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MAIN: Multilingual Assessment Instrument for Narratives

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MAIN: Multilingual **A**ssessment **I**nstrument for **N**arratives is part of **LITMUS L**anguage **I**mpairment **T**esting in **M**ultilingual **S**ettings. LITMUS is a battery of tests which is being developed as a result of COST Action IS0804 *Language Impairment in a Multilingual Society: Linguistic Patterns and the Road to Assessment.* Financial support by COST is hereby gratefully acknowledged.

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Part I. MAIN: Multilingual Assessment Instrument for Narratives

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The Multilingual Assessment Instrument for Narratives (MAIN) was designed in order to assess narrative skills in children who acquire one or more languages from birth or from early age. MAIN is suitable for children from 3 to 10 years and evaluates both comprehension and production of narratives. Its design allows for the assessment of several languages in the same child, as well as for different elicitation modes: Model Story, Retelling, and Telling.

MAIN contains four parallel stories, each with a carefully designed six-picture sequence. The stories are controlled for cognitive and linguistic complexity, parallelism in macrostructure and microstructure, as well as for cultural appropriateness and robustness.

The instrument has been developed on the basis of extensive piloting with more than 550 monolingual and bilingual children aged 3 to 10, for 15 different languages and language combinations.

Even though MAIN has not been norm-referenced yet, its standardized procedures can be used for evaluation, intervention and research purposes. MAIN is currently available in the following languages: English, Afrikaans, Albanian, Basque, Bulgarian, Croatian, Cypriot Greek, Danish, Dutch, Estonian, Finnish, French, German, Greek, Hebrew, Icelandic, Italian, Lithuanian, Norwegian, Polish, Russian, Spanish, Standard Arabic, Swedish, Turkish, Vietnamese, and Welsh.

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0 Introduction

The *Multilingual Assessment Instrument for Narratives* (MAIN) was developed within the framework of the COST Action IS0804 *Language Impairment in a Multilingual Society: Linguistic Patterns and the Road to Assessment* in order to assess narrative production and comprehension skills of children from 3 to 10 years.

The MAIN was developed by the Working Group for Narrative and Discourse as a tool for the evaluation of the narrative abilities of bilingual children across languages. It can thus be used with a variety of languages and language combinations. The design of the MAIN allows for the elicitation of narratives in three modes: i) story generation (telling), ii) retelling, and iii) telling after listening to a model story. A set of comprehension questions that focus on macrostructure components and internal state terms also forms part of the assessment procedure. Our intent was to develop materials for the assessment of narratives in both languages of bilingual children in order to screen and identify children at risk for Specific Language Impairment (SLI).

Different types of narratives (Hughes, McGillvray, & Schmidek, 1997) offer a platform for examining a wide range of linguistic abilities in context. These abilities include story structure, discourse features (e.g. coherence and cohesion), morphosyntax, complex syntax, lexis and uniquely bilingual phenomena such as code switching and code interference. Children's narratives also provide an index of their cognitive, semantic and social abilities (Liles, 1993). Narrative analysis is considered by researchers and clinicians to be an ecologically valid way to investigate communicative competence (Botting, 2002) and to be less biased against bilingual children than norm-referenced assessment tools (Paradis, Genesee, & Crago, 2010). Oral narratives provide a rich source of data about a child's language use in a relatively natural context. Finally, narrative analysis allows clinicians to assess multiple linguistic features, including macrostructure, e.g. story grammar categories such as goals, attempts and outcomes, as well as microstructure features, e.g. lexical diversity, relational and referential devices, etc., using relatively short language samples (Heilmann, Miller, & Nockerts, 2010; Heilmann, Miller, Nockerts, & Dunaway, 2010).

Narrative skills are important for later success in school, e.g. in literacy and for comprehension of the language of mathematics (Bishop & Edmundson, 1987; Bliss, McCabe, & Miranda, 1998; McCabe, 1996; McCabe & Rollins, 1994; Walach, 2008; Westby, 1991). One of the main tasks young children are facing in becoming literate is discovering the interrelationships between oral language and literacy. Narrative skills form a bridge between oral language and literacy by providing exposure to and experience in using extended,

contextualized, cohesive discourse units and abstract texts that children will encounter in written texts (Hadley, 1998; Westby, 2005). Discourse is the main linguistic medium through which academic information is disseminated and acquired. Discourse knowledge was identified by the RAND-study group *Reading for Understanding: Toward a Research & Development Program in Reading Comprehension* (Snow 2002) as one of seven critical components that directly or indirectly influence language and reading comprehension and account for the variability in the reading achievement of individual children. According to Oakhill and Cain (2007), reading comprehension has its roots in the comprehension of narrative discourse that develops simultaneously with other early language skills prior to formal reading instruction. The ability to tell a story links oral language skills and literacy, because it requires children to plan and produce contextualised and cohesive discourse. Intervention studies have shown that directly teaching narrative skills improves comprehension and production of oral narratives as well as reading comprehension (Hayward and Schneider, 2000; Swanson, Fey, Mills, and Hood, 2005). Moreover, narrative abilities on a macrostructure level, i.e. composition of cohesive event sequences, reflect capacities that go beyond the specifics of language. Thus, the assessment of narratives can be seen as especially appropriate for bilingual children: "language tasks that require a cognitive component might also be less biased against dual language children, because the cognitive component could be tapping into language-general capacities" (Paradis, Genesee, & Crago, 2010:221). There is a growing need for a reliable narrative assessment instrument for bilingual children, which not only taps language-specific, but also language-general skills.

Bilinguals include children who acquire two languages at home (e.g. from parents speaking different languages, or from parents speaking one language and the primary caretaker speaking another language), as well as children who acquire one language at home and another language outside the home, e.g. in preschool (sequential or successive bilinguals).

The number of bilingual children is increasing. This increase is especially evident in Europe, which until recently was comprised of different countries with largely monolingual populations and which has experienced dramatic migrations in the last decades. The International Organization of Migration documented 214 million migrants worldwide in 2010 (Koser & Laczko/World Migration Report), millions of whom come to Europe. Only in 2007, more than 18.5 million immigrants from outside the EU (so-called 'third country nationals') legally settled in the 27 EU countries, thus constituting 4% of the total population (European Commission, 2009), whilst "about 9 million EU citizens lived in an EU country other than their own" (Grundtvig; Conference documentation 2010:3). These immigrants speak a native language which differs

from the language of their country of residence. Moreover, these people are not distributed evenly across the European landscape, being heavily concentrated in large cities and in ethno-linguistic enclaves in those cities. Given such demographic diversity, the children of immigrants exposed to and speaking two or more languages constitute an actively growing population in Europe.

This resembles situations which are more common in many countries outside Europe. South Africa, for example, a country marked by cultural and linguistic diversity, has 11 official languages among its 50 million inhabitants, namely English, Afrikaans, isiNdebele, isiXhosa, isiZulu, Sepedi, Sesotho, Setswana, SiSwati, Tshivenda and Xitsonga. The majority of children, however, receive their education through the medium of English as a second language. Many of these second language learners lack appropriate language proficiency to succeed academically and thus perform poorly on standardized language tests. Another example is Israel. Since its independence in 1948, Modern Hebrew has become an additional language for most immigrants and the native language of the second and succeeding generations. Nevertheless, Hebrew is currently not the native language of the majority of Israel's 8 million citizens, as there are 1.5 million native speakers of Arabic, 1 million native speakers of Russian, more than 200,000 native speakers of English, Romanian, and Yiddish, and more than 500,000 native speakers of 30 other languages ranging from Amharic and Bukharic to Tigrinya and Turkish. This gives Israel multilingual vitality and makes Hebrew, in a strange sense, a minority language within its own borders (Burstein-Feldman et al., 2009). Despite this diversity, Hebrew is unequivocally Israel's language of wider communication (Spolsky & Shohamy, 1999).

According to the results of a Eurobarometer Survey on Europeans and their languages (European Commission, 2006), 56 percent of respondents living in EU Member States speak at least one language in addition to their mother tongue, and 28 percent stated that they speak two foreign languages. The most popular second languages were English, French, German, Russian and Spanish. Higher levels of multilingualism were evident in smaller EU Member States with several national languages and in countries with lesser-used native languages. Only in six Member States (Hungary, Ireland, Italy, Portugal, Spain and the UK) did the majority of respondents (56–66%) indicate that they did not know any foreign languages. Only a minority of Europeans (8%) considered language learning unimportant. These findings will probably lead to even higher levels of bilingualism in the EU Member States in the future.

Growing bilingualism and language diversity in Europe will be briefly illustrated by sketches of the language situation in some EU countries.

For example, according to the German Ministry of the Interior, more than 7 million foreigners and nearly 16 million persons with so-called migration

backgrounds currently reside in Germany (BMI Report, 2011:71, f.). More than 3 million residents in Germany are speakers of Turkish (BMI Report, 2012:21). More than 2 million residents are immigrants from Slavic-speaking countries (1.5 million from former Yugoslavia, over 420,000 from Poland, and over 190,000 from the Russian Federation (BMI Report, 2011:32-33)), though the real number of speakers of these language might be higher than these official figures suggest. For instance, the Russian-speaking population in Germany might now be reaching 5 million (Gagarina, Klassert, & Topaj, 2010).

Other examples of EU countries with increasing number of immigrants and growing language diversity are Cyprus, Finland, Lithuania and Sweden. Cypriot society has recently become more heterogeneous with the increasing influx of migrants. According to the Cyprus Ministry of Education, the number of bilingual children in Cypriot schools has increased from 7.3% in 2006–2007 to 12% in 2010–2011. Most bilingual pupils in elementary schools come from Bulgaria, Georgia, Greece, Romania, Russia and the UK.

In Finland, 90% of the population speak Finnish, 5.4% Swedish and 0.03% Sami as their native language (Official Statistics of Finland, 2011). People with other native languages, such as Russian, Estonian, Somali, English and Arabic, account for 4.5% of the population.

In Lithuania, Lithuanian has been the official language since 1991. More than 80% of the country's population speak Lithuanian as their first language. Other languages spoken include Belarusian (1.5%), Polish (7.7%), Russian (8%). Others, most notably Ukrainian and Yiddish, make up a further 2.1% (Statistics Lithuania, 2004).

In Sweden, with its 9.5 million inhabitants, Swedish is the official national majority language. Five other languages (Finnish, Sami, Meänkieli, Romani and Yiddish) have official status as national minority languages and are spoken by ca. 390,000 speakers, or 0.4% of the population (Language Council of Sweden, 2012). 15% of the residents of Sweden are foreign-born immigrants (1.5 million), and 25% of them are children (Statistics Sweden, 2012). 20% of the children living in Sweden today are born outside Sweden or are born to two foreign-born parents who have migrated to Sweden, mainly from Iraq, Somalia, Finland, former Yugoslavia, Poland, Turkey, Thailand and Iran. 30% of children have at least one foreign-born parent (Statistics Sweden, 2012). More than 20% of the children living in Sweden attend mother tongue lessons in a language other than Swedish. The number of children growing up with more than one language in Sweden today is thus high, having increased dramatically over the past few decades.

One of the challenges of growing populations of bilingual children is distinguishing between typically developing and language-impaired children in these populations. Clinicians and educators are faced with a lack of appropriate

assessment tools for differential diagnosis. Moreover, no appropriate assessment tools are available for the languages these children speak. Estimates of the prevalence of speech and/or language delay are highly variable, ranging from 2% to 25% in preschool children (Law, Boyle, Harris, Harkness, & Nye, 2000). Specific language impairment (SLI) is estimated at 6% to 8% according to most studies, which is high compared to other disabilities in preschool children (Paradis et al., 2010).

The complexity of factors which impact on bilingual language acquisition and the lack of acquisition norms for bilinguals lead to difficulties when assessing bilingual children for language impairment. This increases the possibility of misdiagnosis of children with SLI (Paradis et al., 2010). Misdiagnosis may be either an overdiagnosis, where, for example, the linguistic characteristics of typically developing L2 children overlap with those of monolingual children with language impairment. Less commonly, underdiagnosis may result from a lack of appropriate tools and norms for assessing language delay and impairment in one or more of a child's languages. In this case, language impairment goes undiagnosed and the bilingual child will not receive appropriate help and language therapy treatment, with dire consequences for the child.

Researchers throughout Europe and in affiliated countries (e.g. South Africa, Israel, Canada and USA) are now trying to disentangle SLI and bilingualism, since some of the early clinical markers of SLI (Rice and Wexler, 1996, Leonard, 1998) are also indicators of typical language development in bilingual children (e.g. small vocabulary, omission of verb inflections, omission of auxiliary verbs, lexical access difficulties).

In an attempt to address the lack of appropriate assessment tools for use with multilingual populations, COST Action IS0804 *Language Impairment in a Multilingual Society: Linguistic Patterns and the Road to Assessment* (www.bi-sli.org) was initiated in 2009. The main objective of this research network was to profile bilingual SLI by coordinating research on the linguistic and cognitive abilities of bilingual children with SLI across different migrant communities. The project had four working groups: i) morphosyntax and complex syntax, ii) lexical and phonological abilities, iii) executive functions, and iv) narrative and discourse abilities. The initial goal of the *Narrative and Discourse* working group was to examine and evaluate different tasks used to elicit narratives and to try to identify specifically bilingual features in narrative discourse. During this process no appropriate assessment tool for use in multicultural child populations was found. It was then decided to develop a new, multilingual, assessment instrument for narratives (see Chapter 1, 2, and 3).

The present version of the MAIN has been pilot-tested for 15 different language pairs with more than 500 children, including more than 250 bilingual children (see Chapter 4 for a list of languages, participants and design conditions).

This monograph is structured as follows. After the initial orientation given in the present chapter (Chapter 0, Introduction), Chapter 1 provides the theoretical background for developing MAIN: History and overview (Section 1.1), macrostructure (story structure, story complexity, internal state terms, comprehension; Section 1.2) and microstructure (Section 1.3).

In Chapter 2, the development of tasks and stimulus materials for the MAIN is described in detail. Here, Section 2.1 outlines the elicitation tasks of telling and retelling. Section 2.2 describes the framework for macrostructural analysis, and 2.3 gives the rationale behind the pictorial content of the stimulus pictures. Section 2.4 illustrates the long process of developing the stimulus pictures, supplemented by excerpts from email correspondence between working group members during the development of pictures and tasks (2.5). Section 2.6 outlines the picture presentation modes; 2.7 provides the stimulus scripts for the retelling task and outlines the comparability of MAIN across different languages. Section 2.8 focuses on microstructure, describing the framework for analysis as well as giving suggestions for microstructural analysis. Finally, section 2.9 briefly outlines the background questions, which are also part of MAIN.

Chapter 3 deals with guidelines, information on administration and scoring. Section 3.1 lays out the guidelines for assessment in MAIN; Section 3.2 gives the four parallel story scripts, followed by guidelines for adapting the story scripts to other languages (Section 3.3). Section 3.4 discusses general scoring and evaluation issues in MAIN. These are illustrated further with several authentic examples of child narratives with the corresponding filled-in scoring sheets (Sections 3.5 and 3.6). Scoring decisions for production (Section 3.7) and scoring decisions for comprehension (Section 3.8) are presented in order to guide future users of MAIN.

The monograph concludes with Chapter 4, where preliminary findings concerning macrostructure in monolingual and bilingual children are presented across different languages, and Chapter 5, which is the conclusion. Note that the References are followed by a length Appendix, which gives the English version of the MAIN, complete with guidelines for assessment, protocols and scoring sheets for the Cat, Dog, Baby Birds and Baby Goats stories, background questions, and story scripts marked for story structure components and internal state terms. Note that in the Appendix, the original layout of the MAIN materials could not be maintained due to *ZAS Papers in Linguistics* formatting constraints. For the original (and more user-friendly) layout of the MAIN

protocols and scoring sheets we therefore refer readers and future users to the online version of the MAIN materials (see below).

Please note that the monograph you are holding in your hands is only Part I of the *ZAS Papers in Linguistics 56*. There is a second part, which is available in electronic form only. Part II contains the MAIN picture sequences (stimulus pictures in colour), the English version of the MAIN, as well as 25 other language versions of the MAIN. Part II is available online at the following address: http://www.zas.gwz-berlin.de/zaspil56.html.

1 Theoretical Background

1.1 History and overview

Methods for collecting and analyzing narrative language are highly varied. There are different sampling procedures (e.g. spontaneous or elicited), different types of narratives (e.g. scripted, personal and fictional stories), and different elicitation methods (e.g. story generation/telling and story retelling). One characteristic feature of narratives is that they contain information at two levels: microstructure and macrostructure. Microstructure focuses on the linguistic structures used in the construction of coherent discourse, inter alia, number and length of communication units, referential noun phrases, connectives, etc. Macrostructure analysis focuses on higher-order hierarchical organization, including episodic structure and story grammar components (Heilmann, Miller, & Nockerts, 2010) and can be said to be language-independent. Microstructure and macrostructure abilities represent two distinct but interrelated areas underlying narrative discourse competence (Liles, Duffy, Merritt, & Purcell, 1995; Pearson 2002). These abilities are not often examined in a single framework. Rather, most narrative tests focus on language-specific capacities and limited domains of knowledge such as vocabulary and/or grammar.

On the basis of previous research and our joint interdisciplinary expertise, the *Narrative and Discourse* working group examined options for the analysis of narratives and studied most relevant theoretical approaches (e.g. Bruner 1986; Labov & Waletzky 1967; Westby 1991). The initial goal of the Narrative and Discourse working group was to examine and evaluate different tasks used to elicit narratives and to identify specifically bilingual features in narrative discourse. The review of existing tasks and tests showed that while the elicitation procedures and scoring were thoroughly worked out, pictorial stimuli were not sufficiently grounded as far as components of story grammar are

concerned, nor did they take into account internal state terms. The use of internal state terms provides important information about the narrator's awareness of characters' mental states, motivations, intentions and goals (Nippold, Ward-Lonergan, & Fanning, 2005).
In addition, we found that the protagonists and the lexical items denoting them were not controlled for frequency of use and perceptual complexity.

This led to the development of new pictorial stimuli, involving more than 200 revisions of pictures and story scripts piloted prior to the design presented here. During 2010-2012, we piloted different elicitation methods as well as the analysis of various measures of macrostructure and microstructure, to develop and fine-tune our new assessment tool (MAIN). MAIN is grounded on the assumption that narrative abilities involve both macrostructure and microstructure and they should be examined within a unified framework. The ensuing design and its accompanying research programme allow for the elicitation of narratives in three modes: i) telling a story (story generation), ii) retelling a story after listening to it, and iii) telling a story after listening to a (different but structurally parallel) model story. MAIN comprises three groups of measures of macrostructure for *production* (for details, see next section):

- Story structure components
- Structural complexity
- Internal states

A set of *comprehension questions* that focus on macrostructure components and internal state terms also forms part of the assessment procedure. The comprehension questions tap the following:

- Story structure: Goals
- Internal states (as initiating events and as reactions)

Stimulus pictures and *scripts* for retelling include an integral of macrostructure, microstructure and internal state features of narrative discourse in order to look at each child's performance cross-linguistically in a within-subject design.

In addition, a set of *background questions* was developed (based on Gagarina, Klassert, & Topaj, 2010), in order to evaluate the quality and quantity of the bilingual input.

MAIN consists of picture sequences developed on the basis of linguistic and psycholinguistic criteria (and strictly controlled for these features, see Chapter 2) to elicit narratives in the two languages of bilingual children. The goal was to compile an instrument that could be used to elicit narratives from children from diverse linguistic, socio-economic and cultural backgrounds to enable clinicians and researchers to distinguish between bilingual children with and without SLI. The particular aim has been to develop four comparable and thoroughly controlled picture sequences: two for story generation and two for retelling (or model stories). The general aim of the clearly scripted sequences

was to provide more control over the semi-spontaneous data, to make comparisons across languages/narratives possible and to increase the validity and reliability of the measures.

The general fundamental objective has been to ensure comparability across the four sets of the elicitation stimuli for macrostructure features, since these were expected to be more universal or language-general than microstructure features, which differ typologically as well as across languages from the same families.

Narrative assessment calls for a wide-scoped, integrative framework, which includes macrostructure and microstructure as well as production and comprehension. Recall that tasks that examine language-general skills, such as the production of narratives, are deemed more appropriate to assess bilingual children than tasks that focus on discrete linguistic skills (e.g. Paradis et al., 2010, Berman 2001; Pearson 2002 167-171). MAIN examines narrative production of microstructure and macrostructure elements, comprehension of macrostructure features and the inclusion of internal state terms, providing information about skills at the cognitive-linguistic interface. This breadth as well as the particular focus on internal states and bilingual features makes this instrument novel in scope as well as focus. All materials were developed in multiple languages so that bilingual children can be assessed in both their languages.

MAIN has so far been tested on monolingual and bilingual children in the following languages: Afrikaans, Albanian, Croatian, Cypriot Greek, English, Finnish, French, German, Hebrew, Italian, Lithuanian, Greek, Polish, Russian, Swedish, Turkish (see also Chapter 4). MAIN has been translated and adapted to several other languages (see Part II, which is available on-line), and can be adapted to further languages in the future.

1.2 Macrostructure

1.2.1 Story structure

The story grammar model (e.g. Mandler, 1979; Stein & Glenn, 1979) which proposes that all stories have a setting and episode structure claimed to capture a universal organizational pattern for story knowledge (Trabasso & Nickels, 1992) served as our initial theoretical framework. Story grammar research has been conducted on a wide variety of populations with a wide variety of data collection procedures, including bilingual children (Fiestas & Peña, 2004; Gutiérrez-Clellen, Simon-Cerejido, & Wagner, 2008; Pearson, 2001, 2002;

Pearson & de Villiers, 2005; Uccelli & Páez, 2007) as well as bilingual children with language impairment (e.g. Cleave, Girolametto, Chen, & Johnson, 2010; Gutiérrez-Clellen, Simon-Cereijido, & Erickson Leone, 2009; Iluz-Cohen & Walters, 2012; Simon-Cereijido & Gutiérrez-Clellen, 2009). Children with SLI have been reported to have problems with the quantity of story grammar units when constructing or retelling narratives, and may also show some difficulties in comprehension of connected discourse (Kaderavek & Sulzby, 2000; Soodla 2011; Soodla & Kikas 2010; Roth 1986; Merritt & Liles 1987; Norbury & Bishop 2003; Boudreau & Hedberg 1999; Paul & Smith 1996; Schneider, Hayward, & Dubé, 2006.).

