created.

V.4. Translation and adaptation procedures

The content and the instructions for each task were translated and further adapted into Russian by a Russian native speaker fluent in the source language, with a thorough knowledge and understanding of the original version of the Battery (the author of the present thesis). The main goal of the instructions' translation process was to preserve the meaning of the original instructions and to ensure that the testers and children under examination will be able to follow the procedures from the protocol. The adapted content was controlled for its appropriateness and correspondence to the stimuli selection criteria by two external experts (see Table V.4:1 in the Appendix for a list of external collaborators).

Translations of the instructions and items were compared with the original version of the instrument by an independent bilingual professional translator in order to detect potential ambiguities in the translation (Sousa & Rojjanasrirat, 2011; Borsa et. al., 2012). In order to reach semantic and idiomatic equivalence of the two versions of the Battery, the following improvements to the translation were made: 1) two stimuli in the naming task received additional (synonymous) translations (i.e. *копать* – scava; *кожура* - buccia); 2) five items in the lexical comprehension at pre-school age task received additional (synonymous) translations (i.e. Giacca - *куртка\пиджак*; Fieno – *сено*; sasso – *камень*; cornice – *рамка*; pesca – *рыбалка*); 3) eight items in the lexical comprehension at school age task received additional (synonymous) translations (i.e. calice – *кубок*; spina – *вилка*; fonte - *источник\ключ\ручей*; Fieno - *сено*; servo – *слуга*; coperta – *одеяло*; annusare – *нюхать*; allargare – *расширять* (see see Appendix for a full version of the report).

Experiential and conceptual equivalence of the two versions of the instrument was reached by replacing words and proper names less relevant for children raised in a Russian cultural context and speaking Russian. In the original version of the instructions for the **phonological fluency task**, the word 'sandalo' was used as an example of a word starting with the letter "S". In Italian 'sandalo' has two meanings: a kind of tree and a type of shoes. The literal translation resulted in two words in Russian: *сандал* for the tree and *сандалия* for the shoe. Both words are low-frequency words in Russian (Ljashevskaja & Sharov, 2009); however, it is highly probable that all children might be familiar with a plural form of *сандалия* – *сандалии*, usually pronounced in colloquial Russian as *сандали* as it is one of the most popular kinds of shoes for children. Thus, it was decided to use this word in the text of the instruction. Moreover, the same instruction included two proper male names: Simone and

Stefano. In the adapted version of the instructions they were substituted with highly frequent Russian names: *Соня* and *Саша*. These names were selected also for ethical reasons, as the first name is a typical female name and the second one is a popular short name both for men and women.

In the instructions for the **semantic fluency task**, three proper names of outdated cartoon heroes (i.e. Fido, Topolino, and Pluto) were substituted with the names of currently popular cartoon heroes in Russia – *Пеппа* (from the cartoon 'Peppa Pig'), *Мишка* (from the cartoon 'Masha and the Bear') and *Совунья* (from the cartoon 'Smeshariki').

As for the instructions for the **sentence completion task**, the male proper name Piero was substituted with the equivalent – *Петя* in diminutive form.

In the instructions for the **phonological discrimination task** one example (i.e. *casa – casa*) was literally translated (i.e. *дом – дом*, 'house – house' in English), and the other (i.e. *pala – palla*) was substituted with ***п**очка – **д**очка*, as, translated literally, these two original words did not represent minimal pairs in Russian (i.e. *лопата – мяч*, 'shovel – ball' in English).

Finally, while translating the instructions for the **linguistic prosody comprehension task,** it was hypothesized that original terms used in its Italian version (i.e. domande, ordini, affermazioni – 'questions, orders, affirmations'), literally translated as ***вопросы, приказы, утверждения,*** might be too difficult for younger children to understand. Thus, a piece of additional information was included to attempt to clarify the instruction for affirmation – *…или ни то, ни другое, а просто…* (in English - …or neither of them, but simply…).

A group of Russian-speaking adult independent raters constantly working with children in different regions of Russia and Italy (see appendix for a list of raters) during the individual interviews evaluated the clarity of the instructions in Russian using a dichotomous scale (clear or unclear). All instructions were rated as clear. Moreover, during the pilot experiments, 84 participants from the target population (children of different ages; monolinguals from different regions of Russia and bilinguals from different regions of Italy) were asked to establish whether the given instructions were clear or not before performing the tasks. The results are summarized in Table V.4:1:2:

Tasks	Naming	Semantic fluency	Phonological fluency	Sentence completion	Narration	Phonological discrimination	Lexical comp-sion	Grammatical comp.	Grammatical judg.	Comp-sion of idioms	Comp-sion of ling. prosody	Comp-sion of emot.prosody	Rep-tion of words	NWR	Rep-tion.of sentences
Were task instructions clear?	100 %	100 %	93.55 %	95.16 %	100 %	100 %	100 %	100 %	98.39 %	95.16 %	91.94 %	100 %	100 %	100 %	100 %

Table V.4:1:2 Clarity of instructions for each task (%)

Overall, 100% of children rated the instructions for 10 tasks as clear. The instructions for the rest of the tasks were somewhat unclear for children at first glance. Namely, 6.45% of the children, from 5.04 to 6.10 years old, were confused about the instructions for the phonological fluency task. The instructions for the sentence completion task were found unclear by 4.84% of children, from 5.04 to 5.09 years old. As for the instructions for the grammatical judgments task, they were found to be unclear in 1.61% of cases (by a 5.9-year-old child). Similarly, the instructions for idiom comprehension were found confusing in 4.84% of the cases, by children from 5.04 to 5.11 years old. Finally, as predicted, 8.06% of the children, from 5.04 to 6.07, were confused about the task for comprehension of linguistic prosody. Interestingly, the tasks' instructions were somewhat unclear at first glance only for the youngest participants, whose age did not exceed 6.10. Moreover, considering the difficulty of the tasks, it might be hypothesized that the tasks themselves, rather than their instructions, were too demanding for young children. However, the minimum inter-rater agreement (80% according to Sousa & Rojjanasrirat, 2011) among the sample was reached.

Overall, an expert panel including seven experts (Sousa & Rojjanasrirat, 2011, p. 271) and a sample of 84 participants (including monolinguals with TLD and monolinguals diagnosed with PLI from two regions of Russia, and bilinguals with TLD from Italy), recruited for piloting the adapted version of the instrument, positively assessed the content and the instructions of the BVL_RU. Additionally, two focus groups were recruited to test the content created for the idiom comprehension task and NWR. The focus groups included 96 Russian-speaking children of different ages and 24 from four different regions of Russia. The content of the tasks was subsequently improved based on the results demonstrated by two focus groups and the suggestions of the experts.

V.5. Preliminary reliability check of BVL_RU

Overall, the internal consistency (reliability) of 16 subscales from the BVL_RU was tested with the Kuder-Richardson 20 test (KR-20; Kuder & Richardson, 1937), similar to Cronbach's alpha coefficient (Cronbach, 1951). This method was chosen as the battery uses dichotomously scored items. The database used for the reliability investigation included observations on the performance of a total of 84 Russian-speaking children from 4.06 to 10.10 years old:, a pool including 51 monolingual children from 5.05 to 10.10 years old (mean – 7.63; SD – 1.61); 11 children from 5.04 to 6.10 years old (mean – 5.79; SD – .47) previously diagnosed with PLI by an independent medical commission; and 22 Russian–Italian simultaneous bilinguals from 4.06 to 7.02 years old (mean – 5.77; SD – .69). A group of bilingual children performed a set of selected tasks from the BVL_RU, specifically, naming and articulation or naming (according to the age of the participants); semantic fluency; narration; phonological discrimination; lexical comprehension; and grammatical comprehension. The results are summarized in Table V.5:1 (see appendix).

The **articulation** subscale consists of 77 items. None of the items was excluded from the statistical analysis due to zero variance. As the subscale aims to assess articulation in children from 4 to 6.11 years old, a total of 49 cases was analyzed. The subscale was found to be highly reliable ($\alpha = .969$).

The **naming** subscale consists of 77 items. Five items were excluded from the statistical analysis due to zero variance: *глаз* ('eye'), *дом* ('house'), *машина* ('car'), *зеленый* ('green'), *рыба* ('fish'). The children included in this study demonstrated a ceiling effect on these items.

As the subscale aims to assess naming skills in children from 4 to 6.11 years old, a total of 49 cases was analyzed. The subscale was found to be highly reliable (α = .940). As for the **naming subscale for older children** which consists of 67 items, 22 items were excluded from the statistical analysis due to zero variance: *пчела* ('bee'), *желтый* ('yellow'), *слушать* ('too hear'), *бабочка* ('butterfly'), *рука* ('hand'), *машина* ('car'), *бутылка* ('bottle'), *нога* ('leg'), *корова* ('cow'), *ухо* ('ear'), *штаны* ('pants'), *морковь* ('carrot'), *рыба* ('fish'), *слон* ('elephant'), *есть* ('to eat'), *книга* ('book'), *пылесос* ('vacuum cleaner'), *картина* ('picture'), *дом* ('house'), *звезда* ('star'), *дверь* ('door'), *кубик* ('cube'). The children included in this study demonstrated a ceiling effect on all of these items. A total of 49 cases was analyzed. The subscale was found to be highly reliable (α = .843).

The **lexical comprehension** subscale consists of 42 items. None of the items was excluded from the statistical analysis due to zero variance. As the subscale aims to assess lexical comprehension skills in children from 6 to 11.11 years old, a total of 69 cases was analyzed. The subscale was found to be highly reliable (α = .913).

The **phonological discrimination** subscale consists of 30 items. None of the items was excluded from the statistical analysis due to zero variance. As the subscale aims to assess phonological skills in children from 4 to 11.11 years old, all 84 cases were analyzed. The subscale was found to be highly reliable (α = .816).

The **grammatical comprehension** subscale consists of 40 items. Item 14 (a declarative sentence in the active voice – *Она держит книги* – 'she holds the books') was excluded from the statistical analysis due to zero variance. The children included in this study demonstrated a ceiling effect on this item. As the subscale aims to assess grammatical skills in children from 4 to 11.11years old, all 84 cases were analyzed. The subscale was found to be highly reliable (α = .803).

The **comprehension of idiomatic expressions** subscale consists of 10 items. None of the items was excluded from the statistical analysis due to zero variance. As the subscale aims to assess comprehension of idioms in children from 4 to 11.11 years old, a total of 61 cases was analyzed (as bilingual children did not perform the task). The subscale was found to be highly reliable (α = .831).

The **non-word repetition** subscale consists of 15 items. Item 3 (*дос* - /dos/) was excluded from the statistical analysis due to zero variance. The children included in this study demonstrated a ceiling effect on this item. As the subscale aims to assess repetition skills in

children from 4 to 11.11 years old, a total of 62 cases was analyzed. The subscale was found to be highly reliable (α = .814).

The **sentence repetition** subscale consists of 20 items. Eight items were excluded from the statistical analysis due to zero variance: sentences 1, 2, 3, 4, 6, 8, 10, and 13. The children included in this study demonstrated a ceiling effect on these items. As the subscale aims to assess repetition skills in children from 7 to 11.11 years old., a total of 32 cases was analyzed. The subscale was found to be highly reliable (α = .884). As for the first part of the subscale, which also consists of 20 items and aims to assess sentence repetition in younger children, only 3 items were excluded from the statistical analysis due to zero variance: sentences 1, 2, and 3. Thirty children included in this study demonstrated a ceiling effect on these items. The subscale has acceptable internal consistency (α = .737).

The **sentence completion** subscale consists of 14 items. None of the items was excluded from the statistical analysis due to zero variance. As the subscale aims to assess sentence completion in children from 4 to 11.11 years old, a total of 62 cases was analyzed (as bilingual children did not perform the task). The subscale has acceptable internal consistency (α = .757).

The analysis showed the internal consistency of the following subscales to be questionable: the **grammatical judgments** subscale (α=.605); the **linguistic prosody** subscale (α=.617); the **emotive prosody** subscale (α=.696) and the **lexical comprehension** subscale for younger children (α=.630). As a reliability coefficient of at least .70 is considered "acceptable" in most social science research situations, further investigation of the reliability of these 4 subscales was performed. There are several explanations for the low alpha. Among other core assumptions, alpha assumes that all covariances between the items are identical. As they were not identical in any of the four subscales, it was hypothesized that Chonbach's alpha might over- or underestimate the true reliability of the subscales. Thus, as an alternative, Guttman's Lambda 2 was used to recheck the reliability of the scale (Guttman, 1945). Indeed, even though the two coefficients use similar methods of reliability estimation, Lambda 2 was now at an acceptable level for the **emotive prosody** subscale (λ =.735) and for the **lexical comprehension** for younger children subscale (λ =.703), and higher for 2 other subscales: **grammatical judgments** (λ =.651) and **linguistic prosody** (λ =.665). In the case of the emotive prosody subscale, which includes 12 items in total, items 3 and 12 were excluded from the statistical analysis due to zero variance. As the subscale aims to assess comprehension of

prosody in children from 4 to 11.11 years old, a total of 62 cases was analysed (as bilingual children did not perform these tasks). As the subscale aims to assess lexical comprehension in children from 4 to 5.11 years old the performance of only 14 children of matching age was analyzed. Moreover, half of the items were excluded from the statistical analysis due to zero variance: *корова* ('cow'), *луна* ('moon'), *врач* ('doctor'), *рука* ('hand'), *лицо* ('face'), *телефон* ('phone'), *суп* ('soup'), *дерево* ('tree'), *шапка* ('hat'). Considering the size of the sample and the number of items with zero variance, the validity check might be performed again on a bigger sample.

The calculated internal consistency of other two subscales (i.e. grammatical judgments and linguistic prosody) remained questionable after the recheck procedure. The scales consist of 18 and 12 items respectively. None of the items was excluded from the statistical analysis due to zero variance. As the subscales aim to assess comprehension skills in children from 4 to 11.11 years old, a total of 62 cases was analyzed for each scale (as bilingual children did not perform the task). There are several ways to increase the internal consistency of the scale. First, to use a correlation matrix and to exclude items demonstrating low consistency with others. However, Table V.5:2 demonstrates that simply deleting items from the scale would not raise the alpha coefficient above .649. The second possibility would be to increase the number of items in the scale. However, as the BVL_RU is an adapted version of the original Italian Battery, and was created to perform cross-language comparisons, the number of items across the scales should not be modified. Finally, we inspected the means and SDs reported in Table V.5:2 and noted that the variance among items is rather limited and the median is high (0.839).

Grammatical judgments subscale Item Statistics			**Item-Total Statistics**
Items	Mean	SD	Cronbach's Alpha if Item Deleted
Phrase 1	.903	.2981	.572
Phrase 2	.887	.3191	.598
Phrase 3	.774	.4215	.592
Phrase 4	.500	.5041	.649
Phrase 5	.645	.4824	.622
Phrase 6	.935	.2477	.610
Phrase 7	.806	.3983	.576
Phrase 8	.855	.3551	.565

Phrase 9	.903	.2981	.566
Phrase 10	.823	.3851	.558
Phrase 11	.548	.5017	.521
Phrase 12	.823	.3851	.558
Phrase 13	.694	.4648	.591
Phrase 14	.952	.2163	.580
Phrase 15	.952	.2163	.612
Phrase 16	.887	.3191	.595
Phrase 17	.952	.2163	.585
Phrase 18	.387	.4911	.649

Table V.5:2 Item per item analysis of grammatical judgments subscale (mean performance results demonstrated by the participants; SD; α if item deleted)

Thus, alternative ways to increase the reliability of the scale might require reverification of the reliability on a larger sample or modification of separate sentences, rather than adding or eliminating items in the scale.

Similarly, for the linguistic prosody scale (see Table V.5:3 for an item-by-item analysis of the subscale; mean performance results demonstrated by the participants; SD; α if item deleted, in the Appendix), the median value was high (.742).

Finally, the reliability of the **words repetition** subscale was analyzed. The scale consists of 15 items. The following 7 items were excluded from the statistical analysis due to zero variance: фильм (‘film’), рама (‘frame’), чаша (‘bowl’), страна (‘country’), озеро (‘lake’), бумага (‘paper’), and черный (‘black’). As the subscale aims to assess repetition skills in children from 4 to 11.11 years old, a total of 62 cases was analyzed (as bilingual children did not perform the task). The analysis showed unacceptable internal consistency of the subscale (α=.365; Guttman’s λ=.478). Inspection of the raw data indicates that there is no variance in scores among school-aged children. All of them performed on all 15 stimuli at ceiling (mean=1). Moreover, as 7 items were automatically eliminated from the analysis due to zero variance among all 62 participants (mean=1), the reliability of the scale was largely affected by the restriction of the range. Considering the results of the analysis, increasing the of overall difficulty of the items might be considered as a potential solution to improve the scale’s reliability.

Further investigation of the reliability of the scales, including other methods of statistical analysis, such as DIF analysis of the functioning of the items in the original and adapted versions of the battery, omega coefficient (McDonald, 1999); and intra-class correlation coefficient (ICC; Shrout, & Fleiss, 1979) should be conducted on the basis of a bigger sample size (for a discussion see Starkweather, 2012; Sousa & Rojjanasrirat, 2011). The estimated appropriate sample size for such analysis would include a pool of 200–1100 participants (Cohen, Gafni, & Hanani, 2007).

Chapter VI. Piloting BVL_RU on 2 groups of pre-school children: controls and those diagnosed with PLI

VI.1. General experiment's description

The **aim** of the study was twofold. First, in order to test the capacity of the BVL_RU to distinguish between two groups of pre-school age children speaking Russian, known to differ in native language development trajectory, the contrasting groups method of construct validation was used (McCauley, 2001, pp. 52-55). A full set of tasks from the battery was administered to the participants. Thus, preliminary conclusions about the **construct validity** of the BVL_RU could be drawn. Second, to resolve the concerns about the measures' consistency over time, **test-retest reliability** was checked. The second assessment (retest) took place two months after the first one (test). During the first assessment procedure, biographical data was collected via interviews with the parents of the participants and questionnaires. Memory tasks (forward and backward digit spans) and Raven's test were also administered during the test. The raw data was coded into an Excel spreadsheet for further analysis. Statistical analysis was performed in a statistical software package – SPSS version 20. The analysis of the elicited narratives was performed according to the standard procedures described in detail in Marini (2014).

VI.1.1 Participants in the test-retest experiment

This study included a cohort of 22 participants of both sexes from 5.05 to 6.07 years of age from public kindergartens in Omsk (Russia). All children are monolingual Russian speakers. The parents of all participants filled out a questionnaire regarding the development of their children and the socio-economic status of the family, and signed the consent form. The participants formed two groups – a group of children previously diagnosed with language impairment (N=11) and a control group with typical development (N=11) selected from a larger pool of 21 children participating in the study. For the participants in the experimental group the inclusion criteria were the following characteristics: they were diagnosed with PLI by an interdisciplinary commission including a psychologist, speech therapists and a social pedagogue, based on neurological assessment results; the children began to receive standard speech therapy in their group in kindergarten 6 months prior to the first assessment. On the

other hand, the children selected for the control group had never been diagnosed with deviant language development. None of children had any known records of mental retardation, hearing loss or pervasive developmental disorders. Their parents have similar educational levels; moreover, the two groups had similar chronological ages and non-verbal logical reasoning abilities as measured via Raven's colored progressive matrices. All parents gave their informed consent to the participation of their children in the study and to the treatment of the data. Biographical data and the results of a series of pretests are summarized in Table VI.1:1:1:

Characteristics of the participants			
Biographical data		**Control group** (N=11)	**Experimental (PLI) group** (N=11)
	Age	5.70 (.48) Range: 5.05-6.07	5.79 (.47) Range: 5.04-6.10
	Education of mother	16.73 (1.09) – Range: 14-20	13.91 (2.07) – Range: 11-16
	Education of father	14.91 (2.88) – Range: 9-21	13.82 (1.99) – Range: 14-16
	Sex	M = 4 (36.4%)	M = 9 (81.8%)
	Handedness	Right-handed = 11 (100%)	Right-handed = 8 (72.7%)
Cognitive pretests	Raven's Matrices	29.91 (2.63)	20.27 (4.63)
	Phonological Short-Term Memory	3.82 (.98)	3.82 (.75)
	Working Memory	2.36 (.81)	1.91 (1.04)

Table VI.1:1:1 Means (and standard deviations) showing the main characteristics of the two groups of participants

This analysis showed that the two groups did not differ in the results of cognitive pre-tests. The level of statistical significance was set at $p < .017$ (.05/3 dependent variables) after a Bonferroni correction for multiple comparisons.

VI.1.2. Analysis of Test results

It was hypothesized that the results of the performance of the participants from the two groups on a set of tasks from the BVL_RU might significantly differ, especially those related to vocabulary domain. The results were analyzed the results with a series of independent T-tests.

Assessment of productive skills

The results of the assessment of production skills in children, means and (standard deviations) are summarized in Table VI.1.2:1:

	Control group (N=11)	**Experimental (PLI) group** (N=11)
Articulation	121.82 (21.47)	101.55 (21.46)
Naming	61.55 (6.02)	55.91 (8.60)
Semantic fluency*	25 (7.54)	12.09 (6.01)
Sentence completion	8.46 (2.38)	6.36 (2.54)

Table VI.1.2:1 The results of the assessment of production skills in children, means and (standard deviations). The asterisk (*) indicates statistically significant differences between groups

The level of statistical significance was set at $p < .013$ (.05/4 dependent variables) after a Bonferroni correction for multiple comparisons. This analysis showed that the two groups did not differ in their performance at the naming and sentence completion tasks, and articulation. However, they did show significantly different results in semantic fluency.

Assessment of comprehension skills

The results of the assessment of comprehension skills in children, means and (standard deviations) are summarized in Table VI.1.2:2:

	Control group (N=11)	**Experimental (PLI) group** (N=11)
Phonological discrimination	87.73 (19.02)	63.64 (30.91)
Lexical comprehension	18 (0)	16.33 (.58)

(4-5.11 y.o.)[9]		
Lexical comprehension (6-11.11 y.o.)[10]	38.57 (2.30)	36 (2.070)
Grammatical Comprehension	33.09 (4.00)	29.18 (6.48)
Comprehension of emotive prosody*	11.72 (.47)	9.46 (1.92)

Table VI.1.2:2 The results of the assessment of comprehension skills in children, means and (standard deviations). The asterisk (*) indicates statistically significant differences between groups

The level of statistical significance was set at $p < .013$ (.05/4 dependent variables) after a Bonferroni correction for multiple comparisons. This analysis showed that the two groups did not differ in their performance at phonological discrimination, lexical comprehension, and grammatical comprehension. However, they did show significantly different results in comprehension of emotive prosody.

Assessment of repetition skills

The results of the assessment of repetition skills in children; means and (standard deviations) are summarized in Table VI.1.2:3:

	Control group (N=11)	**Experimental (PLI) group** (N=11)
Repetition of words	14.64 (.67)	13.91 (.94)
Repetition of non-words*	13.82 (1.33)	10.82 (2.82)
Repetition of sentences*	16.55 (1.29)	13.46 (2.25)

Table VI.1.2:3 The results of the assessment of repetition skills in children; means and (standard deviations). Asterisks (*) indicate statistically significant differences between groups

The level of statistical significance was set at $p < .017$ (.05/3 dependent variables) after a Bonferroni correction for multiple comparisons. This analysis showed that the two groups

[9] N= 3 SLI; 4-controls
[10] N= 8 SLI;7-controls

did not differ in their performance at repetition of words. However, they did show significantly different results in repetition of nonwords and sentences.

Assessment of narrative skills

The children's narrative discourse production was carefully transcribed and then analyzed on two levels: a more superficial one that only provides information on the child's lexical and grammatical production abilities, and a more in-depth one that also gives information on their discursive and, in a broader sense, communicative abilities.

The results of the productivity aspect of the narratives produced by the participants were summarized in Table VI.1.2:4:

	Control group (N=11)	**Experimental (PLI) group** (N=11)
MLU	3.45 (.58)	3.06 (.93)
Speech rate	57.55 (22.61)	60.97 (19.40)
Number of words	34.73 (6.07)	32.36 (16.48)

Table VI.1.2:4 The results of the productivity aspect of the narratives produced by two groups of the participants

The two groups did not differ in terms of mean length of utterance (p=.251); speech rate (p=.708) or number of produced words (p=.660).