The primary unit for macrostructure analysis is the episode. The content of each picture sequence was designed to portray three short episodes. The rationale for portraying three episodes in each picture sequence was to provide more than one opportunity for a child to produce each story structure element targeted for macrostructure analysis. In terms of story grammars (e.g. Stein & Glenn, 1979; Berman & Slobin, 1994), this affords the child three opportunities to produce initiating events, goals, attempts and reactions. This story design has advantages over longer and more elaborate narrative elicitation methods such as the Frog Stories (Mayer 1969) and the Renfrew Bus Story (Glasgow & Cowley, 1994) in that it is carefully structured, allowing identification of the category that has been generated or retold by the child. It also has advantages over shorter narratives where only a single episode is presented.

In the instrument described below, the stories begin with a setting statement, which gives time and place and introduces the protagonist. This component is followed by three episodes. Each episode consists of i) a goal statement for the protagonist, ii) an attempt by the protagonist to reach the goal, iii) an outcome of the attempt in terms of the goal, and iv) internal states which initiate the goal and also express reactions. The scripts for each story (see Section 3.2 and Appendix) are highlighted for these categories. They are marked to indicate goals, attempts and outcomes as well as internal state terms.

1.2.2 Structural complexity

Analysis of structural complexity provides information about the child's level of narrative development and allows comparison across languages. The approach taken here is grounded in clinical assessment and based on Westby's binary decision tree (Westby, 2005), where episodes within the stories are classified into one of three levels of structural complexity: i) sequences (where no goal statement has been generated), ii) incomplete episodes (which include a goal (G) statement, but lack a complete GAO structure due to omission of an attempt (A)

or outcome (O)), and iii) complete episodes (which include all three GAO components).

The ability to produce well-formed episodes in narratives indicates understanding of narrative schemata, causality, perspective-taking, meta-awareness of the ability to plan, and the need to justify plans and actions (Trabasso & Nickels, 1992; Trabasso & Rodkin, 1994). Additionally, the number of isolated G(oal)s are considered in order to provide a more fine-tuned differentiation between the various populations involved. The framework for analysis portrayed graphically in Figure 1 is based on the Westby (2005) binary decision tree.

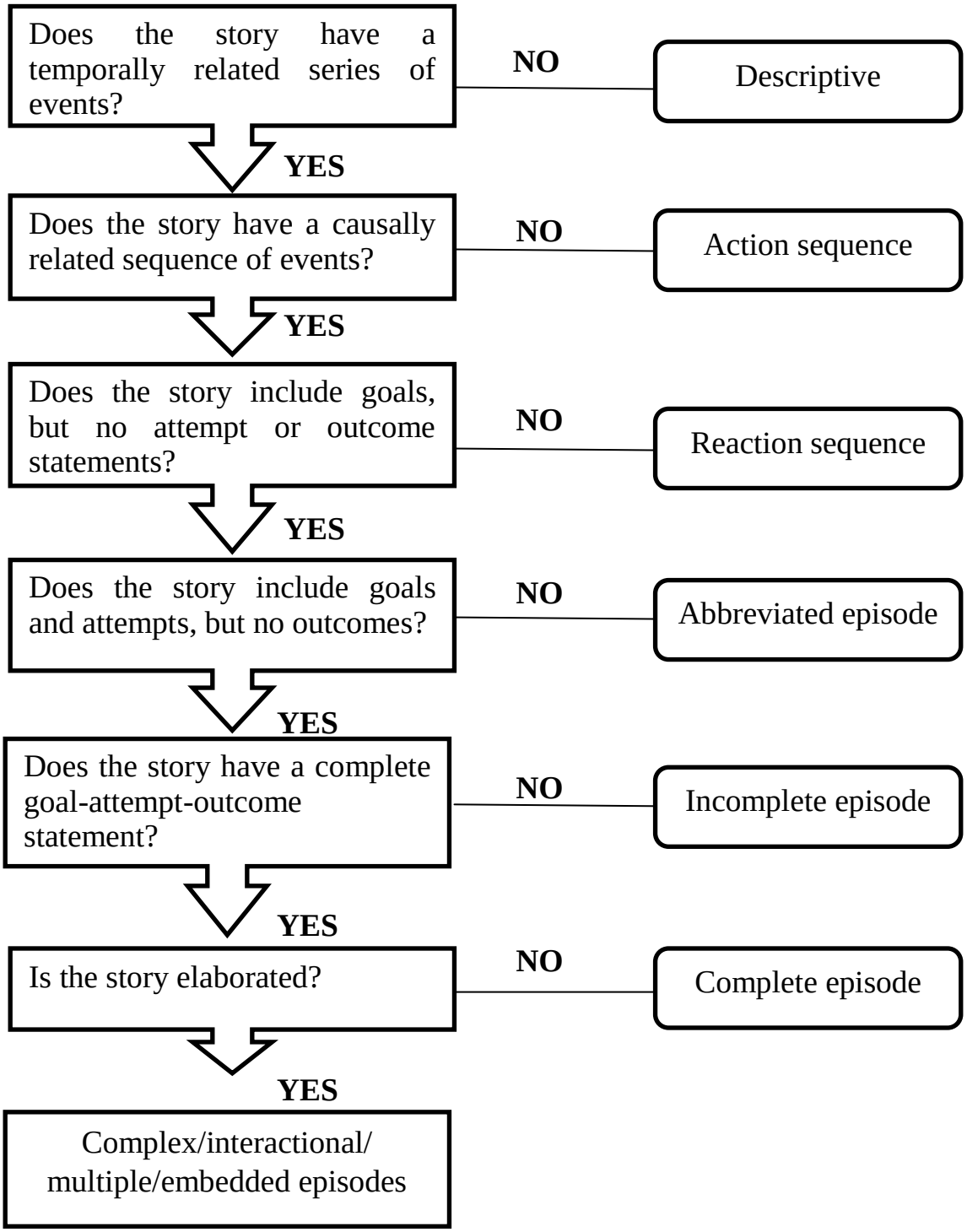


Figure 1: Structural complexity of children's narratives: Decision Tree (adapted from Westby, 2005)

1.2.3 Internal state terms

Cohesive and coherent narratives presuppose awareness of others' states of mind on different levels. Story understanding involves interpreting emotions, goals and intentions of protagonists. In addition, a listener must be provided with certain information in order to understand a narrative (Curenton & Justice, 2004). Mental and internal states attributed to the self and others have been studied in the context of theory of mind (ToM) skills, such as intention-reading, perspective-taking, and repair strategies in instances of communicative breakdown (Lorusso, Galli, Libera, & Gagliardi, 2007; Tomasello, 2003). Research about theory of mind has been conducted extensively in children with language impairments (Miller 2006), but less is known about ToM in bilingual children (Kobayashi, Glover, & Temple 2007). Language impairment related to theory of mind deficits is grounded in pragmatics and would therefore not only have a negative impact on narrative abilities but also on communication and communicative development.

Analysis of internal state language in children's narratives can provide information about their ToM abilities. The use of metalinguistic verbs (referring to acts of speaking, such as *shout, say*), metacognitive verbs (verbs referring to acts of thinking, such as *think, wonder*) and words expressing emotion (e.g. *sad, angry*) can be taken as evidence of awareness of others' states of mind, as indications of cognitive processes required to interpret intentionality and the ability to make inferences about aspects of stories (Nippold et al., 2005; Westby, 2005). The use of internal state language in narratives is associated with a literate style that forms a crucial aspect of school-based discourse (Curenton & Justice, 2004; Pearson 2002) and the development of complex syntax (Heilmann, Miller, Nockerts, et al., 2010; Nippold et al., 2005).

Taxonomies for investigating internal state terms focus primarily on mental state verbs, including motivational verbs (*want, need*), experiential expressions (*see, surprised, thirsty*), belief verbs (*think, know*), linguistic verbs/verbs of saying and telling (*say, call, shout*) and emotional words *(sad, happy, angry*) (Fusté-Hermann, Silliman, Bahr, Fasnacht, & Federico, 2006; Greenhalgh & Strong, 2001). In our instrument, in an attempt to make it applicable to a number of languages and to accommodate various theoretical approaches to the classification of the mental terms, we grouped the abovementioned terms together in one category called internal states. Finer and more detailed analyses for the particular languages were left to the various researchers.

Internal state language is assessed by the MAIN at the macrostructure level in production as well as in comprehension, and it is interpreted as a marker for children's understanding and awareness of intentionality and goal-directed behavior of protagonists. Internal state language allows comparability across languages. All instances of internal state terms (perceptual state terms: e.g. *see, hear*, physiological state terms: e.g. *thirsty, hungry*, consciousness terms: e.g. *alive, awake,* emotion terms: e.g. *sad, happy, angry, worried, disappointed,* mental verbs: e.g. *want, think, know, forget, decide*, linguistic verbs/verbs of saying and telling: e.g. *say, call, shout*, etc.) are calculated in the production section of the MAIN scoring form (see Appendix and online Part II of this volume).

Emotion terms (e.g. *the boy was sad about his ball*), perceptual state terms (e.g. *the cat saw the baby birds*), physiological state terms (e.g. *the fox was hungry*), are scored as initiating events. Metacognitive mental verbs (e.g. *the cat wanted to get the fish, the dog decided to stop the nasty cat*) are scored as goal statements. Emotion terms (e.g. *the cat was disappointed*) and physiological state terms (e.g. *the fox was still hungry*) are scored as reactions following outcomes of attempts to reach goals.

Internal state terms are further analyzed in the comprehension section (see next section on comprehension). Here internal state language is used to investigate story comprehension and the ability to draw inferences in response to questions, e.g. "How do you think the cat feels?".

1.2.4 Comprehension

Assessing the comprehension of the main components of story structure is an important complement because some typically developing bilingual and some language impaired bilingual children might show similar profiles in production, whilst differing in story comprehension. Comprehension is elicited by means of questions which are asked after the production part of the assessment procedure. The comprehension questions target the main macrostructure component – the Goal – and internal state terms.

Ten questions were developed for each story: three target the three goals, e.g. "Why does the mother bird fly away?". Another six questions elicit internal state terms connected either to the initiating event or reaction elements, e.g. "How does the fox feel?". If the child does not provide an explanation or rationale for his/her answer, an additional question is asked, e.g., "Why do you think that the fox is feeling...?". These questions assess reasoning, i.e. the child's ability to interpret physical and emotional cause-effect relationships and recognize characters' goals, the reasons for these goals and reactions following attempts to reach the goals (Hedberg & Westby, 1993). Finally, one question

elicits theory of mind/inferencing, e.g. "Who does the mother goat like best, the fox or the bird? Why?". The aim is to see if the child can infer meaning about the story as a whole.

1.3 Microstructure

Microstructure elements cover a wide range of linguistic aspects including general measures of length and lexis, aspects of morphosyntax, discourse and bilingual phenomena (e.g. code switching and cross-linguistic transfer). Microstructure elements are language-specific, and it is inevitable that some will differ across languages. In order to select the most relevant characteristics which might be diagnostic for (bilingual) children with SLI, we reviewed recent studies which made use of narratives elicited with picture stimuli.

It is well known that SLI children's narratives differ from those with typical language development in the area of morphosyntax (e.g. Reilly, Losh, Bellugi, & Wulfeck, 2004), verbosity/story length (Strong & Shaver 1991; Schneider, Hayward et al. 2006), topic maintenance, event sequencing, informativeness (Lucas 1980; Roth & Spekman 1986; Merritt & Liles 1987; Olley 1989; Biddle, McCabe, & Bliss 1996), and referencing of events and individuals. Syntactic complexity is another vulnerable area in SLI as suggested by different studies (Kit-Sum To, Stokes, Cheung, & T'sou, 2010; Liles, Duffy, Merritt, & Purcell, 1995). In narrative discourse, story length, grammaticality, thematic development, mean length of communication units and number of thematic units were also found to differ in the narratives of children with SLI and TLD (Newman & McGregor, 2006), as did the percentage of complex T-units per narrative, frequency of grammatically well-formed T-units, and frequency of subordinate clauses (Gillam & Johnston, 1992). Lexical richness in narrative discourse has also been found to differ in the narratives of SLI and TLD children, concerning vocabulary choice, literary language style, the use of conjunctions excluding *and* and *then*, the use of elaborated noun phrases, the number of modifiers connected to nouns, the number of nouns followed by prepositional clauses, the use of mental verbs and verbs of saying and telling, the use of adverbs, especially tone, attitude and manner adverbs (Gillam & Johnston, 1992).

Studies of microstructure features in bilingual children, examining data in both of a child's developing languages are still relatively scant, as usually only the L2 is studied. Initial investigations were case studies (Restrepo & Kruth, 2000; Thordardottir, Weismer, & Smith, 1997) and a group study of Arabic-Swedish L2 children by Håkansson, Salameh, & Nettelbladt (2003) which

showed that unimpaired bilingual migrant children acquire at least one language appropriately, while bilingual children with SLI show deficits in both languages. More recently, Paradis, Crago, & Genesee (2006) found similarity among bilingual French-English SLI and language-matched typically developing (TD) bilinguals in the use of verb morphology. Hamann & Belletti (2008), in contrast, reported developmental differences between French SLI and French/German and French/Italian TD bilinguals. They argued that the similarity in verb morphology disappears with longer exposure to L2. Jacobson & Schwartz (2002) found that Spanish-English bilingual children with SLI performed worse than their bilingual TD peers in the use of English verb inflections. Chilla & Babur (2010) and Rothweiler and her colleagues (Rothweiler, Babur, & Chilla, 2007; Rothweiler, Chilla, & Babur, 2010) report agreement and case errors as clinical markers of SLI in both monolingual German and Turkish-German successive bilingual children. De Jong, Orgassa, & Cavus (2007) showed that whereas verb inflection problems are an SLI indicator in Turkish-Dutch bilinguals, problems in gender assignment and adjectival agreement are markers of L2, but are more profound in children with SLI. Armon-Lotem, Botwinik-Rotem, & Birka (2006) found similar inflectional errors in both TD and SLI English-Hebrew children, but the frequency of errors was greater for language-impaired children. Armon-Lotem, Danon, & Walters (2008) suggested that focus on verb-related problems may not be valid for all languages, and omission of prepositions in addition to inflectional errors might be a better indicator for bilingual SLI. Armon-Lotem, Adam, & Walters (2008) found similar verbal inflection errors for SLI and TD bilinguals, with a significant difference in quantity of errors across the different groups. Their English-dominant bilinguals performed like TD children in L1, and were not to be considered, but rather as slow L2 learners who have not yet mastered the L2 inflectional system. Tense-marking thus may not be a qualitative clinical indicator of SLI, but the frequency of inflection errors manifested in both languages could be considered a potential indicator. That is, when quantitative and qualitative differences are found in both languages, SLI is indicated, but when a qualitative difference exists in the L2 alone, it is not.

One case study of a TD simultaneous Russian-German bilingual child showed stronger attrition of noun morphology in comparison with verb morphology (Gagarina, 2011); similar results were obtained for about 300 early sequential bilinguals (Gagarina et al., 2010). In typical monolingual and bilingual acquisition, Russian verb inflectional morphology is acquired within a shorter period than noun morphology, e.g. case marking (Gagarina, 2008, 2009), so that verbs might be a stronger indicator of SLI. In the acquisition of German, word order in relation to finiteness marking (problematic in so far as the verb final pattern) was found to be more difficult than the V2-pattern (Haberzettl,

2005). Other commonly accepted areas of difficulty are the use of articles (omission or inappropriate use) (see Ose & Schulz (2010) for children), case marking on articles or adjectives respectively (Haberzettl, 2005) and the interpretation of questions (Schulz, Tracy, & Wenzel, 2008). Only a few studies look into other syntactic aspects of bilingual SLI. Initial evidence from studies of Turkish-German bilingual children show rapid progress which does not resemble the persistent deficits reported for SLI-children (Ose & Schulz, 2010). This review illustrates the difficulties in generalizing microstructure markers of SLI across languages, given their inherent language-specific nature.

A list of microstructural measures was compiled after thorough investigation of studies on TD and SLI children, which showed that these measures increase developmentally, and that specific features differentiate TD and SLI populations in a number of languages, thus being of potential diagnostic importance. This list includes ten features, which may serve as the initial basis for the microstructure analysis of narratives (for further discussion, see also Section 2.8):

A. Narrative length and lexis

- Total number of tokens with mazes
- Total number of tokens without mazes
- Number of different words=lemmas (NDW)
- Number of communication units (CUs)

B. Syntactic complexity and discourse cohesion

- Mean length of CUs (MCLU)
- Mean length of the 3 longest CUs
- Number and ratio of verb-based clauses
- Number and ratio of subordinating constructions
- Number and ratio of coordinating constructions, excluding the conjunction *and*

C. Bilingualism

- Code switching: Number and percentage of tokens NOT in the target language of a session

2 Development of Tasks and Stimulus Materials in MAIN

2.1 Elicitation tasks: Telling (story generation) and retelling

Two narrative elicitation tasks, telling and retelling, are used to assess children's narrative abilities along a continuum of complexity. The 'telling' format is presumed to be more difficult, since the child is required to generate his/her own story without the benefit of a prior script. Nevertheless, telling may offer the child more freedom to use his/her imagination and thus may better reflect the child's lexis. Therefore telling formats may provide more information about children's independent narrative formulation abilities than retelling (Schneider, Hayward, & Dubé, 2006).

Previous studies (Hayward, Gillam, & Lien, 2007; Liles, 1993; Schneider & Dubé, 2005) have shown that children with and without language impairment provide longer, more detailed, and grammatically more accurate language samples during retelling. Retelling involves reconstruction and reinterpretation of the story, and is more than just a repetition of the stimulus narrative. Retelling thus provides information about how children modify and assimilate a story's vocabulary and grammatical structures, as well as the content of the story (Gillam & Carlisle, 1997). In addition, retelling offers the researcher control over certain aspects of the narrative, e.g. length, complexity and content, and allows for error analyses and assessment of comprehension (Hadley, 1998; Liles, 1993).

By including both telling and retelling modalities, MAIN provides information about different aspects of (bilingual) children's languages and allows for more in-depth analyses of their narrative abilities.

Several pilot studies by members of the Working Group for Narratives and Discourse (Klop, Visser, & Oosthuizen, 2011, 2012) showed carry-over effects from one task to another when children performed both telling and retelling tasks in both languages, i.e. four narratives per child. As a result, a third elicitation option, a model story, was introduced, where the child produces only two narratives, one in each language, after listening to a model story without retelling it. The procedure for this option is as follows: The child listens to the presenter telling a model story in his/her home language and then only answers the comprehension questions for this story. He or she then tells another story with the aid of the pictures and answers the comprehension questions for that story. For the language outside the home, the child listens to the presenter telling a model story and then only answers the comprehension questions for it. He or she then tells another story with the aid of the pictures and answers the comprehension questions for that story. The model story option therefore

provides the child with more contextual support than the telling-only option, but with less support than the retelling format.

Inclusion of both telling and retelling in two languages generates four narratives for each child and allows within-subject, cross-language comparisons.

2.2 Framework for the analysis of macrostructure

The macrostructure analysis applied in MAIN describes stories as reflecting the goal-directed behavior of a protagonist who is motivated to carry out some kind of action with the intention of attaining a goal (e.g., Stein & Glenn, 1979; Stein & Policastro, 1984; see also Hughes, McGillivray, & Schmidek, 1997: 118-119). MAIN uses an adaptation of the widely spread Story Grammar analysis introduced by Stein and Glenn (1979). The analysis comprises the following macrostructural components: Internal State Terms (IST) as initiating event, goal, attempt, outcome, and IST as reaction. MAIN has been designed in such a way that each of these macrostructural components can occur three times per story, plus one setting component. Table 1 provides a summary of the macrostructural framework of the MAIN protocols (see Appendix and Part II of this volume).

Table 1: Macrostructural framework of the MAIN protocols

Story structure element	**Description**	**Example**
Setting	Reference to time and place (considered to be outside the episode itself).	*One day in the forest, there was a mother bird with three little babies.*
IST as initiating event (IST as IE)	An event or an internal state that sets the events of the story in motion.	*The baby birds were crying and the mother bird saw that the babies were hungry.*
Goal (G)	A statement of an idea of the protagonist to deal with the initiating event (an indication of goal-directed planning).	*"Oh my babies are so hungry", said the mother bird and decided to get some worms.*
Attempt (A)	An indication of action to obtain the goal.	*The mother bird flew away to look for food.*
Outcome (O)	The event(s) following the attempt and causally linked to it (either one or several outcomes, either successful or not).	*The mother bird came back with a big worm and the baby birds got some food.*
IST as reaction	A statement defining how the protagonist(s) feel or think about the outcome. It can also include an action resulting from an emotional response.	*And the baby birds were so happy.*

2.3 Pictorial content of the stimulus pictures

Initially, major narrative assessment instruments which employ picture stimuli were reviewed. These included the *Renfrew Bus Story* (Glasgow & Cowley, 1994), the *Test of Narrative Language* (TNL) (Gillam & Pearson, 2004), the *Edmonton Narrative Norms Instrument* (ENNI) (Schneider, Dubé, & Hayward, 2005), and HAVAS (Reich & Roth, 2004). The pictorial content of these tools as well as the use of *Frog where are you?* (Mayer, 1969) for narrative research have been criticized as inappropriate for children from diverse cultural, linguistic and socio-economic backgrounds. The TNL, for instance, comprises content about a visit to McDonalds, aliens from a spaceship landing in a park, and a dragon hoarding a treasure; while the *Frog* story portrays animals and landscapes that may be unfamiliar to many children. Children with less exposure to storybooks and children's television programmes may be unfamiliar with the abovementioned scripts and story genres and therefore less able to draw on their background knowledge to make inferences and interpret novel stories (Klop, 2011). There was also a lack of narrative elicitation material that included several options with comparable structure and complexity for eliciting narratives in a bilingual setting.

To overcome these shortcomings of existing assessment instruments, four six-picture sequences were developed based on 3 to 10-year-old children's linguistic and cognitive (working memory, attention) abilities. Four separate sequences needed to be constructed due to the bilingual and task requirements of the instrument, which implemented a 2x2 factorial design involving language (L1/L2) and task. This way, language abilities in the same child could be compared across languages and across telling and retelling modalities (Telling: Baby Birds & Baby Goats and Retelling/Model Story: Cat & Dog).

The pictorial sequences were designed to portray clearly depicted actions. Working closely with a professional illustrator, Loreta Valantiejienė, each episode was scripted, and careful attention was paid to the protagonists' intentions, emotions and actions, to their relative size, and to the characters' facial expressions. In order to achieve comparability across narratives, we aimed for congruence across the set of scripts as well as between scripts and pictorial content by creating parallel storylines for the different sets of pictures.

Details attended to include: (a) protagonists: the number of protagonists, the timing of the introduction of new protagonists, their relative position in the pictures and interaction, their size in relation to other objects, and the angle from which they were looking at the other protagonists; (b) background and foreground: contrasted and tightly connected to and motivated by the actions of the main protagonists, with similar cognitive complexity and visual

representation density across pictures and stories; (c) content: comparable onset, development and conclusion of the storyline. In general, the aim was to achieve parallelism of story structure across all four stories.

Content development was based on the components of story grammar structure, namely initiating events, character's goals, attempts to reach the goal, outcomes of the attempts and reactions following the outcomes. Instructions to the illustrator ensured that these components were explicitly portrayed in the pictures. For example, to portray the goal of the cat in the Baby Birds story, the cat's facial expression, gaze direction and movements towards the birds convey its intention to jump, while the baby birds' facial expression and gaze and the mother's protective stance portray anxiety (see Figure 2). The distance between the characters was designed to imply time for the protagonist's reactions. Special emphasis was put on clearly depicting the emotions of the protagonists in order to justify the use of internal state terms, e.g. the baby birds' beaks are opened and their gaze is directed towards the mother to show that they are hungry. Similarly, the facial expression of the dog when he attacks and chases away the cat in the BB story was redrawn many times: teeth were added to the dog's opened mouth, these teeth became bigger and more prominent, the eyebrows became thicker and more vertical, to the point where typically-developing 5-year-old children in our pilot studies recognized that the dog is angry.

The content of each picture sequence was designed to portray three short episodes. The rationale for portraying three episodes in each picture sequence was to provide more than one opportunity for a child to produce each story structure element targeted for macrostructure analysis. In terms of story grammar (e.g. Stein & Glenn, 1979) this affords the child three opportunities to produce initiating events, goals, attempts, outcomes and reactions.

The four picture sequences – *Baby Birds* (BB) and *Baby Goats* (BG); *Cat* and *Dog* – are all matched for the number of main protagonists and GAO sequences; additionally, each pair of picture sequences (BB/BG and Cat/Dog) is parallel in the structure of the plot, internal state terms and general actions performed by the main protagonists (see Figures 2 to 5).

In sum, this story design has advantages over longer and more elaborate narrative elicitation methods in that it is carefully structured, allowing identification of the category that has been generated or retold by the child. It also has advantages over shorter narratives where only a single episode is presented.

Cultural and age appropriateness. A team of representatives from Cyprus, Finland, Germany, Israel, Lithuania, South Africa and Russia considered the cross-cultural robustness of the story content. The findings of pilot studies from

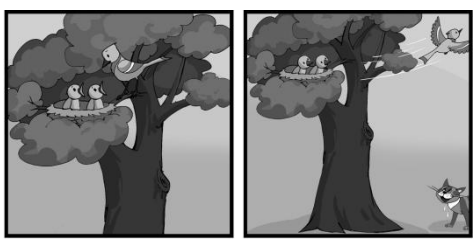
20 countries attest to the cultural robustness of the materials for eliciting veridical narrative data. These studies informed the process of revision over a period of three years (2010-2012) to arrive at the final stimulus pictures in Figures 2 to 5. The size of the pictures (9x9 cm) was chosen based on previous experience with testing children with similar pictures (between 2000 and 2010, ca. 200 children were tested at ZAS (Germany, also in Bulgaria and Russia, e.g. Guelzow & Gagarina 2007)).

Since the instrument targets children from 3 to 10 years speaking a variety of languages, the protagonists were chosen so that children across a wide variety of cultures would be familiar with them. Birds, goats, cats and dogs are frequent in children's and child-directed speech and in fairy-tales, and pre-testing showed them to be easily identifiable in all countries involved in pilot testing, from South Africa to Finland and Turkey. Inanimate entities, such as balls and balloons, were also chosen so that children in different countries and cultures would be familiar with them. We considered the frequency of objects and actions in daily life, in stories and fairy-tales in the various languages. The storylines in the pictures portrayed actions that represent universal knowledge and form part of most children's world knowledge – cats eat birds and dogs steal sausages. Additionally, we strove to present prototypical representatives of a type, for example featuring typical birds and dogs.

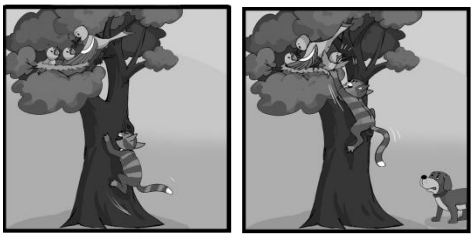
Pictures were also controlled for the number of protagonists and the timing/sequence of their appearance in each story. For example, in the first picture in each of the four stories, only the main protagonist is presented; in all stories the second protagonist appears only in picture 2, where he/she/it is seen only partially in order to convey a process of 'entering'/first appearance. Furthermore, plurality was controlled across the set of stories, e.g. in the BB and BG stories, there are two baby birds and two baby goats.

Finally, background details in the pictures were kept to a minimum in order not to distract the child from the primary content and structure. Colors were chosen to make the story as natural as possible, and unnecessary and unclear lines were avoided. In sum, the pictorial content was controlled for macrostructure and microstructure features, characters and their actions and feelings as well as cultural and age appropriateness and robustness.

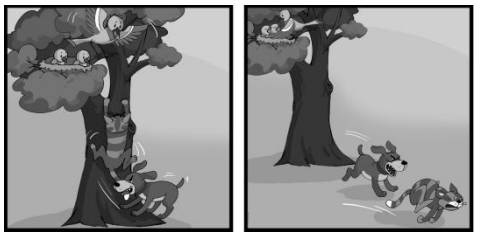
Figure 2: Baby Birds stimulus pictures
(based on Hickmann, 2003)



Episode 1: *Bird* Goal – to feed the baby birds
Episode 1: *Bird* Attempt – flies away to get food
Episode 2: Cat Goal – to get the baby bird(s)

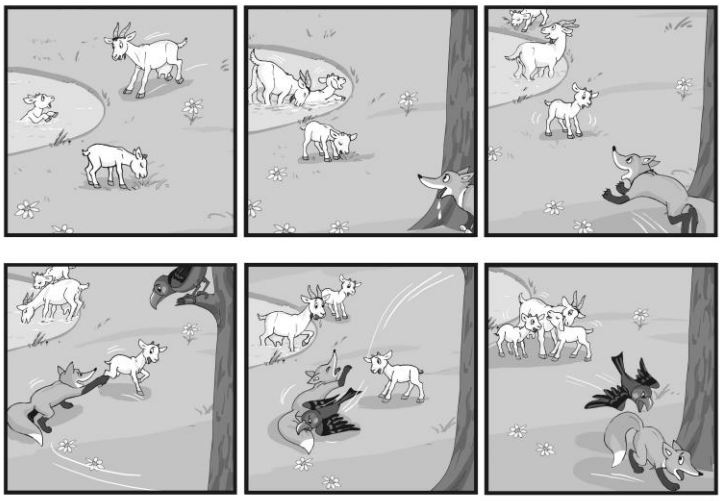


Episode 1: Bird Outcome – comes back with food
Episode 2: Cat Attempt – climbs the tree to catch a baby bird
Episode 2: Cat Outcome – catches the baby bird
Episode 3: Dog Goal – to save the baby bird(s)



Episode 3: Dog Attempt – bites, pulls the cat's tail
Episode 3: Dog Outcome – chases the cat away / the cat runs off

Figure 3: Baby Goats stimulus pictures
(based on Guelzow & Gagarina, 2007)



In order to implement the 2x2 (language by task) design, two additional sets of pictures were generated. These also maintain the 3-episode, GAO and internal state macrostructure and microstructure of the BB and BG stories, but differ

slightly in complexity (see scripts for Cat and Dog story in Table 2). Their pictorial stimuli (see Figures 4 and 5) were designed for the retelling task.

Figure 4: Cat stimulus pictures (story retelling/model story)

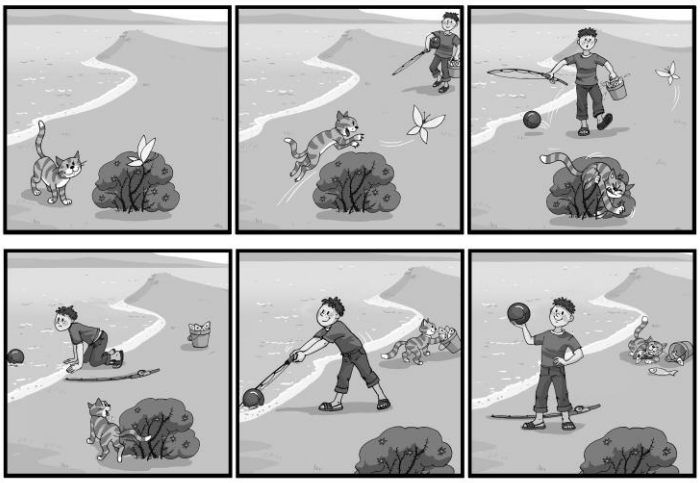
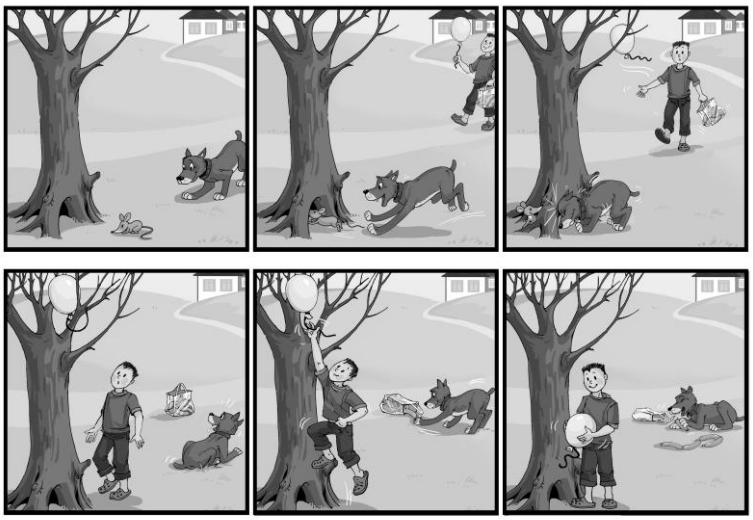


Figure 5: Dog stimulus pictures (story retelling/model story)



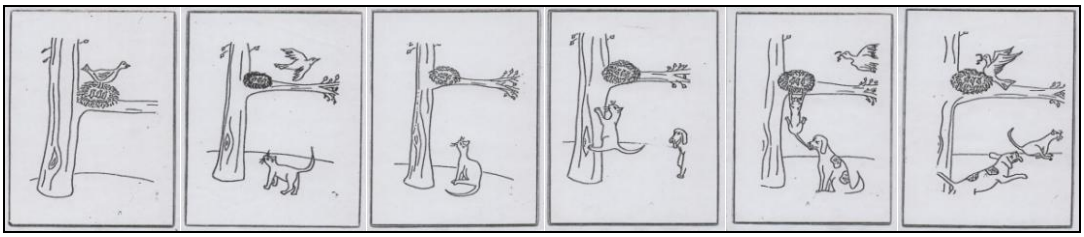
2.4 The long process of developing pictorial content

This section describes the process of developing four parallel stories which serve as stimuli for elicited narratives: Baby Birds, Baby Goats, Cat and Dog.

The first story: Baby Birds

The Baby Birds (BB) story is based on the 'Cat Story' (Figure 6) developed by M. Hickmann (2003).

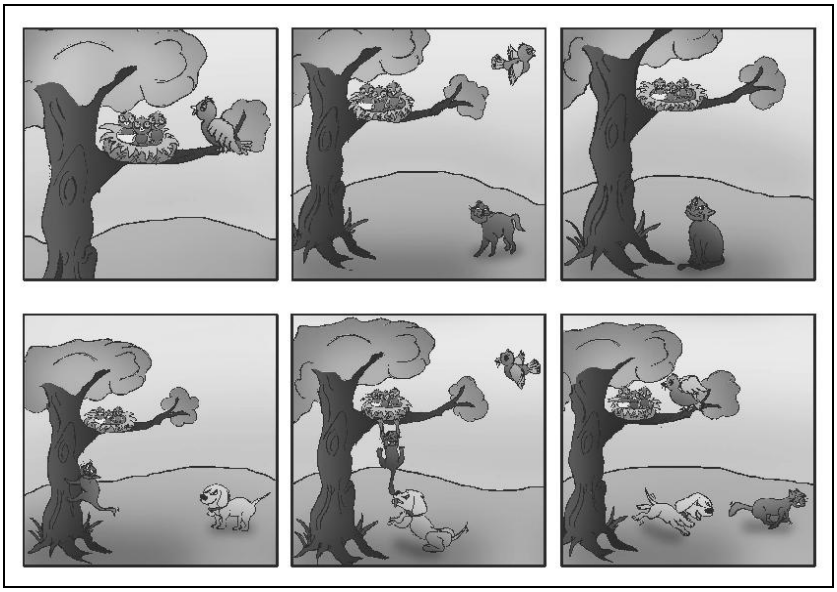
Figure 6: BB-1. The 'Cat Story' (Hickmann 2003 ©)



While quite a number of studies had successfully used this story, we found that bilingual and SLI children in our pilot studies experienced some difficulties in recognizing the baby birds in the nest in picture 1 and the dog in picture 3; also the action of both the dog and the cat in picture 6 was not easily recognized.

The Narrative and Discourse group decided to add colours, as pictures with colours can be recognized better, and to make the baby birds bigger and more visible (Figure 7).

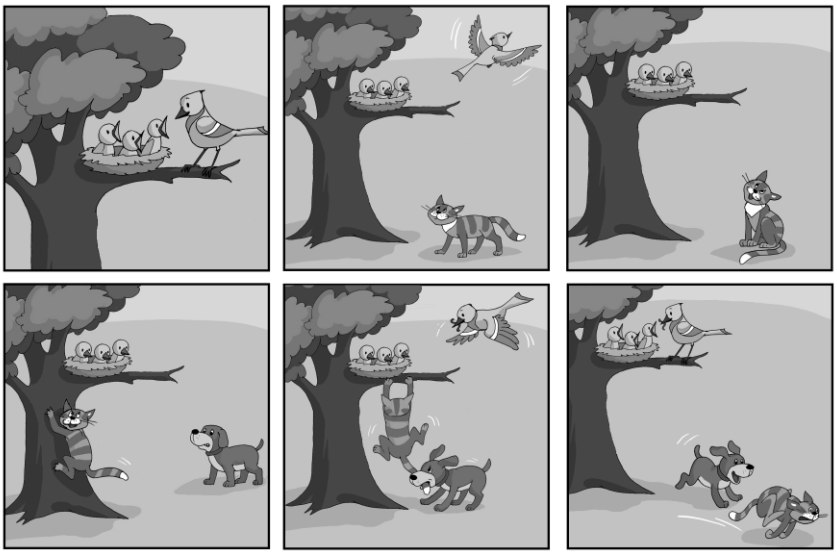
Figure 7: BB-2. (02-02-2011)



These changes made the protagonists and their actions clearer, and the pictures more attractive for the children. However, the modifications were not done by a professional artist, and thus the composition and proportions were unsatisfactory. Moreover, not all protagonists had a balanced and clearly presented sequence of GAO story structure components. During a brain-storming workshop in Berlin in February 2011, we decided to employ a professional painter of children's books, Loreta Valantiejienė from Lithuania, with whom we had collaborated in other EU language projects. She created a

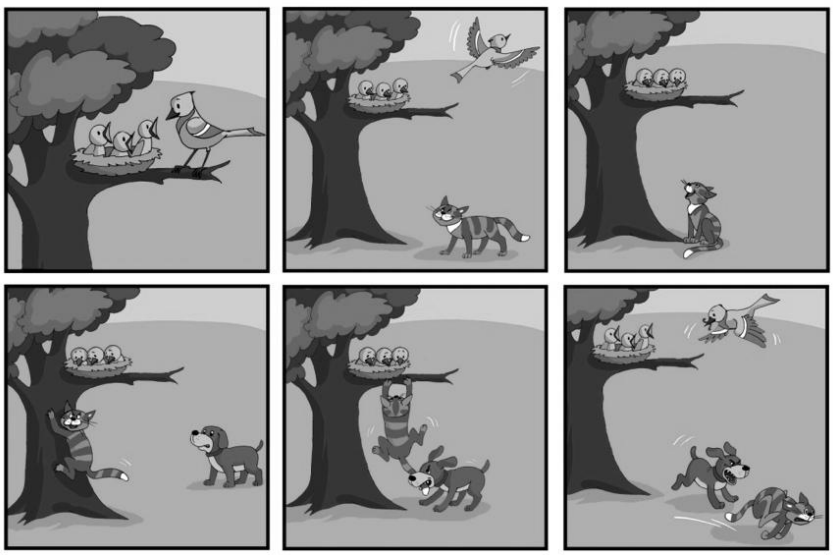
third version based on our instructions and guidelines. This version (Figure 8) included minor changes to the previous pictures, for example, the chicks' mouths in picture 1 were opened and their heads were turned towards the mother to make her goal of wanting to find food for her hungry chicks more explicit.

Figure 8: BB-3. (08-02-2011)



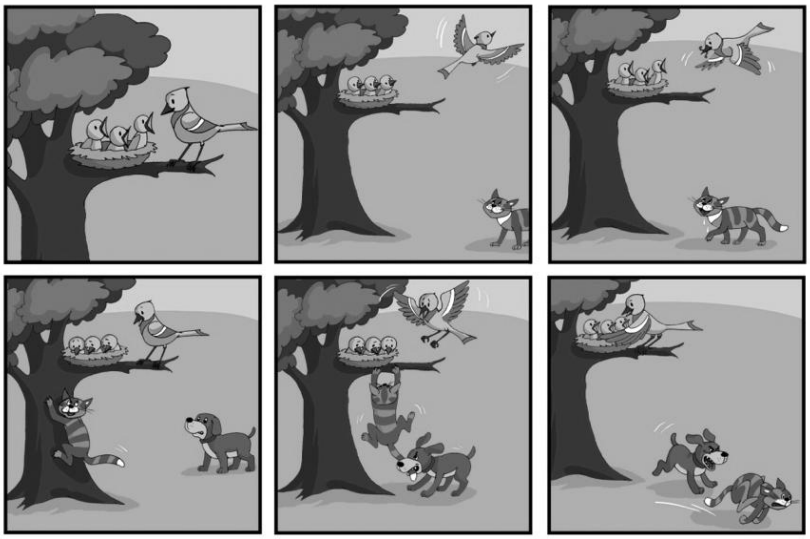
In this version, however, the dog in pictures 5 and 6 was not mean enough, the children even thought he was laughing, chasing the cat in picture 6, so the dog had to be redrawn several times, until his face was *angry enough.* It was also important for us that the cat's face more clearly portrayed her intention (goal) to get the chicks. The result was the version in Figure 9.

Figure 9: BB-4. (04-03-2011)



After discussions of this version during the COST meeting in 2011 in Eskişehir, it was decided that the mother bird's flying away after she had seen a cat coming in picture 2 did not seem to be logical. Thus, we moved the cat in picture 2 more to the left, to make it clearer that the cat appears while the bird is leaving, and cannot be seen by the bird. We also moved the mother bird's return with the worm from picture 6 to picture 3. This way goal and attempt of the mother bird are shown close together and there is a parallelism with the GAO sequences in the other stories. In order to make it clear that the baby birds do not yet notice the cat in picture 2 they were repainted to be looking towards the mother (Figure 10).

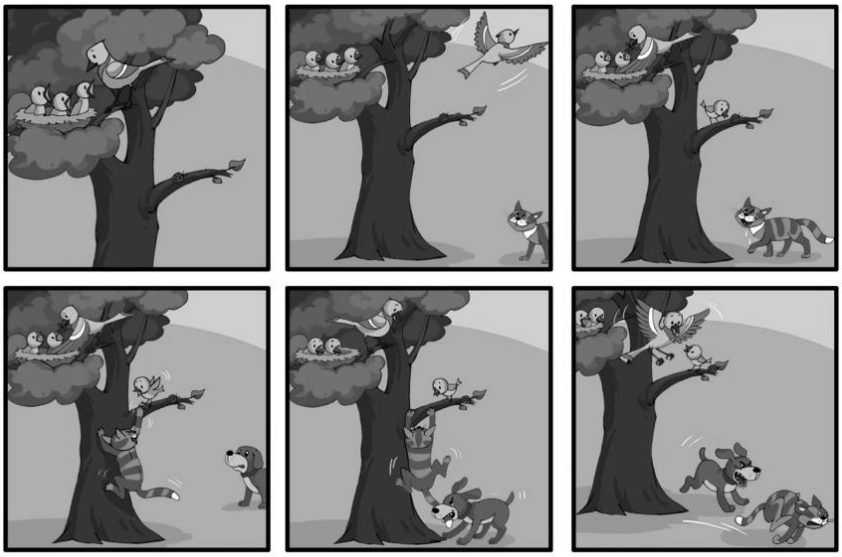
Figure 10: BB-5. (11-12-2011)



In this version, the mother bird now comes back in picture 4 and is scared by the cat in picture 5. However, picture 4 still seemed to be illogical for us: how can a mother bird be calmly sitting and watching the cat crawling up the tree?