The results of microanalysis of the narratives were summarized in Table VI.1.2:4:

	Control group (N=11)	**Experimental (PLI) group** (N=11)
% of phonological errors	2.45 (2.53)	6.77 (9.87)
% of semantic paraphasias	1.61 (3.62)	6.42 (7.08)
% of paragrammatisms	.046 (1.02)	2.25 (3.79)
% of syntactic completeness	63.31 (20.27)	43.11 (18.37)

Table VI.1.2:4 Mean (standard deviations) of the performance of the two groups of participants on the narrative task (microanalysis)

The two groups did not differ in percentage of phonological errors produced (p=.175), semantic paraphasias (p=.59), or paragrammatisms (p=.144), but did differ on the measure of syntactic completeness (p=.024); however, this difference was not significant after a

Bonferroni correction. A non-parametric Mann Whitney U test was performed for percentage of phonological errors; percentage of semantic paraphasias; and percentage of paragrammatisms. None of the measures appeared to be significantly different between the two groups of participants (p=.454; p=.067; p=.210 respectively).

The results of macroanalysis of the narratives were summarized in Table VI.1.2:5:

	Control group (N=11)	**Experimental (PLI) group** (N=11)
% of errors in cohesion	23.66 (19.42)	25.89 (20.65)
% of errors in local coherence*	32.12 (20.43)	56.02 (18.65)
% of errors in global coherence	18.97 (11.49)	25.04 (19.32)
% of text informativeness	76.55 (12.15)	60.57 (20.12)
% filler utterances	1.90 (4.57)	12.36 (12.95)

Table VI.1.2:5 Mean (standard deviations) of the performance of the two groups of participants on the narrative task (macroanalysis). Asterisks (*) show when the group-related differences were significant after a Bonferroni correction for multiple comparisons ($p < .013$)

The two groups did not differ in percentage of errors in cohesion (p=.796) or global coherence (p=.381). However, a significant difference was found between the groups in local coherence (p=.010), percentage of text informativeness (p=.035); and percentage of filler utterances (p=.20). A non-parametric Mann Whitney U test was performed for percentage of filler utterances. The measure was found to be significantly different between the two groups of participants (p=.025).

VI.1.3. Discussion of the first part of the study (test) results

Overall, the performance of two groups of children was analyzed on 12 tasks aiming to assess their speech and language development in Russian. The results of the phonological fluency, grammatical judgments, comprehension of idioms, and comprehension of linguistic prosody tasks were not considered due to the young age of the participants and the high difficulty level of these tasks.

The BVL_RU allows children's overall linguistic competence to be assessed. The *lexical skills* of the participants – evaluated via a cohort of measures, namely, the results of the naming and articulation task, the semantic fluency task, and the lexical comprehension task –

are considered, as well as selected indexes from narrative assessment: percentage of semantic paraphasias, and percentage of lexical informativeness. Overall, children previously diagnosed with PLI showed lower results compared to their peers with typical language development. The semantic fluency task appeared to be particularly difficult for children from the experimental group; thus, the difference in the results of the two groups was statistically significant in this task.

Grammatical skills were assessed based on the results of the sentence completion task, grammatical comprehension, percentage of paragrammatisms, and percentage of complete sentences in the participants' narrative speech. Again, the mean results of children with PLI were lower than those of children with TLD, and the standard deviations were wider. However, none of the indexes exceeded the significance level set for these variables.

The results of the *narrative skills* assessment were similar to the overall results of the rest of the tasks. The majority of indexes were lower in the PLI group, although statistically not significant enough. The percentage of errors in local coherence, on the other hand, was very high among children with PLI, and, thus, statistically significant. The local coherence index reflects the presence of the following errors: absence of reference (the referent of a word inserted in the description was not clear, or information essential for understanding who is referred to is omitted) and topic shifts (cases in which an utterance is interrupted during the course of its elaboration and the following utterances introduce new topics while leaving open the ones conveyed in the interrupted utterance). Thus, it might be concluded that samples of narrative speech of children from the experimental group were rather inconsistent and the internal logic of the produced narratives was violated. Children frequently switched from one topic to another and it was not always clear to which character depicted on a picture a child was referring.

The *phonological skills* of children with PLI deserve further investigation, as they appeared to differ a lot both between the control and experimental groups (as reflected in the lower mean scores on phonological discrimination), and among the participants in the group of children with PLI (as reflected in wide SDs). Interestingly, children with PLI performed significantly worse on another task requiring phonological awareness and processing of phonemes in short-term memory – nonword repetition. If impaired phonological discrimination skills is the reason, then it may have significantly contributed to the lower lexical repertoire (as indirectly measured by the semantic fluency task) and to the low skills in lexical and

grammatical comprehension as well as grammatical judgment. Moreover, children with PLI also failed to properly repeat sentences, omitting and substituting parts of the stimuli. This, in turn, might be a sign of a working memory deficit. A similar trend was found in comprehension of emotive prosody (lower mean scores, wide SDs), which might signal about the mixed nature of language impairments in children and co-morbid disturbances.

These findings were accepted as evidence supporting the construct validity of the BVL_RU.

VI.2. Test-retest reliability

Test-retest reliability was checked using a series of Pearson's correlations. The results are summarized in Table VI.2:1:

Subscales	**Test-retest reliability coefficient (control group)**	**Test-retest reliability coefficient (experimental group)**
Articulation*	r=.927; p<.000	r=.850; p<.001
Naming*	r=.899; p<.000	r=.926; p<.000
Semantic fluency	r=.435; p<.181	r=.541; p<.085
Sentence completion*	r=.730; p<.011	r=.780; p<.005
Phonological discrimination*	r=.684; p<.020	r=.803; p<.003
Lexical comprehension (4-5.11 y.o.)[11]*	r=1.000; p<.000	r=1.000; p<.000
Grammatical Comprehension	r=.371; p<.261	r=.857; p<.001*
Grammatical judgments	r=.551; p<.079	r=.790; p<.004*
Comprehension of idiomatic expressions	r=.645; p<.032*	r=.448; p<.166
Comprehension of linguistic prosody	r=.478; p<.137	r=.576; p<.064

[11] N= 3 SLI; 4-c

Comprehension of emotive prosody	r=.083; p<.808	r=.458; p<.156
Repetition of words	r=-.179; p<.599	r=.332; p<.318
Repetition of non-words	r=.210; p<.535	r=.857; p<.001*
Repetition of sentences*	r=.678; p<.022	r=.867; p<.001

Table VI.2:1 Test-retest reliability of the BVL_RU in control and experimental groups of participants. Asterisks (*) show when the group-related differences were significant

The results of the analysis suggest that the participants' responses collected during the retest procedure did not differ from those collected during their first assessment on the following measures: articulation, naming, sentence completion, phonological discrimination, lexical comprehension (4-5.11 years old)[12], and repetition of sentences.

Furthermore, children from the experimental group replicated their results in grammatical comprehension, grammatical judgments, and repetition of nonwords, but not in comprehension of idiomatic expressions. The reasons for these results were further explored. Inspection of the raw scores of the latter task revealed massive fluctuations in the results of the retest in both groups. Considering the age of the participants, the level of difficulty of the task and its multiple-choice structure, an alternative explanation of such inconsistency might be that the results of both test and retest were dependent on chance. To test this hypothesis, the results were qualitatively analysed. It was noted each time a child switched from an option chosen during the first assessment to any other of the given explanations during the retest procedure. All cases of response alternations were counted. Indeed, deeper qualitative analysis of the collected data showed that children from both the control and experimental groups changed their responses in 64.5% and 60.9% of cases respectively.

Moreover, children from the control group were inconsistent in their responses in the grammatical comprehension and grammatical judgment tasks, and repetition of nonwords. As for the latter task, in fact, children with typical language development, in the majority of cases (9 out of a total of 11), performed as well or better during the retest procedure. Considering the period between the first and second assessments (i.e. 2 months), this might be explained by a carryover effect. Similarly, in two cases out of a total of 11, children 100% replicated their test scores; moreover, in four cases their results were lower by only 1-2 points. The remaining five

[12] The retest results for lexical comprehension (6-11.11 years old) were not available for the analysis.

children performed better than during their first assessment. Slight differences in scores (1-2 points) can be explained by fluctuations in attention during the testing procedure, and better results by a learning effect. The same explanation might be applicable to the grammatical judgments task (only one participant performed slightly worse and the rest of the children showed higher results compared to the first assessment) and grammatical comprehension, on which two participants were assigned exactly the same scores, four gained 1-2 points less, and the other five performed better.

Finally, both groups differed in their responses between the test and retest procedures on the semantic fluency task, comprehension of linguistic prosody; comprehension of emotive prosody; and repetition of words.

In order to better understand the nature of the semantic fluency task results, deeper qualitative analysis of the collected data was performed. Interestingly, the difference in the number of responses given was much higher among children with typical development. Indeed, seven children from the control group demonstrated lower results (i.e. named fewer words belonging to the given categories), and four performed better during the retest. On the other hand, only one participant from the experimental group performed slightly worse, and all the others received higher scores in the retest procedure. The results of qualitative inspection of the given responses were further analyzed statistically in order to estimate the degree of fluctuation in the content of responses between the test and retest procedures. All participants' responses within 2 minutes (1 minute for the 'animals' category and 1 for the 'things at home' category) were transcribed (see Table VI.2:2 in the Appendix for the transcripts). The lexical diversity of the children's responses between the test and retest procedures was compared. Each unique word was assigned 1 point. Levene's Test for Equality of Variances revealed a statistically highly significant difference in the uniqueness of words between the two groups of children ($p<.026$).

As for comprehension of emotive prosody, which is much easier for young children than comprehension of linguistic prosody, half of the children from both groups (seven from the control group and four from the experimental one) fully replicated their results. The other four children with typical language development demonstrated only +/-1 points difference in their results. Six participants from the experimental group were assigned +1/-1 points during the retest procedure, and only one appeared to be an outlier, as he doubled his scores.

Finally, during the second assessment, most of the participants from both groups reached the ceiling level (15 out of 22 participants) on repetition of words. One child from the control group and one from the experimental group lowered their results by 1 point. Moreover,

two children from experimental group lowered their results by 2 and 3 points respectively, and the rest of the participants demonstrated identical performance.

VI.2.1 Discussion of test-retest reliability results

Overall, on six tasks (i.e. articulation, naming, sentence completion, phonological discrimination, lexical comprehension, and repetition of sentences) out of the total set of 14 tasks, the responses of the participants from both groups during the retest procedure were consistent with those from the first assessment. Furthermore, children from the experimental group replicated their results in grammatical comprehension, grammatical judgments, and repetition of nonwords, but not in comprehension of idiomatic expressions. The results of qualitative analysis suggest that in the majority of the cases children from both groups, due to their young age and the structure of the task, were guessing the meaning of the idioms.

On the other hand, the inconsistency in the results of the retest of the children from the control group in the grammatical comprehension and grammatical judgments tasks and repetition of non-words might be explained by a carryover effect. In the majority of cases, participants improved their results during the second assessment. Unlike the children from the control group, the participants with PLI did not demonstrate any learning effect.

Finally, both groups differed in their responses between the test and retest procedures in comprehension of linguistic prosody, comprehension of emotive prosody, and repetition of words; and the semantic fluency task. As for the latter task, it was hypothesized that even though the amount of responses produced by children with typical language development vary a lot between testings, this might be fully explained by the spontaneous nature of the task itself. The results of Levene's Test for Equality of Variances revealed a highly significant difference in the lexical diversity of the responses between the two groups of children ($p<.026$). These results are in line with previous findings on limited lexical diversity in children with language impairments (e.g. Watkins et. al., 1995). The results not only provide evidence supporting the hypothesized explanation of the fluctuation in the performance results from test to test, but also indirectly confirm that children in the experimental group have poorer vocabulary as compared to their peers of the same age with typical language development, which manifests in the rather limited variance in the content of their responses.

As for comprehension of linguistic prosody, the fluctuation in scores between the two assessments was rather expected considering the age of the participants and the difficulty of the task. On the other hand, in comprehension of emotive prosody, which is much easier for

young children, the majority of them fully replicated their results and only one participant appeared to be an outlier, as he doubled his scores.

Finally, on one of the most simple tasks – repetition of words, including 15 words to repeat, during the second assessment most of the participants from both groups demonstrated a strong learning effect and either improved or demonstrated identical performance. One child from each group could not manage to repeat the longest stimuli and slightly lowered their results. Interestingly, two children with PLI lowered their results by 2-3 points, showing no learning effect.

Summarizing the results of qualitative and quantitative analysis of both test and retest outcomes, it might be noted that the BVL_RU not only allowed differentiation between the linguistic profiles of children from the experimental group and those of the controls with TLD, but also made it possible to hypothesize the nature of the disorder in language-impaired children (i.e. co-morbid disturbances, working memory involvement) and areas requiring deeper investigation (i.e. phonological awareness, vocabulary, narrative skills).

VI.3. Detailed description of the linguistic profiles of two cases from the sample

Here we present a detailed investigation of the linguistic skills of two participants diagnosed with PLI from the pilot experiment described above. The aim of further investigation of their performance was to demonstrate the ability of the BVL_RU to capture different gravity levels of the impairments in Russian-speaking children. The existing literature distinguishes the profiles of language impaired children. Grammatical abilities are lowered in some children, others might experience difficulties with vocabulary acquisition. Thus, it was hypothesised that the linguistic profiles of the two children selected for this study might also differ.

The current study included a 5.10-year-old girl and a 6.03-year-old boy. Both children were born and raised in monolingual Russian-speaking families in Omsk, Russia. The socio-economic status of their families was measured via their parents' level of formal education. In both cases, the parents reported high level of instruction (both fathers received 14 years of formal educational training, and the mothers 16 and 14 years, respectively). Both children had similar non-verbal intelligence as measured by the Raven's Colored Progressive Matrices (Case 1, a girl, – 22 [raw score]; Case 2, a boy, – 27 [raw score]). Both children had previously received a diagnosis of PLI (Russian – OHP 2/3) from an interdisciplinary commission including a psychologist, speech therapists and a social pedagogue, based on neurological

assessment results. The linguistic performance of the children was assessed using a combination of tools available for Russian and described in so-called "speech cards" available for each child. The performance of Case 1 on a series of linguistic tasks was briefly described by the speech therapist as follows: difficulties in speech comprehension, grammatical skills below age norms, poor vocabulary including mainly verbs and nouns, limited amount of adjectives, mildly impaired repetition skills, low phonological awareness. The linguistic profile of Case 2 was described by the speech therapist as follows: poor limited vocabulary, multiple sound distortions in articulation, impaired phonological discrimination due to poor phonological awareness, impaired repetition skills resulting in an inability to correctly repeat words and sentences. Both children have recently begun to receive standard language treatment in their group in kindergarten.

VI.3.1. Case study results

For this study, we compared the z-scores of the two Russian-speaking participants with diagnoses of PLI. The z-scores were calculated by deriving the mean and standard deviations of the scores obtained by a group of 18 Russian-speaking children with typical development and of the same age as the two participants with PLI. The cutoff score for normality for each measure was set at 1.5 SD below the mean, or over it for errors. Tasks assessing phonological fluency, narrative production, comprehension of linguistic prosody and comprehension of idiomatic expressions were not administered to these children as they tap abilities that are not fully-fledged at this young age. The results are summarized in Table VI.3.1:1:

Tasks	**Case 1 Z-scores (SDs)**	**Case 2 Z-scores (SDs)**
Production skills		
Naming	-1.94*	-2.11*
Articulation	-.33	-1.80*
Semantic Fluency	1.70*	-0.78
Sentence Completion	-.86	-1.81*
Comprehension skills		
Phonological discrimination	-4.00*	-0.97
Grammatical comprehension	-3.99*	-1.83*
Lexical comprehension	-2.81*	-4.49*
Grammatical judgment	-3.07*	.55

Comprehension of emotive prosody	-1.37	-3.44*
Repetition skills		
Repetition of words	.56	-4.49*
Repetition of non-words	-.54	-2.16*
Sentence repetition	-2.38*	-2.98*

Table VI.3.1:1 Production, comprehension and repetition skills of the two subjects diagnosed with PLI. Asterisks (*) show when the group-related differences were significant

Case 1 scored between 1.5 and 2 SDs below the mean in both naming (-1.94) and semantic fluency (1.70), while performing within the normal range in articulation (-.33) and sentence completion (-.86). Case 1 demonstrated profound difficulties in phonological discrimination (-4.00), grammatical comprehension and grammatical judgment (-3.99 and -3.07, respectively). On the contrary, she scored low but within normal range on the task assessing the comprehension of emotive prosody (-1.37). Finally, Case 1 scored within normal range on tasks assessing the repetition of words and nonwords (.56 and -.54, respectively), but had severe difficulties on the task assessing sentence repetition (-2.38).

Case 2 scored lower than normal in articulation (-1.80), naming (-2.11), and sentence completion (-1.81), but had normal semantic fluency (-0.78). His phonological discrimination skills were low but within normal range (-0.97). On the contrary, he scored very low in lexical (-4.49) and grammatical comprehension (-1.83). He scored normally at the grammatical judgement task (.55), but low on the comprehension of emotive prosody task (-3.44 SD). Finally, he scored significantly lower than normal on the three tasks assessing repetition skills: word repetition (-4.49), nonword repetition (-2.16) and sentence repetition (-2.98).

VI.3.2. Case study discussion

The administration of the adapted version of the BVL_4-12 and further statistical analysis of the collected data allowed us to describe the linguistic profiles of two children. Indeed, it 1) confirmed the presence of linguistic impairments in both of them, 2) captured the different gravity levels of their impairments across different linguistic domains, and 3) allowed us to quantify such impairments in order to plan future intervention programs, whose efficacy might be quantified with follow-up assessments.

As to the first issue, such a comprehensive and quantitative assessment allows clinicians to perform accurate diagnoses. Assessment with the BVL_RU fully corresponds to the

description of children's linguistic profiles developed by their speech therapist. Indeed, **Case 1's** linguistic performance description, created using BVL_RU, also revealed a weakness in lexical production. Indeed, she scored between 1.5 and 2 SDs below the mean in both naming and semantic fluency. The fact that she performed within normal range in articulation and sentence completion suggests that her production disturbance is limited to processes of lexical selection, whereas her phonetic (i.e. articulatory) and morphologic skills were not affected. Case 1 also demonstrated profound difficulties in comprehension. Her impaired phonological discrimination skills may have significantly contributed to her lower lexical repertoire (as indirectly measured by the semantic fluency task) but also to her low skills in lexical and grammatical comprehension, as well as grammatical judgment. Thus, the relevant clinical markers for Case 1 were: poor vocabulary (both receptive and productive); difficulties in phones discrimination; difficulties in comprehension and interpretation of grammatical structures of her native language.

Case 2, on the other hand, had a different linguistic profile from Case 1, and the BVL_RU managed to capture such differences. His production skills were severely impaired and not limited to lexical selection processes, as shown by his performance in articulation, naming, and sentence completion. Interestingly, his performance on the semantic fluency task was within normal range. As for comprehension, his phonological discrimination skills were low but within normal range, whereas his lexical comprehension and grammatical comprehension skills were moderately to severely impaired. Even if he had normal grammatical judgement abilities, Case 2 was significantly impaired in the comprehension of emotive prosody task. Finally, he scored significantly lower than normal on the three tasks assessing repetition skills: word repetition (-4.49), nonword repetition (-2.16) and sentence repetition (-2.98). Thus, the relevant clinical markers for Case 2 were: poor articulation; poor receptive and productive vocabulary; difficulties in comprehension of grammatical structures and interpretation of emotive prosody; general repetition difficulties (i.e with words, nonwords and sentences). In this case, also, the description provided by the speech therapist was confirmed.

As shown by the children's linguistic profiles, both were presenting a mixed expressive-receptive impairment which was not limited to their lexical skills but also extended to other domains, such as grammatical and, for Case 2, even prosodic processing.

This experiment showed that the BVL_RU is a valuable tool for the assessment of language skills in Russian-speaking as well as Italian-speaking children. It not only confirmed the former diagnosis of language impairment, but also made it possible to capture the different

gravity levels of this impairment across different linguistic domains. The linguistic profiles created using the BVL_RU are in line with those findings described in literature relevant in Russian CLR and atypical acquisition of Russian as L1 (e.g. Cherkashina & Patjukov, 2011; Almazova & Shibanova, 2013; Kiseljov & Lapshina, 2010; Kornev, Balchjuniene, Voejkova, Ivanova & Jagunova, 2015).

The BVL_RU provided a way to quantify such impairments in order to plan future intervention programs, whose efficacy might be quantified with follow-up assessments.

VI.4. Conclusions

The results of speech and language assessment obtained by administering adapted version of the BVL_4-12 confirmed the presence of mild language impairment in children from the experimental group and supported our hypothesis. The BVL_RU is adequate for discriminating PLI and TD. It permitted to discriminate different **levels of gravity** of the impairment in two participants. The results of qualitative and quantitative analysis indicate potential contaminated origin of the disorder and fully correspond to the conclusions made by the children's speech therapist doubting its purely linguistic nature. The conduction of these experiments and detailed investigation of the collected data, permitted to make the preliminary conclusions with regards to the **construct validity** of the BVL_RU and its **reliability** based on the Test-Retest results.

One of the potential limitations of this study might be the absence of the conclusions with regards to the extent to which the performance of the participants was/ or not age-appropriate. The difficulty of drawing such conclusions stims from the absence of published norms relevant for Russian language acquisition in target age collected from the representative sample. Thus, we only considered those currently available naturalistic descriptive studies.

In this chapter, the results of a series of pilot studies with monolingual Russian-speaking children with and without LI have been presented. In the following chapter, the results of a pilot study with bilingual Italian-Russian-speaking children will be discussed.

Chapter VII. Pilot testing of the BVL_RU version with a bilingual sample – Italian–Russian simultaneous bilinguals

This chapter describes the first cross-cultural and cross-linguistic study done using both the Italian and Russian versions of the BVL_4-12. The study was done with a sample of Italian–Russian simultaneous bilinguals aged from 4 to 7. The phonological, lexical and grammatical skills and narrative abilities of the participants who inherited Russian from their parents are discussed in detail.

VII. 1. Introduction

Russian and Italian are part of the Indo-European language family. However, they belong to different language groups: Russian, to the East Slavic group of the Slavic branch, and Italian, to the Romance branch. Not being closely related languages, Russian and Italian significantly differ from each other at all levels of the language. These differences, in turn, lead to interference and the occurrence of errors in the speech of both Russian–Italian bilinguals and Italians studying Russian as a foreign language.

At the level of phonetics, these languages differ in their repertoire of phonemes. The Italian language is characterized by the absence of opposition between hard and soft consonants, while in Russian, there are minimal pairs differing by such consonants (e.g. *мышка – мишка* 'mouse–bear'; *лук - люк* 'bow–hatch'). The difficulties in differentiating voiced and voiceless consonants are well documented among non-native Russian speakers (e.g. *суп – зуб* 'soup – tooth'; *дуб – туп* 'oak – blunt). Errors in pronunciation are also caused by the absence of the phonemes [h] and [ы] in Italian, and by the merging of [ʃ] and [ž] (Bezhenar', 2013).

Another distinguishing feature of the Russian language is the declension of nouns, adjectives, pronouns and numerals, which does not coincide with the case system of the Italian language. Thus, errors might also occur in the choice of the correct case flexion and a suitable preposition (e.g. "*звоню маму/папу*" (I call mom / dad) instead of "*звоню маме/папе*" – compare the Italian "*Chiamo la mamma / il papà*".

At the lexical level, there are difficulties in choosing the right aspect of a verb (e.g. *Я начинала*imperfective aspect *изучать русский в школе, и мне очень понравилось*perfective aspect – 'I started to learn Russian at school, and I really liked it; *Нацисты разрушали* imperfective aspect *Милан в конце войны* – 'The Nazis destroyed Milan at the end of the war (Bezhenar', 2013).

Finally, at the syntax level, there are difficulties associated with the incorrect order of words in the sentence.

Studies devoted to the investigation of the simultaneous acquisition and development of two languages in Russian-Italian bilinguals are rather scarce. Perotto and Niznik (Perotto & Niznik, 2014; Perotto, 2015) examined oral and written speech in bilingual children aged 8–15 living in Italy. All the children were enrolled in Russian Saturday schools. The studies documented a set of difficulties demonstrated by the children at the level of morphology and narrative speech production in Russian. The study was conducted on a sample of 45 heritage speakers of Russian. Seventeen children were born in Russian-speaking families in Russia, Ukraine, Moldavia or other Russian-speaking countries, and 28 in Italy in mixed families, where the mother is often Russian-speaking and the father is Italian. At the same time, some children born in Russian-speaking countries had an opportunity not only to begin learning the language in the Russian language environment, but also to receive several years of formal education in Russian. The lexical profile of the latter group is closer to the monolingual native speakers of Russian: a fairly rich vocabulary, no confusion in case inflections, grammatically correct utterances. On the other hand, children born in mixed families and isolated from a Russian language environment demonstrated the following difficulties: loss of animate / inanimate category attributes; errors in the use of verbs of movement, especially with regard to the choice of prefixes and prepositions following the verbs; a variety of borrowings from Italian; extension of the valence of the verb 'to do', *делать* (compare: *Fare il corso al'Universita* – literally translated and used in oral speech as *делать курс в университете*, impossible in standard Russian). Moreover, difficulties in using verb aspects were detected, as well as confusion in the use of verbs expressing motion and state.

As for narrative speech production, a significant difference was revealed between speech of children born in Russian-speaking families in Russian-speaking countries and those born in Italy in mixed families. Children were required to tell a story called "Peak Badaluk goes to the forest" using a picture. On average, the speech of children born in Russian-speaking countries was more literate, free and confident, they used fewer pauses, and code switching

was rare. On the other hand, children from mixed families more often asked for help to continue the story. They demonstrated poorer vocabulary, and, as a result, often switched to Italian while speaking. Interestingly, children from this group preferred using the present tense only while telling a story.

The analysis of narratives produced by children was shown to be a reliable tool in LI identification. However, less is known on its diagnostic accuracy in bilingual population (Boerma, Leseman, Timmermeister, Wijnen & Blom, 2016).

The aim of the current study was the application of both Italian and Russian versions of the BVL to target population and validation of the BVL_RU in bilingual settings. Based on the previous studies in the field, it was hypothesised that the phonological, lexical and grammatical skills and narrative abilities of the participants who inherited Russian from their parents might significantly differ from those of their monolingual peers due to different patterns of language acquisition and the amount of exposure to Russian. Thus, the differences in the performance of monolingual and bilingual children of the same age on a series of linguistic tasks were of interest in current study. The analysis of such differences might further contribute to our understanding of the development of Russian language in heritage speakers.

VII. 2. Description of the experiment. Participants

Forty-three participants with a mean age of 5.94 were included in the study. According to teachers' and parents' reports, none of the participants had any known history of neurological illness, difficulties with learning, or visual or hearing loss. Demographic information was collected regarding SES, date and place of birth, years of formal education, sex, handedness of the participants, and their exposure to languages at home and outside (at school or with friends),. as well as the parents' age and educational level. The sample was split into two groups. The participants formed an experimental (bilingual) and a control (monolingual) group matched for chronological age, level of formal education received by children, their sex, handedness and SES. The level of non-verbal logical reasoning measured by Raven's progressive matrices (Raven, 1938) was within normal range and similar in the two groups. See Table VII.2:1 for a description of the two groups:

	Control (monolingual) group (N=21)	**Experimental (bilingual) group** (N=22)
Age	6.1 (.64) – Range: 5.05-7.00	5.78 (.7) – Range: 4.06-7.03
Education of father	14.33 (2.58) – Range: 9-21	14.77 (2.76) – Range: 8-20
Education of mother	16.05 (2.11) – Range: 13-20	16.05 (1.94) – Range: 12-21
Sex	M = 11	M = 9
Handedness	Right-handed = 19	Right-handed = 21
Raven's matrices	21.29 (4.56)	20.77 (5.33)
PSTM	4.1 (1) – Range: 3-7	3.96 (7.22) – Range: 3-5
Working memory	2.43 (.75) – Range: 1-4	2.73 (.55) – Range: 2-4

Table VII.2:1 Means (and standard deviations) demonstrating the main characteristics of the two groups of participants

As shown in Table VII.2:1, the two groups had similar chronological age ($t(41)=1.57$; $p=.125$), SES based on parental education ($t(41)=.004$; $p=.997$), and level of logical non-verbal reasoning ($t(41)= .338$; $p=.125$). The participants performed similarly on one simple (forward) span task ($t(41)=.532$; $p=.597$) and on one complex span task (Backward Digit Recall; $t(41)=-1.498$; $p=.142$), subtests of the Wechsler scales (Wechsler, 1993), measuring shonological short-term (PSTM) and working memory (WM).

The experimental group was formed of 22 bilingual children, aged between 4.06 and 7.03 years (mean: 5 years and 78 months, SD: .7), simultaneously acquiring Italian (majority language) and Russian from birth. All of them were born and raised in linguistically mixed families in Italy and inherited the Russian language from their parents (usually mothers) following the one parent – one language rule (Paradis, Genesee, & Crago, 2011, p.94). They are representatives of a minority ethnolinguistic group raised in additive bilingual environments (i.e. all of them were enrolled in Saturday Russian schools where they had to speak Russian, and in Italian schools where they spoke Italian during the week). Thus, according to the typology of bilingualism proposed by Davison (2009), these children are simultaneous bilinguals.

Children selected to form the control group were all Russian-speaking monolinguals, born and raised in Russia in monolingual Russian-speaking families, aged between 5.05 and 7 years (mean: 6 years and 1 month, SD: .64). Neither their parents nor their teachers reported exposure to any other languages but Russian (majority language).

The assessment of the children's level of non-verbal logical reasoning, PSTM and WM, as well as their linguistic skills, was delivered in a quiet room at the children's schools or houses according to the parents' preferences. The parents gave their consent to the participation of the children in the study.

Linguistic assessment procedures

The linguistic skills of the bilingual participants were assessed by administering a cohort of selected tasks from the BVL_4-12 (Marini et al., 2015), in Italian, and from the BVL_RU, in Russian. The core 5 tasks basic for the evaluation of the phonological, lexical and grammatical skills and narrative abilities of the participants were selected form the Battery. The following tasks were administered: naming and articulation (for children younger than 7) / naming (for older children); semantic fluency; narration ('The story of a nest'); phonological discrimination; lexical comprehension (part 1 – for children not older than 6 / part 2 – for older children); grammatical comprehension. The rest of the tasks form the Battery were not used due to their high difficulty level that might be inaproppriate for children of this age group and because of the rigorous time constraints. The testing session in each language took approximately 30 minutes. The order of the sessions was randomized across participants. The same set of tasks from the Russian version of the BVL_4-12 was administered to a control group of children in Russian only.

VII. 3. Results

The production and comprehension skills of the two groups of participants in Russian were statistically analyzed with a series of independent samples T-tests.

Assessment of production skills in Russian

The performance of the two groups of participants at the three tasks assessing linguistic production skills in Russian (i.e. articulation, naming, and semantic fluency) is shown in Table VII.3:1:

Production skills	**Control (monolingual) group**	**Experimental (bilingual) group**
Articulation	123.26 (19.19) Range: 79–143	110.05 (23.77) Range: 64–152
Naming*	60.84 (5.89) Range: 51–68	43.85 (12.66) Range: 16–66
Semantic fluency*	26.19 (7.01) Range: 13–41	16.00 (8.35) Range: 4–35

Table VII.3:1 Mean (standard deviations) and ranges of the performance of the two groups of participants on tasks assessing their linguistic production skills in Russian. Asterisks (*) show when the group-related differences were significant after a Bonferroni correction for multiple comparisons ($p < .017$)

The analysis did not reveal statistically significant differences between the groups in articulation ($p=.065$). Unlike articulation, the scores for naming and semantic fluency differed highly significantly between the two groups ($p= <.001$ for both measures).

It was hypothesized that the differences between the two groups on the naming task might be related to the frequency rate of the stimuli; specifically, that the participants from the experimental group might demonstrate lower results due to the limitation of their vocabulary to high/medium frequency words only. Indeed, statistical analysis (independent samples T-test) revealed that the two groups performed differently on high/medium/low frequency stimuli. The results are summarized in Table VII.3:2:

Type of stimuli in the naming task	**Control (monolingual) group**	**Experimental (bilingual) group**
High frequency	15.3 (5.15)	12.89 (5.06)
Medium frequency*	16.53 (4.12)	13.15 (5.05)
Low frequency*	11.31 (5.44)	3.75 (3.80)

Table VII.3:2 Mean (standard deviations) of the performance of the two groups of participants on the naming task in Russian. Asterisks (*) show when the group-related differences were significant

There was no statistically significant difference in the performance of the two groups on highly frequent stimuli ($p=.089$). However, the analysis revealed highly statistically

significant differences between the groups on medium (p=.005) and low (p= <.001) frequency stimuli.

It was hypothesized that frequency rate might also affect articulation, i.e. low frequency, poorly / not acquired words might not be properly articulated not because of their specific phonematic characteristics, but rather because children are not familiar with them. Indeed, among the first 20 words that appeared to be the most difficult for bilingual children to articulate, 12 were low-frequency words (from the most difficult-to-articulate words to less difficult ones: *бахрома; бобер; хлыст; балалайка; лупа; кожура; гамак; парашют; закат; огрызок; сом*), 6 were of medium frequency (*ящик; царь; дно; вагон; остров; бабушка*) and only 2 were highly frequent (*мальчик; ждать*). Interestingly, the same highly frequent stimuli were poorly named. Only two children managed to correctly name *мальчик* (a boy), and three *ждать* (to wait). As for *мальчик*, children tended to label it with more general names: *человек* (N=4) – human being; *папа* (N=3) – dad; *дядя* – uncle/any unknown man (N=2); *мужчина* – a man; *дяденька* – uncle/any unknown man$_{DIM.}$ Instead of *ждать*, a verb with a complex meaning, on the other hand, children described specific details of the stimuli picture – *дать розы маме* (to give mommy roses); *идет девочка* (a girl walks); *смотрит время* (to look at the watch/time); *смотрит годыльник* (to look at the watch); *смотрит на часы* (to look at the watch); *смотрит сколько секундок* (watches how many seconds); *смотрит часы* (literally translated as - look watches); *стоит* (stands); *устал* (tired); *хочет дать цветы* (wants to give flowers).

To further explore the children's responses on the naming task, qualitative analysis was performed on them. All incorrect answers were sorted into two groups: 1) incorrect answers produced by monolingual children (N=348) and 2) incorrect answers produced by bilingual children (N=385; see Tables VII.3:1-2 in the appendix). The characteristics of the content of the groups of words were further analyzed. Interestingly, both bilingual and monolingual children produced slang words (просторечия); however, the ratio was 1:10. The percentage of phonetically distorted words was even higher among bilinguals. Overall, they produced 25 words containing phonological errors of various types. On the other hand, only one monolingual child produced one such error (i.e. *о**м**грызок*). Onomatopoeia was documented in the speech of bilingual children three times (i.e. *динь-донь; цём; бе*) and never in monolingual children. Children from the experimental group produced twice as many diminutives compared to their monolingual peers (ratio 26:13). Furthermore, the number of paragrammatisms was also higher among bilinguals (7:2). Finally, the amount of semantic

paraphasias was extremely high among bilingual children – 245, compared with 183 produced by monolinguals.

The nature of the differences between the groups in the semantic fluency task was further explored. The literature suggests that the volume of vocabulary in bilinguals cannot be assessed considering only one of their languages (i.e. Russian); thus, we compared the responses given by bilingual children both in Russian and Italian (summarized in Table VII.3:3 in the appendix) and calculated the number of unique lemmas in 'animals' and 'things at home' categories and ran a T-test for independent samples. The results of the statistical analysis are summarized in Table VII.3:4:

Category in the semantic fluency task	**Control (monolingual) group**	**Experimental (bilingual) group**
Animals	12.71 (4.7) Range: 2–22	12.59 (5.43) Range: 5–22
Things at home	13.48 (3.64) Range: 9–19	15.41 (5.82) Range: 3–25
Animals+ things at home	26.19 (7.01) Range: 13–41	28 (8.8) Range: 8–43

Table VII.3:4 Mean (standard deviations) and ranges of the performance of the two groups of participants on the semantic fluency task, when both languages of bilinguals were considered. Asterisks (*) show when the group-related differences were significant

Comparison of the responses given by bilingual participants in both their languages and the responses given by monolinguals in Russian in the semantic fluency task did not reveal any differences between the groups in the overall volume of their vocabularies (animals category – p=.937, things at home category – p=.201, total for the two categories – p=.462).

Assessment of comprehension skills in Russian

The performance of the two groups of participants at the three tasks assessing comprehension skills in Russian (i.e. phonological discrimination, lexical comprehension, and grammatical comprehension) is shown in Table VII.3:5:

Comprehension skills	**Control (monolingual) group**	**Experimental (bilingual) group**
Phonological discrimination	90.95 (14.97) Range: 50–100	90.68 (11.47) Range: 65–100
Lexical comprehension (4-5.11 years old)	18 (0) Range: 18–18	15.86 (1.86) Range: 12–17
Lexical comprehension* (6-11.11 years old)	36.24 (3.15) Range: 31–41	22.5 (7.17) Range: 13–35
Grammatical comprehension*	35 (3.55) Range: 28–38	30.64 (3.92) Range: 22–37

Table VII.3:5 Mean (standard deviations) and ranges of the performance of the two groups of participants on tasks assessing their comprehension skills in Russian. Asterisks (*) show when the group-related differences were significant after a Bonferroni correction for multiple comparisons ($p < .017$)

The two groups demonstrated almost identical results in the phonological discrimination task (p=.947). As for lexical comprehension, younger children in the two groups demonstrated a marginally significant difference (p=.051); on the other hand, older ones differed in their performance significantly (p= <.001). Finally, the two groups significantly differed in their grammatical comprehension (p.=004). Inspection of the responses given by the bilingual participants revealed that the most difficult for them was item 19, as only 8 of the children correctly identified the target. Furthermore, 9 children responded correctly on item 38; 10 correct responses were given on items 21, 23 and 40; on item 28 the target was identified correctly 11 times; and finally, on stimuli 13, 34 and 39, 12 children responded correctly. The rest of the target stimuli were correctly identified by the majority of the bilingual participants.

A within-group comparison of the performance of the bilingual participants on a series of linguistic tasks in Russian and in Italian was statistically analyzed with a paired-samples T-test.

Assessment of production skills in Russian and in Italian

The performance of the two groups of participants at the three tasks assessing linguistic production skills in Russian and in Italian (i.e. articulation, naming, and semantic fluency) is shown in Table VII.3:6:

Experimental (bilingual) group – production skills	**In Russian**	**In Italian**
Articulation*	110.05 (23.77) Range: 64–152	134.85 (9.2) Range: 112–149
Naming*	43.85 (12.66) Range: 16–66	68.10 (5.22) Range: 58–77
Semantic fluency	16.00 (8.35) Range: 4–35	17.64 (6.35) Range: 5–26

Table VII.3:6 Mean (standard deviations) and ranges of the performance of the experimental (bilingual) group of participants on tasks assessing their linguistic production skills in Russian and in Italian. Asterisks (*) show when the group-related differences were significant after a Bonferroni correction for multiple comparisons ($p < .017$)

The production skills of bilingual participants in Russian and Italian statistically differed on two of the three analyzed measures, namely articulation ($p=.001$) and naming ($p= <.001$). However, the difference between the two languages was not significant on semantic fluency

($p=.464$).

The results demonstrated by the bilingual subjects in Italian were compared to normative data reported for 6-year-old monolingual Italian-speaking children. In articulation the mean score for monolinguals is 145. The mean score of 134.85, demonstrated by our participants, corresponds to the lower border of the norm (1,5 SD). As for naming, the mean score of 68.10 demonstrated by our participants coincides with the mean reported for the normative data. Finally, in semantic fluency, the mean of 17.64 demonstrated by our participants is close to the mean of 18 points reported for the normative data.

Assessment of comprehension skills in Russian and in Italian

The performance of the two groups of participants at the three tasks assessing comprehension skills in Russian and in Italian (i.e. phonological discrimination, lexical comprehension, and grammatical comprehension) is shown in Table VII.3:7:

Experimental (bilingual) group. comprehension skills	**In Russian**	**In Italian**
Phonological discrimination	90.68 (11.47) Range: 65–100	94.09 (10.76) Range: 55–100
Lexical comprehension (4-5.11 years old)	15.86 (1.86) Range: 12–17	16 (1.63) Range: 14–18
Lexical comprehension (6-11.11 years old)	22.5 (7.17) Range: 13-35	27.07 (4.38) Range: 18-39
Grammatical comprehension	30.64 (3.92) Range: 22-37	32.86 (4.53) Range: 23-40

Table VII.3:7 Mean (standard deviations) and ranges of the performance of the two groups of participants on tasks assessing their comprehension skills in Russian and in Italian

Neither phonological discrimination (p=.331) nor lexical comprehension (younger children – p=.877; older children – p=.085) appeared to be significantly different between Italian and Russian. Children performed better on grammatical comprehension in Italian (p=.033); however, overall, none of the compared values turned out to be significantly different after a Bonferroni correction.

The items which appeared to be the most difficult in the grammatical comprehension task in Italian, unlike in Russian, were items 16 and 36, as only 12 children correctly identified the target pictures corresponding to the sentences. Item 13, marked as difficult in the Russian version of the task, was also difficult for bilingual children in Italian (50% of the total given responses were correct). Overall, 13 children gave correct responses on stimuli 39 and 40. On the rest of the task items marked in Russian as difficult, bilingual children performed better in the Italian version of the task: on item 19, 16 children gave correct responses; on items 21 and 24, 18 children; on item 28, 17 children; on item 34, 16 children; and item 38 was not difficult for 15 bilingual children).

The results demonstrated by the bilingual subjects in Italian were compared to normative data reported for monolingual Italian-speaking children. In phonological discrimination the mean score for 4.06-year-old monolinguals is approximately 90%. For older children, from 5.06 years old, it is 100%. Our participants were 4.06–7.03 years old and demonstrated a mean result of 94.09%. As for lexical comprehension in younger children, the

results demonstrated by our participants (mean: 16.00) coincide with those from the normative data (mean: 16.00). The normative mean for lexical comprehension in children older than 6 years of age is 32. The mean result demonstrated by the children from our experimental group is 27.07 – 1 SD below the mean, but still within the normal range. Finally, the mean for grammatical comprehension is around 32 in normative data collected from 6-year-olds, which is close to the result demonstrated by our participants – 32.86.

Assessment of narrative skills in Russian

Two children from the bilingual group refused to produce a story in Russian, so the stories produced by 20 bilingual children and 21 monolingual children in Russian were analyzed. Key indexes of the narratives produced by the participants are shown in Table VII.3:8:

	Control (monolingual) group (N=21)	**Experimental (bilingual) group (N=20)**
Speech fluency (words / narration time)	53.01 (19.97)	38.96 (19.75)
False starts (words started but not finished)	2.62 (2.72)	.73 (1.36)
Phonological paraphasias (phonologically distorted words)	.33 (1.50)	1.91 (4.71)
Neologisms (invented words)	.00 (.00)	1.92 (.86)
Lexical fillers	2.85 (3.77)	10.07 (18.07)
Semantic and verbal paraphasias	1.62 (3.45)	12.55 (11.41)
MLU (words / utterances)	3.16 (.85)	3.13 (.83)
Paragrammatisms (non-functors)	.84 (1.80)	4.49 (4.71)
Paragrammatisms (functors)	.00 (.00)	2.95 (6.26)
Omissions of functors	.00 (.00)	1.13 (3.49)

Omissions of content words	18.63 (10.39)	27.88 (17.43)
Errors in cohesion	25.37 (17.24)	34.51 (18.79)
Errors in local coherence	32.58 (16.80)	58.55 (31.12)
Errors in global coherence	16.49 (12.92)	12.43 (15.37)
Filler utterances	4.51 (8.51)	6.88 (11.50)
Repetitive utterances	6.97 (8.19)	5.55 (8.18)

Table VII.3:8 Mean (standard deviations) of the performance of the two groups of participants on the narrative task (key micro- and macroanalysis indexes). Raw scores

Assessment of narrative skills in Russian and in Italian

The results of the within-group analysis of the narratives produced by bilingual participants in Russian and in Italian were summarized in Table VII.3:9:

Experimental (bilingual) group. Narrative skills	**In Russian**	**In Italian**
MLU	3.10 (.87)	3.48 (1.28)
Speech rate*	37.88 (19.80)	66.84 (23.00)
Number of produced words	36.33 (19.91)	42.39 (20.97)

Table VII.3:9 The results of the productivity aspect of the narratives produced by the bilingual participants in Russian and in Italian. Asterisks (*) show when the language-related differences were significant

The narratives produced by the bilingual participants in Russian and Italian did not differ in terms of mean length of utterance (p=.208) or number of produced words (p=.197). However, their speech rate was found to be significantly different (p= <.001).

The results of microanalysis of the narratives were summarized in Table VII.3:10:

Experimental (bilingual) group. Narrative skills	**In Russian**	**In Italian**
Phonological errors	2.94 (5.13)	3.55 (3.82)
Semantic paraphasias*	12.27 (11.54)	1.66 (2.73)
Paragrammatisms (functors)	2.32 (5.60)	5.00 (7.02)
Omissions of functors	.556 (2.36)	3.28 (8.36)

Omissions of content words	30.29 (16.55)	23.53 (16.25)
Syntactic completeness	33.60 (23.44)	49.06 (23.00)

Table VII.3:10 Mean (standard deviations) of the performance of the two groups of participants on the narrative task (microanalysis). Asterisks (*) show when the language-related differences were significant

The narratives produced in the two languages did not differ in percentage of phonological errors produced (p=.70), paragrammatisms (p=.216), or the amount of omitted functors (p=.181) or content words (p=.179); but did differ in the measure of syntactic completeness (p=.038) and the amount of semantic paraphasias produced (p=.002).

The results of macroanalysis of the narratives were summarized in Table VII.3:11:

Experimental (bilingual) group. Narrative skills	**In Russian**	**In Italian**
Errors in cohesion	36.95 (17.69)	27.79 (18.66)
Errors in local coherence	61.57 (31.31)	48.52 (26.96)
Errors in global coherence	13.81 (15.61)	15.94 (11.74)
Filler utterances	7.65 (11.90)	5.80 (7.05)
Repetition of utterances	6.16 (8.41)	7.20 (8.40)
Semantically incorrect formulations*	.00 (.00)	2.94 (5.68)

Table VII.3:11 Mean (standard deviations) of the performance of the bilingual participants on the narrative task in Italian and in Russian (macroanalysis). Asterisks (*) show when the language-related differences were significant

The narratives produced by bilingual children in the two languages did not differ either on the amount of produced errors in cohesion (p=.133), errors in local or global coherence (p=.086; p=.611 respectively) or in the amount of repetitive and filler utterances (p=.689; p=.597 respectively). However, a significant difference was found between the narratives produced in Russian and in Italian in terms of semantically incorrect formulations (p=.042).

The key characteristics of the narratives produced by the bilingual subjects in Italian were compared to normative data reported for monolingual Italian-speaking children. The **mean length of utterance** produced by monolingual Italian speakers from 4.06 to 7 years of

age was between 4.5 and 5 words. For the 4.06-year-olds the normal range is between 3 and 6.5 words (which corresponds to -1.5 SD to + 1.5 SD). For 7-year-olds the normal range is between 3.5 and 7 words. The mean length of utterance produced by the bilingual participants in Italian was 3.48 (1.28). The **mean for number of produced words** for 4.06-year-olds is normally less than 50 (range: from approximately 15 up to 87.5), and for 7-year-olds is around 70 words (range: from approximately 30 up to 145). The mean number of words produced by the children from our experimental group was 42.39 (SD: 20.97). Finally, **the mean number of words** produced by monolingual 4.06-year-old Italian-speaking children in 1 minute is normally around 70 words (range: from approximately 35 up to 110 words). For 7-year-olds the normal range would be from 60 to 130, with a mean of 95. The mean number of words produced by the participants from the bilingual group was 66.84 (SD - 23.00).