At the same time we were trying to achieve parallelism between BB and BG but found that the story structure portrayed in the pictures did not match. So, in order to parallelize the BB and the BG sequences, the aggressive protagonist (the fox in BG, see below, and the cat in BB) were attempting to catch one of the passive protagonists (the baby goat in BG, see below, and the baby bird in BB). This was the moment when we started to change the content of the picture sequences. First an additional detail was added to the composition of BB. A ladybird is sitting on a branch, and one of the baby birds comes down to play with it. Then the cat attempts to catch that very baby bird (Figure 11).

Figure 11: BB-6. (09-12-2011)



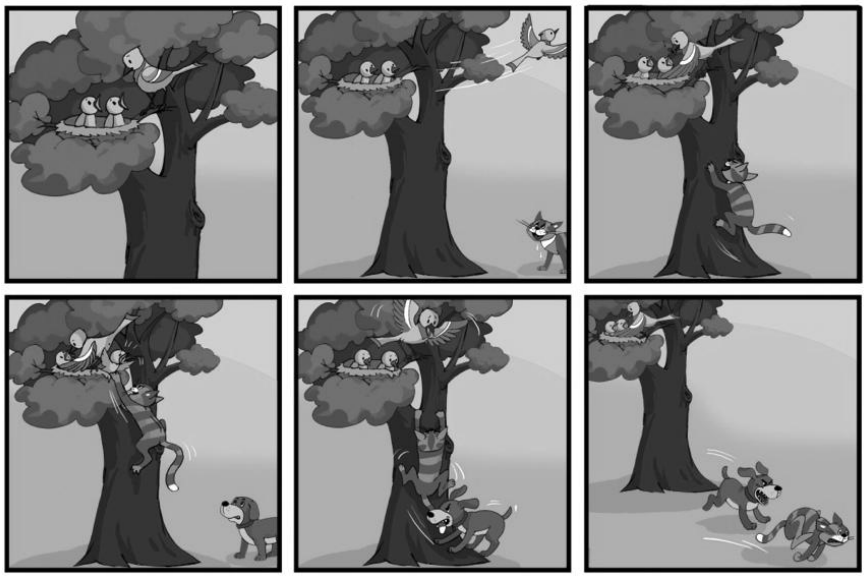
However, this proposed modification made the structure of the story too complicated for the children (as they had to both perceive the ladybird and name it), not culturally robust and, additionally, it was again illogical that the mother bird did not try to look for her third chick, having returned with the worm. Also, the fact that one of the baby birds sees the ladybird produces an additional goal (for that baby bird) in the story. Moreover, in picture 2 the baby birds should be looking at the mother bird so that they cannot see the cat. But if they are looking downwards at the bug, why should one of the baby birds move down to the lower branch when there is a hungry cat just below that branch? Moreover, in picture 3 it is unlikely that the mother bird would feed only two of the baby birds and not do anything for the one who is looking at the bug when simultaneously there is a cat intending to climb up the tree.

Having collected all the comments, we decided to remove the ladybird and the baby bird that is escaping from the nest and sitting on a lower branch. To only have two baby birds in the nest had the added advantage of achieving parallelism with the BG story (see below), where there are also two baby goats as passive protagonists. We decided to leave the nest on the left branch in order to provide more space for the GAO sequence of the dog and to create a more explicit position for the mother bird in pictures 3 and 4, who is taking care of her baby birds and does not notice the cat appearing.

Some changes were also made concerning the depiction of the attempt and the goal of the cat, so that these two story structure components appeared now in only two, and not three, pictures. The dog's facial expression became fiercer and angrier in picture 5 when he bites the cat's tail (teeth were added and eyebrows became more prominent). Also, more white lines around the cat and the dog

were added, in order to make the attempt of the dog more explicit (compare picture 5 in BB-5 and BB-7). This resulted in the seventh version (Figure 12).

Figure 12: BB-7. (03-01-2012)

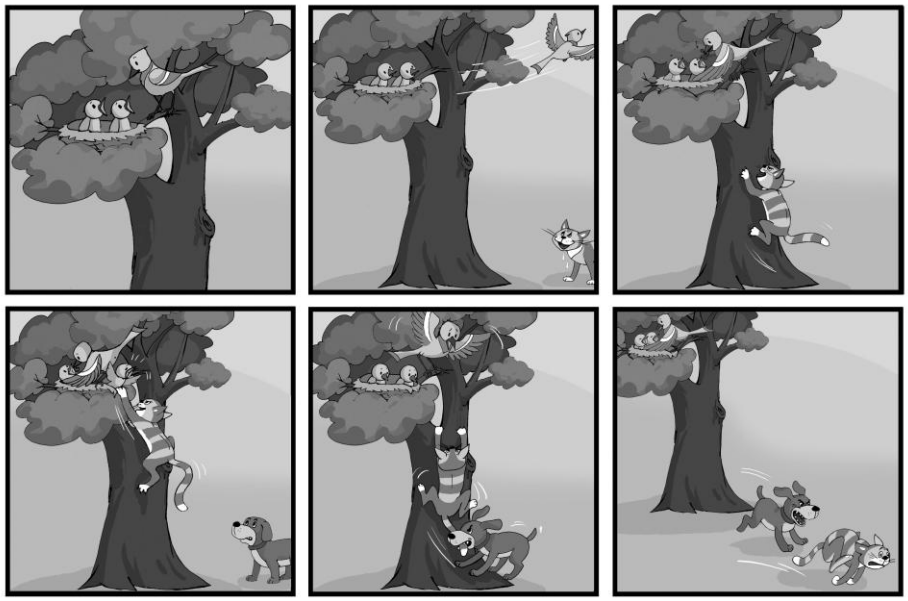


During the testing process, one of our students noticed that the cat in the BB picture sequence and the cat in the Cat story (see separate section below) had identical colouring. As this might give children the impression that the two stories are about the same cat, we asked the artist to change the colouring of the cat to black-and-white. Figure 13 shows some of these sketches.

Figure 13: BB-8.

However, we were not satisfied with these designs, as the cat became very prominent and the harsh black-and-white colours disturbed the pictorial harmony of the story. The artist then repainted the cat in neutral tones with brown stripes (Figure 14). This was our final version.

Figure 14: BB-9. Final version.

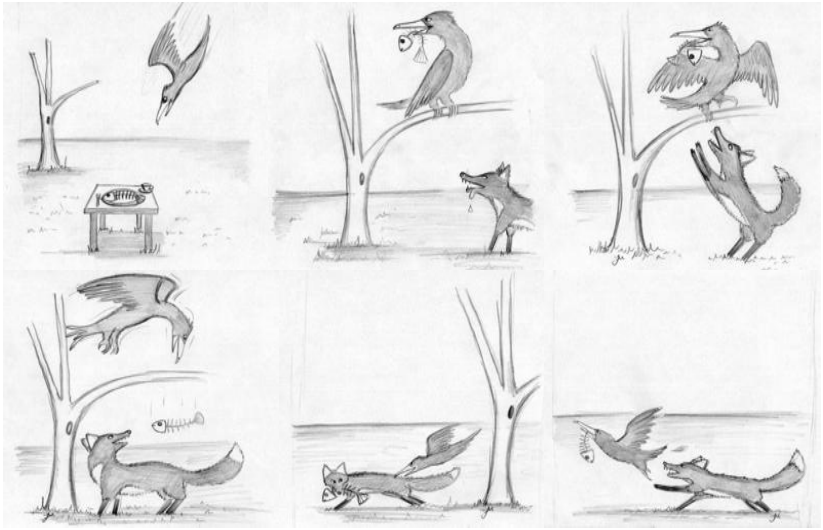


We were now satisfied with the depiction of story structure components, especially the portrayal of intentions/goals in the BB story, and had also achieved parallelism between BB and BG (see below). Piloting also showed them to be working well as stimulus pictures.

The second story: Baby Goats

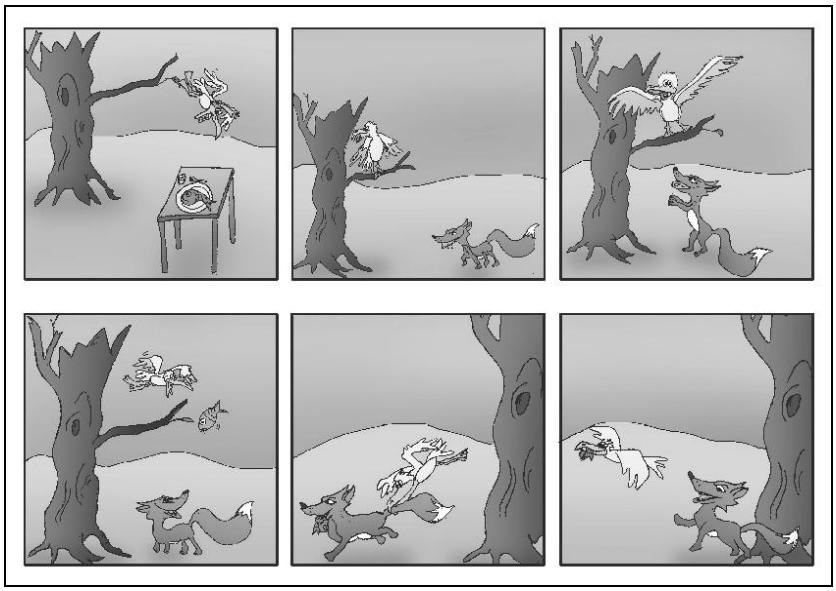
The Baby Goats (BG) story was developed from the 'Fox story' by Guelzow & Gagarina (2007), see Figure 15.

Figure 15: BG-1. The 'Fox Story' (Guelzow & Gagarina 2007)



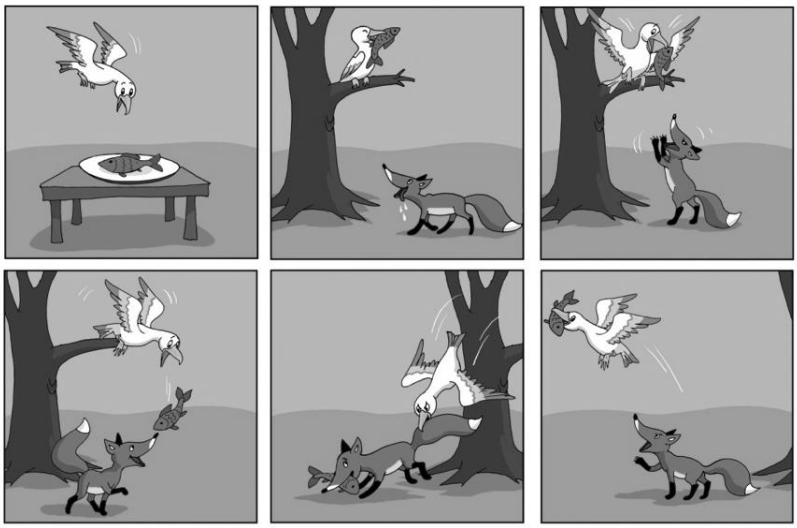
The first adjustments made to the original Fox Story included pure repainting and the addition of colour (Figure 16).

Figure 16: BG-2. (02-02-2011)



This coloured version was not done by professionals and the composition and proportions were unsatisfactory. The appearance of the animals was not prototypical. A professional artist, Loreta Valantiejiené (mentioned above), was therefore employed to create a new version (Figure 17).

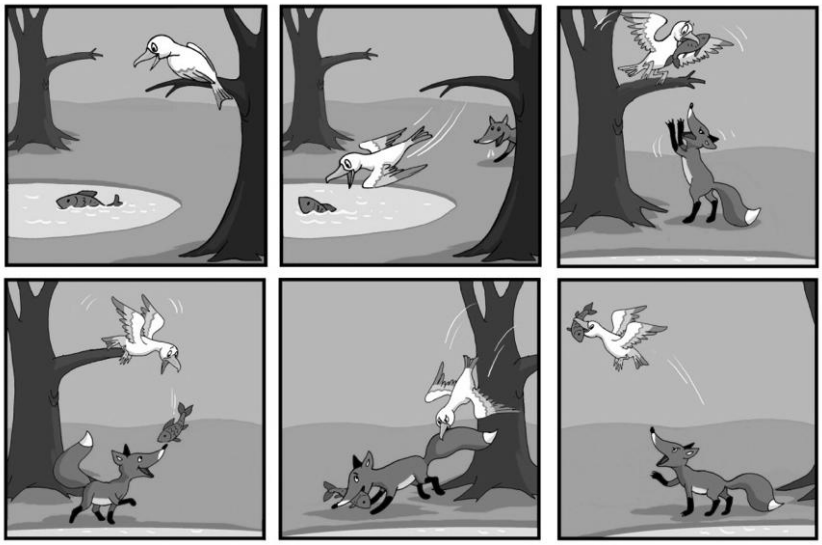
Figure 17: BG-3. (08-02-2011)



This version was clearly more appealing and congruent with the story text but, in some cultures, the fish on the plate was not a prototypical *situation.* Moreover, a dead fish as a protagonist was not animate and active enough to elicit a clear goal compared to similar protagonists in the other stories. The artist

was therefore instructed to move the fish into water and to add more expression and emotion to the bird´s face (Figure 18).

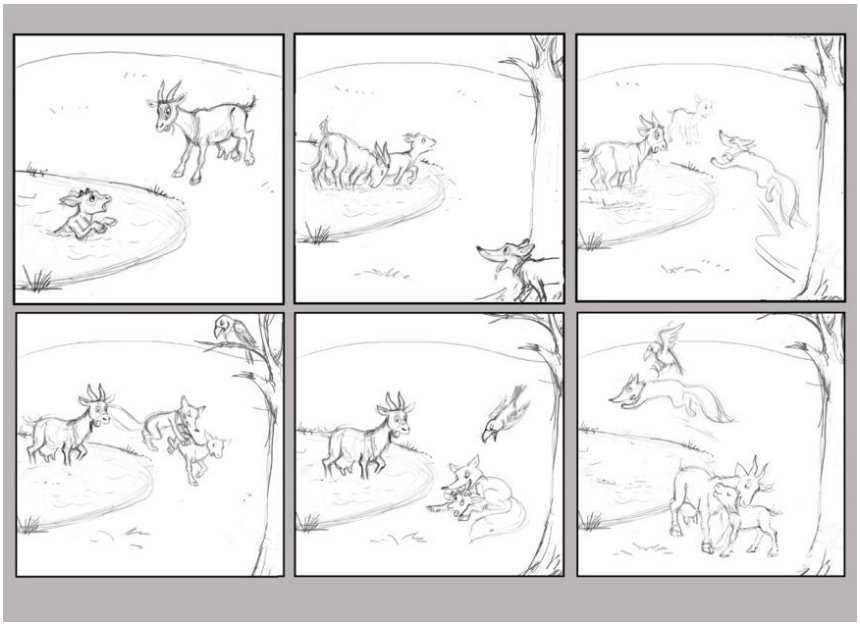
Figure 18: BG-4. (17-06-2011)



The Fox story was meant to be used in parallel to the BB story and to resemble the other two stories (Dog and Cat) in terms of story structure, number of protagonists and other parameters discussed above. But when we compared the four story texts we realized that, in contrast to the protagonists in the other stories, the fish – even now alive in the water – was still a rather passive and not prototypically animate protagonist. We started searching for a protagonist to substitute the fish which would still be accessible and familiar to children. (We wanted to keep the fox and the bird – as they frequently occur in child-directed speech, are acquired early, and are cross-culturally robust, etc.)

A different version of the storyline was created, but it needed to be comparable to the BB story and include the same number of protagonists. As a substitute for the fish we finally settled on a goat, because it can be a different animal in some countries and cultures involved (e.g. deer, sheep) but is still typical for goat in some particular countries like South Africa and Turkey. Since the plot of this story should be similar to the BB where the internal state term "hungry" serves as the initiating event that triggers the mother´s goal to get food for the hungry chicks, we decided to create a somewhat similar initiating event in the BG story, which triggers the mother goat´s goal. So, the situation of drowning was invented. A black-and-white draft was drawn up during the next brainstorming meeting in September, 2011 (Figure 19).

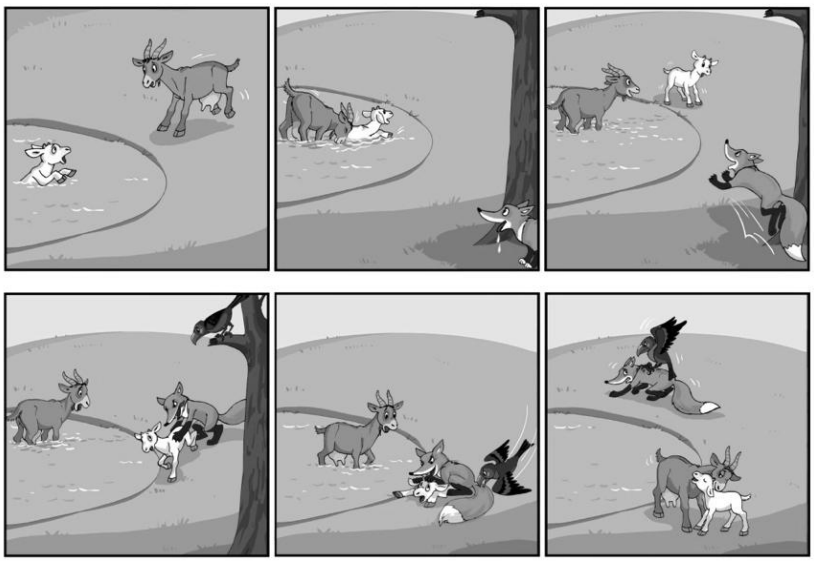
Figure 19: BG-5. (11-09-2011)



After discussions, the positioning of the protagonists and the portrayal of the bird´s attempt were changed. The baby goat in picture 1 was too big in comparison with the mother and distance was a factor that was not controlled for, cf. pictures 1 and 3. The painter adjusted the proportions between the animals. Before the pencil draft was coloured (Figure 20), we also asked the painter to make the mother pushing the baby goat out of the water more explicit. She should be shown a little further or deeper in the water. Moreover, her head position should indicate that she has not yet seen the fox. This would explain why she does not rush to protect her baby or confront the fox.

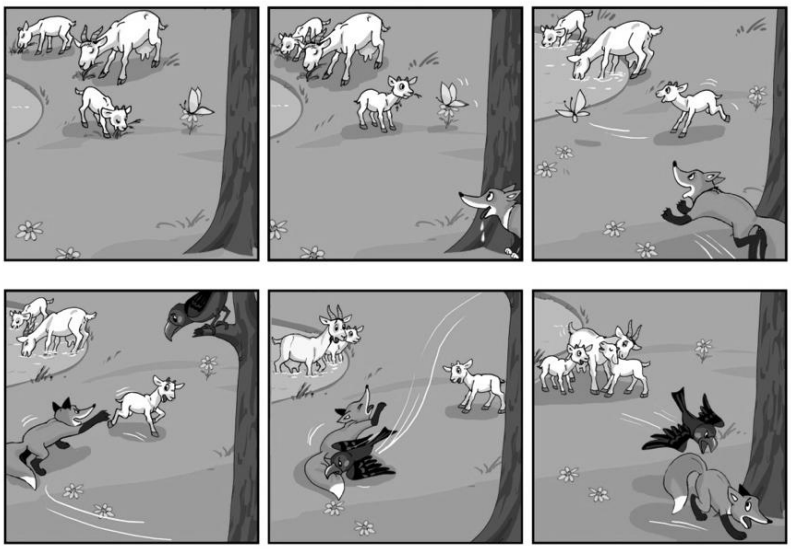
Another change we asked the artist to make concerned the portrayal of the bird. In picture 4, one should be able to see its intention to help, for instance by turning the bird´s head down a bit. In picture 5, the bird should be biting the fox´s tail more aggressively and, finally, in picture 6, the bird should be grabbing the fox with its claw and the fox´s posture and face should clearly express fear. We also recommended the following colours: the background should be green and blue as in other picture sequences, the fox should be orange as in the previous version, the bird should be a contrastive dark colour and the goats grey or white (in later versions all goats were painted in the same white colour). The result was the picture sequence in Figure 20.

Figure 20: BG-6. (11-10-2011)



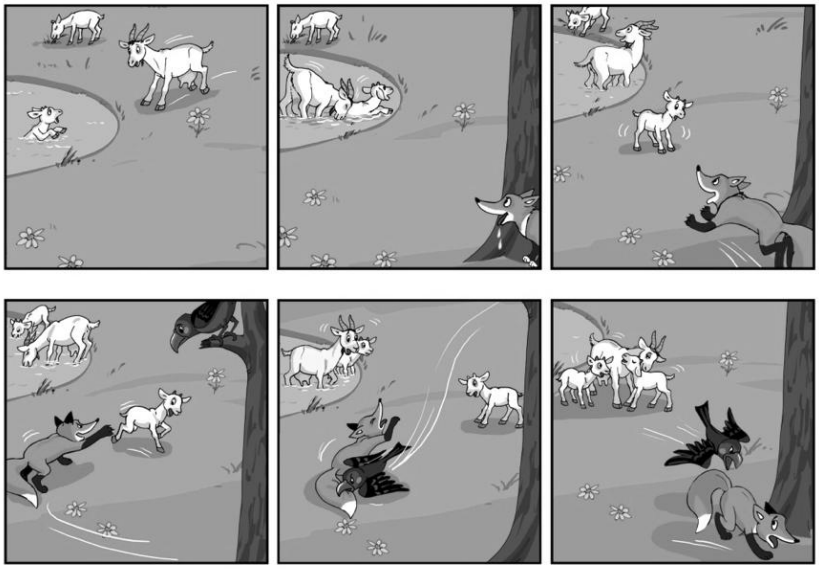
After piloting this version, however, we found that the position of the fox in picture 4 could be interpreted as being too suggestive and needed to be adjusted. Further changes were made to ensure that the stories were logical and that the BG and the BB stories were parallel. We added one baby goat, so that the babies became plural in both stories. The position of the mother goat in pictures 3 and 4 was changed yet again (grazing by the water with closed eyes) to convey more clearly that she was not aware of the fox. We also added a butterfly to motivate why the baby goat is running away from the mother (Figure 21).

Figure 21: BG-8. (09-12-2011)



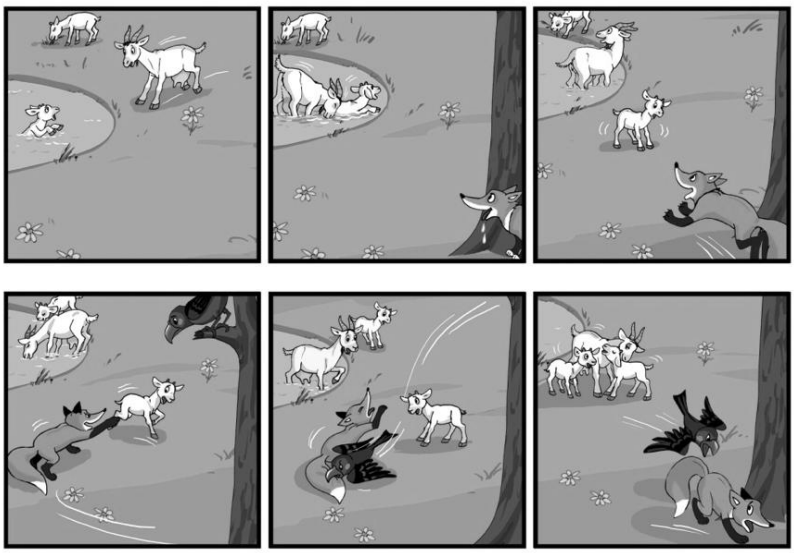
In this version, however, the mother goat became too passive, and she should be more involved in the plot, to be comparable with the BB story. We therefore decided to reconstruct the plot of the story, so that the baby goat potentially could drown. Now in both stories (BB and BG), the mother and the babies are involved in an episode with the mother as the main protagonist and the mothers have strong and comparable goals (the baby birds are hungry – and the mother's goal is to get food; the baby goat is drowning – and the mother's goal is to get it out of the water). This resulted in the version in Figure 22.

Figure 22: BG-9. (15-12-2011)



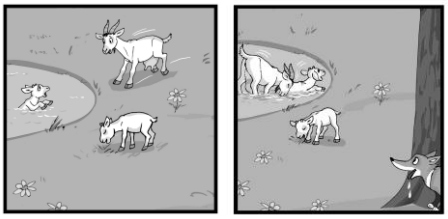
Further adjustments made certain details clearer and easier to perceive. For instance, in picture 4 the paw of the fox was moved closer to the leg of the baby goat so as to portray the fox's outcome: catching the baby goat. And the baby goat behind the mother (in picture 4) was moved further onto the shore, so that it could not be mistaken to be drowning (Figure 23).

Figure 23: BG-10. (03-01-2012)



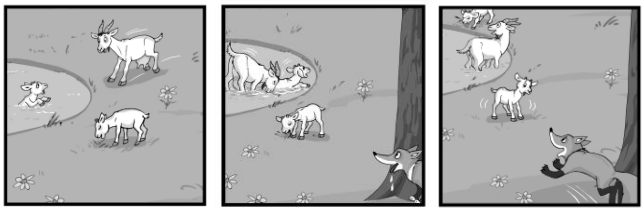
Later we decided to fill the empty space on the meadow in pictures 1 and 2 by moving the future victim of the fox in there, and thus nearer the fox. This also made the situation more logical (cf. pictures 1 and 2 in Figures 23 and 23a).

Figure 23a: BG-11.



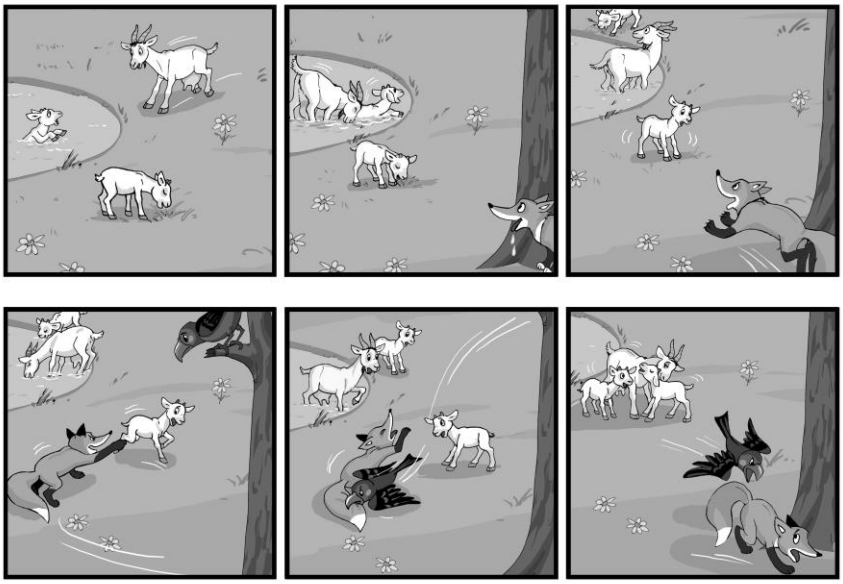
Then we also changed the direction in which the baby goat is looking in these two pictures, so that the position on picture 3 is more motivated and logically connected with the first two pictures (compare the new bottom row with the old top row in Figure 24).

Figure 24: BG-12.



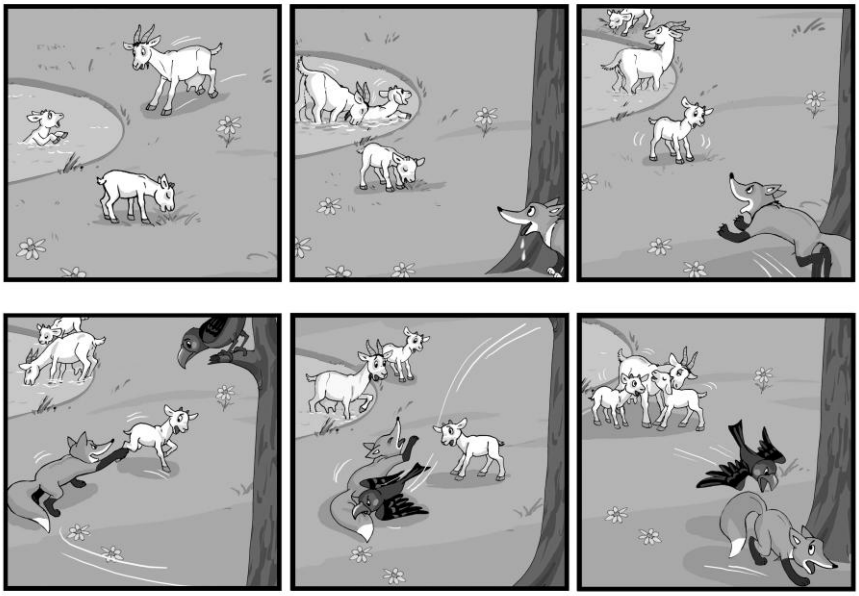
The BG picture sequence was almost ready (Figure 25).

Figure 25: BG-13. (10-01-2012)



The final, minor, change concerned the fox´s ears, which had not been coloured black and orange in every picture. For consistency, we therefore asked the artist to repaint the insides and outsides of the fox´s ears in orange throughout.
The final version of the BG picture sequence was ready (Figure 25a).

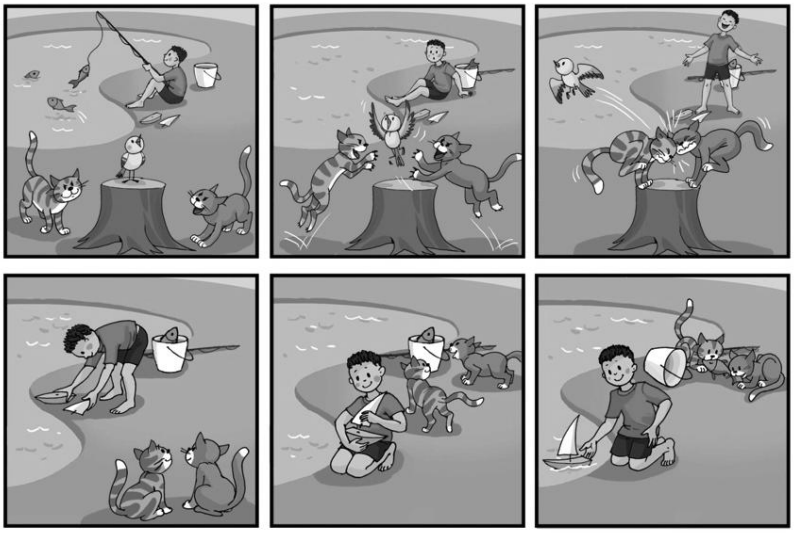
Figure 25a: BG-14. Final version. (30-12-2012)



The third story: Cat

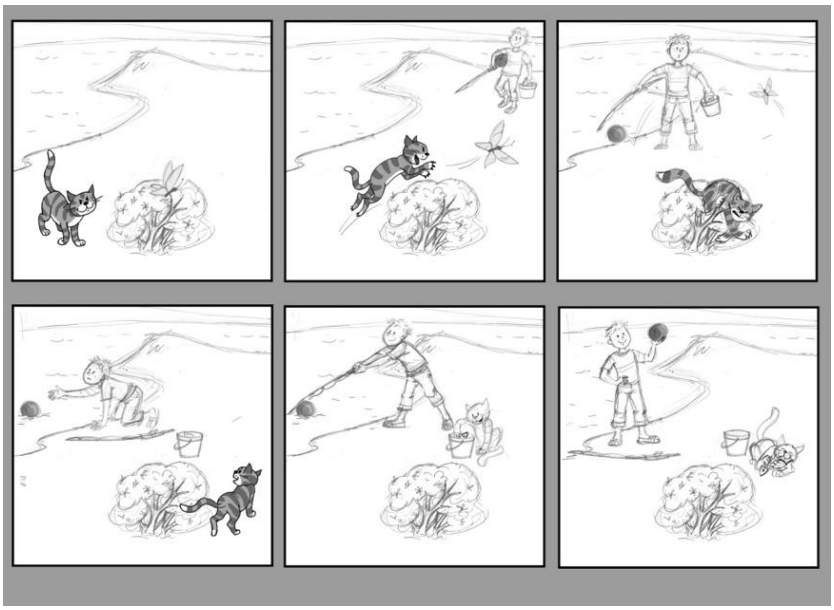
The first version of this story was created during a brainstorming workshop in Berlin in February, 2011 (Figure 26). Two cats see a bird sitting on a stump singing. The first Goal of the cats is to get the bird. They jump at the bird from different sides and try to catch it (Attempt). However, the cats bump into each other and the bird flies away (Outcome). A boy is sitting near a pond, fishing. In pictures 2 and 3 he stops fishing and watches the cats. Pictures 4-6 depict the boy's GAO (sailing a boat) and the cats' second GAO (getting the fish).

Figure 26: Cat-1. (09-03-2011)



However, this first version of the Cat story contained too many protagonists and too many details. We thus reduced it to only one cat (to make the sequence comparable with the other picture sequences, where only one aggressive protagonist is introduced). We also changed the tree stump into a thorny bush to be able to depict the outcome of the cat's action more expressively. The fishing-rod was placed more prominently in the picture, in order to explain the presence of fish in the bucket. The pond, which was found to be too culturally specific, was changed into an indefinite shape of water with a shoreline. These changes resulted in the second version (Figure 27).

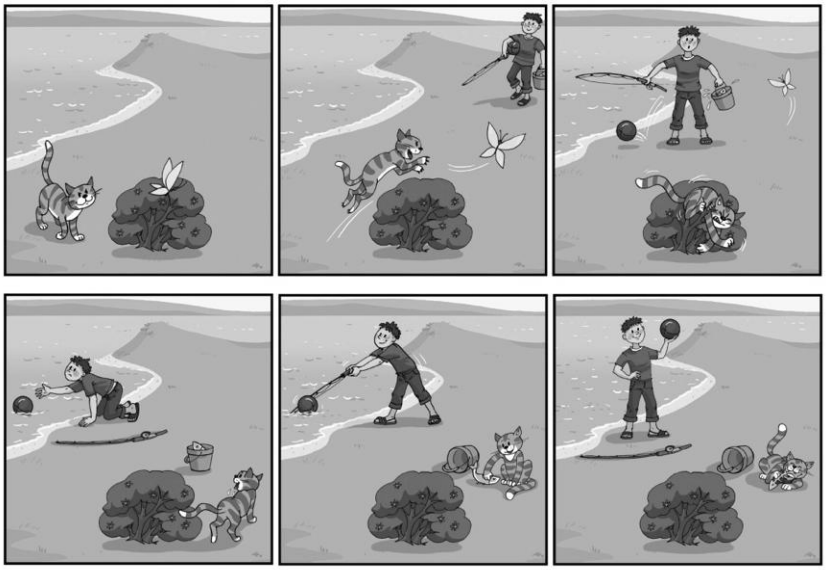
Figure 27: Cat-2. (28-09-2011)



In this black-and-white draft, a single cat approaches the bush in picture 1. The boy only appears in picture 2 and gets startled by the cat falling into the bush in picture 3. This version also introduces a much clearer GAO for the boy. Holding a fishing-rod and a ball (picture 2), he drops the ball, which then rolls into the water (picture 3). In pictures 4-6, the boy is trying to get his ball back and fishes it out with his fishing rod. The ball was needed to create a clear goal for the boy. During a brain-storming meeting in September 2011, the fishing-rod was much discussed, but it was agreed to leave it in, as it was needed as means for the boy to get his ball back.

After discussions with the other Working Group members, the above Cat version was colored. We asked the artist to add more thorns to the bush, so that in picture 3 the facial and bodily expressions of the cat would be better motivated. We also made some changes concerning the movements of the boy; for example in picture 4, his hand is pulling more strongly towards the ball. In the bucket, we still see only one fish (Figure 28).

Figure 28: Cat-3. (11-10-2011)

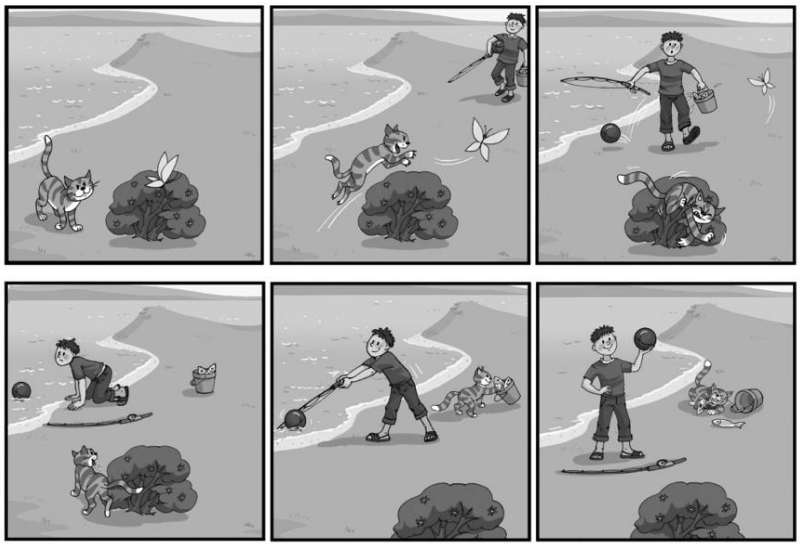


After this version, several changes were made in pictures 3 to 6. In picture 3, the movement of the boy became more explicit: he is now not standing straight, but his leg is lifted up, the bucket has a slightly different position and more water is pouring out of it. We also changed the number of fish in the bucket from one to two (for plurality and parallelism with the other stories).

In picture 4, the boy's hand was changed so as to no longer reach out for the ball as in earlier versions. This was done because picture 4 must show the intention of the boy to get the ball (i.e. the goal) and not the attempt (the attempt is shown in picture 5). In picture 4, the cat was moved to the other side of the

bush to make it clear that it is not looking at the boy but at the desired fish. The cat's face is now more visible and salivates – this makes the cat's goal more prominent. Also, the bucket was moved away from the boy so that he could not see the cat stealing the fish. In this way, the GAOs of the boy and the cat in pictures 4 to 6 were coherently and clearly pictured (Figure 29).

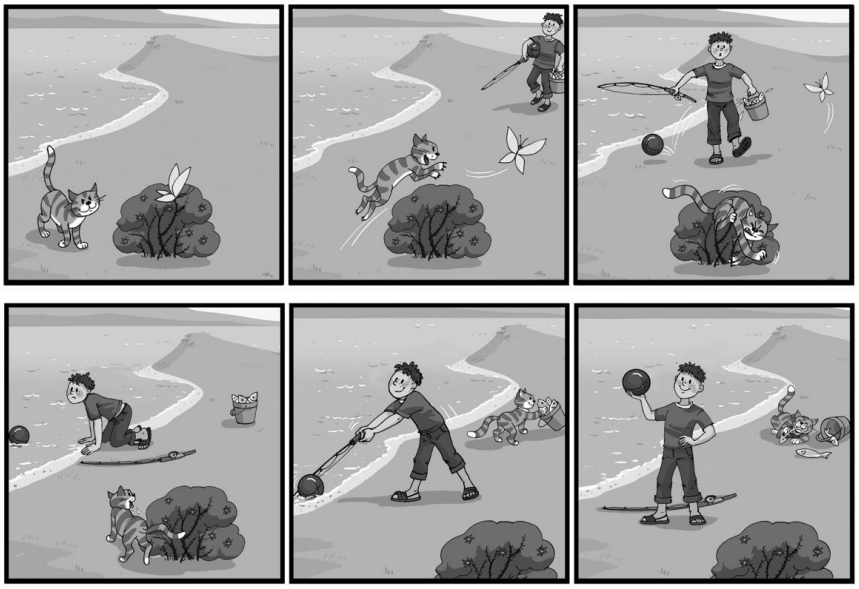
Figure 29: Cat-5. (09-12-2011)



Some further adjustments were made before everyone could accept this picture sequence: An extra fish was added (so as to parallel the sausages in the Dog story, see below), and the position of the boy was changed in picture 6. The boy holds the ball in his right hand and clearly looks into another direction than where the cat is. The position of the boy was changed to enable us to introduce an inferencing/theory of mind question in the comprehension section: *Imagine that the boy sees the cat now. How would the boy feel?*

During piloting, the Turkish team led by İlknur Maviş as well as some other teams pointed out that children easily recognized the tree in the pictures (e.g. in BB) but not the bush in the Cat story. So, throughout the entire picture sequence, the branches of the bush were redrawn, in order to give the bush a more prototypical appearance. The branches were made thinner, were coloured black instead of brown, and thorns were added. This way, the outcome of the cat's GAO in picture 3 (falling into the bush and getting hurt) became more explicit. At last, the final version of the Cat story was ready (Figure 30).

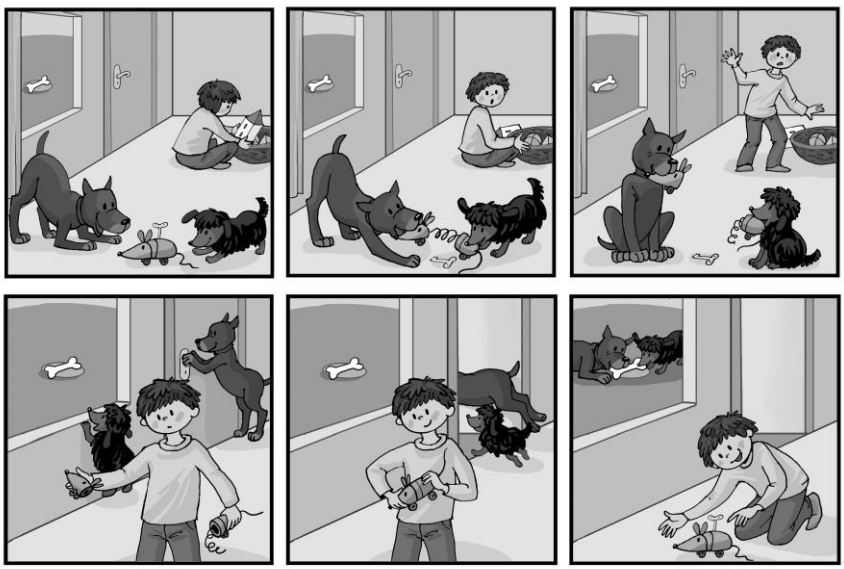
Figure 30: Cat-6. Final version. (03-01-2012)



The fourth story: Dog

The Dog story was developed in parallel with the Cat story. Originally, two dogs were tearing at a toy mouse while a boy was finishing the construction of a Lego house (Figure 31).

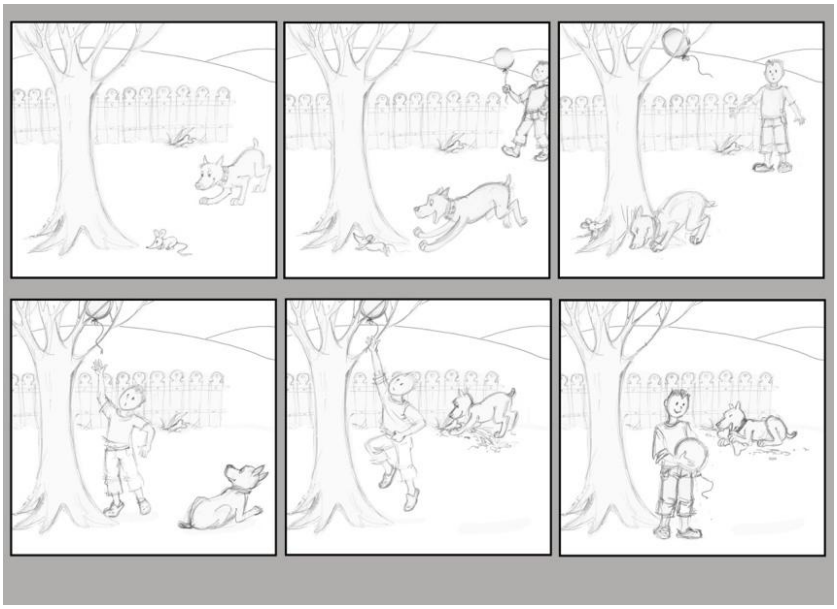
Figure 31: Dog-1. (15-03-2011)



We had worked on this version several months and made many improvements. However, this composition proved to be unsuitable in cultures where dogs are considered ‘dirty’ animals, rather than pets, and as such they cannot be inside a home, nor in a room.