As for the mean indexes relevant for microanalysis of the produced narratives, the bilingual children produced 3.55% (SD: 3.82) of **phonological errors.** Their 4.06–7-year-old monolingual peers speaking Italian normally produced less than 2% of errors of this type in their narrative speech. The upper limit of the norm for 4.06-year-olds is 10% (+1.5 SD). Similarly, monolingual Italian-speaking children do not produce any **semantic paraphasias** in their narrative speech. For 4.06-year-olds the upper limit of the norm is less than 4% (+1.5 SD). The bilingual participants in our experiment produced 1.66% (SD:- 2.73) of semantic paraphasias in their speech. For percentage of **paragrammatisms,** normative data indicate that the mean is 0% and the upper limit of the norm for 4.06-year-olds is slightly higher than 5%. The bilingual children speaking Italian produced a mean of 5% of paragrammatisms in their narratives. Finally, the number of **syntactically complete utterances** produced by monolingual 4.06-year-old Italian-speaking children is normally around 52 (range: from 15 up to approximately 90 utterances). For 7-year-olds the normal range would be from 35 to approximately 90, with a mean of 65. The mean number of syntactically complete utterances produced by the participants from the bilingual group was 49.06 (SD: 23.00).

Finally, at the level of macroanalysis, 3 indexes were compared to the normative data reported for monolingual Italian-speaking children. The mean percentage of **errors in cohesion** produced by Italian-speaking 4.06–7-year-old monolingual children with TLD is around 22–25% (up to 45%, which corresponds to +1.5 SD). The bilingual children participating in the current study produced a mean of 27.79% (SD: 18.66) of errors in cohesion. The mean percentage of **errors in local coherence** produced by Italian-speaking 4.06-year-old monolingual children is around 25% (up to approximately 70%, which corresponds to +1.5

SD). Seven-year-olds might produce approximately 10 to 35 percent of errors of this type. The children from the bilingual group produced 48.52% of errors of this type (SD: 26.96). As for **errors in global coherence,** they produced 15.94% (SD: 11.74) of errors of this type, whereas their monolingual 4.06-year-old peers normally produce from around 11% up to 32% of such errors. The normal range for 7-year-olds, on the other hand, is from 6% to approximately 25%.

VII. 4. Discussion

Usually, children simultaneously acquiring more than one language have limited exposure to each of their languages as compared to their monolingual peers; thus it is somewhat expected that they demonstrate different language acquisition trajectories. However, even though their language acquisition pattern deviates from a typical one, it does not necessarily lead to or cause language impairment (Paradis, Crago, Genesee, & Rice, 2003; Thordardottir, 2005; Owens, 2013 for a discussion). The bilingual, Italian-Russian-speaking participants in the study are children with cultural and linguistic differences (CLD; Roseberry-McKibbin, 1995) and limited Russian proficiency. The comparison of their performance and that of a group of monolingual Russian-speaking children on a series of linguistic tasks in the Russian language revealed significant differences in both the production and comprehension skills of the participants. Indeed, the **lexical skills** of the participants in the bilingual group, as measured via semantic fluency, naming, and lexical comprehension, appeared to be rather limited compared to those of their monolingual peers (p= <.001, p= <.001, p=051 for younger children and p= <.001 for older children, respectively). These results are in line with the existing research. Klassert (2011) analyzed the performance of a cohort of German–Russian-speaking sequential bilinguals aged 4 to 6 on a picture naming task. The study showed that the lexical skills of bilinguals were lower when compared to those of their monolingual peers. The difference in language proficiency between the two languages increases with age. The author highlights that the effect of the languages' status might be a crucial factor affecting dual-language acquisition in children. In the current study, we hypothesized that the poor performance of bilingual participants on the naming task might be related to the frequency rate of the stimuli included in the task. Indeed, when the performance of both groups was analyzed separately, considering the frequency of the stimuli, there was no more statistically significant difference between the performance of the two groups on highly frequent stimuli (p=.089). However, they still differed on the naming of medium (p=.005) and low (p= <.001) frequency

stimuli. Therefore, the worse performance of bilingual children on the second part of the lexical comprehension task, including many more words of low frequency, might be also explained by the specificity of the content of their vocabulary, limited to highly frequent words in Russian. Other research methods might be used in order to investigate the nature of this tendency of bilingual children on the lexical comprehension task (e.g. McMurray, Samelson, Lee, & Tomblin, 2010).

Qualitative inspection of the incorrect responses given by children from the two groups on the naming task suggests that some other reasons why the responses of bilingual children were assigned 0 scores might be the fact that they sometimes used onomatopoeia to label the stimuli, and actively paraphrased the target words, substituting them with words with a wider / more narrow meaning or with those belonging to the same semantic category. The results of narrative speech analysis support this evidence. Indeed, bilingual children much more often used semantic and verbal paraphasias in order to describe a story in Russian. Interestingly, bilingual children performed differently across the two languages on the naming task ($p = <.001$). They produced approximately 1/3 more correct responses in Italian. This, in turn, might suggest that their vocabularies in Italian include more items of various frequencies. The results of our study are similar to the observations made by Kornev (2006a). The author described limited lexicon in language-impaired Russian-speaking children as follows: "Lexical deficit most affects low-frequency words, words denoting abstract categories and objects' attributes" (2006a, p.160). Thus, it might be hypothesized that in bilingual children speaking Russian, the characteristics of the content of vocabulary are similar to those in monolingual language-impaired children; however, the reasons underlying this phenomenon are different. Even though such results are in line with the previous research demonstrating that bilinguals do perform worse than monolinguals in semantic fluency (e.g. Portocarrero et al., 2007) and have smaller vocabularies (Namazi & Thordardottir, 2010; Bialystok et al., 2010; Carlson & Meltzoff, 2008; Anstatt, 2006; Thordardottir et al., 2006; Michael & Gollan, 2005; Gollan et al., 2002; Rosselli et al., 2000), it cannot be concluded that bilingual children have an overall smaller volume of vocabulary unless both of their languages are considered. In the semantic fluency task, when the total number of unique lemmas produced by bilingual participants in both of their languages was compared with and those produced by monolinguals in Russian, the difference between the groups disappeared in both semantic categories. Moreover, within-group comparison of the performance of bilingual children on the semantic fluency task separately in Italian and in Russian suggest that they performed equally well in both languages.

Considering the categories (i.e. animals and things at home), it is rather expected that children performed almost the same in Italian and Russian, as words belonging to the given categories are usually acquired early (Voejkova, 2011, pp.108-112).

The lexical skills of the participants from the experimental group might be described in terms of distributed characteristics of bilingual knowledge. The hypothesis was proposed by Oller and Eilers (2002; see also Bedore et.al, 2005). According to the authors, not all lexical items are acquired in pairs in the mental lexicon ('dog' and 'perro' in English and Spanish). Acquisition of some lexical items might occur in only one of the two languages, depending on the context in which these items are used in everyday life. So, a child might know the labels for some objects in both languages, since they were acquired at home (bilingual environment), but for other things only in one of his/her languages, since they were acquired in monolingual settings (e.g. at Italian school). Thus, it is rather expected that their vocabulary might be richer in the dominant language (Italian) as the exposure to it rapidly grows when children enter the school.

Furthermore, the analysis revealed no differences either between the two groups on their performance in the phonological discrimination task in Russia, or within the bilingual group on either of their languages. Children from the bilingual group showed slightly lower results in articulation in Russian ($p=.065$) compared to their monolingual peers, and did articulate better in Italian ($p=.001$). This is reflected in the presence of a slight accent in some of the children from the bilingual group when speaking Russian. Overall, this might suggest that the **phonological skills** of our bilingual participants are well developed. The phonemic repertoires of both languages are well acquired. However, even though bilingual children do discriminate phonemes from the Russian language repertoire well, they experience difficulties when articulating them in low and medium frequency unfamiliar words. Moreover, inspection of the incorrect responses given in the naming task suggests that bilingual children do produce much more phonetically distorted words (incomplete words, words with substitutions, omissions). The results of narrative analysis indicate a similar pattern. Bilingual children produced more phonological paraphasias and invented new words (neologisms) to describe a story. This suggests that the difficulties in articulation demonstrated by bilingual children cannot be fully explained by the difficulties in pronouncing single phonemes (e.g. /r/ or /l/) typical for children of their age, but that other sources of such complications might also be considered.

Finally, the two groups significantly differed in their **grammatical skills** as measured via the grammatical comprehension task in Russian (p=.004). Bilingual children received lower scores than their monolingual peers. The sentences they found especially difficult appeared to be those containing negations (items 13, 19, 34, 38, 39, and 40), sentences in the passive voice (items 13, 21, 28, 38, and 40), and reversible sentences (items 21, 23, and 28). Interestingly, performing the task in Italian, bilingual children also experienced difficulties with sentences containing negations (items 13, 36, 39, and 40). Only half of the children correctly identified the target in item 13 in Italian – a negative sentence in the passive voice. Thus, negative sentences, reversible sentences and those in the passive voice appear to be the most difficult types to acquire across languages. The acquisition of negation has scarcely been investigated in bilingual children acquiring Russian (Ringblom, 2013a; 2013b). Bilingual children performed better on grammatical comprehension in Italian (p=.033). Finally, the participants from the bilingual group produced more paragrammatisms (both in functors and non-functors) in their narratives in Russian.

As for the **narrative skills** of our participants, the stories produced by mono- and bilingual children were analyzed both on micro- and macro-levels. When producing narratives in Russian, bilingual children tended to omit content words approximately 1.5 times more often than monolingual children did. Also, bilinguals omitted functors more often. However, their MLU in words was similar. Bilingual children produced more lexical fillers and filler utterances.

The cross-linguistic influence and its effects (Goldstein, 2015) are manifested in the narratives produced by the participants from the experimental group. The analysis of the narratives produced in Italian indicates that the bilingual children tend to omit articles. On the other hand, the influence of the dominant language is clearly seen in their stories produced in Russian, as they contain the cases of intra-utterance **code-mixing,** inter-utterance code-mixing and calques. Several hypotheses have been proposed explaining why children mix languages. According to the gap-filling hypothesis, children might insert words from one language into an utterance produced in another language simply because they do not know/remember a target word in that language (Ringblom, 2013a; Genesee, Paradis, & Wolf, 1995; Nicoladis & Secco, 2000). Thus, they temporarily fill the gap in the utterance. An alternative ('pragmatic') explanation might be that children intentionally insert elements from another language in order to emphasize what was said. Finally, how frequently children code-mix might also depend on social norms regarding this phenomenon (Paradis, Genesee, & Crago, 2011). In some communities code-mixing is a relatively acceptable everyday practice, while others try to avoid it. It also reflects the child's cultural identity and linguistic uniqueness. In any case, it should

not be considered a sign of impaired language development in bilingual children (Pert & Letts, 2006; Iluz-Cohen & Walters, 2012). Code-mixing, along with MLU, number of pauses, richness of morphosyntactic structures, variance of word types and overall vocabulary volume, were proposed by Paradis, Genesee, and Crago to serve as indicators of the dominant language (2011, p.70). The results of the current study imply that, for the majority of the bilingual children, Italian is a dominant language. In Russian, on the other hand, their proficiency is limited to some extent. Kohnert (2013) described the differences between "basic interpersonal communication skills" (BICS) and "cognitive academic language proficiency" (CALP). L2 learners developing their skills in a new language move from BICS to CALP. Bilinguals with limited L2 proficiency typically use highly frequent words in their everyday life when talking about familiar topics (see also Pavlenko & Malt, 2011) and might have difficulties producing grammatically correct complex sentences and sustaining a conversation on academic themes. Considering the assessment results demonstrated by the group of bilingual participants, it might be assumed that their proficiency in Russian is rather limited, which corresponds to BICS in Kohnert's terms. During the assessment bilingual children used highly frequent words and produced twice as many diminutives as their monolingual peers (ratio 26:13). They hardly ever used slang words (ratio 1/10). Furthermore, the amount of paragrammatisms was also higher among bilinguals (7/2). Finally, the narratives produced by the bilingual participants in Russian contain more errors in cohesion and in local coherence.

The analysis of the narratives produced by bilingual children in Russian and in Italian showed that there are a few measures which significantly differed between the stories in the two languages. Namely, bilingual children produced more words per minute in Italian than in Russian ($p = <.001$). The amount of semantic paraphasias was significantly higher in the stories produced in Russian ($p=.002$). Finally, semantically incorrect formulations only appeared in Italian but not in Russian ($p=.042$). The first might reflect higher processing demands for the Russian language. The presence of semantic paraphasias in the narratives produced in Russian support our hypothesis of overall lowered lexical skills of the bilinguals. As for semantically incorrect formulations, it might be hypothesised that when producing stories in a weaker language, children might be more focused on the grammatical correctness of their speech rather than on its content. On the other hand, when producing stories in a dominant language, children might fantasize more.

When the key characteristics of the narratives produced by the bilinguals in Italian were compared to the normative data reported for monolingual Italian-speaking children, it became

clear that the performance of our participants is similar to that of their monolingual peers. Indeed, as for the productivity aspect, monolingual children of the same age normally produce 3–7-word-long utterances. The MLU produced by the bilingual participants in Italian was 3.48 (SD:- 1.28). Thus, as a group, our participants performed close to the lower limit of the norm but still within the normal range for their age. The standard deviation indicates that at least some of the participants performed lower than expected at their age. This evidence requires further investigation. As for the number of produced words, the children from the experimental group performed close to the mean reported for 4.06-year-old children. The SD indicates that some of them performed better and others worse, but still close to the lower limit of the norm. As for the phonological errors and semantic paraphasias produced by our bilingual participants, their amount is slightly above the mean reported for monolingual children. The mean number of syntactically complete utterances produced by the children from the experimental group is 49.06. (SD: 23.00), which is close to the mean reported for 4.06-year-old monolingual children and within the normal range for children up to 7 years. Moreover, the percentage of paragrammatisms is slightly below the upper limit of the norm for 4.06-year-olds. Finally, the bilingual children performed within the age normatives on the amount of errors in cohesion and global coherence. The mean percentage of errors in local coherence produced by bilingual children (mean: 48.52%; SD:- 26.96) lies within the normal range for younger children; however, in some cases, it might be much higher than expected for 7-year-olds speaking Italian. This aspect of narrative speech production in bilinguals also deserves further investigation.

The performance demonstrated by the bilingual participants in Italian on the rest of the tasks was also compared to the normative data. Their overall results did not differ from those of their monolingual peers, as their performance on five out of six measures was close to the mean, and only in articulation was 1.5 SD below the mean, and still within the normal range. The analysis of the narratives produced by the bilingual children and their performance on a series of linguistic tasks in Italian permitted the key indexes of their overall language skills to be compared with those reported for monolingual children of the same age, and, thus, allowed a number of vulnerable areas to be outlined in the course of the development of their dominant language. Due to the absence of normative data for the Russian language, only preliminary conclusions could be drawn concerning the correspondence of the demonstrated results to the normal range. As the children demonstrated age-appropriate proficiency in at least one of their languages, the possibility of language impairment was rejected (Ramos, 2007). The within-group comparisons suggest that the lower results demonstrated by the bilinguals in Russian

might reflect their limited proficiency in this language. The phenomenon of incomplete acquisition (Montrul, 2008a; 2008b; Polinsky, 2006; Perotto & Niznik, 2014; Perotto, 2015) of Russian, due to insufficient exposure, and the absence of schooling in Russian in societies where a language other than Russian is the majority language, has not yet been sufficiently explored. This is partially because of the lack of reliable tools for speech and language assessment.

In sum, this study demonstrated that the BVL_RU might be a useful tool in cross-cultural and cross-linguistic research. The BVL_RU revealed the differences between Russian language acquisition in monolingual and bilingual children, and provided further evidence of the particular characteristics of the vocabulary and overall acquisition trajectory in heritage speakers of Russian. The current study enriched existing literature devoted to the investigation of the structure of the mental lexicon of the bilingual children (e.g. Jarovinskij, 1997; Klassert, Gagarina & Kauschke, 2014; Pavlenko & Malt, 2011) with the new evidence from Russian heritage speakers. The application of the BVL_4-12 (Italian version of the Battery) also permitted the evaluation of the development of Italian language in bilingual children living in Italy compared with that of their monolingual peers.

Chapter VIII. General discussion

A primary aim of the current research project was to create an instrument suitable for speech and language assessment in Russian-speaking monolingual and bi-/multilingual children from 4 to 12 years of age. The project is driven both by the internal tendencies in Russian CLR and clinical practice, as well as by the external trends in modern society.

The analysis of the research literature showed that despite huge interpersonal variability, monolingual children with TLD speaking different languages demonstrate similar milestones in language acquisition and development. This is also true for dual-language learners. Even though the context of their language acquisition and outcomes differs a lot from that of their monolingual peers, the hypothesis of a cause-effect relationship between bilingualism and LI is not supported by current research findings (see discussion in Chapter I). It was shown that difficulties in language production and processing manifest themselves in all the languages a person knows. Modern interdisciplinary studies deepen our understanding of LI both in mono- and bilingual populations. Previously, investigations of clinical markers of LI were focused mostly on individual languages. Nowadays, active international collaboration permits the reevaluation of accumulated knowledge on the procedures of speech and language assessment as well as terminology used to identify language disorders in children speaking different languages across the world. Considering the global tendencies in modern societies, the assessment of children speaking more than one language becomes the norm rather than an exception. A multilingual society requires, among others, new multilingual tools in the area of child language research permitting cross-linguistic and cross-cultural assessment. The analysis of the existing instruments available for speech and language assessment of mono- and bilingual children speaking Russian indicates a gap in standardized norm-referenced tools allowing for comparison of the assessment results across particular language combinations (see chapter II for a discussion). One of the possible ways to fill this gap is to contribute to the creation of a part of an existing multilingual instrument suitable for cross-linguistic and cross-cultural assessment, such as “Batteria per la Valutazione del Linguaggio in bambini dai 4 ai 12 anni” (Marini et al., 2015). The BVL_4-12 was shown to be a useful tool in studies with a bilingual population (see Chapter IV of the present thesis; Menghin, 2016). Administration of the original version of the Battery and a series of cognitive pre-tests in a group of Italian–English sequential bilinguals permitted some conclusions to be drawn with regard to their

native language development and the effects of early second language exposure on working memory functioning.

The BVL_4-12 was originally developed for speech and language assessment in Italian-speaking children. It is a norm-referenced standardized battery with proven validity characteristics. The BVL_4-12 consists of tasks assessing oral production, comprehension and repetition across a number of linguistic skills (see Chapter III for a discussion). It is currently under adaptation into several languages, including Spanish, Slovenian and French. Chapter V presents the Russian version of the BVL_4-12 and describes the transadaptation procedures in detail. The process of adaptation needs to meet international standards and follow the recommendations established for test adaptation procedures. The BVL_RU is created in accordance with standards for test adaptation proposed by the International Test Commission (International Test Commission, 2005). The document distinguishes two main contexts of application: adaptation of the existing instruments into other languages and developing a new tool for international use (International Test Commission, 2005, p.5). In the case of adaptation of the BVL_4-12 into Russian, the work was done within the first context. Following the ITC's recommendation D.1, it was ensured that the process of creation of the Russian version of the Battery considered the linguistic and cultural differences between the two target groups of children (Russian versus Italian speaking). A series of pilot experiments with Russian-speaking children confirmed that the adapted version of the Battery satisfies recommendation D.2 (i.e. appropriate language used in instructions and items). They also provided the first evidence for the validity of the adapted version of the Battery in the target population (as required by recommendation D.8). In order to follow recommendation A.1 (i.e. anticipating problems), special memos on the administration of the Russian version of the Battery were included in the manual. Particular aspects of the environment (e.g. proper place) that can influence administration (see recommendation A.3) were also described in the Russian version of the manual. The manual itself was created considering recommendation A.5 (i.e. specify all aspects of administration). All task instructions were translated precisely, so to minimize unwanted variations (see recommendation A.4). During the process of data collection, it was required to minimize tester-child interactions and follow the rules described in the manual as suggested by recommendation A.6. The dissertation provides a list of changes performed during the process of adaptation, as suggested by recommendation I.1.

More research is required to provide an evidence on the equivalence of the Russian and Italian versions of the Battery in order to satisfy recommendations D.5–D.7, D.9, and I.4 (i.e. the effect of socio-cultural and ecological context on the performance) of the ITC (2005).

Borsa and colleagues (2012) recently proposed using a 7-step procedure for transadaptation of existing tests into other languages. The procedure includes the following steps: 1) translation of the original version of the tool into target language. All the instructions and items from the BVL_4-12 were first literally translated into Russian and then adapted to the new cultural context by a translator fluent in the source language and with a native speaker level of proficiency in the target language, and with a thorough understanding of the measured construct (the author of the dissertation); 2) The second stage of the adaptation process requires the translations to be verified by an external expert. The translation of the BVL_4-12 was checked by an external bilingual and bicultural expert in order to assure semantic, idiomatic, experiential and conceptual equivalence between the original and translated versions of the instrument. The suggested improvements for the translation were implemented; 3) An adapted version of the tool then has to be evaluated by a group of experts from the proper area of research. A committee of experts in the Russian language evaluated both the content and the instructions of the BVL_RU and established their adequacy and clarity. Moreover, the same was evaluated by the target population, including evaluators of different ages and various regions of residence in Russia.

Goral and Conner emphasize "If stimulus characteristics, such as frequency, length, and presence of foils (e.g. phonologically similar words), play a role in the structure of the test, these need to be adapted to the target language amid cross-language differences" (Goral & Conner, 2013, p.2). Thus, particular attention was dedicated to creation of Russian stimuli fully corresponding to the characteristics of those used in the original version of the battery (i.e. their quantity, and qualitative characteristics, such as frequency rate, parts of speech, semantic categories, number of syllables and sounds etc.), so the instrument is suitable for cross-cultural and cross-linguistic studies. Overall, 15 tasks originally included in the BVL_4-12 were adapted into Russian. All tasks received Russian titles adequately representing the aim of the task: some were literally translated from Italian, and others were adapted according to Russian logopedic tradition. The original selection criteria were strictly followed during stimuli creation for the BVL_RU. The **naming and articulation** task was adapted so as to present a full repertoire of Russian phonemes. The stimuli in both the **naming and articulation** and **naming** tasks were controlled for their frequency of use in the Russian language. The structure of all

the tasks, the number of stimuli, their parts of speech and semantic characteristics have been preserved. The main principles of **multilevel evaluation of narrative** have been explained using Russian examples. All terms used in the analysis have been translated. A grid of narrative analysis results was developed for speech samples in the Russian language. As for the **lexical comprehension** tasks, the distribution of stimuli according to their frequency of use and parts of speech has also been preserved in the BVL_RU. Distractors were created so as to replicate the original organization of the task (one semantic, one phonological, and one unrelated distractor). The original content was used both as target stimuli and distractors. Various types of stimuli from the original version of the **grammatical comprehension** task were replicated in the adapted version. Types of stimuli representing grammatical categories missing in the Italian language but essential for Russian (e.g. aspect) were added into the task. On the other hand, the grammatical phenomena typical for Italian but absent in Russian (e.g. article-noun agreement) were substituted (see the **grammatical judgments** task and **sentence completion**). The content of the **comprehension of idiomatic expressions** task was fully modified. A list of variables potentially affecting performance on this task was considered, namely: frequency, decomposability and syntactic analysability of each idiom. A pilot study permitted three explanations (options) to be formulated for each target stimulus. Audio stimuli for **linguistic prosody comprehension** were created considering three types of intonational contours typical for the Russian language. The same adapted stimuli were used for the **comprehension of emotive prosody** task. For the tasks aiming to assess repetition skills in children (namely, **word repetition, nonword repetition** and **sentence repetition**), characteristics of the stimuli were preserved, namely, the number of syllables and phonemes. A comprehensive pilot study conducted for the nonword repetition task permitted only sequences which are highly plausible in the Russian language to be selected and included in the adapted version of the task. All sentence types (except for cleft) presented in the original version of the **sentence repetition** task and typical for Italian syntax are also included in the Russian version of the task;

4) The back-translation is the fifth step of the process. The practice of back-translation typically used in the adaptation of questionnaires/surveys (e.g. Lin, Chen, Chen, & Portwood, 2001; Mikhail & Petro-Nustas, 2001; Sireci, Yang, Harter, & Ehrlich, 2006; Sperber, 2004) was not used in the adaptation of the BVL_4-12 into Russian as it has its own disadvantages. According to Van de Vijver and Leung: “a translation back procedure pays more attention to the semantics and less to connotations, naturalness, and comprehensibility” (1997; p.39), which was absolutely inappropriate considering the target population. Instead, particular attention was

dedicated, on one hand, to the maintenance of the semantic, idiomatic, experiential and conceptual equivalence of the instructions, and, on the other hand, to the creation of Russian stimuli fully corresponding to the characteristics of those used in the original version of the task. To strengthen the selected approach, rigorous evaluation of the translation quality and appropriateness to a new cultural context was performed by an independent professional bilingual translator, a group of adult experts systematically working with children and a group of children from the target population (Maneesriwongul and Dixon, 2004).

The transadaptation trajectory implemented during the adaptation of the BVL_4-12 into Russian does not directly correspond to any one of the six types described by Maneesriwongul and Dixon (2004), as back-translation was substituted with other quality and equivalence checking procedures. However, as the tool is also intended to be used in bilingual populations, both 'monolingual and bilingual tests' were conducted (Maneesriwongul and Dixon, 2004; p.178). Also, Borsa and colleagues (2012) propose to conduct one or a series of pilot studies with a small sample recruited from the target population in order to estimate the appropriateness of the new instrument. In order to test the capacity of the BVL_RU to distinguish between two groups of pre-school age children speaking Russian, known to differ in their native language development trajectories, the contrasting groups method of **construct validation** was used. A full set of tasks from the battery was administered to the participants. The results of the assessment not only confirmed the presence of mild language impairment in the children from the experimental group but also permitted the **levels of gravity** of the impairment to be identified in two individual cases. The conduction of these experiments and detailed investigation of the collected data, permitted us to draw preliminary conclusions about the construct validity of the BVL_RU (see chapter VI for a discussion).

Finally, Borsa and colleagues (2012) proposed various validity checks as concluding steps. Even though there is no consistency among studies with regard to the exact procedures for estimating the validity of the adapted version of the instrument, the authors suggest two main areas of interest: 1) the functioning of the instrument in a new cultural and linguistic context; 2) its functioning in cross-cultural studies. One of the methods suitable for construct equivalence estimation might be differential item functioning (DIF), proposed by Item Response Theory (IRT). However, the studies which applied the DIF method usually report the results of analysis based on big samples (e.g. Sireci, Yang, Harter, & Ehrlich, 2006, based their analysis on the results of 30,000 participants in an English-speaking group, 531 and 510 in Italian-speaking groups, and 2,465 and 1,739 in Polish-speaking groups). Ideally, each

instrument intended to be used in a new cultural / cross-cultural context might undergo all the steps of transadaptation described above. Some researchers also consider it necessary to conduct an additional series of a small-scale studies using focus groups to resolve potential translation bias (Miller & Chandler, 2002), and others highlight the importance of creating a detailed user manual for the new language version of the instrument (Hambleton et al., 2004). In any case, since no consensus on the exact procedure has been reached in the dedicated literature, each adaptation project might vary in its selected adaptation trajectory. Since the data available for the investigation did not permit deep DIF analysis to be conducted due to the limited sample size, other methods of checking validity and reliability were used. In order to resolve concerns about the consistency of the measures over time, **test-retest reliability** was checked (see section VI.2). Overall, in six tasks (i.e. articulation, naming, sentence completion, phonological discrimination, lexical comprehension, and repetition of sentences) out of the total set of 14 tasks, the responses of the participants from both groups during the retest procedure were consistent with those from the first assessment. Furthermore, children from the experimental group replicated their results in three more tasks (i.e. grammatical comprehension, grammatical judgments, and repetition of nonwords). The inconsistency in the retest results demonstrated by the children from the control group on these tasks is explained by the carryover effect. Finally, both groups differed in their responses between the test and retest procedures in comprehension of linguistic prosody, comprehension of emotive prosody, and repetition of words; and the semantic fluency task. Such results demonstrated in the latter task are discussed in terms of limited lexical diversity. The fluctuation in scores in comprehension of linguistic prosody was rather expected considering the age of the participants and the difficulty of the task. On the other hand, in comprehension of emotive prosody, which is much easier for young children, the majority of them fully replicated their results and only one participant appeared to be an outlier, as he doubled his scores. On one of the simplest tasks, repetition of words, during the second assessment most of the participants from both groups demonstrated a strong learning effect.

Moreover, the **internal consistency** of 16 subscales of the BVL_RU was explored. The database used for reliability investigation included observations on the performance of a group of monolingual Russian-speaking children with both typical and impaired language development, and a group of Russian–Italian bilinguals, from 4.06 to 10.10 years old (see section V.5). The reliability of each subscale of the BVL_RU was analyzed using Cronbach's alpha and Guttman's Lambda 2. Overall, 13 subscales demonstrated an acceptable level of

reliability (i.e. articulation – α=.969; naming for children from 4 to 6.11 – α=.940; naming for older children – α=.843; lexical comprehension – α =.913; phonological discrimination – α=.816; grammatical comprehension – α=.803; comprehension of idiomatic expressions – α=.831; nonword repetition – α=.814; sentence repetition for children from 4 to 7 – α=.737; sentence repetition for older children – α=.884; sentence completion – α=.757; emotive prosody comprehension – λ=.735; lexical comprehension for children from 4 to 5.11 years old – λ =.703). The reliability of the other three subscales (i.e. grammatical judgments, linguistic prosody comprehension, and word repetition) requires further investigation.

Finally, the first cross-cultural and cross-linguistic study with the application of both the Italian and Russian versions of the BVL_4-12 was done with a sample of **Italian–Russian simultaneous bilinguals aged from 4 to 7.** The phonological, lexical and grammatical skills and narrative abilities of the participants who inherited Russian from their parents were described in detail in chapter VII. Overall, children from the experimental group, regardless of their limited exposure to each of their languages, performed within the normal range in Italian. On the other hand, their results on the tasks aiming to assess their linguistic skills in Russian were lower than those of their monolingual peers. However, due to the absence of normative data for the Russian language, only preliminary conclusions were drawn concerning the correspondence of the demonstrated results to the normal range.

Before the BVL_RU is accepted as a reliable tool for language assessment in monolingual and bilingual Russian-speaking children, a thorough investigation of its **sensitivity** and **specificity** is needed. Future studies might also further explore its constructive validity, applying the method of **convergent and discriminant validation** using the data collected from larger cohorts of participants. Finally, in order for the BVL_RU to become a useful research instrument for cross-cultural and cross-linguistic studies, it should first become a **norm-referenced** battery.

Chapter IX. Conclusions

The creation of a unique tool that might be useful when assessing speech and language not only in Russian-speaking monolingual children, but also in those for whom Russian is their non-dominant language, is a necessity determined by the state of modern child language research. Criterion-referenced probing is necessary to complete the picture of speech and language assessment; however, they are not as efficient as standardized tests when identification of general areas of deficit is needed. The BVL_RU is a result of our attempts toward the creation of a standardized battery for the assessment of Russian speaking children. This dissertation contributes to the development of a norm-referenced instrument, which is currently missing in Russian CLR and clinical practice. The series of pilot studies that were done applying both Italian and Russian versions of the BVL_4-12 during the work on this dissertation, demonstrated the areas in which the tool can be useful: these are clinical and research settings, both monolingual and bilingual. The BVL_RU added the evidence of the adaptability of the tasks from the original version of the Battery into other languages and their appropriateness in CLR including cross-linguistic studies. The application of the Battery on the target populations permitted to outline the main characteristics of Russian language development in children with non-typical language acquisition trajectories. The resuls of these studies might further contribute to the creation of a unified list of clinical markers of LI in Russian speaking children.

In this dissertation, we attempted to estimate the construct validity of the BVL_RU using the contrasting groups method. Future studies might further explore its construct validity by applying the **method of convergent and discriminant validation** (Campbell & Fiske, 1959) using data collected from a larger cohort of participants. The convergent validity of the separate subscales (e.g. word repetition or NWR) might be estimated in a group of 7-year-olds using the large amount of normative data collected during The International Performance Indicators in Primary Schools (iPIPS assessment) standardization in Russia. For a discriminant validity check, on the other hand, the performance of children on the mathematical problems subscale of iPIPS might be compared to one of the subscales of the BVL_RU.

Criterion-related validation was not performed as it requires the use of other scales with reported high validity indexes which aim to assess the same constructs (McCauley, 2001, p.61). To the best of our knowledge there are no such tools available for the Russian language.

Before the BVL_RU is accepted as a reliable tool for language assessment in Russian-speaking children, further thorough investigation of its **sensitivity** and **specificity** is needed. This, in turn, requires assessment of a large cohort of children with established diagnoses and matched controls. Plante & Vance (1994) suggest that ideally these measures should reach approximately 90% of correctly identified true positives and true negatives in order for the test to be accepted as "good".

Current research underlines the need for standardized tests, which would also provide a tester with normative data for the bi-/multilingual population (Goral & Conner, 2013; Bedore & Peña, 2008). Thus, also, the results of the assessment of simultaneous bilingual children with and without language impairments must be present in the normative data, as it would provide an opportunity to use them also for references when assessing the bilingual population speaking Russian. A series of studies described in this dissertation outline the unique characteristics of speech and language development of the target populations. Application of the BVL permits to reveal, analyze and to compare these markers collected from the speakers of different languages (e.g. Italian and Russian) in a standardized way.

With regard to the theoretical implications of this dissertation, it contributes to our better understanding of Russian language acquisition both in monolinguals and bilingual children with typical and atypical language development. The studies reported in this dissertation describe the differences in Russian language acquisition trajectories in targeted populations via the analysis of their performance on a series of linguistic tasks from the BVL.

It is rather difficult to draw clinical suggestions based only on the pilot studies that were done for the current dissertation. The experimental groups with larger number of the participants are necessary for the conclusions valuable for clinical practice.

As for further improvement of the content of the BVL_RU, the inclusion of other markers of PLI in Russian – such as, for instance, degree adjectives, recently proposed by Tribushinina and Dubinkina (2012) – might be also considered.

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Appendix

Table V.1 Task list of the BVL_4-12. The correspondence of the names of tests in Italian, English and Russian

№	Original names of the tests	English versions	Названия тестов на русском
1	Denominazione e Articolazione	Naming and articulation (4-6.11)	Номинация и артикуляция (4-6.11)
2	Denominazione	Naming (7-12)	Номинация (7-12)
3	Fluenza semantica	Semantic fluency	Семантические категории
4	Fluenza fonologica	Phonological fluency	Фонологическая беглость
5	Completamento di frasi	Sentence completion	Завершение предложений
6	Valutazione multilivello dell'eloquio narrativo	Narrative discourse production	Многоуровневый анализ связности речи
7	Discriminazione fonologica	Phonological discrimination	Фонетический слух
8	Comprensione lessicale in eta prescolare	Lexical comprehension in preschoolers	Проверка устной дифференциации у дошкольников (4-5.11)
9	Comprensione lessicale in eta scolare	Lexical comprehension in school children	Проверка устной дифференциации у школьников (6-12)
10	Comprensione grammaticale	Grammatical comprehension	Понимание синтаксических структур речи

11	Giudizio grammaticale	Grammatical judgment	Грамматические суждения
12	Comprensione di espressioni idiomatiche	Comprehension of idiomatic expressions	Понимание идиом
13	Comprensione della prosodia linguistica	Comprehension of linguistic prosody	Понимание лингвистической просодии
14	Comprensione della prosodia emotiva	Comprehension of emotive prosody	Понимание эмотивной просодии
15	Ripetizione di parole	Words repetition	Повторение слов
16	Ripetizione di non parole	Nonwords repetition	Повторение псевдослов
17	Ripetizione di frasi (4-6.11 y.o.)	Sentence repetition (4-6.11 y.o.)	Повторение предложений дошкольниками (4-6.11)
18	Ripetizione di frasi (7-12 y.o.)	Sentence repetition (7-12 y.o.)	Повторение предложений школьниками (7-12)

Attachment II.2.1:1 Language assessment in Russian (extracted from Nishheva, 2009)

Исследование состояния импрессивной речи

1. Пассивный словарь

Понимание существительных (показать на картинках по просьбе логопеда отдельные предметы, объекты, части предметов и объектов):

4 года_____

5 лет_____

6 лет_____

Умение обобщать (показать по просьбе логопеда несколько предметов или объектов, относящихся к одному понятию):

4 года (игрушки, одежда, обувь, посуда) _____

5 лет (игрушки, одежда, обувь, посуда, мебель, овощи, фрукты, птицы)_____

6 лет (игрушки, одежда, обувь, посуда, мебель, овощи, фрукты, домашние птицы, дикие птицы, домашние животные, дикие звери, транспорт)_____

Понимание действий (показать по предложенным картинкам):

4 года (девочка сидит, стоит, лежит, идет; мальчик ест, пьет, читает, рисует)_____

5 лет (птица летит, рыба плывет, слон идет, лягушка прыгает, змея ползет)_____

6 лет (строитель строит, уборщица убирает, продавец продает, покупатель покупает)

Понимание признаков (показать по предложенным картинкам):

4 года (большая чашка, маленькая чашка; красный шар, синий шар, желтый шар, зеленый шар; сладкая конфета, кислый лимон; круглый торт, квадратный торт)_____

5 лет (круглое печенье, квадратное печенье, треугольное печенье, овальное печенье; холодное мороженое, горячий чай; горькое лекарство, сладкое варенье)_____

6 лет (прямоугольная салфетка, многоугольная салфетка; молодой человек, старый человек; веселый мальчик, грустный мальчик; высокий дом, низкий дом)_____

2. Понимание различных форм словоизменения

Дифференциация единственного и множественного числа существительных (показать по картинкам):

4 года (дом — дома, кот — коты, кукла — куклы, груша — груши, ведро — ведра)__

5 лет (глаз — глаза, стул — стулья, лист — листья, окно — окна)_____

6 лет (рукав — рукава, пень — пни, гнездо — гнезда, перо — перья, ухо — уши)____

Понимание предложно-падежных конструкций с предлогами:

4 года (в, на, у)_____

5 лет (в, на, у, под, за, по)_____

6 лет (в, на, у, под, над, за, по, с, из, из-за, из-под)_____

Понимание уменьшительно-ласкательных суффиксов существительных:

4 года (стол — столик, машина — машинка, ведро — ведерочко)_____

5 лет (носок — носочек, чашка — чашечка, окно — окошечко)_____

6 лет (нож — ножик, рукавица — рукавичка, одеяло — одеяльце) _____

Дифференциация форм единственного и множественного числа глаголов (показать по предложенным картинкам):

4 года (кошка сидит — кошки сидят, слон идет — слоны идут) _____

5 лет (птица летит — птицы летят, машина едет — машины едут)_____

6 лет (мальчик читает — мальчики читают, девочка ест — девочки едят)_____

Дифференциация глаголов с различными приставками (показать по предложенным картинкам):

4 года (девочка наливает воду в чашку, выливает воду из чашки, поливает цветы из лейки)

5 лет (птица вылетает из клетки, птица влетает в клетку)_____

6 лет (мальчик переходит дорогу, мальчик перебегает дорогу, мальчик подбегает к дому)

3. Понимание отдельных предложений и связной речи

Понимание предложений (показать по предложенным картинкам):

4 года (Мальчик поздравляет девочку. Девочка поздравляет мальчика.)_____

5 лет (Собака бежит за мальчиком. Мальчик бежит за собакой.)_____

6 лет (Бабочка сидит на цветке, который уже распустился. Бабочка сидит на цветке, который еще не распустился.) _____

Понимание текста:

4 года (сказка «Репка»)_____

5 лет (сказка «Колобок»)_____

6 лет (сказка «Теремок»)_____

4. Состояние фонематического восприятия

Дифференциация оппозиционных звуков, не смешиваемых в произношении (показать по картинкам):

4 года

кот — кит _____

дом — дым_____

уточка — удочка_____

киска — миска _____

5 лет

мышка — мишка _____

почка — бочка _____

катушка — кадушка_____

корка — горка_____

6 лет

мышка — мошка _____

пашня — башня _____

сова — софа_____

крот — грот_____

Дифференциация оппозиционных звуков, смешиваемых в произношении (показать по картинкам):

4 года

коса — коза_____

мишка — миск_____

кочка — кошка_____

малина — Марина _____

5 лет

речка — редька_____

цвет — свет _____

челка— щелка_____

рейка— лейка_____

6 лет

лук — люк_____

марка — майка_____

ель — гель_____

плач — плащ_____

Исследование состояния экспрессивной речи

Характер экспрессивной речи:

4 года_____

5 лет_____

6 лет_____

1. Активный словарь

ИМЕНА СУЩЕСТВИТЕЛЬНЫЕ

Назвать по 4—5 имен существительных по предложенным логопедом темам:

4 года

Игрушки _____

Посуда_____

Одежда_____

Обувь_____

5 лет

Мебель_____

Овощи_____

Фрукты_____

Птицы_____

6 лет

Ягоды_____

Насекомые_____

Животные_____

Транспорт_____

Назвать части тела и части предметов (по картинкам):

4 года

Ноги_____

спинка стула_____

Руки_____ сиденье стула_____

Голова_____ ножки стула_____

Глаза_____ кузов машины_____

Уши_____ колеса машины_____

5 лет

Нос_____ рукав _____

Рот_____ воротник_____

Шея_____ пуговица_____

Живот_____ кабина машины_____

Грудь_____ руль_____

6 лет

Локоть_____ манжета_____

Ладонь_____ петля для пуговицы_____

Затылок_____ фары_____

Висок_____ мотор_____

Назвать одним словом (обобщить) предметы и объекты, изображенные на картинке:

4 года

Мяч, кукла, машинка _____

Рубашка, платье, шорты _____

Тапки, туфли, ботинки _____

5 лет

Стул, стол, шкаф _____

Огурец, помидор, морковь_____

Яблоко, банан, апельсин _____

Воробей, голубь, сова _____

6 лет

Клубника, смородина, черника_____

Муха, комар, бабочка_____

Кошка, собака, корова_____

Самолет, автобус, машина_____

Подобрать антонимы (слова «наоборот»):

6 лет

Друг _____ добро _____

Горе _____ горячий _____

Легкий _____ длинный_____

Давать _____ поднимать_____

ГЛАГОЛЫ

4 года (ответить на вопросы по картинкам)

Что делает мальчик? (Ест)_____

Что делает девочка? (Спит) _____

Что делают дети? (Играют) _____

Что делает птица? (Летит) _____

Что делают рыбки? (Плавают)_____

Что делают машины? (Едут) _____

5 лет (ответить на вопросы логопеда)

Как передвигаются птицы? (Летают) _____

Как передвигаются рыбы? (Плавают)_____

Как передвигается змея? (Ползает) _____

Как передвигается лягушка? (Прыгает)_____

Как передвигается человек? (Ходит) _____

Кошка мяукает. А собака что делает? (Лает)_____

А как подает голос корова? (Мычит) _____

А как подает голос петух? (Кукарекает)_____

6 лет (ответить на вопросы логопеда)

Ворона каркает. А как подает голос кукушка? (Кукует)_____

А как подает голос волк? (Воет) _____

А как подает голос лошадь? (Ржет) _____

А как подает голос овца? (Блеет) _____

Врач лечит. А что делает учитель? (Учит)_____

А что делает продавец? (Продает) _____

А что делает маляр? (Красит) _____

А что делает швея? (Шьет) _____

ИМЕНА ПРИЛАГАТЕЛЬНЫЕ

Назвать предъявленные цвета:

4 года

Красный _____

Синий_____

Зеленый_____

Желтый_____

Белый_____

Черный _____

5 лет

Красный _____

Оранжевый_____

Желтый_____

Зеленый_____

Голубой _____

Синий_____

Белый_____

Черный _____

6 лет

Красный _____

Оранжевый_____

Желтый _____

Зеленый_____

Голубой _____

Синий_____

Фиолетовый_____

Розовый _____

Белый_____

Черный_____

Серый_____

Коричневый _____

Назвать форму (ответить на вопросы с опорой на картинки):

4 года

Мяч какой? (Круглый)_____

Платок какой? (Квадратный)_____

5 лет

Солнце какое? (Круглое) _____

Печенье какое? (Квадратное)_____

Косынка какая? (Треугольная)_____

Огурец какой? (Овальный) _____

6 лет

Руль какой? (Круглый) _____

Окно какое? (Квадратное) _____

Флажок какой? (Треугольный)_____

Слива какая? (Овальная) _____

Одеяло какое? (Прямоугольное) _____

2. Состояние грамматического строя речи

Употребление существительных в именительном падеже единственного и множественного числа (образовать по аналогии):

4 года

Стол — столы _____

Кот_____

Дом_____

Кукла_____

Рука_____

Окно_____

5 лет

Рот — рты _____

Лев_____

Река_____

Ухо_____

Кольцо _____

6 лет

Глаз — глаза_____

Лист_____

Стул_____

Дерево_____

Пень_____

Воробей _____

Употребление имен существительных в косвенных падежах:

4 года

Что есть у мальчика? (Мяч)_____

Чего нет у мальчика? (Мяча)_____

Кому мальчик дает мяч? (Девочке)_____

Что ты видишь на картинке? (Машину)_____

Чем рисует девочка? (Карандашом) _____

О ком думает кошка? (О мышке) _____

Образование существительных множественного числа в родительном падеже (ответить на вопрос «Много чего?» по картинкам):

5 лет

Шаров _____

Ключей_____

Берез_____

Ложек_____

Окон_____

6 лет

Карандашей _____

Листьев _____

Книг_____

Вилок_____

Ведер_____

Согласование прилагательных с существительными единственного числа (назвать по картинкам):

4 года

Красный мяч_____

Синяя шапка_____

Желтое ведро _____

5 лет

Оранжевый апельсин _____

Голубая бабочка _____

Белое блюдце_____

6 лет

Фиолетовый колокольчик _____

Серая ворона _____

Розовое платье_____

Употребление предложно-падежных конструкций (ответить на вопросы по картинкам):

4 года

Где стоит ваза? (На столе) _____

Где лежат фрукты? (В корзине) _____

У кого мячик? (У мальчика) _____

5 лет

Где сидит снегирь? (На дереве) _____

Где стоит машина? (В гараже)_____

У кого кукла? (У девочки) _____

Где стоит коза? (За забором) _____

Где едет машина? (По дороге) _____

6 лет

Где лежит мяч? (Под столом) _____

Где летает бабочка? (Над цветком) _____

Откуда вылетает птичка? (Из клетки)_____

Откуда прыгает котенок? (С кресла)_____

Употребление числительных 2 и 5 с существительными:

4 года

Два кота_____

Пять котов_____

Две машины_____

Пять машин_____

5 лет

Два мяча _____

Пять мячей_____

Две розы _____

Пять роз_____

Два окна

Пять окон _____

6 лет

Два пня _____

Пять пней_____

Два воробья_____

Пять воробьев _____

Две шали _____

Пять шалей _____

Два ведра_____

Пять ведер_____

Образование существительных с уменьшительно-ласкательными суффиксами (по картинкам):

4 года

Стол — столик _____

Чашка — чашечка _____

Сумка — сумочка _____

Ведро — ведерочко _____

5 лет

Забор — заборчик_____

Носок — носочек _____

Лента — ленточка _____

Окно — окошечко_____

6 лет

Палец — пальчик _____

Изба — избушка _____

Крыльцо — крылечко_____

Кресло — креслице_____

Образование названий детенышей животных:

4 года

У кошки — котенок _____

У лисы_____

У утки _____

У слонихи _____

5 лет

У зайчихи _____

У волчицы _____

У белки _____

У козы _____

6 лет

У медведицы _____

У бобрихи _____

У барсучихи _____

У собаки _____

У коровы _____

Образование относительных прилагательных:

6 лет

Стол из дерева (какой?) — деревянный

Аквариум из стекла (какой?) _

Крыша из соломы (какая?) _____

Стена из кирпича (какая?)_____

Шапка из меха (какая?)_____

Носки из шерсти (какие?) _____

Сапоги из резины (какие?)___

Крепость из снега (какая?) ___

Лопатка из металла (какая?)____

Сок из яблок (какой?)_____

Образование притяжательных прилагательных:

6 лет

Очки бабушки (чьи?) — бабушкины___ Туфли мамы (чьи?)____ Усы кошки (чьи?) ___ Хвост лисы (чей?)____Берлога медведя (чья?)___ Гребень петуха (чей?)____

Образование приставочных глаголов (ответить на вопрос «Что делает мальчик?» по картинкам):

6 лет

Мальчик выходит из дома. _____Мальчик отходит от дома. _____ Мальчик подходит к магазину. _____Мальчик переходит улицу. _____ Мальчик обходит лужу. _____ Мальчик входит в дом.