We therefore developed a new scenario of the Dog story, first drawn in pencil (Figure 32), which was kept as parallel to the Cat story as possible. In this first black-and-white draft, a dog sees a mouse (Goal) in picture 1 and tries to catch it (Attempt) in picture 2, where also a new character, a boy, is introduced. The mouse runs away and the dog bumps into a tree (Outcome) in picture 3. The dog bumping into the tree startles the boy, who lets go of his balloon (picture 3). The balloon gets caught in the tree (pictures 3-4), and the boy jumps in order to reach it (picture 5). Finally, the boy takes the balloon back down (picture 6), the dog sees a bone (picture 4), digs it up and eats it (pictures 5-6), see Figure 32.

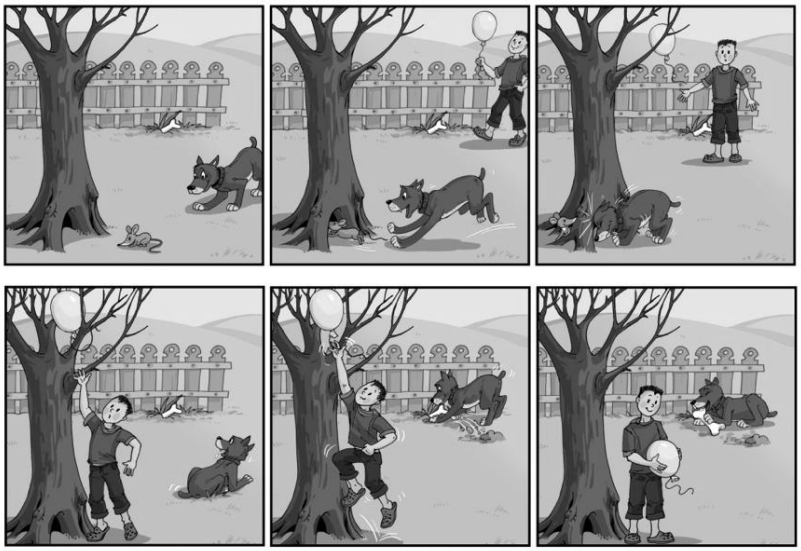
Figure 32: Dog-2. (27-09-2011)



There were, however, certain problems with this black-and-white draft. It seemed strange that the dog has to lower his head if he is to hit the tree, in an attempt to reach the mouse. This would become more natural if the mouse had hidden under the root of the tree. The cavity in the tree therefore needs to be enlarged, so that the mouse can run into it and be safe, but not big enough for the dog to get it – so therefore the dog will bang his head on the tree. The roots of the tree should be somewhat bigger so that it becomes clear that the dog hits them while running. We also suggested to the artist that she add lines to show the *sound* resulting from the dog's hitting the tree, to better justify the reaction of the boy. In picture 3, we asked the artist to reduce the distance between the balloon and the boy: it cannot be that the boy just let go of the balloon and it is already far away. In picture 4, the boy's hand and the string on the balloon should be farther apart, and the dog should be looking at the bone rather than at the boy. In picture 5 we asked the artist to zoom in a little so that the item in

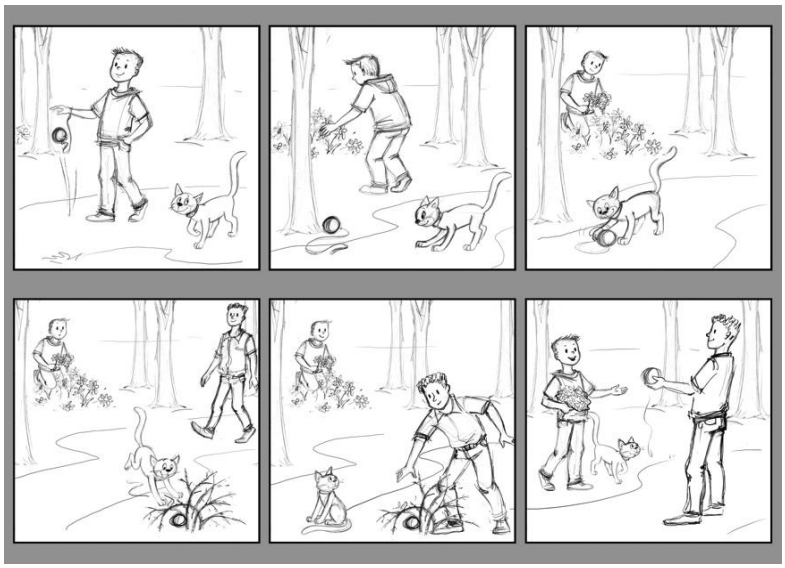
focus (i.e. the balloon) is in full view. Following our suggestions, the artist drew the colour version below (Figure 33).

Figure 33: Dog-3. (11-10-2011)



Some members of the working group developed an alternative version where a boy goes for walk with his toy (a yo-yo) and picks flowers, whilst a cat steals and drops the toy into a bush. A man finds the toy and returns it to the boy (Figure 34). This version was rejected however, as it introduced an extra protagonist and as it was not culturally appropriate enough. For instance, picking flowers in public parks is forbidden in some countries.

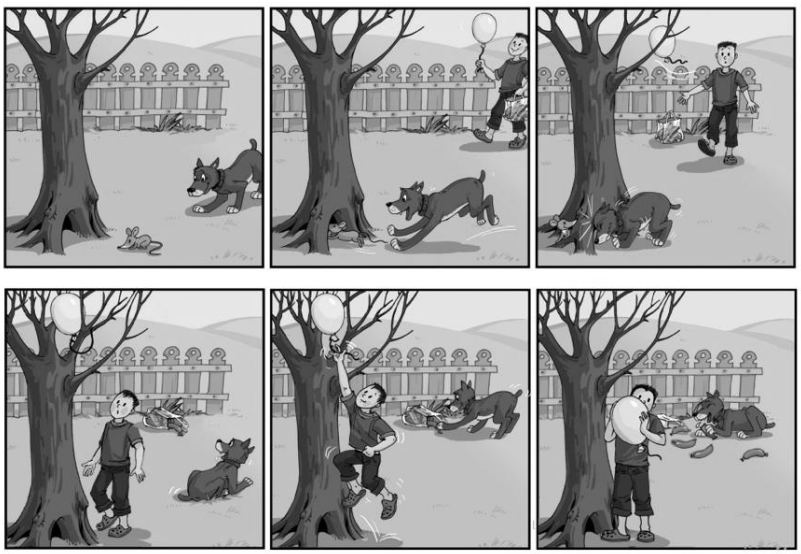
Figure 34: Dog-4. (24-22-2011)



Being back to the fourth version of the Dog story, we found that it was not completely parallel to the Cat story, where the boy appears in picture 2 with a bucket with fish; so, in the Dog story, the boy was given a bag of sausages, thereby implying that he was coming back from shopping. When the boy is startled, he does not only let go of the balloon but also puts down his bag. When he then tries to get back his balloon, the dog steals a sausage from the boy's bag. A see-through bag was chosen for the sausages to be visible, so that the dog could see them. This provided the necessary initiating event leading to the dog's goal formulation.

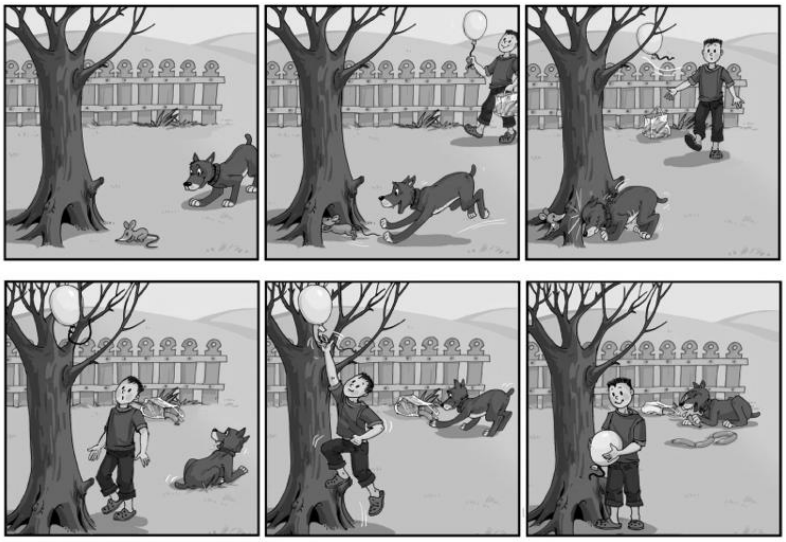
In picture 4, the portrayal of the boy's goal to get his balloon reminded more of an attempt than a goal, so the artist was instructed to move the boy's hand away from the balloon. On the balloon itself, the string was too thin and not visible enough, so this was changed. In picture 6, we decided to partially hide the face of the boy behind the balloon. This was done to be able to ask an inferencing/theory of mind question, where the children would need to infer the internal state of the boy from the story without seeing his face: *Imagine that the boy sees the dog now. How would the boy feel?*. These changes resulted in the picture sequence in Figure 35.

Figure 35: Dog-5. (09-12-2011)



After pilot testing, some more changes were made. For instance, we noticed that the four separate sausages (in pictures 2-6) do not represent *typical sausages,* they looked more like carrots, so we chained them together into a sausage link. In picture 5, the boy seemed like to be hanging in the air, so a small branch was added to the bottom of the tree which the boy could stand on (Figure 36).

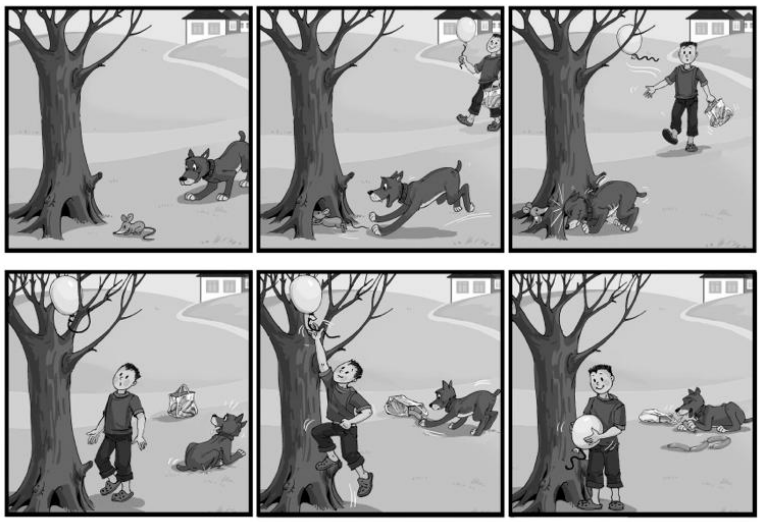
Figure 36: Dog-6. (14-12-2011)



The final version (Figure 37) arose due to the following thoughts: First, we noticed the discrepancy in the position of the plastic bag with the sausages in pictures 2 and 3 (in picture 2 it is in the left hand of the boy, in picture 3 is it on the right side of the boy). Furthermore, we thought that a countryside landscape with a fence and fields in the background did not give us a good enough motivation for the sausages: Where did they come from? Did the boy buy them? If yes, was he at the butcher's or the supermarket? Where are the houses?

This made us change the countryside background into a more urban environment, the fence was removed while a path and houses were added. This should better motivate the fact that the boy carries the sausages and is probably going back home. Also, the presence of the dog with a collar was better motivated when houses were seen in the background. To make the representation of the houses culturally robust, we discussed the shape and colour of the houses with colleagues from various cultures. Figure 37 shows the final version of the Dog story.

Figure 37: Dog-7. Final version. (14-12-2011)



2.5 Excerpts from e-mail correspondence between working group members during the development of pictures and tasks

The Narrative and Discourse group met during bi-annual COST meetings and smaller-scale workshops to develop and refine the MAIN materials. In between, much work was done through e-mail discussions. Comments from Working Group members were used to make adjustments to the pictures, scripts, protocols and scoring formats. The following are excerpts from some of these discussions.

NG commented:
I like this one better, but there are no three clear GAO here.
KT commented:
I prefer this hungry cat, too.
DK commented:
Yes, I also prefer this sequence. GAO 1: cats want to catch bird, leap forward, bump into each other, bird escapes; GAO 2: cats wants to catch bird again, cat climbs tree, branch breaks, bird escapes again; GAO 3: boy wants to help, fishes cat out of water, cat is saved. Since it is a retell story the model narrative can clearly formulate the GAOs. An additional Goal can be formulated for the boy wanting to fish/coming to fish?

JW commented:

BB: In PIC3/ "The mother bird came back with a worm for the babies." It is not logical that the mother bird will return, see a cat wanting to attack her babies and not do anything to protect them. BG: Pragmatically, goats don't play near water. SUGGESTION: "One day there was a mother goat who saw that her baby goat fell in the water and was scared.
In this story as well, the mother goat is not active in protecting her baby goat. SUGGESTION: Reverse the order of the sentences/pictures 2&3, as follows: PIC2/ The mother goat pushed the baby goat out of the water.
PIC3/ A hungry fox saw that the mother goat was still in the water and wanted to catch the baby goat. The mother should be sent away before we bring the fox in, otherwise she should jump to her baby's help.
Dog (and boy with balloon): Dogs don't chase mice; cats do. If we don't want a cat since we have too many cats in the other stories, we need another animal like a fly or an ant.
COMPARABILITY of stories. They are still far from parallel in terms of complexity.
The fish and the bone, the passive objects in the cat and dog stories, function very differently from the baby birds and baby goat. The direct quotations in BB and BG are very different pragmatically from the direct quotes in cat and dog. BB and BG are directives/orders; Cat and Dog are exclamations/declarations of frustration/affect: "Get away from the baby birds"; "Let go of the baby goat"; "Oh no! There goes my ball!"; "Oh no! There goes my balloon!"
GENERAL COMMENTS from other team members who have worked with children and collected narratives: The scripts are very complex, both in terms of the interleaving of events as well as the density of information. Also cat and dog stories do not sound like one story but a string of events, episodes not connected to each other, with no causality. In the cat story the boy should be introduced at the onset as fishing and having a ball to motivate the rest.

TV commented:
Cat & Dog: We think to emphasize the attempt of the boy in pic 5 to get the balloon, add a lower branch to the tree and make the boy climb up to the tree to get the balloon as discussed in Malta. This would make a more clear distinction between the goal and the attempt of the boy to reach the balloon.

IB commented:
Re BG pictures:
a) A baby-goat (the further one) is too big. If we take into account a factor of distance, the baby-goat gets then the same size as the mother-goat. Suggestion: Make the baby-goat a bit smaller.

b) The balloon (Dog story) seems to be flying. Suggestion: To make the balloon's line trailing among branches (maybe to draw it as a "spiral" around a branch?)

UB commented:
Clear GAOs in the pictures must be our main objective. If anyone is concerned about having a parallelism hungry - giving food, thirsty - giving drink, I would say: We do not need any parallelism hungry - thirsty! It does not matter if one GAO is about feeding (birds) and the other GAO is about saving (goats). What IS important is that the GAO sequences are clearly depicted, so the kids have a chance to spot and tell them. But the GAO is not clear in the thirsty-baby goat's version.

DK commented:
BB: I agree with the comments regarding the BB pictures – I also prefer the set of pictures where the mother comes back with the worm in pic 3, no lower branch and no ladybird. This GAO is clearly portrayed in the pictures. The cat is introduced in pic 2 as the next protagonist but without interfering with GAO1. In my opinion the ladybird in the pictures introduces additional elements and distracts from and weakens GAO1.
Goats: GAO1 (want to find water/found water/ drank water) in the new pictures 1-3 is not clearly portrayed and I anticipate that only descriptions will be elicited. There is not enough intentional behaviour portrayed in the pictures (I think it is very difficult to portray thirsty as a mental state). As with the ladybird in Birds, I think that the butterfly introduces additional elements that are unnecessary for the storyline and that distract from the main elements in GAO1. I prefer the older version with the baby goat drowning and the mother saving it – that provided clear, observable intentions/mental states and a strong goal (also the type of eye-catching detail that children are likely to respond to).
In retelling we provide a model story containing the GAOs – the pictorial content is supplemented by the auditory stimuli. In telling the visual stimuli becomes more important because the goals, intentions and mental states must be clearly portrayed to enable the child to construct the story. I don't think this is the case in the Goats pictures.
I know we were not perfectly happy with the older versions too, and it is valuable to experiment with variations – having seen alternative options in the latest picture, I prefer the earlier versions with baby goat drowning and without butterfly, and baby birds without ladybird.

COMPREHENSION QUESTIONS

TV commented:

Re the comprehension question "Why do you say that they are scared?" - the format of the question is a bit problematic. There may, of course, even be differences between languages in the translated forms, especially on what type of question is more confrontational/less confrontational. Letts & Leinonen (2001) used the question format "Why do you say that…?". In some languages that would be very confrontational and implicate that we do not believe the child or that the answer was wrong. Loukusa, Ryder & Leinonen (2008) in a newer article used the format "How do you know that?" for some questions and "Why do you think that?" for some questions. In Finnish both these forms do indeed function better, and would not be confrontational. So, we suggest that if "How do you know that the baby birds are feeling bad/scared?" seems difficult/confrontational, when translated to different languages, then the format should be "Why do you think that the baby birds are feeling bad/scared?"

IT commented:

BB and BG: there is an episode with a main character (the mother and her babies), the antagonist and the hero. The question regards such relationship: Is now the mummy bird (or goat) now the friend of the cat (wolf) or of the dog? After the child has given the answer, s/he is asked: Why? The answers are transcribed: the first is coded either 1 or 0. The second is submitted a qualitative analysis (to be discussed at the next meeting). The cat and the dog stories are more complex because the two protagonists (the boy and the cat, or dog) behave almost independently, but the dog's (or cat's) actions affect the boy. I suggest the following questions: At the end, the boy is angry with the dog, for two reasons. Can you tell me why he is angry? The child should mention the fact that the dog get the boy scared, and then he lost the balloon, and that the dog took the sausages. Afterward the child might be asked "The boy was silly, do you agree? He was silly twice. Could you tell me when he was silly? The child should mention the fact that the boy left the balloon goes and the fact that he left the sausages. These answers suggest that the child has understood the causal chain connecting the episodes.

IT commented:

Could I just suggest that we could include a question for each story as to the incident that causes a reaction, e.g. Did the boy let his balloon go on purpose? Do you think the boy was playing with his balloon? A similar question could be asked about the fox in the goat story (i.e. whether the child thought that the fox wanted to play with the little goat). For the bird story, 'did the dog think the cat wanted to play with the little birds' and for the cat story 'why was the boy

surprised? Because he wanted the cat to catch the butterfly; because he wanted the butterfly to fly away... etc). The idea is that we should include questions on the causality of events in the story and on the intentionality of the characters.

2.6 Picture presentation modes

The Working Group on Narrative and Discourse experimented with different modes of presenting the stimulus pictures. Based on pilot tests, we found fold-out presentation to work best.

Fold-out presentation was developed by K. Tantele and motivated in part by the results of previous studies on narratives by both typically developing and language impaired preschool children (Gazella & Stockman, 2003; Liles, 1993). The pictures are dense in pictorial content, and we did not want the child just to give us a story overview, but to give us the best linguistic output possible. Our intent was therefore to facilitate the production of the three episodes in each story by presenting the pictures two at a time during both the telling and re-telling tasks. Based also on eye movement studies of children listening to stories presented orally and evidence that language-impaired children attend to less semantically relevant information when pictures are presented (Andreu, Sanz-Torrent, Guàrdia Olmos, & MacWhinney, 2011), it was decided to present the six pictures in pairs of two each so that the child could focus on each of the three episodes. This way, the information would be more controlled and children would be less likely to jump between pictures in an uncontrollable fashion.

To control for effects of shared knowledge and joint attention, each child chooses a story from one of three envelopes and is instructed not to let the examiner see which story was selected (Serratrice, 2007; Van der Lely, 1996). In addition, during initial viewing and telling/retelling of the story, the pictures are unfolded in a way that only the child sees the pictures (see Section 3.1).

A second option involves presentation of the story on a computer screen with audio input via headphones, using the same procedure as described above for the "paper version." This option was also suggested by K. Tantele. On the screen, the child first sees three different colored envelopes and is asked to choose one. The child clicks on his/her choice (if necessary, assisted by the examiner) and then sees a PowerPoint® presentation starting, with identical timing for exposure duration and transitions for all languages. The child first sees the entire set of six pictures in the middle of the screen. Then each pair of pictures is presented just like in the paper version, the only difference being that the child pushes a key on the keyboard in order to proceed to the next pair of

pictures. (In the model story/retelling condition, the child listens to the accompanying audio presentation via headphones, rather than the examiner telling the child the story.)

One unresolved difference across research groups is the size of the screen used with the computer version. The 9x9cm size used for each picture in the paper version is difficult to maintain for the computer version due to limits in screen size.

2.7 Stimulus scripts for retelling task and comparability across languages

Like the pictorial content of the stimulus pictures, the stimulus scripts were designed to be comparable for both macrostructure and microstructure information. Table 2 displays the English stimulus scripts for the 2 stories (Cat/Dog) designed for retelling/model story, marked for goals, attempts, outcomes and internal states. Cross-linguistic syntactic and lexicalization differences made it impossible to maintain strictly parallel microstructure features across languages. (The scripts for all 4 stories, BB, BG, Cat and Dog, with coded goals, attempts, outcomes and internal states, can be found in Section 3.2.).