Образование глаголов совершенного вида (составить предложения по картинкам):

6 лет

Девочка строит домик. _____

Девочка построила домик. _____

Мальчик красит самолет. _____Мальчик покрасил самолет. _____

3. Состояние связной речи

Пересказ текста из нескольких предложений:

4 года

КОТЕНОК

У Кати жил котенок. Катя любила котенка. Она поила котенка молоком. Котенок любил играть с Катей._____

5 лет

РЫБАЛКА

Илюша собрался на рыбалку. Он накопал червей, взял удочку и пошел к реке. Сел Илюша на берегу и закинул удочку. Скоро ему попался лещ, а потом окунь. Мама сварила Илюше вкусную уху_____

Составление рассказа по серии картинок:

6 лет_____

4. Исследование фонетической стороны речи

Исследование звукослоговой структуры слов (повторить за логопедом с опорой на наглядность):

4 года

Кот_____

Вода_____

Стук _____

Мост_____

Спина_____

Банка_____

Фантик_____

Ступенька_____

5 лет

Самолет_____

Скворец_____

Фотограф_____

Микстура_____

Парашютист _____

Погремушка _____

Сестренка развешивает простыни._____ В универсаме продают продукты._____

Парашютисты готовятся к прыжку._____

6 лет

Тротуар _____

Градусник_____

Фотоаппарат _____

Экскаватор _____

Виолончелист_____

Регулировщик_____

Виолончелист укладывает инструмент в футляр._____

Регулировщик руководит движением на перекрестке._____

У фотографа фотоаппарат со вспышкой._____

Состояние звукопроизношения (отсутствие, замены звуков, возможные искажения, назализованность ротовых и неназализованность носовых звуков):

4 года (изолированно, в словах, в предложениях)

Гласные [а], [у], [о], [и], [э]_____

Согласные [б], [п], [м], [б'], [п'], [м']_____

[в], [ф], [в'], [ф']_____

[д], [т], [н], [д'], [т'], [н']_____

[г], [к], [х], [г'], [к'], [х']_____

[й]._____

[с], [з], [ц], [с'], [з']_____

[ш], [ж]_____

[Ч], [Щ]_____

[л], [л']_____

[р], [р']_____

5 лет (изолированно, в словах, в предложениях)

Гласные [а], [у], [о], [и], [э]_____

Согласные [б], [п], [м], [б'], [п'], [м']_____

[в], [ф], [в'], [ф']_____

[д], [т], [н], [д'], [т'], [н']_____

[г], [к], [х], [г'], [к'], [х']_____

[й]._____

[с], [з], [ц], [с'], [з']_____

[ш], [ж]_____

[Ч], [Щ]_____

[л], [л']_____

[р], [р']_____

6 лет (изолированно, в словах, в предложениях)

Гласные [а], [у], [о], [и], [э]_____

Согласные [б], [п], [м], [б'], [п'], [м']_____

[в], [ф], [в'], [ф']_____

[д], [т], [н], [д'], [т'], [н']_____

[г], [к], [х], [г'], [к'], [х']_____

[й]._____

[с], [з], [ц], [с'], [з']_____

[ш], [ж]_____

[Ч], [Щ]_____

[л], [л']_____

[р], [р']_____

_____

5. Состояние дыхательной и голосовой функций

4 года

Тип физиологического дыхания (верхнеключичное, диафрагмальное, брюшное, смешанное)_____

Объем дыхания (достаточный, недостаточный)_____

Продолжительность речевого выдоха_____

Сила голоса_____

Модуляция голоса_____

5 лет

Тип физиологического дыхания (верхнеключичное, диафрагмальное, брюшное, смешанное)_____

Объем дыхания (достаточный, недостаточный)_____

Продолжительность речевого выдоха_____

Сила голоса_____

Модуляция голоса_____

6 лет

Тип физиологического дыхания (верхнеключичное, диафрагмальное, брюшное, смешанное)_____

Объем дыхания (достаточный, недостаточный)_____

Продолжительность речевого выдоха_____

Сила голоса_____

Модуляция голоса_____

6. Особенности диафрагмальной стороны речи

4 года

Темп(нормальный, ускоренный, замедленный)_____

Ритм (нормальный, дисритмия)_____

Паузация (правильность расстановки пауз в речевом потоке)_____

Употребление основных видов интонации_____

5 лет

Темп(нормальный, ускоренный, замедленный)_____

Ритм (нормальный, дисритмия)_____

Паузация (правильность расстановки пауз в речевом потоке)_____

Употребление основных видов интонации_____

6 лет

Темп(нормальный, ускоренный, замедленный)_____

Ритм (нормальный, дисритмия)_____

Паузация (правильность расстановки пауз в речевом потоке)_____

Употребление основных видов интонации_____

7. Состояние фонематического восприятия, навыков фонематического анализа и синтеза

Повторение слогов с оппозиционными звуками:

4 года

ба-па _____ па-ба_____

га-ка_____ ка-га_____

да-та_____ та-да_____

ма-ба_____ ба-ма_____

ва-ка_____ ка-ва_____

ня-на_____ на-ня_____

5 лет

ба-па-ба_____ па-ба-па_____

да-та-да_____ та-да-та_____

га-ка-га_____ ка-га-ка_____

за-са-за_____ са-за-са_____

та-тя-та_____ тя-та-тя_____

6 лет

са-ша-са_____ ша-са-ша_____

жа-ша-жа_____ ша-жа-ша_____

са-ца-са_____ ца-са-ца_____

ча-тя-ча_____ тя-ча-тя_____

ла-ля-ла_____ ля-ла-ля_____

Выделение начального ударного из слов:

5 лет

Астра _____ арка _____

Осень _____ озеро _____

Улей _____ уши_____

Иглы _____ искры_____

Выделение конечного согласного из слов:

6 лет

Кот _____ суп _____

Сом _____ лимон _____

Мох_____ сок_____

Выделение начального согласного из слов:

6 лет

Мост _____ банка _____

Пол _____ тапки _____

Дом _____ нос _____

Вода _____ фартук _____

Кот _____ год _____ хлеб_____

Определение последовательности звуков в слове:

6 лет

Кот _____ вата_____

Дом _____ дубы _____

Определение количества звуков в словах:

6 лет

Бык _____ вата_____

Дом _____ банан _____

Table V.2.4:1 A list of the stimuli and the distractors created for the Grammatical comprehension task of the adapted version of the BVL_4-12

Target stimuli (T)	**Distractor 1**	**Distractor 2**	**Distractor 3**
1. Птичка летит (Represents a subject and a predicate in singular number)	**Птичка сидит** (Represents the same subject as in T. A predicate has different lexical meaning. Both have singular number)	**Птички летят** (The number of the subject is modified into plural. A predicate has the same meaning as in T but plural number)	**Птички сидят** (The number of the subject is modified into plural. A predicate has different lexical meaning and plural number)
2. Мальчик, сидящий на полу, читает книгу (Represents a subject and a participle in singular number)	**Мальчик, лежащий на полу, читает книгу** (Represents the same subject as in T. A participle has different lexical meaning. Both have singular number)	**Мальчики, сидящие на полу, читают книгу** (The number of the subject is modified into plural. A participle has the same meaning as in T but plural number)	**Мальчики, лежащие на полу, читают книгу** (The number of the subject is modified into plural. A participle has different lexical meaning and plural number)
3. Птички летят (Represents a subject and a predicate in plural number)	**Птички сидят** (Represents the same subject as in T. A predicate has different lexical meaning. Both have plural number)	**Птичка летит** (The number of the subject is modified into singular. A predicate has the same meaning as in T but singular number)	**Птичка сидит** (The number of the subject is modified into singular. A predicate has different lexical meaning and singular number)

4. Мальчик бежит подпрыгивая (Represents a subject and a predicate in singular number)	**Мальчик сидит на скамеечке** (Represents the same subject as in T. A predicate has different lexical meaning. Both have singular number)	**Мальчики бегут подпрыгивая** (The number of the subject is modified into plural. A predicate has the same meaning as in T but plural number)	**Мальчики сидят на скамеечке** (The number of the subject is modified into plural. A predicate has different lexical meaning and plural number)
5. Она держит книгу (Represents a subject and a predicate in singular number)	**Она стоит с пустыми руками** (Represents the same subject as in T. A predicate has different lexical meaning. Both have singular number)	**Они держат книгу** (The number of the subject is modified into plural. A predicate has the same meaning as in T but plural number)	**Они стоят с пустыми руками** (The number of the subject is modified into plural. A predicate has different lexical meaning and plural number)
6. Собаки сидят перед столом (Represents a subject and a predicate in plural number)	**Собака сидит перед столом** (Represents the same subject and a predicate as in T. but in singular number)	**Собаки сидят под столом** (Represents the same subject and a predicate as in T. A preposition is modified)	**Собака сидит под столом** (Represents the same subject and a predicate as in T. but in singular number. A preposition is modified)
7. Люстра висит над столом (Represents a subject and a predicate in singular number)	**Люстры висят над столом** (Represents the same subject and a predicate as in T. but in singular number)	**Люстра висит около стола** (Represents the same subject and a predicate as in T. A preposition is modified)	**Люстры висят около стола** (Represents the same subject and a predicate as in T. but in plural number. A

			preposition is modified)
8. Кот догоняет собаку (Represents a subject and a predicate in singular number)	**Кот и собака сидят** (Represents the same subject as in T. A predicate has different lexical meaning)	**Коты догоняют собаку** (The number of the subject is modified into plural. A predicate has the same meaning as in T but plural number)	**Коты и собака сидят** (The number of the subject is modified into plural. A predicate has different lexical meaning and plural number)
9. Комната хорошо проветривается (Represents a subject and a predicate in singular number)	**Комната не проветривается** (Represents the same subject as in T. A predicate has different lexical meaning)	**Комнаты проветриваются** (The number of the subject is modified into plural. A predicate has the same meaning as in T but plural number)	**Комнаты не проветриваются** (The number of the subject is modified into plural. A predicate has different lexical meaning and plural number)
10. Мальчик умывается (Represents a subject and a predicate – reflexive verb in singular number)	**Мальчика умывает мама** (The subject is modified. A predicate has the same meaning but expressed in non-reflexive verb. An object is inserted. All word forms are singular)	**Мальчики умываются** (The number of the subject is modified into plural. A predicate is the same reflexive verb as in T but has plural number)	**Мальчиков умывает мама** (The subject is modified. A predicate has the same meaning but expressed in non-reflexive verb. An object is inserted. All word forms are plural)
11. Мальчик падает	**Мальчик упал**	**Мальчики падают** (The number of the	**Мальчики упали** (Represents the same

(Represents a subject and a predicate in singular number)	(Represents the same subject as in T. A predicate has different aspect-tense characteristics)	subject is modified into plural. A predicate has the same meaning as in T but plural number)	subject as in T. A predicate has different aspect-tense characteristics. All word form are plural)
12. Картина нарисована художником (Passive voice)	**Картина порвана художником** (A predicate has different lexical meaning. Passive voice)	**Художник рисует картину** (A predicate has the same lexical meaning. Active voice)	**Художник рвет картину** (A predicate has different lexical meaning. Active voice)
13. Яблоко не сорвано девочкой (Passive voice. Negative)	**Яблоко сорвано девочкой** (Passive voice. Non-negative)	**Яблоко не на дереве** (Active voice. Negative)	**Яблоко на дереве** (Active voice. Non-negative)
14. Она держит книги (Represents a subject and a predicate in singular number)	**Она стоит с пустыми руками** (Represents the same subject as in T. A predicate has different lexical meaning. Both have singular number)	**Они держат книги** (The number of the subject is modified into plural. A predicate has the same meaning as in T but plural number)	**Они стоят с пустыми руками** (The number of the subject is modified into plural. A predicate has different lexical meaning and plural number)
15. Мальчик держит их (Represents a subject and a predicate in singular number)	**Мальчик стоит с пустыми руками** (Represents the same subject as in T. A predicate has different lexical	**Мальчики держат их (коробки)** (The number of the subject is modified into plural.	**Мальчики с пустыми руками** (The number of the subject is modified into plural. A predicate has different lexical

	meaning. Both have singular number)	A predicate has the same meaning as in T but plural number)	meaning and plural number)
16. Мальчик толкает его (Represents a subject and a predicate in singular number. An object has masculine gender)	**Мальчик толкает машину** (The same subject and a predicate as in T., both have singular number. An object is modified so, to represent a word of feminine gender.	**Мальчики толкают шкаф** (The number of the subject and a predicate is modified into plural. An object has masculine gender)	**Мальчики толкают машину** (The number of the subject and a predicate is modified into plural. An object has feminine gender)
17. Девочки держат ее (Represents a subject and a predicate in plural number. An object has feminine gender)	**Девочки держат столик** (The same subject and a predicate as in T., both have plural number. An object is modified so, to represent a word of masculine gender.	**Девочка держит сумку** (The number of the subject and a predicate is modified into singular. An object has feminine gender)	**Девочка держит столик** (The number of the subject and a predicate is modified into singular. An object has masculine gender)
18. Девочка объясняет, почему она разбила чашку (A sentence with relative clause of reason)	**Девочка объясняет, почему ей нравится чашка (держит целую в руках)** (A sentence with modified relative clause of reason)	**Девочка смотрит на разбитую чашку** (A sentence has no relative clause)	**Мама смотрит на разбитую чашку** (A sentence has no relative clause)
19. Ни мальчик, ни девочка не едят	**Ни мальчик ни девочка не спят (едят)**	**Ни мальчики ни девочки не едят (спят)**	**Ни мальчики ни девочки не спят (едят)** (The meaning of a predicate is

(Subjects are in singular forms, a predicate is plural)	(The same subjects and as in T. The meaning of a predicate is modified)	(The same predicate as in T. The subjects are in plural forms)	modified. The subjects are in plural forms)
20. Девочка держит их (Represents a subject and a predicate in singular number. An object is 3^{d} person pronoun, plural)	**Девочка держит его (шарик)** (Represents a subject and a predicate in singular number. An object is singular)	**Девочки держат их (шарик и подарок)** (The number of the subject, predicate and object have plural number)	**Девочки держат только шарик** (The number of the subject and a predicate is modified into plural. An object is singular)
21. Рабочие назначаются бригадиром (Passive)	**Бригадир назначается рабочими** (Passive. A subjet and an object are riversed)	**Рабочие играют в карты с бригадиром** (Active. A predicate has different meaning)	**Бригадир играет в карты с рабочими** (Active A predicate has different meaning)
22. Кошка перепрыгивает через мышку, которая сидит на стуле (A sentence with relative clause and a preposition of place)	**Кошка перепрыгивает через мышку, которая сидит под стулом** (A sentence with relative clause and a modified preposition of place)	**Мышка перепрыгивает через кошку, которая сидит на стуле** (A sentence with relative clause and a preposition of place. Subject and object are riversed)	**Мышка перепрыгивает через кошку, которая сидит под стулом** (A sentence with relative clause and a modified preposition of place. Subject and object are riversed)
23. Собаку догоняет кот (Reverse sentence)	**Кот бьет лапой по носу собаку** (Nonreverse sentence)	**Собака догоняет кота** (Reverse sentence. A subject and object are interchanged)	**Собака бьет по носу кота** (Nonreverse sentence)

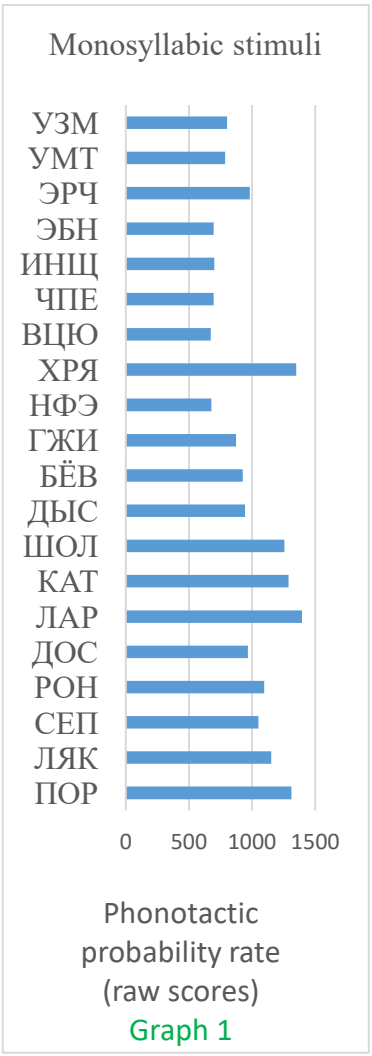
24. Мальчик, который сидит на столе, ест мороженое (2 actants on the picture are male)	**Мальчик, который сидит на столе, не ест мороженое (ест мальчик на стуле)** (2 actants on the picture are male. Predicate contains negation)	**Мальчик, который сидит на столе, не ест мороженое (мальчик на стуле тоже не ест)** (2 actants on the picture are male. Double negation)	**Девочка, которая сидит на столе, ест мороженое** (1 actant is female, 2d is male)
25. Мальчика моет мама (reversible sentence)	**Мальчика одевает мама** (Lexical meaning of the predicate is modified)	**Мальчик моет маму** (A subject and object are interchanged)	**Мальчик одевает маму** (A subject and object are interchanged. Lexical meaning of the predicate is modified)
26. Ни кот, ни собака не бегут (Doeble negation. Subjects are singular)	**И кот и собака бегут** (No negation)	**Коты и собаки не бегут (сидят)** (Doeble negation. Subjects are plural)	**Коты и собаки бегут** (No negation. Subjects are plural)
27. Кошка ищет, где спряталась мышка (A sentence with a relative clause)	**Мышка ищет, где спряталась кошка** (A subject and an object are interchanged)	**Кошка спит. Мышка спряталась** (The meaning of the predicate is modified)	**Мышка спит. Кошка спряталась** (A subject and an object are interchanged. The meaning of the predicate is modified)
28. Ученики исключаются из школы директором	**Директор исключается из школы учениками**	**Ученики сами уходят их школы** (Active voice)	**Директор уходит из школы** (Active voice)

(Passive voice)	(A subject and an object are interchanged. Passive voice)		
29. Мальчик не спит (Negative sentence. Subject is singular)	**Мальчик спит** (Non-negative sentence. Subject is singular)	**Мальчики спят** (Non-negative sentence. Subject is plural)	**Мальчики не спят (играют)** (Negative sentence. Subject is plural)
30. Дети будут обедать (A subject is plural. A predicate is a verb in future complex form, imperfective)	**Дети пообедали** (A subject is plural. A predicate is a verb in past form, perfective)	**Мальчик будет обедать** (A subject is singular. A predicate is a verb in future complex form, imperfective)	**Мальчик пообедал** (A subject is singular. A predicate is a verb in past form, perfective)
31. Мама моется (A predicate is a reflexive verb)	**Мама моет девочку** (A predicate is a non-reflexive verb)	**Девочка моется** (A predicate is a reflexive verb. A subject is modified)	**Девочка моет голову маме** (A predicate is a non-reflexive verb. A subject is modified)
32. Девочка не ест (Negative sentence. Subject is singular)	**Девочка ест** (Non-negative sentence. Subject is singular)	**Девочки не едят (пьют)** (Negative sentence. Subject is plural)	**Девочки едят** (Non-negative sentence. Subject is plural)
33. Мальчик толкает девочку (Reversible sentence)	**Мальчик обнимает девочку** (Reversible sentence. A predicate has different lexical meaning)	**Девочка толкает мальчика** (Reversible sentence. A subject and an object are interchanged)	**Девочка обнимает мальчика** (Reversible sentence. A subject and an object are interchanged. A predicate has

			different lexical meaning)
34. Девочка, а не мальчик, бежит (Sentence with adversity)	**Мальчик, а не девочка, бежит** (Sentence with modified adversity)	**Мальчик и девочка стоят** (No adversity. Modified lexical meaning of the predicate)	**Мальчик и девочка бегут** (No adversity. Same predicate)
35. Мальчик моет маму (Reversible sentence)	**Мальчик одевает маму** (Reversible sentence. A predicate has different lexical meaning)	**Мама моет мальчика** (Reversible sentence. A subject and an object are interchanged)	**Мама одевает мальчика** (Reversible sentence. A subject and an object are interchanged. A predicate has different lexical meaning)
36. Собака не бежит (Negative sentence. Subject and predicate are in singular forms)	**Собака бежит** (Non-negative sentence. Subject and predicate are in singular forms)	**Собаки не бегут (едят косточки)** (Negative sentence. Subject is in plural form)	**Собаки бегут** (Non-negative sentence. Subject and predicate are in plural form)
37. Мальчик не ест мороженое (Negative sentence. Subject and predicate are in singular forms)	**Мальчик ест мороженое** (Non-negative sentence. Subject and predicate are in singular forms)	**Мальчики не едят мороженое (пьют)** (Negative sentence. Subject is in plural form)	**Мальчики едят мороженое** (Non-negative sentence. Subject and predicate are in plural form)
38. Машина не моется мальчиком	**Мальчик моет машину (женщина стоит)** (Active voice)	**Женщина и мальчик моют машину вместе** (Active voice)	**Машина не моется никем (мальчик и женщина стоят)**

(Negative sentence in passive voice)			(Negative sentence in passive voice. Modified subject)
39. Мальчик, а не девочка, ест (Sentence with adversity)	**Девочка, а не мальчик, ест** (Sentence with modified adversity)	**Мальчик и девочка пишут** (No adversity. Modified lexical meaning of the predicate)	**Мальчик и девочка едят** (No adversity. Same predicate)
40. Девочка не причесывается мамой (Negative sentence. Predicate is a reflexive verb)	**Девочка причесывается мамой** (Non-negative sentence. Predicate is a reflexive verb)	**Девочка не причесывает маму (мама причесывается сама)** (Negative sentence. Predicate is not a reflexive verb)	**Девочка причесывает маму** (Non-negative sentence. Predicate is not a reflexive verb)

Graphs V.3.2:1 and 2 presenting the results of online survey with adult Russian language native speakers (n=617) on phonotactic probability of 100 stimuli created for n-word repetition task from BVL_RU



Graph 1

Graph 2

Graphs V.3.2:3 and 4 presenting the results of online survey with adult Russian language native speakers (n=617) on phonotactic probability of 100 stimuli created for n-word repetition task from BVL_RU

Graph 3

Graph 4

Table V.4:1 A list of collaborators

• **Raters estimated clarity of the instructions:** 1. Olga Filippova – Speech pathologist (Omsk State Public Kindergarten of combined type №282, Russia); 2. Tatiana Druzhinina – teacher (Omsk Public Kindergarten №25, Russia); 3. Elena Balamutova – psychologist (Public school №1, Kursk, Russia); 4. Natalia Karpitskaya – Russian as a foreign language teacher for children (Udine, Italy).
• **Experts assessed the quality of a content in Russian version of the BVL_4-12:** 1. Dr. Natalia Orlova – full professor at the Department of Russian, Slavic and Classical Linguistics, Dostoevsky Omsk State University, Omsk, Russia; 2. Dr. Elena Gorobets – associate professor at the Department of Russian Language and Applied Linguistics, Laboratory of Clinical Linguistics, Kazan Federal University, Russia.
• **Experts assessed the quality of the translation of the original content and instructions into Russian:** 1. Darya Polkina, graduated L'universita' degli studi di Roma "La sapienza in “Mediazione linguistica e interculturale”.

Attachment V.4. A full version of the report on the translation quality. Russian version:

В соответствии с требованиями заказчика была произведена сверка оригинальной, итальянской, версии инструкций и стимулов, входящих в Батарею, направленную на оценку уровня развития языка и речи детей в возрасте от 4 до 12 лет, говорящих на русском языке, с переводом, выполненным на русский язык. Критических расхождений в содержании не выявлено. Высказаны следующие предложения по улучшению отдельных частей перевода (выделены ниже жирным шрифтом):

1. ITEMS for Naming task

Stimuli in Russian	Stimuli in Italian
копать	sotterra**scava**
кожура	**buccia**

2. ITEMS for Lexical comprehension at pre-school age task

Item	Italian version	Russian translation
4	Giacca	Кофта**куртка\пиджак**
	Fieno	Мусор**сено**
10	sasso	мешок**камень**
15	cornice	картина**рамка**
17	pesca	рыба**рыбалка**

3. ITEMS for Lexical comprehension at school age task

Item	Italian version	Russian translation
5	calice	фужер**кубок**
7	spina	розетка**вилка**
8	fonte	водопад**источник\ключ\ручей**
9	Fieno	Мусор**сено**
28	servo	служитель**слуга**
31	coperta	покрывало**одеяло**
37	annusare	обонять**нюхать**
39	Allargare	увеличивать**расширять**

4. Instructions for Linguistic prosody comprehension

Ты идешь к нам! → Ты, **иди** к нам!