Table 2: English stimulus scripts for the Cat and Dog stories, coded for goal, attempt, outcome, and *internal state terms*

Cat	**Dog**
Pictures 1/2: One day there was a *playful* cat who *saw* a yellow butterfly sitting on a bush. He leaped forward because he wanted to catch it. Meanwhile, a *cheerful* boy was coming back from fishing with a bucket and a ball in his hands. He *looked* at the cat chasing the butterfly.	Pictures 1/2: One day there was a *playful* dog who *saw* a grey mouse sitting near a tree. He leaped forward because he wanted to catch it. Meanwhile, a *cheerful* boy was coming back from shopping with a bag and a balloon in his hands. He *looked* at the dog chasing the mouse.
Pictures 3/4: The butterfly flew away quickly and the cat fell into the bush. He *hurt* himself and was very *angry*. The boy was so *startled* that the ball fell out of his hand. When he *saw* his ball rolling into the water, he *cried*: ”Oh no, there goes my ball”. He was *sad* and wanted to get his ball back. Meanwhile, the cat *noticed* the boy’s bucket and *thought*: “I want to grab a fish.”	Pictures 3/4: The mouse ran away quickly and the dog bumped into the tree. He *hurt* himself and was very *angry*. The boy was so *startled* that the balloon slipped out of his hand. When he *saw* his balloon flying into the tree, he *cried*: ”Oh no, there goes my balloon”. He was *sad* and wanted to get his balloon back. Meanwhile, the dog *noticed* the boy’s bag and *thought*: “I want to grab a sausage.”
Pictures 5/6: At the same time the boy began pulling his ball out of the water with his fishing rod. He did not *notice* that the cat had grabbed a fish. In the end, the cat was very *pleased* to eat such a tasty fish and the boy was *happy* to have his ball back.	Pictures 5/6: At the same time the boy began pulling his balloon out of the tree. He did not *notice* that the dog had grabbed a sausage. In the end, the dog was very *pleased* to eat such a tasty sausage and the boy was *happy* to have his balloon back.

Macrostructure and internal states are identical across languages in the MAIN, as all languages use the same stimulus pictures and score story structure components in production and comprehension in the same way. Great pains were taken to keep the number and sequence of Goals, Attempts, Outcomes and internal states (as initiating events and as reaction) per protagonist identical across the parallel versions of the stimulus scripts. This was done for all the 15 languages that the MAIN has been tested in, so that bilingual children can be assessed in both of their languages in an identical and reliable fashion.

When developing the different language versions, we also took great pains to keep the microstructure in the story scripts as similar as possible across stories. For instance, we ensured that the number of sentences, clauses, coordinating and subordinating constructions was kept similar across story scripts. The total number of words per script was also kept as constant as was practicable. Scripts were also constructed to include parallel direct speech (character speech). Connectives and adverbs were included in equal measure in the different scripts, as were adjectives that described internal states. We strove to use parallel syntactic constructions, such as relative clauses and infinitival constructions across scripts. Lists were kept of grammatical/lexical difficulties which occurred during adaptation and of important variations due to language-specific requirements. The logical sequence of clauses/utterances was kept the same across languages and stories, as were many other linguistic features. Please see the Guidelines for adapting the story scripts to other languages (Section 3.3).

Please see the Appendix for the complete English version of the MAIN. Other language versions of the MAIN, as well as the English version, can be found in PART II of this *ZASPiL 5*6 issue. These language versions are available electronically from the following address: http://www.zas.gwz-berlin.de/zaspil56.html.

2.8 Microstructure

2.8.1 Framework for the analysis of microstructure

MAIN is a valuable instrument for eliciting discourse across different languages, and it can be used to analyse macrostructure and microstructure in each specific language.

As discussed in the Introduction, for bilingual children there is a particular need for a tool that assesses language-general skills and not only language-specific skills. This is because language tasks that require a cognitive component may be less biased against bilingual children (cf. Paradis et al., 2010:221; Berman 2001; Pearson 2002: 167-171). The assessment of language-general

skills, such as macrostructure in narratives, reduces bias and is therefore particularly valuable.

During the process of developing the MAIN, the researchers in the COST IS0804 Working Group on Narrative and Discourse have used MAIN to elicit narratives and analyse aspects of both macrostructure and microstructure in their specific languages.

Some preliminary microstructure investigations included lexis (e.g. lexical diversity, content/function words), morpho-syntax (e.g. verb/noun inflections, tense, agreement, relative clauses), discourse phenomena (e.g. referent introduction and maintenance, coherence and cohesion), fluency, as well as bilingual phenomena (e.g. code switching, cross-linguistic transfer). It became obvious that microstructure comparisons between languages are problematic due to the typological differences between languages.

For instance, a seemingly simple quantitative measure of narratives such as the total number of words cannot always be straightforwardly compared across languages. This is because morpho-syntactic differences, such as the use of high-frequency free grammatical morphemes in one language vs. the use of bound morphemes or no morpheme in another language (e.g. prenominal free-standing definite articles in English vs. suffixed articles in Swedish vs. no article in Russian) will impact on word counts. Pilot studies showed that Swedish-English bilingual children produced Swedish narratives that were shorter in length (measured in words) than their English narratives, even though Swedish was their dominant language. The difference in narrative length was largely an artefact of the typological differences concerning definiteness marking in the two languages.

Another example would be quantitative measures of clausal subordination (e.g. counts of subordinating conjunctions or counts of subordinate clauses). These are often included in microstructural analyses and in the assessment of narrative skills, but cannot always be straightforwardly compared across languages. This is because languages may make use of subordinating constructions to different degrees and in different forms (e.g. Hebrew might tend to express a certain proposition with an object relative clause, whilst Swedish would more often use a shortened infinitival construction). In this case, high levels of clausal subordination in children's narratives in one language and low levels in the other do not allow us to draw conclusions about "better" narrative skills in one language. Microstructure is language-dependent.

The macrostructure of narratives, however, is largely language-independent. MAIN therefore provides guidelines and protocols to be used across languages so that macrostructure results can be compared across languages.

By contrast, since microstructure is language-specific, no single protocol for analysis can be provided. Rather, MAIN includes a list of potential microstructural measures that have been found to be sensitive for the differential diagnosis of children with language impairment in different languages. It is left to the discretion of researchers and practitioners using the MAIN to decide which microstructural measures to include in the analysis of their specific language.

2.8.2 Suggestions for microstructural measures to be analyzed

Narrative length and lexis:

- Total number of word tokens with mazes (TNTm), only those related to the pictorial content of the story (extraneous material is excluded). Mazes are disfluencies such as false starts, filled pauses, repetitions, and revisions.
- Total number of word tokens without mazes (TNT). It may be informative to compare narrative length once all mazes have been detracted.
- Number of different words = lemmas (NDW). This is our measure of lexical diversity. The number of different words, i.e. lemmas or root forms, is one way of investigating lexical richness in a narrative.
- Number of communication units (CU). For the microstructural analysis of oral language samples, recorded speech must be segmented into units, but not everyone agrees on which base unit to choose. Options include utterances (MacWhinney 2000), t-units (= minimally terminable units, Hunt, 1965), and c-units (= communication units, Loban 1976). The Work Group on Narratives and Discourse has used the c-unit as a base unit to allow for straightforward comparison of results between research groups (not reported here).

Syntax complexity and discourse cohesion:

- Mean length of CUs (MLCU) (calculated as number of CUs divided by TNT).
- Mean length of the 3 longest CUs (MLCUmax) (calculated as 3 longest CUs divided by TNT).
- Number and ratio of verb-based clauses (calculated as percentage of the total number of verb-based clauses out of CUs).
- Number and ratio of subordinating constructions (calculated as percentage of subordinate constructions out of CUs).
- Number and ratio of coordinating constructions, excluding the conjunction *and* (calculated as percentage of coordinating constructions out of CUs).

Bilingualism:

- Number and percentage of tokens NOT in the target language of a session (Code switching).

Nothing precludes the possibility for researchers to analyze narratives elicited by MAIN from other microstructural perspectives, e.g. lexical richness, literary language style, tense, percentage of error-free clauses, percentage of content words vis-à-vis function words, use of different types of noun phrases (i.e. lexical, pronominal, clitic, null) for referent introduction and maintenance, etc.

2.9 Background questions

In addition to the narrative assessment tool, a set of *background questions* was developed (based on Gagarina, Klassert, & Topaj, 2010), in order to evaluate the acquisition conditions and the quality and quantity of the input to the child in both of her/his languages. The background questions can be used as a questionnaire to be filled in by the parents and/or the preschool/school teacher, on their own or with the help of an experimenter, if desired. They can also serve as a base for a (telephone) interview with parents and/or daycare staff. Please see the Appendix for the background questions.

3 Guidelines, Administration and Scoring

3.1 Guidelines for assessment

MAIN is suitable for bilingual and monolingual children from 3 to 10 years of age. It can be used to assess both comprehension and production of narratives. It also allows for different elicitation modes: Model Story, Retelling, Telling. The choice of elicitation procedure (e.g. model story/retelling followed by telling, or telling only) depends on the goals and needs for assessment. (Examiners can use their own discretion.)

The MAIN design allows for the assessment of several languages in the same child. Either language can be assessed first. For bilingual children, the testing interval between the two languages should be 4 to 7 days, in order to minimise cross-language influence as well as training and carry-over effects. Ideally, the child should not be assessed by the same person in both languages, in order to promote a monolingual context and to discourage code switching.

Materials

- 4 picture sequences: *BB, BG*, *Cat* and *Dog* (three copies of each story (colour printouts), each copy in a separate envelope: 12 separate envelopes in total).
- 2 story scripts/stimulus texts: *Cat* and *Dog*, to be used for Retelling/Model Story.
- Recording equipment (audio or video).
- Scoring protocols for macrostructure analysis, internal state terms and comprehension questions.
- Background questions (parental questionnaire).

Instructions

How to prepare materials

A. Download the pictures from http://www.zas.gwz-berlin.de/zaspil56.html

B. Print each PDF file (i.e. each picture sequence/story) three times, in colour on A4 paper.

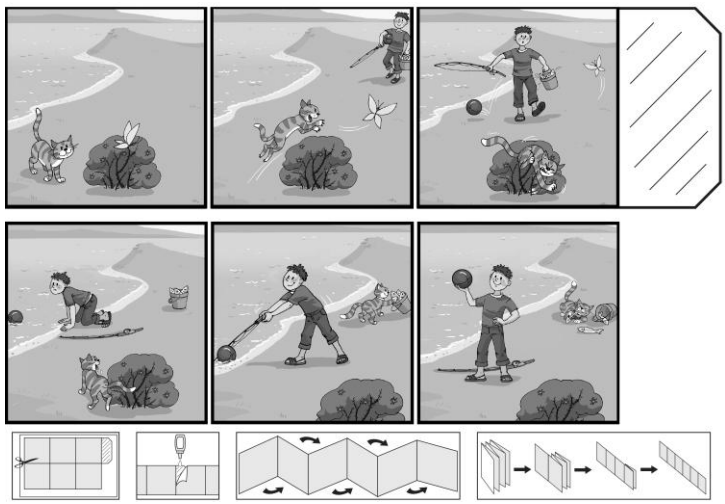
C. Number the pictures (1-6) at the back.

D. Cut out the two rows of pictures.

E. Paste the pictures together into a 6-picture strip as illustrated below and fold them twice (picture 1, picture 2, fold, picture 3, picture 4, fold, picture 5, and picture 6).

Note: Do not cut out and use the small pictures from the how-to-fold instructions.

Figure 38: Preparing the elicitation material



F. Put each picture strip/sequence (6 pictures) into a separate envelope, marked by colour or another distinguishing mark (e.g. dots) to identify the story.

How to conduct the assessment

A. Make sure that you have thoroughly familiarized yourself with the story protocols and the instructions.

B. Prepare the audio/video equipment for recording the session. Start recording before the warming-up phase.

C. The warming-up phase should be based on your previous experience and cultural environment. While talking with the child, establish rapport and ask some questions to ensure that the child is able to understand simple wh-questions.

D. Make sure that the three envelopes containing the same picture sequence are on the table before assessment begins. (The purpose of this presentation format is for the child to think that the examiner does not know which story is in the envelope s/he has chosen, thus controlling for the effect of shared knowledge during the presentation of the picture sequences.)

E. Administer the assessment according to the instructions in the story protocol(s). Please adhere to the recommendations for prompts (see also the prompts below).

F. Additional information about the presentation of the pictures: During the experiment you should sit opposite the child so that the child can hold the pictures facing towards him/her, but away from you. When the child takes the pictures out, tell him/her to unfold the pictures and to look at the whole story starting from the first picture and say: "*Look at the pictures but don't show them to me. Only YOU must see the story*." (If the child cannot hold and unfold the pictures him/herself, you may hold the pictures instead, facing away from you and towards the child.)

G. When the child is ready to tell the story, help him/her to fold the pictures into 3 parts again. You can direct the folding process without looking at the pictures while the child is still holding them. Instruct the child to start telling the story whilst looking at the first two pictures. When he/she has finished looking at pictures 1 and 2, direct the unfolding of the next two pictures (pictures 1–4 will be unfolded now). When the child has finished, direct the unfolding of the next two pictures so that the whole story is now unfolded. When the child has finished telling/retelling the story, introduce the comprehension questions by saying "*Now I am going to ask you some questions about the story"*.

H. After the session is finished, transcribe the narrative(s) and score the child's production and comprehension on the scoring sheets.

I. Remember: The list of options in the scoring sheet is not exhaustive. Credit is given when a macrostructure component (Goal, Attempt, Outcome, Internal State term) is expressed by any appropriate wording. Consult the manual for guidance.

Prompts

- Don't start the story for the child, encourage the child to tell the story by him/herself by saying: *"Tell me the story"* (point to picture).

- Give prompts only after waiting at least 10 seconds and only when it appears that the child is not going to say anything. Only then should the child be prompted, first by saying, "*Okay…", "Well…", "Your turn…".* Please be VERY careful with the prompts in order to avoid differences between research groups, i.e. experimenter effects. Wait up to approx. 10 seconds; if the child is still silent, prompt by saying: "*Tell me what is happening"*. If the child is silent in the middle of the story, encourage her/him to continue and tell you more: "*Anything else?", "Continue"*, "*Tell me more"*, "*Let's see what else happens in the story"*.

- It does not matter how the child refers to the protagonists during the narration; do not correct the child. If the child cannot find the word for an action, protagonist, etc. and seems to be stuck or asks for help, encourage her/him by saying "*You can call it anything you like", "What would you call it?"*

- Refrain from asking questions such as:

a) "*What is he doing here?","Who is running?"* (in order not to disrupt or influence the child's narration, and to discourage the use of incomplete sentences).

b) "*What's this*?", "*What/who do you see on the picture*?" (in order to avoid deictic references).

- If the child starts telling a story from his/her own experiences, e.g. "*I saw such a bird in the morning"* or "*I will go with my mom to the supermarket after school…*", give the child some time to talk about his/her own experience and then gently ask to tell the story in the pictures. (Exclude this irrelevant part of the narration from the analysis.)

- Based on your previous experience and cultural environment, you may want to give a word of encouragement, e.g. "*Good"*, "*Fine*", after each pair of pictures (and before unfolding the next pair). (This will also help the transcriber/coder assign utterances to a specific picture pair.) Don't do this however if you feel that it disrupts the child's narrative and train of thought.

Counterbalancing procedures for research purposes

The order of presentation should be counterbalanced with regard to language and story (Cat/Dog – retelling/model story and BB/BG – telling). Use the following counterbalancing procedure (if only one language is tested, then use the randomisation procedure for children either number 1, 2, 5 and 6 or number 3, 4, 7 and 8):

Table 3: Guidelines for counterbalancing of assessments in bilingual children

Child number	Lang.	Retelling/ Model Story	Telling	Lang.	Retelling/ Model Story	Telling
1	L1	Cat	Baby Bird	L2	Dog	Baby Goat
2	L1	Cat	Baby Goat	L2	Dog	Baby Bird
3	L2	Cat	Baby Goat	L1	Dog	Baby Bird
4	L2	Cat	Baby Bird	L1	Dog	Baby Goat
5	L1	Dog	Baby Bird	L2	Cat	Baby Goat
6	L1	Dog	Baby Goat	L2	Cat	Baby Bird
7	L2	Dog	Baby Goat	L1	Cat	Baby Bird
8	L2	Dog	Baby Bird	L1	Cat	Baby Goat

3.2 Story scripts

The following story scripts are provided to illustrate the framework used to create narratives with parallel macro- and microstructure and to guide coding and analysis. Furthermore, these story scripts should be used for translation and adaptation to other languages (see Guidelines for adapting the story scripts to other languages in the next section).

The marking of story structure components and internal state terms in the scripts below is given in the following way:

Goal Attempt Outcome *Internal state terms*

Baby Birds (Total number of words: 178)

Pictures 1/ 2: One day there was a mother bird who *saw* that her baby birds were *hungry*. She flew away because she wanted to find food for them. A *hungry* cat *saw* that the mother bird was flying away and *meowed*: "Mmm, nice, what do I see here in the nest?"

Pictures 3/ 4: The mother bird came back with a big worm for her children, but she did not *see* the cat. She was *happy* about the juicy worm for her babies. Meanwhile the *mean* cat started climbing up the tree because he wanted to catch a baby bird. He grabbed one of the baby birds. A *brave* dog that was passing by *saw* that the birds were in great danger. He decided to stop the cat and save them.

Pictures 5/ 6: He *said* to the cat: "Leave the baby birds alone". And then he grabbed the cat's tail and pulled him down. The cat let go of the baby bird and the dog chased him away. The dog was very *glad* that he could save the birds, and the cat was still *hungry*.

Baby Goats (Total number of words: 185)

Pictures 1/ 2: One day there was a mother goat who *saw* that her baby goat had fallen into the water and that it was *scared*. She jumped into the water because she wanted to save it. A *hungry* fox *saw* that the mother goat was in the water and *growled*: "Mmm, nice, what do I see here on the grass?"

Pictures 3/ 4: The mother goat pushed the baby goat out of the water, but she did not *see* the fox. She was *glad* that her baby did not drown. Meanwhile the *mean* fox jumped forward because he wanted to catch the other baby goat. He grabbed the baby goat. A *brave* bird that was flying by *saw* that the baby goat was in great danger. He decided to stop the fox and save the baby goat.

Pictures 5/ 6: The bird *said* to the fox: "Leave the baby goat alone". And then he flew down and bit the fox's tail. The fox let go of the baby goat and the bird chased him away. The bird was very *happy* that he could save the baby goat, and the fox was still *hungry*.

Cat (Total number of words: 178)

Pictures 1/ 2: One day there was a *playful* cat who *saw* a yellow butterfly sitting on a bush. He leaped forward because he wanted to catch it. Meanwhile, a *cheerful* boy was coming back from fishing with a bucket and a ball in his hands. He *looked* at the cat chasing the butterfly.

Pictures 3/ 4: The butterfly flew away quickly and the cat fell into the bush. He *hurt* himself and was very *angry*. The boy was so *startled* that the ball fell out of his hand. When he *saw* his ball rolling into the water, he *cried*: "Oh no, there goes my ball". He was *sad* and wanted to get his ball back. Meanwhile, the cat *noticed* the boy's bucket and *thought*: "I want to grab a fish."

Pictures 5/ 6: At the same time the boy began pulling his ball out of the water with his fishing rod. He did not *notice* that the cat had grabbed a fish. In the end, the cat was very *pleased* to eat such a tasty fish and the boy was *happy* to have his ball back.

Dog (Total number of words: 174)

Pictures 1/ 2: One day there was a *playful* dog who *saw* a grey mouse sitting near a tree. He leaped forward because he wanted to catch it. Meanwhile, a *cheerful* boy was coming back from shopping with a bag and a balloon in his hands. He *looked* at the dog chasing the mouse.

Pictures 3/ 4: The mouse ran away quickly and the dog bumped into the tree. He *hurt* himself and was very *angry*. The boy was so *startled* that the balloon slipped out of his hand. When he *saw* his balloon flying into the tree, he *cried*: "Oh no, there goes my balloon". He was *sad* and wanted to get his balloon back. Meanwhile, the dog *noticed* the boy's bag and *thought*: "I want to grab a sausage."

Pictures 5/ 6: At the same time the boy began pulling his balloon out of the tree. He did not *notice* that the dog had grabbed a sausage. In the end, the dog was very *pleased* to eat such a tasty sausage and the boy was *happy* to have his balloon back.

3.3 Guidelines for adapting the MAIN story scripts to other languages

Adapting Macrostructure

The number of GAO sequences and internal states for each protagonist must remain constant across languages. Adaptations of the scripts to different languages MUST therefore keep the following similar to the English version:

- The number (#N) and sequence of G, A, O.
- The #N of internal state terms as initiating events and as reactions.
- The logical sequence of clauses/utterances.

Adapting Microstructure

Script adaptations to different languages should keep microstructure as similar as possible across stories.

A. All scripts should be similar to the English scripts concerning:
   - The #N of coordinating and subordinating constructions (+/- 2).
   - The #N of internal state terms overall.
   - The #N of direct speech sentences.

B. The #N of clauses per story may differ from English (+/- 2), but should be kept identical across the two parallel story scripts (Cat/Dog) within a language.

C. The #N of words per story may differ from English (+/- 3 words or more depending on the language) but should be kept similar across the two parallel story scripts (Cat/Dog) within a language.

D. Lexicon: If you have the choice of different lexemes, use basic-level terms (e.g. rather than a noun compound use the simplex, such as worm and not earthworm). If possible, consider the age of acquisition when choosing a lexeme.

E. Do NOT use idioms, as children may not be familiar with them.
   Two native-speaker linguists should check the translation. Note grammatical and lexical difficulties that occurred during the adaptation and changes that were made because of language-specific requirements concerning the structure and or lexical inventory. Translated versions

should be translated back into the original language so that inconsistencies can be detected and corrected.

3.4 Scoring and evaluation: General issues

As with the MAIN stimulus pictures and story scripts, the protocols and scoring sheets for the 4 parallel stories were developed during joint meetings, workshops and on-line cooperation by the COST Action IS0804 Narrative and Discourse group from 2010 through 2012. Issues discussed included the nature and content of prompting in order to elicit natural data and avoid echoic narration (recall Section 3.1). Moreover, a scoring system for story structure components (Setting, Goals, Attempts, Outcomes, Internal state terms) needed to be designed which was flexible enough to accommodate different languages and which allowed different wordings of the same macrostructural component. At the same time, the potential range of scores for story structure components had to be large enough so as to avoid ceiling effects.

We finally settled on a maximum of 17 points for story structure components in production (MAIN Section I: Production), and a maximum of 10 points in comprehension (MAIN Section II: Comprehension). Another major issue was how to score story complexity. Finally it was agreed not to impose any weighting system for structural complexity, but to simply record how often a child produced partial event sequences (AO, single G, GA, GO) and complete episodes (GAO).