Сверка выполнена дипломированным билингвальным и бикультуральным переводчиком, носителем русского языка, Полькиной Дарьей. Диплом университета L'UNIVERSITA' DEGLI STUDI di ROMA "LA SAPIENZA" по направлению Mediazione linguistica e interculturale от 11/07/2016.

Roma, il 06/08/2017

Подпись Дарья Полькина

Attachment V.4. A full version of the report on the translation quality. Italian version:

In seguito alla richiesta del committente, è stata svolta la verifica della conformità tra la versione italiana originale con le istruzioni e gli stimoli, facenti parte della Batteria dei test, e la loro traduzione in russo. Questi test sono rivolti alla valutazione del livello di sviluppo del linguaggio dei bambini di età compresa tra i 4 e i 12 anni, che parlano la lingua russa. Non sono state riscontrate delle inconformità critiche. È stata presentata la proposta di migliorare alcune parti della traduzione (evidenziate sotto in grassetto):

5. ITEMS for Naming task

Stimuli in Russian	Stimuli in Italian
копать	sotterra**scava**
кожура	**buccia**

6. ITEMS for Lexical comprehension at pre-school age task

Item	Italian version	Russian translation
4	Giacca	Кофта**куртка\пиджак**
	Fieno	Мусор**сено**
10	sasso	мешок**камень**
15	cornice	картина**рамка**
17	pesca	рыба**рыбалка**

7. ITEMS for Lexical comprehension at school age task

Item	Italian version	Russian translation
5	calice	фужер**кубок**
7	spina	розетка**вилка**
8	fonte	водопад**источник\ключ\ручей**
9	Fieno	Мусор**сено**
28	servo	служитель**слуга**
31	coperta	покрывало**одеяло**
37	annusare	обонять**нюхать**
39	Allargare	увеличивать**расширять**

8. Instructions for Linguistic prosody comprehension

Ты идешь к нам! → Ты, **иди** к нам!

La verifica è stata attuata da Polkina Darya, madrelingua russa, laureata in Mediazione linguistica e interculturale presso L'UNIVERSITA' DEGLI STUDI di ROMA "LA SAPIENZA", l'11/07/2016.

Roma, il 06/08/2017 DARYA POLKINA

Table V.5:1: Description of the reliability analysis of the BVL_RU

№	Subscale and Items analysed	Cases analysed	Chronbah's Alpha coefficient and assumed internal consistency	Guttman's Lambda 2 coefficient	Notes
1	**ARTICULATION** Analysed Total 77 ITEMS	49	**.969** excellent	Not calculated	
2	**NAMING 4-6.11** Analysed 72 OUT OF Total 77 ITEMS	49	**.940** excellent	Not calculated	Each of the following component variables has zero variance and is removed from the scale: Naming.3.глаз, Naming.5.дом, Naming.6.машина, Naming.47.зеленый, Naming.53.рыба
3	**LEX.COMP.6-12** Analysed Total 42 ITEMS	69	**.913** excellent	Not calculated	
4	**NAMING 7-12** Analysed 45 items Out of Total 67 ITEMS	33	**.843** good	Not calculated	Each of the following component variables has zero variance and is removed from the scale: Naming.7.пчела, Naming.12.желтый,

					Naming.13.слушать, Naming.15.бабочка, Naming.17.рука, Naming.18.машина, Naming.21.бутылка, Naming.22.нога, Naming.24.корова, Naming.27.ухо, Naming.29.штаны, Naming.30.морковь, Naming.34.рыба, Naming.36.слон, Naming.37.есть, Naming.39.книга, Naming.43.пылесос, Naming.47.картина, Naming.53.дом, Naming.57.звезда, Naming.61.дверь, Naming.65.кубик
5	**PHON.DISCRIMINATION** Analysed Total 30 ITEMS	84	**.816** good	Not calculated	-
6	**GRAMMATICAL COMP.** Analysed 39 items OUT OF TOTAL 40 ITEMS	84	**.803** good	Not calculated	Each of the following component variables has zero variance and is removed from the scale: Gram.comp.phrase14

7	**COMPREHENSION OF IDIOMS** Analysed Total 10 ITEMS	61	**.831** good	Not calculated	-
8	**NONWORD REPETITION** Analysed 14 items out of Total 15 ITEMS	62	**.814** good	Not calculated	Each of the following component variables has zero variance and is removed from the scale: 3-дос
9	**SENTENCE REPETITION 7-12** Analysed 12 items out of Total 20 ITEMS	32	**.884** good	Not calculated	Each of the following component variables has zero variance and is removed from the scale: Repet.of-sent.7-11.11.1, Repet.of-sent.7-11.11.2, Repet.of-sent.7-11.11.3, Repet.of-sent.7-11.11.4, Repet.of-sent.7-11.11.6, Repet.of-sent.7-11.11.8, Repet.of-sent.7-11.11.10, Repet.of-sent.7-11.11.13
10	**SENTENCE REPETITION 4-7** Analysed 17 items out of	30	**.737** acceptable	Not calculated	Each of the following component variables has zero variance and is removed from the scale:

	Total 20 ITEMS				Repet.of-sent.4-6.11.1, Repet.of-sent.4-6.11.2, Repet.of-sent.4-6.11.3
11	**SETNENCE COMPLITION** Analysed Total 14 ITEMS	62	**.757** acceptable	Not calculated	
12	**GRAMMATICAL JUDGMENTS** Analysed Total 18 ITEMS	62	**.605** questionable	**.651** questionable	-
13	**COMPREHENSION OF LINGUISTIC PROSODY** Analysed Total 12 ITEMS	62	**.617** questionable	**.665** questionable	-
14	**COMPREHENSION OF EMOTIVE PROSODY** Analysed 10 items out of Total 12 ITEMS	62	**.696** questionable	**.735** acceptable	Each of the following component variables has zero variance and is removed from the scale: Comp.emot.prosody.phrase-3, Comp.emot.prosody.phrase-12

15	**LEXICAL COMPREHENSION 4-5.11** Analysed 9 items out of Total 18 ITEMS	14	**.630** questionable	**.703** acceptable	Each of the following component variables has zero variance and is removed from the scale: Lex.comp.4-5.11.1.корова, Lex.comp.4-5.11.6.луна, Lex.comp.4-5.11.7.врач, Lex.comp.4-5.11.11.рука, Lex.comp.4-5.11.12.лицо, Lex.comp.4-5.11.13.телефон, Lex.comp.4-5.11.14.суп, Lex.comp.4-5.11.16.дерево, Lex.comp.4-5.11.17.шапка
16	**WORDS REPETITION** Analysed 8 items out of Total 15 ITEMS	62	**.365** unacceptable	**.478** unacceptable	Each of the following component variables has zero variance and is removed from the scale: Rep.of.words-ФИЛЬМ, Rep.of.words-РАМА, Rep.of.words-ЧАША, Rep.of.words-СТРАНА, Rep.of.words-ОЗЕРО, Rep.of.words-БУМАГА, Rep.of.words-ЧЕРНЫЙ

Table V.5:3 Item per item analysis of comprehension of linguistic prosody subscale (mean performance results demonstrated by the participants; SD; α if item deleted)

Comprehension of linguistic prosody subscale. Item Statistics			**Item-Total Statistics**
Items	Mean	SD	Cronbach's Alpha if Item Deleted
Phrase 1	.677	.4713	.628
Phrase 2	.855	.3551	.589
Phrase 3	.645	.4824	.537
Phrase 4	.855	.3551	.615
Phrase 5	.919	.2745	.600
Phrase 6	.742	.4411	.534
Phrase 7	.661	.4771	.677
Phrase 8	.629	.4870	.567
Phrase 9	.839	.3708	.597
Phrase 10	.532	.5030	.595
Phrase 11	.742	.4411	.584
Phrase 12	.887	.3191	.599

Table VI.2:2 The transcripts of participants' responses on Semantic fluency task during test-retest procedures

Participant's code	'Animals' category - words (test)	'Animals' category – words (REtest)	'Animals'category - unique words	'Things' category - words(test)	'Things' category - words(REtest)	'Things' category - unique words
С 1	кошка, лев, лиса, медведь, люди, паук, белка, леопард, тигр, осел, бурундук, хомяк	кошка, лев, лиса, медведь, жираф, обезьяна, слон, волк, заяц, птички, котенок -	1 1 1 1 2 2 2 2 2 2 2 1 (total – 19; Same – 4; unique – 15	стол, стул, домик, диван, тумбочка, подушка, дверь, люстра, лампочка, полки - - - - -	стул, стол, домик, одежда, зонтик, шкаф, стаканы, посуда, телевизор, рюкзак, батарея, пол, ковер, коробки, игрушки	1 1 1 2 2 2 2 2 2 2 1 1 1 1 1 (total – 22

			/78.95 %)			Same – 3; unique – 19/ 86.36%)
C 2	лев, тигр, кошка, леопард, пантера, верблюд, собака, мышка, жираф, жеребенок, слон, обезьяна, горилла, зебра, ящерица, носорог, змея -	лев, тигр, кошка, леопард, пантера, кенгуру, медведь, зайчик, кролик, ягуар, овца, баран, коза, свинья, лошадь, бык, буйвол, орел	1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 1	холодильник, компьютер, телевизор, шкаф, кровать, таблетки, посуда, мебель, диван, стулья, вешалка, микроволновка, ванна, еда, стиральная машинка, зубные щетки, цветы, умывальник	холодильник, компьютер, телевизор, шкаф, кровать, калькулятор, батарейка, ручка, сумка, лодка, пол, обои, сетка, мышка, картина, - - -	1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 1 1 1

			(total – 30; Same – 5; unique – 25 /83.33 %)			(total – 28; Same – 5; unique – 23 /82.14 %)
C 3	лиса, медведь, корова, кошка, леопард, тигр, лев, козел, овца, заяц, мышка, обезьяна, пума, бык, баран	лиса, медведь, корова, волк, енот, бобер, свинья, курица, рыбы, сом, дракон, птицы морская свинка - -	1 1 1 2 2 2 2 2 2 2 2 2 2 1 1 (total – 25;	стул, телевизор, кровать, шкаф, картина, посуда, стол, холодильник, дверь, ванна, окно, микроволновка, бутылка, чайник, кружка, тарелка, блюдце,	стул, телевизор, кровать, шкаф, картина, диван, табуретка, компьютер, аквариум, клетка, нож, книги, игрушки, статуэтки, диски, мышка -	1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 1

			Same – 3; unique – 22 /88%)	миска, корм	- -	1 1 (total – 30; Same – 5; unique – 25 /83.3%)
C 4	лев, тигр, кошка, ежик, зебра, лошадь, верблюд, дельфин, акула, щука, волк, лиса, заяц, белка	лев, тигр, кошка, ежик, котенок, слон, крокодил, бегемот, рыба - - - - -	1 1 1 1 2 2 2 2 2 1 1 1 1 1	кружка, светильник, полотенце, колбаса, шарик, мячик, пистолет, телевизор, сапоги, наушники, пол, корм, ваза, компьютер, доска,	костюм, подушка, кофта, штаны, книжка, глобус, машинка - - - - - - - -	2 2 2 2 2 2 2 1 1 1 1 1 1 1

			(total – 19; Same – 4; unique – 15 /78.95 %)	карандаши	-	1 1 (total – 23; Same – 0; unique – 23 /100%)
C 5	кошка, лошадь, медведь, лиса, корова, овца, зайчик, кролик, сова, дятел, волк, ежик, белка, тигр, лев,	кошка, лошадь, медведь, лиса, собака, курица, свинья, овечка, олень, дикобраз, жираф, динозавр, птерадактиль, рекс, единорог, летуч.мышь,	1 1 1 1 2 2 2 2 2 2 2 2 2 2 2 2 1	телевизор, стулья, шкаф, карандаши, картины, холодильник, коридор, обувь, воздушный шар, дверь, пол, обои, рисунки, шарик -	телевизор, стул, шкафы, карандаши, картины, компьютер, телефон, зарядка, диван, кресло, табуретка, стол, чашки, фонари, вешалки, игрушки,	1 1 1 1 1 2 2 2 2 2 2 2 2 2 2 1 1

		рыбка, краб	1 1 (total – 29; Same – 4; unique – 25 /86.21 %)	- - - - -	вещи, ручки, мышки, спичка	1 1 1 1 (total – 29; Same – 5; unique – 24 /82.75 %)
C 6	лошадь, кошка, обезьяна, крокодил, пума, тигр, гепард, леопард, рыбы - - -	лошадь, кошка, альпака, жираф, змея, хомяк, слон, верблюд, хорек, белка, ящерица, гекон, сова,	1 1 2 2 2 2 2 2 2 1 1 1 1	стул, цветок, аквариум, шкаф, пальма, окна, тумбочка, телевизор, диван, компьютер, журнальный столик, швейная машинка,	стул, цветки, аквариум, шкаф, игрушки, телевизор, карта, ковер, велотреножер, кровать, комод, - -	1 1 1 1 2 2 2 2 2 2 2 1

	- - -	паук, жук, божья коровка	1 1 1 (total – 23; Same – 2; unique – 21 /91.30 %)			(total – 19; Same – 4; unique – 15 /78.95 %)
C 7	медведь, волк, кошка, попугай, канарейка, кролик, лиса, ежик, выдра	медведь волк суслик заяц белка - - - -	1 1 2 2 2 1 1 1 1 (total – 12; Same – 2; unique – 10	ваза, шкаф, гардероб, телефон, провод, телевизор, диван, кресло, магнитики, холодильник, духовка, блюдо, полочка, цветы,	ваза шкаф, картина книжки, игрушки - - - - - - - - -	1 1 2 2 2 1 1 1 1 1 1 1 1 1

			/83.33 %)	кровать, губка, стол с полками	- - -	1 1 1 (total – 20; Same – 2; unique – 18 /90%)
C 8	лев, кот, тигр, медведь, лиса	лев, слон, жираф, верблюд -	1 2 2 2 1 (total – 8; Same – 1; unique – 7 /87.5%)	телевизор, стул, кроватка, плита, холодильник, ложка, чайник, лампочка, шторки	телевизор, стул, кровать, плита, стол, диван, стенка - -	1 1 1 1 2 2 2 1 1 (total – 12; Same – 4; unique – 8

						/66.67 %)
C 9	медведь, лисичка, волк, свинья, жираф, кошка, сова, снегирь, ворона	медведь, лиса, волк, слон, дикобраз, котик, птичка, попугай, -	1 1 1 2 2 2 2 2 1 (total – 14; Same – 3; unique – 9 /64.29 %)	холодильник, диван, телевизор, тумбочка, морозильная камера шкаф, кресло, подушка, одеяло, тарелки, духовка, плита	холодильник, диван, телевизор, тумбочка, морозильная камера подоконник, ванная, туалет, умывальник, вешалки - -	1 1 1 1 1 2 2 2 2 2 1 1 (total – 17; Same – 5; unique – 12 /70.59 %)
C 10	кошка, свинка -	кошка, медведь, волк,	1 2 1	вилка, ложка, ножик,	вилка, ложка, ножик,	1 1 1

	- - - - - - - -	лиса, верблюд, зайчик, кенгуру, пингвин, улитка, муравей, птица	1 1 1 1 1 1 1 1 (total – 12; Same – 1; unique – 11 /91.67 %)	кровать, телевизор, плита, кресло, тарелка, сковородка, микроволновка, посуда -	кровать, телевизор, плита, кресло, стул, табуретка, диван, шкаф, ванна	1 1 1 1 2 2 2 2 1 (total – 16; Same – 7; unique – 9 /56.25 %)
С 1 1	баран, кот, слон, жираф, бегемот, верблюд, крокодил, змея,	баран, кот, корова, овечка, козел, попугай, кролик, хомяк	1 1 2 2 2 2 2 2	игрушки, стул, шкаф, диван, телевизор, кровать, барная стойка, арка,	игрушки, стул, шкаф, диван, телевизор, кровать, барная стойка, стол,	1 1 1 1 1 1 1 2

	паук, свинка, медведь, коза, ящерица, лошадь	- - - - - -	1 1 1 1 1 1 (total – 20; Same – 2; unique – 18 /90%)	коридор, гардероб, цветы, компьютер, телевизор, подушка, ваза	куклы, еда, холодильник, люстра, шторы, окно, балкон	2 2 2 2 2 2 2 (total – 23; Same – 7; unique – 16 /69.57 %)
PLI 1	- - -	пингвин, акула, кошка	1 1 1 (total – 3; Same – 0; unique – 3 /100%)	диван, кровать, шкаф, майки, тумбочки, двери, окно	диван, кровать, шкаф, телевизор, игрушки - -	1 1 1 2 2 1 1 (total – 9; Same – 3;

						unique – 6 /66.67 %)
PLI 2	акула, рыба, кошка, лев, тигр, лягушка, черепашка, ежик - -	акула, рыба, мышь, лиса, мишка, волк, зайчик, кит, кот, белка	1 1 2 2 2 2 2 2 1 1 (total – 16; Same – 4; unique – 12 /75.%)	чай, кофе, суп, гречка - - - - - -	тетрадки, компьютер, планшет, телефон, кровать, посуда, чайник, холодильник, фрукты, овощи, мясо	2 2 2 2 1 1 1 1 1 1 1 (total – 15; Same – 0; unique – 15/100 %)
PLI 3	кошка, кролик -	кошка, кролик, лошадь,	1 1 1	диван, стул -	диван, подушка, одеяло,	1 2 1

	- -	корова, хомяк	1 1 (total – 5; Same – 2; unique – 3 /60%)	- -	табуретка, ледянка	1 1 (total – 6; Same – 2; unique – 4 /66.67 %)
PLI4	жираф, лягушка, мишка, зайчик, слон, корова, козлы - - -	жираф, лягушка, мишка, зайчик, слон, зебра, котик, крокодил, змея, тараканы	1 1 1 1 1 2 2 1 1 1 (total – 12; Same – 5; unique – 7	платье, штаны, кофточка, шарфик, курточка, шапка, шкаф -	платье, штаны, кофточка, сарафан, колготки, носки, сандали, водолазка	1 1 1 2 2 2 2 1 (total – 12; Same – 3; unique – 9 /75%)

			/58.33 %)			
PLI 5	слон, медведь, бобер, ослик, гуси, змея, кузнечик, пчела, комар, божья коровка	слон, медведь, кот, хомяк, корова, щенята, зайчик, мышка, лось -	1 1 2 2 2 2 2 2 2 1 (total – 17; Same – 2; unique – 15 /88.24 %)	футболка, платье, штанишки, юбочка, рубашка	стул, компьютер, вещи, пирамида, куклы	2 2 2 2 2 (total – 10; Same – 0; unique – 10 /100%)
PLI 6	кошка, лягушка, зайка, мишка, корова,	кошка, лягушки, зайка, медведь, тигр,	1 1 1 1 2	телевизор, телефон, компьютер - -	телевизор, телефон, ноутбук, шкаф, книги,	1 1 2 1 1

	лошадь, черепаха, улитка, комары	леопард, козленок - -	2 2 1 1 (total – 12; Same – 4; unique – 8 /66.67 %)	- - -	стол, стул, кружки	1 1 1 (total – 9; Same – 2; unique – 7 /77.78 %)
PLI7	гусь, слон, лягушка, курица, петух, крокодил, муравей, ворона, заяц, змея, лошадь -	гусь, слон, хомяк, кошка, свинья, корова, попугай, лев, мышь, журавль, цапля летучая мышь	1 1 2 2 2 2 2 2 2 2 2 1	кровать, тумба - - -	кровать стул, диван, шкаф, компьютер	1 2 1 1 1 (total – 6; Same – 1; unique – 5 /83.33 %)

			(total – 21; Same – 2; unique – 19 /90.48 %)			
PLI8	кошка, ежик, лягушка, лиса, бык, белка, корова, петух, свинья, ослик, баран, зайчик, медведь	кошка, ежик, лягушка, лиса, бык, белка, волк, утка, цыпленок - - - -	1 1 1 1 1 1 2 2 2 1 1 1 1 (total – 16; Same – 6;	стул, шкаф, табуретка, ложки, стаканы, тарелки, кастрюля - - - - -	стул, шкаф, табуретка, ложки, компьютер, планшет, игрушки, вилки, фломастеры, книжки, диван, кровать, телевизор	1 1 1 1 2 2 2 1 1 1 1 1 1 (total – 16; Same – 4;

			unique – 10 /62.5%)			unique – 12 /75%)
PLI9	кошка, корова, бык - - - - - - - - - -	кошка, медведь, барсук, белка, волк, лиса, заяц, слон, пчела, комар, шмель, муха, паук	1 2 2 1 1 1 1 1 1 1 1 1 1 (total – 15; Same – 1; unique – 14 /93.33 %)	диван - - - - -	диван, плита, твелевизор, тумбочка, шкаф, палас	1 1 1 1 1 1 (total – 6; Same – 1; unique –5 /83.33 %)

PLI10	хомяк, змея, кошка, журавль, зебра, конь, лягушка, медведь, мышка, утка, осел	хомяк, змея, кот, тигр, обезьяна, лев, попугай, грач, синичка, ворона, дятел	1 1 2 2 2 2 2 2 2 2 2 (total – 20; Same – 2; unique – 18 /90%)	телевизор, кровать, игрушки, диван, кепка, календарь, холодильник, книги, журналы, лампа, стол, батарейка	телевизор, кровать, игрушки, диван, компьютер, мышка, телефон, кресло, ванна, раковина, ящики, стиральная машинка	1 1 1 1 2 2 2 2 2 2 2 2 (total – 20; Same – 4; unique – 16 /80%)
PLI11	кот, змея, сова, тигр, лев -	котик, змея, заяц, медведь, лягушенки, ослик,	1 1 2 2 2 1	шкаф, диван, кровать, полка - -	шкаф, диван, стул, комод, телевизор, утюг,	1 1 2 2 1 1

	-	слон, - мышки, - гуси, - лошадка, - птичка, - крокодил	1 1 1 1 1 1 (total – 15; Same – 2; unique – 13 /86.67 %)	-	ноутбук, - ванна, - шторы, - игрушки, - футболка, - гладильная доска,	1 1 1 1 1 1 (total – 14; Same – 2; unique – 12 /85.74 %)

Table VII.3:1 Incorrect responses produced by monolingual and bilingual children in Naming task

stimuli	responses provided by monolingual children	responses provided by bilingual children
2. лицо	голова[wider meaning] (3)	голова[wider meaning] (2)
3. глаз		Очи[phonologically similar to Italian (occhi)]
4. живот	Пузо[substandard speech](9); пузико[substandard speech + Diminutive]; туловище[wider meaning]	
7. деньги	билеты	Карты[wider meaning + loan translation (carta – бумага)] (2); Гроши[loans from other than Russian and Italian languages]; картинки[wider meaning+ loan translation (carta – бумага) + Diminutive]; карточки[wider meaning+ loan translation (carta – бумага) + Diminutive]
8. вагон	Поезд[wider meaning] (5); автобус[same semantic category word] (3); паровоз[same semantic category word] (2); трамвай[same semantic category word]; троллейбус[same semantic category word]	Поезд[same semantic category word] (6); трамвай[same semantic category word] (2); автобус[same semantic category word] (2); паровоз[same semantic category word]; паровозик[same semantic category word + Diminutive]
12.комната	Дом[wider meaning] (4); Кухня[narrowed meaning]; мебель[narrowed meaning]; окно[narrowed meaning].	дом[wider meaning] (4); окно[narrowed meaning] (4); кухня[narrowed meaning] (3); балкон[narrowed meaning]; квартира[narrowed meaning]; окошко[narrowed meaning + Diminutive]
13.письмо	Открытка[same semantic category word] (2); почта[wider meaning] (3).	почта[wider meaning] (3); Busta[narrowed meaning + Italian];

		Пи Phonetically distorted form of target word; писюнок Phonetically distorted form of target word; записок narrowed meaning + paragrammatism; написано descriptive (same root word)
14. дождь	туча narrowed meaning	Водичка wider meaning + Diminutive; капли narrowed meaning
15. окно	буря wider meaning; гроза wider meaning	Грязное descriptive; шторы same semantic category word
16. семья	Люди wider meaning; родители narrowed meaning; человечки wider meaning + Diminutive.	famiglia full synonym + Italian (3); детки narrowed meaning + Diminutive; друзья wider meaning; люди wider meaning; мальчики wider meaning + Diminutive
17. крыша	дом wider meaning (2)	tetto full synonym+Italian
18. сердце	любовь wider meaning	cuore full synonym+Italian
19. звонок	Колокольчик full synonym (18)	Колокольчик full synonym (6); campano full synonym+Italian; динь-донь onomatopoeia
20. плечо		Рука same semantic category word; спина same semantic category word; шея same semantic category word
21. точка	черный круг full synonym + descriptive; круг full synonym (8); кружок full synonym + Diminutive; шарик same semantic category word (same shape) + Diminutive	Круг full synonym (3); кружок full synonym + Diminutive (2); cerchio full synonym + Italian; дырка same semantic category word (same shape); кружочек full synonym + Diminutive; мячик same semantic category word (same shape) + Diminutive; шарик same semantic category word (same shape) + Diminutive;

22. царь	король[full synonym] (17)	Король[full synonym] (9); re[full synonym + Italian]; королев[full synonym + paragrammatism]
23. очередь	люди[wider meaning] (3); покупатели[narrowed meaning]; школьники[narrowed meaning]; человеки[wider meaning + paragrammatism];	Люди[wider meaning] (2); fila[full synonym + Italian]; людя[wider meaning + paragrammatism]; дяди[narrowed meaning]
24. лес	Деревья[narrowed meaning] (2); ветки[narrowed meaning]; елки[narrowed meaning]; куст[narrowed meaning]; природа[wider meaning]	Деревья[narrowed meaning] (3); весна[wider meaning]; дерево[narrowed meaning]; деревы[narrowed meaning + paragrammatism]; двери[narrowed meaning + Phonetically distorted form of target word]; елки[narrowed meaning]
25. мальчик	Человек[wider meaning] (17); дядя[narrowed meaning]	Человек[wider meaning] (4); папа[narrowed meaning] (3); дядя[narrowed meaning] (2); мужчина[wider meaning]; дяденька[narrowed meaning + Diminutive]
26. кресло	Диван[same semantic category word]; сидение[same semantic category word]; табуретка[same semantic category word]	диван[same semantic category word] (4); стул[same semantic category word] (3); sedia[same semantic category word + Italian]; poltrona[full synonym + Italian; сидение[same semantic category word]
27. дно	аквариум[wider meaning] (4); земля[narrowed meaning] (2); песок[narrowed meaning] (3); море[wider meaning]; подводный мир[wider meaning]; пол[same semantic category word]; рыбка[same semantic category word + Diminutive]	sabbia[narrowed meaning + Itlian] (3); море[wider meaning] (3); песок[narrowed meaning] (2); аквариум[wider meaning]; вода[same semantic category word]; водичка[same semantic category word + Diminutive]; земля[narrowed meaning]; пол[same semantic category word];

		рыба same semantic category word
28. цветок	ромашка narrowed meaning (2)	Ромашка narrowed meaning (3); цве Phonetically distorted form of target word
29. больница	скорая помощь same semantic category word (2)	Ospedale full synonym + Italian; ветеринар same semantic category word; ветеринары same semantic category word; госпиталь full synonym; дом wider meaning; скорая помощь same semantic category word
30. одежда	Вещи full synonym (4); гаредероб full synonym; наряды full synonym	вещи full synonym (2); Vestiti Italian; овощи Phonetically distorted form of target word; одежка substandard speech+ Diminutive
31.чай	Апельсин semantically unrelated word; колесо semantically unrelated word; кружка semantically unrelated word; лимон semantically unrelated word; мусорка semantically unrelated word; фрукты semantically unrelated word	апельсин semantically unrelated word (2); лимон semantically unrelated word; компас semantically unrelated word; стиральная машинка semantically unrelated word; суп same semantic category word
32.птица	чайка narrowed meaning (6)	курица narrowed meaning; чайка narrowed meaning
33. остров	пляж narrowed meaning (2); Африка wider meaning	Isola Italian (4); берег narrowed meaning; море same semantic category word; океан same semantic category word; пальма narrowed meaning
34. зима	снег narrowed meaning	Весна same semantic category word (2); снег narrowed meaning; снежинки narrowed meaning
35.ящик	Коробка same semantic category word (10); Доски wider meaning (2); Шкаф same semantic category word;	Коробка same semantic category word (8); шкатулка same semantic category word (3); scatola same semantic category word + Italian; столы same semantic category word

	шкафчик same semantic category word + diminutive	
36.часы		Ачи Phonetically distorted form of target word; годыльнык loans from other than Russian and Italian languages
37.школа	Дом wider meaning (11); окна narrowed meaning; окны narrowed meaning + paragrammatism; квартиры same semantic category word	дом wider meaning (3); дом двухэтажный wider meaning; окна narrowed meaning
38. бабушка	Старушка full synonym	Старушка full synonym (5); Тетя wider meaning
39.шея	горло narrowed meaning (4)	горло narrowed meaning (2); collo Italian
40. считать	занимается wider meaning; пример решает narrowed meaning; решает задачки narrowed meaning	делает уроки wider meaning; прибавляет narrowed meaning; рисует same semantic category word; читает same semantic category word
41. ждать	смотрит на часы descriptive (4); смотрит время descriptive (2); смотрит, сколько время descriptive (2); хочет подарить цветы descriptive (2); букет semantically unrelated word; встречает same semantic category word; дарит цветы маме descriptive; хочет маме подарить букет descriptive; цветы подарить descriptive; часы смотрит descriptive	дать розы маме descriptive; идет девочка descriptive; смотрит время descriptive; смотрит годыльнык descriptive + loans from other than Russian and Italian languages; смотрит на часы descriptive; смотрит сколько секундок descriptive + Diminutive; смотрит часы; стоит descriptive; устал semantically unrelated word; хочет дать цветы descriptive
42. лежать	болеет narrowed meaning	Спит narrowed meaning (3); Болит narrowed meaning + paragrammatism; отдыхает narrowed meaning

43. слушать		Смотрит same semantic category word; ушим ascolta paragrammatism + descriptive + Italian
44. ехать	Рулит narrowed meaning (2); водит narrowed meaning (verbs of motion)	sta guidando Italian; ведет фургон narrowed meaning + descriptive; везет same semantic category word (verbs of motion); водит narrowed meaning (verbs of motion); гуидает loan translation машинку descriptive + Diminutive; идет same semantic category word (verbs of motion) машина descriptive; за рулем descriptive
45. махать	Вилять full synonym (7); заметать следы descriptive + semantically unrelated word; шевелится wider meaning	вилять full synonym; двигается wider meaning; дергается same semantic category word; поворачивает same semantic category word; мозу neologism; чистит semantically unrelated word
46. целовать		da un baccio descriptive + Italian; целовает paragrammatism; цём onomatopoeia
49. желтый		Жалло Phonetically distorted form of target word + Italian
51. буква	слово same semantic category word (2) А narrowed meaning; две а descriptive + narrowed meaning;	А narrowed meaning; алфабет wider meaning + Phonetically distorted form of target word
54. зуб		Dent Italian
55. огрызок	яблоко wider meaning (5); мусор wider meaning; обгрызанное descriptive; остатки wider meaning;	Яблоко wider meaning (8); груша wider meaning; семечка narrowed meaning; семечки narrowed meaning;

	погрызаное descriptive; съеденое яблоко descriptive + wider meaning; яблоко огрызанное descriptive + wider meaning; семечки narrowed meaning	скушанное яблоко descriptive + narrowed meaning
56. лужа	Бензин semantically unrelated word; дождь same semantic category word	дождь same semantic category word (3); вода wider meaning (2); pozzaItalian; дождик same semantic category word + Diminutive; море same semantic category word
57. бобер	Барсук same semantic category word (2); крот same semantic category word (2); крыса same semantic category word	Мышка same semantic category word + Diminutive (2); хомяк same semantic category word (2); бурундук same semantic category word; ёжик same semantic category word + Diminutive; крыса same semantic category word
58. пианино	который поет descriptive + same semantic category word	Фортепианоfull synonym (3); пианоPhonetically distorted form of target word + Italain (**piano**forte) (2)
59.овца	Барашекfull synonym + Diminutive (3); баранfull synonym (2)	Pecora Italian; беonomatopoeia; пекулуPhonetically distorted form of target word + Italain; ослик same semantic category word
60. гора	скала same semantic category word	MontagniaItalian (3); рога Phonetically distorted form of target word
61.закат	солнце narrowed meaning (3); солнце садится full synonym + descriptive (2); вечер same semantic category word; рассвет same semantic category word; свет same semantic category word	tramontoItalian (2); вечер same semantic category word (2); солнцеnarrowed meaning (2)
62.дупло	дуб wider meaning	Дерево wider meaning (3); дырка narrowed meaning (3);

		дуб wider meaning (2)
63. бахрома	Бусы same semantic category word (2); шторы wider meaning (2); бубенчики same semantic category word + Diminutive; волосики semantically unrelated word + Diminutive; колокольчики same semantic category word + Diminutive; штора wider meaning	Бусы same semantic category word (2); decorazione same semantic category word + Italian; бусики same semantic category word + Diminutive; занавеска wider meaning; занунчики Neologism; украшения same semantic category word; шарф wider meaning
64. улей	Дупло same semantic category word; пчелы same semantic category word	Домик wider meaning + Diminutive; псёлы phonologically similar to non-target Russian word; пчелки same semantic category word + Diminutive
65. слеза	глаз wider meaning	Капля (3); lacrime Italian; слез Phonetically distorted form of target word; плачет descriptive
66. сачок	сетка same semantic category word (4); рыб ловить descriptive	Retino same semantic category word + Italian; корзина same semantic category word; палка narrowed meaning; поймать descriptive; рашо neologism; сетка same semantic category word
67. хлыст	Веревка narrowed meaning (6); который хлещет descriptive; меч semantically unrelated word; нить narrowed meaning; палочка, которая бьет descriptive; повадок semantically unrelated word; трос semantically unrelated word	per I cavalli descriptive + Italian; завитушка semantically unrelated word; нитка narrowed meaning; палка narrowed meaning; скакалка semantically unrelated word
68.балалайка	гитара same semantic category word (9)	Гитара same semantic category word (13); гитар phonologically similar to non-target Russian word

69. учитель		Maestra[Italian]; учка[Phonetically distorted form of target word]
70. ключ		chiavi[Italian]
71.сом	Щука [same semantic category word] (2); рыба[wider meaning] (4); рыбка [wider meaning + Diminutive]; угорь [same semantic category word]	щука [same semantic category word] (3); рыба [wider meaning]; рыбка [wider meaning + Diminutive]; кот [semantically unrelated word]; мар[neologism]
72. хлеб		хлиба[Phonetically distorted form of target word]
73.лупа	Сковородка [semantically unrelated word] (4); компас [semantically unrelated word]	Сковородка [semantically unrelated word] (2) lente[Italian]; глазик [same semantic category word + Diminutive]; кастрюля [semantically unrelated word]; лента[words phonologically similar to Italian (lenti - линзы)]; линза [semantically unrelated word]
74.гамак	Качалка [same semantic category word]; кроватка [same semantic category word + Diminutive]; кровать [same semantic category word]; кровать наверху [same semantic category word + descriptive]; на котором лежит [descriptive]	кровать (2); lettino[Italian + Diminutive]; letto [Italian]; гнездо [same semantic category word]; лежать [descriptive]; сетка [same semantic category word]
75.пуговица	крестик [Diminutive] (2)	Боттон [words phonologically similar to Italian]; ботончик [words phonologically similar to Italian + Diminutive]; гудзык [loans from other than Russian and Italian languages]; кнопка[same semantic category word]
76.парашют	шар [same semantic category word] (2); воздушный шар [same semantic category word]	воздушный шар [same semantic category word] (6); падать [descriptive];

		параход Phonetically distorted form of target word
77.кожура	Шкурка full synonym (3); шкурка от банана full synonym + descriptive (2); банан wider meaning; огрызки от банана same semantic category word + descriptive; грязь wider meaning; остатки банана full synonym + descriptive; от банана отгрызок same semantic category word + descriptive + phonologically similar to non-target Russian word; очисток same semantic category word	Банан wider meaning (4); шкурка full synonym (4); бурка phonologically similar to non-target Russian word; нету банана descriptive; шкурка банана full synonym + descriptive; яблоко semantically unrelated word
Total:	348	385

Table VII.3:2 Content analysis results of the incorrect responses produced by monolingual and bilingual children

Types	produced by monolinguals	produced by bilinguals
Phonological errors		
words phonologically similar to Italian	-	3
phonologically similar to non-target Russian word	1	3
Phonetically distorted form of target word	-	15
Neologism (invented string)	-	4
Total	1	25
Lexical characteristics		
loans from other than Russian and Italian languages	-	4
loan translation (калька)	-	4
Words in Italian	-	47
Grammatical elaboration		
diminutives (ум.-ласкательное)	13	26
paragrammatism	2	7
Semantics		
wider meaning	71	62

(type of semantic paraphasia)		
narrowed meaning (type of semantic paraphasia)	40	73
same semantic category word (type of semantic paraphasia)	73	110
Total semantic paraphasias	183	245
semantically unrelated word (verbal paraphasia)	18	15
descriptives	33	24
full synonym	72	50
Stylistic characteristics[13]		
substandard speech words (просторечия)	10	1
Other characteristics		
onomatopoeia	-	3

[13] Stylistic characteristics of the words were checked in

Ozhegov S.I., Shvedova N.Ju. (1999) Tolkovyj slovar' russkogo jazyka: 80000 slov i frazeologicheskih vyrazhenij/ Rossijskaja akademija nauk. Institut russkogo jazyka im. V.V. Vinogradova.- 4-e izd., dopolnennoe.- M.: Azbukovnik,- 944 pp.

Tolkovyj slovar' russkogo jazyka (1935-1940) / Pod red. D.N. Ushakova. — M.: Gos. in-t "Sov. jencikl."; OGIZ; Gos. izd-vo inostr. i nac. slov.,. (4 vol.)

Table VII.3:3 The responses given by bilingual participants on Semantic fluency task

Participant's code	Animals named in Russian	Animals named in Italian	Total unique words for "animals' category	Things at home named in Russian	Things at home named in Italian	Total unique words for "things' category
1	кот, лошадка, корова, барашка, паросенок, коза, заяц, индюк, паук	gatto, cavallo, mucca, agnello, maiale, capra, camello, toro, gallina, orso, cocodrillo, vitelli	1 1 1 1 1 1 2 2 2 1 1 1 Total: 15	стул, кровать, ключи, лампа, диван, коврик, компьютер, одежда, платье	sedia, letto, finestra, frigorifero	1 1 2 2 1 1 1 1 1 Total: 11
2	кот, мишка, лиса, касатка	gatto, orso, tigre, topo, coniglio, cocodrillo	1 1 2 2 1 1 Total: 8	стул, кровать, диван, подушка, игрушки, шкаф, компьютер, сумка	seddia, tablet, telefono, pentola, tubo, lampada, occhialli, frigorifero, rubinetto, televisore, cassetto	1 2 2 2 2 2 2 2 1 1 1

					macchina caffe	1 Total: 19
3	кот, слон, корова, лошадь, мыша, бегемот, жираф, бобер, зайц, ослик, овечка	gatto, elefante, mucca, cavallo, tigre, leone, criceto, zebra, maiale, ucello, gufo, panda	1 1 1 1 2 2 2 2 2 2 2 Total: 19	стулья, диван, дверь, кровать, холодильник, компьютер, игрушки, зеркало, унитаз, тарелки, ложки, чашки, салфетки, вилки, ножи, микроволновка	sedie, divano, porta, letto, frigorifero, computer, lavagna, barbi, pianola, scaffale, termosifone, vaso, scrivania, orecchini	1 1 1 1 1 1 2 2 2 2 2 2 2 2 1 1 Total: 24
4	кролик зайчик, свинка, котик, волк, тигр, крокодил,	coniglio, cavallo, mucca, renna,	1 2 2 2 1 1 1 Total: 10	кровать, шкафы, двери полки, диван, телевизор, пуфик, одеяло, подушка, микроволновка, холодильник, морозилка,	letto, armadio, porta, scafale, divano, borse, elastici, braceletti, anelli, pantaloni, maglioni	1 1 1 1 1 2 2 2 2 2 2 2 1

				стирательная машинка, одежда, ванна, умывальник, биде, окошки, коврик,		1 1 1 1 1 1 1 Total: 25
5	жираф, кот	giraffa, gatto, rinoceronte, leone, gufo	1 1 1 1 1 Total: 5	штаны, рубашки, кровать	astuccio, libro, quaderno, matite, forbici, temperino, gomma	2 2 2 1 1 1 1 Total: 10
6	кот, кура пчела, корова, мышонок, сова, чайки, зайчик, цыпленок,	gatto, galina, camello, zebra, toro, orso, panda, coalla, rinoceronte, volpe, lupo, farfalla, mosca, zanzara, leone	1 1 2 2 2 2 2 2 2 1 1 1 1 1 1	стул, цветы	vasetto, insalata, carne, formaggio, proschutto, pane, salsicce, polpette, letto	2 2 1 1 1 1 1 1 1 Total: 11

			Total: 22			
7	кот, мышь, зебра, барс, черепаха, утка	gatto, topo, zebra, cavallo, scimmia, shimpanse, toro, maiali, pinguino, cicogna, pappagallo, zanzara, ape, pulcino, gallina	1 1 1 2 2 2 1 1 1 1 1 1 1 1 1 Total: 18	телевизор, картина, клей, мусор, диван	tv, telefono, temperino, matita, foglio, scrivania, porta, maniglia, scarpe, elastici, scatole, giocchi, libri, puzzle, costruzioni, tovoli, cuscini, poltroni	1 2 2 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 Total: 22
8	жираф, лев, кот, мышка, тигр, медведь,	girafa, leone, gatto, topolino, mosca, zanzara, leopardo, rana, serpente	1 1 1 1 2 2 1 1 1 Total: 11	лампа, очки, стул, диван, лего, компьютер	lampada, occhiali, finestra, tv, porta, quadro, uova, tablet, telefono, wi-fi, tessera sky	1 1 2 2 2 2 1 1 1 1 1

						Total: 15
9	змея, слон, черепаха, корова, червячок, улитка, дельфин, рыба, осьминог, лев, тигр, пантера, бык, козел, заяц, сова, синица	Serpente, elefante, Tortoruga, mucca, topo, Gatto, Cocodrillo, hipopotam, giraffa	1 1 1 1 2 2 2 2 2 1 1 1 1 1 1 1 1 Total: 22	тетрадки, обувь, очки, крест, книги, пенал, сумки, машинки, автобус, мячик, еда	quaderni, scarpe, piatti, zaini, scafalli, mobili, telefoni, acqua	1 1 2 2 2 2 2 2 1 1 1 Total: 17
10	котик, тигр, мышь, хомяк, мишка	gatto, tigre, toro, magialle, mucca, zebra, leone, capra, pecora, drago	1 1 2 2 2 1 1 1 1 1 Total: 13	постель, стулья, игрушки, дверь, плита, окно	letto, sedia, giocchi, divano, scrivania, comodino, borsa, giacchetto, biccheri, piatto, forcetta,	1 1 1 2 2 2 1 1 1 1 1 1

					cuchiaio, cuschino	1 Total: 16
11	кот, лиса, леопард, медведь	gatto, mucca	1 2 1 1 Total: 5	-	letti, armadi, divano	1 1 1 Total: 3
12	кот, корова, козочка, лев, тигр, слон, леопард, лиса, крокодил, барашек, волк, кабан, змея, белка, енот, ежик, верблюд, жираф, пантера, бык, мышка	gatto, mucca, pecora, leone, tigre, elefante, leoparde, volpe, cocodrillo	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 Total: 21	тарелка, стул, кровать, шкаф, тумбочка, чашка, кастрюля, сковородка, ложка, вилка, ножик, бассейн, полки, зеркальце	piatto, sedia, banco, divano, orologio, telefono	1 1 2 2 2 2 1 1 1 1 1 1 1 1 Total: 18

13	кот, слон, волк, леопард, тигр	gatto, topo	1 2 1 1 1 Total: 6	стул, бутылка, термометр, вода, стаканы, кастрюль	sedia, bottiglia, occhiali, lenti	1 1 2 2 1 1 Total: 8
14	кошка, тигр, рыбки, крокодил, мишка,	gatto, tigre, pesci, coccodrillo, mammut, elefante, schimmia, leone, tatraruga	1 1 1 1 2 1 1 1 1 Total: 10	стул, игрушки, диван, одежда, книжки, компьютер	sedie, giocchi, divano, finestra, letto, tetto, muro, pavimento, ventilatore, torta	1 1 1 2 2 2 1 1 1 1 Total: 13
15	корова, петух, кошка, свинья, лиса, зайчик, курица, цыплята, поросята, лошадь, единорог, жеребенок	mucca, gallo, gatto, maiale, zebra, pesce	1 1 1 1 2 2 1 1 1 1 1 1 Total: 16	кровать, игрушки, кастрюля, ложка, вилка, нож, стул, очки, зеркальце, шкаф, телевизор	letto, lampada, computer, muro, padella, scatola	1 2 2 2 2 2 1 1 1 1 1 Total: 16

			Total: 14			
16	рыбка, кошка, тигр, динозавры, лиса, белка, звездочки морские	pesce, gatto, tigre, giraffa, cavallo, toro, mucca, leone, orso	1 1 1 2 2 2 2 1 1 Total: 13	стульчики, тарелки, доска, платья, босоножки, телефон, ипад, вода, бумажки, туалет, вешалки, подушки, одеяла	sedia, letto, divano, tavolo, giocchi, lavandino	1 2 2 2 2 2 1 1 1 1 1 1 1 Total: 18
17	кошка, жираф, лошадь, бегемот, рыба, лягушка, леопард, журавль, утка	gatto, giraffa, cavallo, elefante, camello, mucca	1 1 1 2 2 2 1 1 1 Total: 12	лего, стулья, диван, кресло, машинки, игрушки, лампадка, кровать, шкаф, кастрюля, скатерть	lego, sedia, divano, poltrona giocatelli, scatoli, piatti, occhialli, forcetta, dama, scacchi, tv, quaderni	1 1 1 1 2 2 2 2 2 2 2 1 1 Total: 20

18	кошка, лошадка, бабочка	gatto, serpente, coniglio	1 2 2 Total: 5	книжки, телефон, полки, окно, стульчик, ручка, кресло, диван, пол, сандали, бумага	libro, telefono, scaffale, matita, propellero, acqua, tablet, computer, muro, giocattoli, zaino	1 1 1 2 1 2 2 2 2 2 2 1 Total: 19
19	кот, рыба, волк, кенгуру, зайка	gatto, pesce, lupo, elefante, quala, delfino, cocodrillo, leone, tigre, coniglio, cavallo, giraffa Total: 14	1 1 1 2 2 1 1 1 1 1 1 1	стул, компьютер, ключи, телевизор	sedia, letto, comodino, lampada, divano, porta, lavandino, scrivania	1 2 2 2 1 1 1 1 Total: 11
20	кошка, лев, горилла, слон, бегемот	gatto, leone, gorilla, elefante,	1 1 1 1 2	игрушки, ложка, вилка, нож, ручка,	giocattoli, cucchiaio, forcetta, coltello, penna,	1 1 1 1 1

		cocodrillo, schimmia, leopardo, mucca, formicche, farfalla, ape	1 1 1 1 1 1 Total: 12	машинка, окно, стул, чашки, пол, крышка, картина	matita, pinarelli, astuccio, colori, acqua, succo, maglietta, occhialli	2 2 2 2 2 2 2 1 Total: 20
21	кошка, лев, лошадь, цыпленок	gatto, leone, serpente, tigre, aquila	1 1 2 2 1 Total: 7	кровать, одежда, игрушки, шкаф, лампа, покрывало, подушка	letto, vestiti, giocchi, armadi, tv, sedia, poltrona, divano, pentole, cucchiaio, forcetta, comodino, salvietti, libri, scarpe	1 1 1 1 2 2 2 1 1 1 1 1 1 1 1 Total: 18
22	слон, змея, лиса, медведь, носорог,	elefante, serpente, volpe, orso, rinceronte,	1 1 1 1 1 2	стул, диван, кросовки	sedia, armadio, porta	1 2 2 Total: 5

	зебра, муравей, волк	gatto, mucca, toro, tigre, leone, ucello, aquilla	2 2 1 1 1 1 Total: 15			

Acknowledgments

I would like to thank Andrea Marini, Elena Gorobets, and Rosanna Giaquinta for their generous support and helpful comments. This research was funded by the IAMONET_RU project (EACEA) and the University of Udine (Italy). I am also grateful to all the children who participated in the studies, their parents and teachers.