Another major discussion issue was how to score 'unexpected' responses, which were cropping up increasingly as we were piloting the MAIN with more and more children. We therefore reworked the scoring sheets continuously in order to be more explicit about which linguistic productions to score as story structure components, both in story production and in the responses to the comprehension questions. The comprehension section in MAIN provides additional opportunities to demonstrate understanding of macrostructure. Children with limited proficiency in one language may score low on the production measures but, when probed with focused questions, may demonstrate an understanding of the macrostructure elements. The comprehension questions were designed to differentiate between bilingual children with and without SLI. Based on the insights from yet more pilot studies, we included many more examples of 'correct' and 'wrong' responses in the comprehension question scoring sheets. The final version of the MAIN protocols and scoring sheets is now considerably more user-friendly and easier to score.

As described in the Guidelines for assessment (Section 3.1), after the session with a child is finished, his/her narrative(s) are transcribed, and

production and comprehension are scored on the scoring sheets. When scoring, examiners should be guided by the information on the scoring sheets themselves. Additional help is provided in the following sections, which exemplify scoring decisions based on authentic examples.

3.5 Two examples of the children's Baby Birds story: transcripts and evaluation

Swedish-English bilingual child age 6;08

1. *CHI: there was a little bird family.
2. *CHI: but under their nest there was a hungry cat.
3. *CHI: the mum flew away.
4. *CHI: but the kids stayed behind.
5. *EXP: okay?
6. *CHI: to get food.
7. *CHI: the &c cat started to climb up the tree.
8. *CHI: the mum started &t to feed the birds.
9. *CHI: the cat tried to get &one one of the small &bir the kids.
10. *CHI: but then a dog came.
11. *CHI: the dog caught the cat &in in its tail and chased it away.
12. *EXP: oh, you finished?
13. *CHI: yeah.

Section I: Production

A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)

A. Story Structure

		Examples of correct responses[1]	**Score**	**Comments**[2]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ meadow/ garden/ bird's nest/ up a tree…	0 1 2[3]	*1 point "under their nest"*
Episode 1: Mother bird (Episode characters: mother bird and baby birds)				

1 If in doubt or the response of the child is not on this scoring sheet consult the manual.
2 Write down responses here or indicate No response.
3 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

A2.	IST as initiating event	**<Mother/ Parent/ etc.>** saw that the baby birds were hungry/ wanted food **Baby birds** were hungry/ wanted food/ cried/ asked for food	0	1	---
A3.	Goal	**Mother** wanted to feed chicks/ to catch/ bring/ get/ find food/ worms	0	1	*1 point "to get food"*
A4.	Attempt	**Mother** flew away/ went away/ fetched food/ looked for food	0	1	*1 point "the mum flew away"*
A5.	Outcome	**Mother** got/ caught/ brought/ came back with food/ a worm/ fed the babies **Baby birds** got food/ a worm	0	1	*1 point "the mum started to feed the birds"*
A6.	IST as reaction	**Mother** was happy/ satisfied **Baby birds** were happy/ satisfied/ not hungry any more	0	1	---
Episode 2: Cat (Episode characters: cat and birds)					
A7.	IST as initiating event	**Cat** saw mother flying away/ saw that baby birds were all alone/ saw that there was food/ **Cat** was hungry/ cat's mouth watered/ cat thought "yummy"	0	1	*1 point "there was a hungry cat"*
A8.	Goal	**Cat** wanted to eat/ catch/ kill the/ a baby bird/ s	0	1	---
A9.	Attempt	**Cat** climbed up the tree/ jumped up/ tried to reach/ get a/ the baby bird	0	1	*1 point "the cat started to climb up the tree"*
A10.	Outcome	**Cat** grabbed/ got a/ the baby bird	0	1	*1 point "the cat tried to get one of the small bir(ds), the kids"*
A11.	IST as reaction	**Cat** was happy **Bird/ -s** was/ were scared	0	1	---
Episode 3: Dog (episode characters: dog, cat and birds)					
A12.	IST as initiating event	**Dog** saw that the bird was in danger/ that cat caught/ got the bird	0	1	---
A13.	Goal	**Dog** decided/ wanted to stop the cat, help/ protect/ save/ rescue the bird(-s)	0	1	---
A14.	Attempt	**Dog** pulled dragged the cat down/ bit/ attacked the cat/ grabbed the	0	1	*1 point "the dog caught*

		cat's tail		*the cat in its tail"*
A15.	Outcome	**Dog** chased the cat away **Cat** let go of the baby bird/ ran away **Bird/ -s** was/ were saved	0 1	*1 point "and chased it away"*
A16.	IST as reaction	**Dog** was relieved/ happy/ proud to have saved the baby bird **Cat** was angry/ disappointed **Bird/ -s** was/ were relieved/ happy/ safe	0 1	---
A17.		**Total score out of 17:**		9 out of 17

B. Structural complexity (Note: B. results from subsection A. above)

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.
(2)	(0)	(0)	(1)

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	1 (hungry)

Section II: Comprehension (Telling)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why does the mother bird fly away? (point to pictures 1-2) (Episode 1: Goal/ IST as initiating event)	Wants/ to get food/ worms to feed baby birds/ baby birds are	Is leaving/ going to work	0 1	*to get food (1 point)*

		hungry			
D2.	How do the baby birds feel? (point to picture 1) (IST as initiating event)	Bad/ hungry	Good/ fine/ happy/ surprised/ lonely/ scared/ frightened	0 1	*scared (0 points)*
D3.	*(Only ask D3 if the child gives a correct response without an explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the baby birds are feeling bad/ hungry etc.?[4]	Because their mouths are open/ asking for food/ the mother went to get food/ the mother came back with a worm to feed them/ baby birds are always hungry	Because they are happy/ singing/ because they wanted to come along with mummy/ scared of the cat/ scared because they saw the cat	0 1	*because they saw the cat (0 points)* *zero points because in pic 1 the birds do not yet see the cat*
D4.	Why is the cat climbing the tree? (point to picture 3) (Episode 2: Goal)	Wants/ to get/ to kill/ to eat the baby bird/ because cats like to eat birds	To play with the baby birds	0 1	*to get the bird kids (1 point)*
D5.	How does the cat feel? (point to picture 5-6) (IST as reaction)	Still hungry/ bad/ angry/ scared/ disappointed	Good/ fine/ happy/ playful	0 1	*scared (1 point)*
D6.	*(Only ask D6 if the child gives a correct response without an explanation/ rationale in D5. If a correct explanation is provided in D5, then give a point in D6 and proceed to D7.)* Why do you think that the cat is feeling bad/ hungry/ scared etc.?[5]	Did not get the baby birds/ is afraid of the dog/ still hungry/ because the dog is chasing it/ pulling/ biting the cat's tail	Happy/ playful/ starts to fly/ because dog took the cat's food	0 1	*scared (1 point) because the dog is chasing him (1 point)*

4 Use the same IST provided by the child in response to D2.

5 Use the same IST provided by the child in response to D5.

D7.	Why does the dog grab the cat's tail? (point to picture 5) (Episode 3: Goal)	Decided/ wants to stop the cat/ save/ rescue the baby bird/ help the birds	Wants to eat the bird himself/ play with the cat	0 1	*because it's trying to eat the birds (the cat is) (1 point)*
D8.	Imagine that the dog sees the birds. How does the dog feel? (point to picture 6) (IST as reaction)	Good/ fine/ happy/ relieved/ pleased/ satisfied/ proud/ like a hero	Bad/ angry/ mad/ sad/ "I must get the cat"/ hungry	0 1	*brave (1 point)*
D9.	*(Only ask D9 if the child gives a correct response without an explanation/ rationale in D8. If a correct explanation is provided in D8, then give a point in D9 and proceed to D10.)* Why do you think that the dog feels good/ fine/ happy/ satisfied etc.?[6]	Because he stopped the cat/ gets the cat out of there/ saved the birds/ sees that the birds are safe/ happy/ unharmed	Because he is smiling/ the dog looks like that/ didn't get the cat/ wants to eat the birds himself	0 1	*because he's chased away the cat (1 point)*
D10.	Who does the mother bird like best, the cat or the dog? Why?	The dog – give at least one reason (he saved/ helped the baby bird/ chased the cat away)	The cat/ I don't know/ other irrelevant answer	0 1	*This question was not asked*
D11.			**Total score out of 10:**		7 out of 9

6 Use the same IST provided by the child in response to D8.

Afrikaans-English bilingual child age 6;01

1. *CHI: there's a bird.
2. *CHI: then the cat is want to eat the bird.
3. *CHI: and they are scared.
4. *CHI: the cat is climbing in the tree.
5. *CHI: and now the cat did grab one of the babies.
6. *CHI: and now the dog is standing there.
7. *CHI: now the dog is chasing the cat.
8. *CHI: first he did pull the cat out of the tree.
9. *CHI: now he's chasing the cat away.
10. *CHI: and the bird is giving the baby birds food.

Section I: Production

A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)

A. Story Structure

		Examples of correct responses[7]	**Score**	**Comments**[8]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ meadow/ garden/ bird's nest/ up a tree…	0 1 2[9]	---
Episode 1: Mother bird (Episode characters: mother bird and baby birds)				
A2.	IST as initiating event	**<Mother/ Parent/ etc.>** saw that the baby birds were hungry/ wanted food **Baby birds** were hungry/ wanted food/ cried/ asked for food	0 1	---
A3.	Goal	**Mother** wanted to feed chicks/ to catch/ bring/ get/ find food/ worms	0 1	---
A4.	Attempt	**Mother** flew away/ went away/ fetched food/ looked for food	0 1	---
A5.	Outcome	**Mother** got/ caught/ brought/ came back with food/ a worm/ fed the babies **Baby birds** got food/ a worm	0 1	*1 point "bird is giving the baby birds food"*

7 If in doubt or the response of the child is not on this scoring sheet consult the manual.

8 Write down responses here or indicate No response.

9 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

A6.	IST as reaction	**Mother** was happy/ satisfied **Baby birds** were happy/ satisfied/ not hungry any more	0	1	---
Episode 2: Cat (Episode characters: cat and birds)					
A7.	IST as initiating event	**Cat** saw mother flying away/ saw that baby birds were all alone/ saw that there was food/ **Cat** was hungry/ cat's mouth watered/ cat thought "yummy"	0	1	---
A8.	Goal	**Cat** wanted to eat/ catch/ kill the/ a baby bird/ s	0	1	*1 point "cat is want to eat the bird"*
A9.	Attempt	**Cat** climbed up the tree/ jumped up/ tried to reach/ get a/ the baby bird	0	1	*1 point "cat is climbing in the tree"*
A10.	Outcome	**Cat** grabbed/ got a/ the baby bird	0	1	*1 point "cat did grab one of the babies"*
A11.	IST as reaction	**Cat** was happy **Bird/ -s** was/ were scared	0	1	*1 point "they are scared"*
Episode 3: Dog (episode characters: dog, cat and birds)					
A12.	IST as initiating event	**Dog** saw that the bird was in danger/ that cat caught/ got the bird	0	1	---
A13.	Goal	**Dog** decided/ wanted to stop the cat, help/ protect/ save/ rescue the bird(-s)	0	1	---
A14.	Attempt	**Dog** pulled dragged the cat down/ bit/ attacked the cat/ grabbed the cat's tail	0	1	*1 point "he did pull the cat out of the tree"*
A15.	Outcome	**Dog** chased the cat away **Cat** let go of the baby bird/ ran away **Bird/ -s** was/ were saved	0	1	*1 point "now he's chasing the cat"*
A16.	IST as reaction	**Dog** was relieved/ happy/ proud to have saved the baby bird **Cat** was angry/ disappointed **Bird/ -s** was/ were relieved/ happy/ safe	0	1	---
A17.		**Total score out of 17:**			7 out of 17

B. Structural complexity (Note: B. results from subsection A. above)

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.
(1)	(0)	(0)	(1)

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	2 (hungry, want)

Section II: Comprehension (Telling)

		Examples of correct responses	**Examples of wrong responses**	**Score**	**Comment**
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why does the mother bird fly away? (point to pictures 1-2) (Episode 1: Goal/ IST as initiating event)	Wants/ to get food/ worms to feed baby birds/ baby birds are hungry	Is leaving/ going to work	0 1	*to get food (1 point)*
D2.	How do the baby birds feel? (point to picture 1) (IST as initiating event)	Bad/ hungry	Good/ fine/ happy/ surprised/ lonely/ scared/ frightened	0 1	*scared (0 points)*
D3.	*(Only ask D3 if the child gives a correct response without an explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and*	Because their mouths are open/ asking for food/ the mother went to get food/ the mother came back with a	Because they are happy/ singing/ because they wanted to come along with mummy/	0 1	*because they are afraid of the cat (0 points)*

	proceed to D4.) Why do you think that the baby birds are feeling bad/ hungry etc.?[10]	worm to feed them/ baby birds are always hungry	scared of the cat/ scared because they saw the cat		
D4.	Why is the cat climbing the tree? (point to picture 3) (Episode 2: Goal)	Wants/ to get/ to kill/ to eat the baby bird/ because cats like to eat birds	To play with the baby birds	0 1	*to eat the baby birds (1 point)*
D5.	How does the cat feel? (point to picture 5-6) (IST as reaction)	Still hungry/ bad/ angry/ scared/ disappointed	Good/ fine/ happy/ playful	0 1	*afraid (1 point)*
D6.	*(Only ask D6 if the child gives a correct response without an explanation/ rationale in D5. If a correct explanation is provided in D5, then give a point in D6 and proceed to D7.)* Why do you think that the cat is feeling bad/ hungry/ scared etc.?[11]	Did not get the baby birds/ is afraid of the dog/ still hungry/ because the dog is chasing it/ pulling/ biting the cat's tail	Happy/ playful/ starts to fly/ because dog took the cat's food	0 1	*because the dog is chasing him (1 point)*
D7.	Why does the dog grab the cat's tail? (point to picture 5) (Episode 3: Goal)	Decided/ wants to stop the cat/ save/ rescue the baby bird/ help the birds	Wants to eat the bird himself/ play with the cat	0 1	*because he wants to eat the babies (1 point)*
D8.	Imagine that the dog sees the birds. How does the dog feel? (point to picture 6) (IST as reaction)	Good/ fine/ happy/ relieved/ pleased/ satisfied/ proud/ like a hero	Bad/ angry/ mad/ sad/ "I must get the cat"/ hungry	0 1	*good (1 point)*
D9.	*(Only ask D9 if the child gives a correct response without an explanation/ rationale in D8. If a correct*	Because he stopped the cat/ gets the cat out of there/	Because he is smiling/ the dog looks like that/ didn't get the cat/ wants	0 1	*because he made the cat go away (1 point)*

10 Use the same IST provided by the child in response to D2.
11 Use the same IST provided by the child in response to D5.

	explanation is provided in D8, then give a point in D9 and proceed to D10.) Why do you think that the dog feels good/ fine/ happy/ satisfied etc.?[12]	saved the birds/ sees that the birds are safe/ happy/ unharmed	to eat the birds himself		
D10.	Who does the mother bird like best, the cat or the dog? Why?	The dog – give at least one reason (he saved/ helped the baby bird/ chased the cat away)	The cat/ I don't know/ other irrelevant answer	0 1	*The dog because he helped them (1 point)*
D11.			**Total score out of 10:**		8 out of 10

3.6 Two examples of the children's Baby Goats story: transcripts and evaluation

English-Hebrew bilingual child age 5;06

1. *CHI: the mom wants to get the baby.
2. *CHI: and because he fell inside the water.
3. *CHI: he wanted to drink.
4. *CHI: and then somebody came.
5. *CHI: and then he wanted to eat him.
6. *CHI: then he got his foot.
7. *CHI: and then the mom was want to drink.
8. *CHI: and then saw the baby was drinking.
9. *CHI: and the bird &he he said that.
10. *CHI: the bird bited his tail.
11. *CHI: and then and they saw it.
12. *CHI: and then they saw the bird and biting his tail.
13. *CHI: and then saw the mom.
14. *CHI: and then saw the baby.

Section I: Production

A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)

12 Use the same IST provided by the child in response to D8.

A. Story Structure

		Examples of correct responses[13]	Score	Comments[14]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ in a meadow/ at the lake/ at the pond…	0 1 2[15]	
Episode 1: Mother/ Goat (episode characters: baby goat and mother/ goat)				
A2.	IST as initiating event	**Baby** goat was scared/ in danger/ drowning/ needed help/ cried/ called the mother <**Mother/ Goat etc**.> saw that baby goat was scared/ in danger/ drowning/ couldn't swim/ was worried about the baby goat in the water	0 1	
A3.	Goal	**Mother goat** wanted to help the baby/ to save/ rescue the baby/ to push the baby out of the water	0 1	*1 point "wants to get the baby"*
A4.	Attempt	**Mother goat** ran/ went into the water/ is pushing	0 1	
A5.	Outcome	**Mother goat** pushed the baby out of the water/ saved/ rescued the baby **Baby** goat was saved/ out of the water	0 1	
A6.	IST as reaction	**Mother** goat was happy/ relieved **Baby** goat was relieved/ satisfied/ happy/ glad/ not scared any more	0 1	
Episode 2: Fox (episode characters: fox and baby goat)				
A7.	IST as initiating event	**Fox** saw mother looking away/ saw that the baby was alone/ saw that there was food/ fox was hungry	0 1	
A8.	Goal	**Fox** wanted to eat/ catch/ kill the baby goat	0 1	*1 point "wanted to eat him"*
A9.	Attempt	**Fox** jumped towards/ jumped up/ out/ tried to reach/ grab/ catch the baby goat	0 1	

13 If in doubt or the response of the child is not on this scoring sheet consult the manual.
14 Write down responses here or indicate No response.
15 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

A10.	Outcome	**Fox** got/ grabbed/ caught the baby goat	0	1	*1 point "got his foot"*
A11.	IST as reaction	**Fox** was happy **Baby** goat was scared	0	1	
Episode 3: Bird (episode characters: bird, fox and baby goat)					
A12.	IST as initiating event	**Bird** saw that the goat was in danger **Baby goat** was in danger	0	1	
A13.	Goal	**Bird** decided/ wanted to stop the fox, help/ protect/ save the baby goat	0	1	
A14.	Attempt	**Bird** bit/ dragged the fox's tail/ attacked/ chased the fox	0	1	*1 point "bited his tail"*
A15.	Outcome	**Bird** chased the fox away **Fox** let go of the baby goat/ ran away **Baby goat** was saved/ rescued	0	1	
A16.	IST as reaction	**Bird** was relieved/ happy/ proud to have saved/ rescued the baby goat **Fox** was angry/ disappointed **Baby goat/ goats** was/ were relieved/ happy/ safe	0	1	
A17.		**Total score out of 17:**			4 out of 17

B. Structural complexity (Note: B. results from subsection A. above)

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.
(0)	(1)	(1)	(0)

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	10 (want, wanted, wanted, want, saw, said, saw, saw, saw, saw)

Section II: Comprehension (Telling)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why was the mother goat in the water? (point to pictures 1-2) (Episode 1: Goal/ IST as initiating event)	Wants to save/ to help/ rescue/ worried about the baby/ the baby goat is in danger/ drowning/ scared/ the baby was crying for help	Is swimming/ playing/ wants to take a bath/ to wash herself/ to wash the baby goat	0 1	*To get the baby (1 point)*
D2.	How does the baby goat feel? (point to baby goat in the water, picture 1) (IST as initiating event)	Bad/ scared/ in danger/ horrified	Good/ fine/ happy/ playing/ freezing/ refreshed/ cold/ hungry/ thirsty/ dirty/ clean/ stupid	0 1	*Sad (1 point)*
D3.	*(Only ask D3 if the child gives a correct response without explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the baby goat is feeling bad/ scared/ in danger etc.?[16]	Because he has fallen into the water/ is not able to get out of the water/ is drowning/ cannot swim	Because he is hungry/ swimming/ playing in the water/ wasn't allowed to stand there	0 1	*(Be)cause he's stuck inside the water (1 point)*
D4.	Why does the fox leap forward? (point to picture 3) (Episode 2: Goal)	Wants/ to get/ to kill/ to eat the baby goat/ couldn't resist to eat the baby	To play with the baby goat	0 1	*(Be)cause he wants to eat him (1 point)*

16 Use the same IST provided by the child in response to D2.

		goat/ takes the opportunity when mother is not looking/ is far away			
D5.	How does the fox feel? (point to picture 5-6) (IST as reaction)	Bad/ sad/ angry/ mad/ scared/ still hungry/ hurt/ stupid/ disappointed	Good/ fine/ happy/ playful	0 1	*Hungry (1 point)*
D6.	*(Only ask D6 if the child gives a correct response without an explanation/ rationale in D5. If a correct explanation is provided in D5, then give a point in D6 and proceed to D7.)* Why do you think that the fox is feeling bad/ scared/ hungry/ disappointed etc.?[17]	Because he did not get the baby goat/ he was still hungry/ afraid/ scared of the bird/ the bird was biting/ chasing him	Because the bird saw that the goat was in danger/ the fox is running away/ I don't know	0 1	(This question was not asked)
D7.	Why does the bird bite the fox's tail? (point to picture 5) (Episode 3: Goal)	Wants/ decided to save/ rescue the baby goat/ wants to stop the fox/ to make the fox let the goat go/ saw that the goat was in danger	Wants to eat the fox/ eat the goat/ play with the fox	0 1	*(Be)cause he didn't want the fox to eat the baby (1 point)*
D8.	Imagine that the bird sees the goats. How does the bird feel? (point to picture 6)	Good/ fine/ happy/ relieved/ satisfied/ proud/ like a hero	Bad/ sad/ angry/ mad/ sorry/ stupid/ "I have to get the fox"	0 1	*Hm, sad (0 points)*
D9.	*(Only ask D9 if the child gives a correct response without an explanation/ rationale*	Because he stopped the fox/ got the fox out of	Because he is smiling/ angry at the fox/ wants to eat	0 1	*(Be)cause he wanted to; (be)cause he took*

17 Use the same IST provided by the child in response to D5.

	in D8. If a correct explanation is provided in D8, then give a point in D9 and proceed to D10.) Why do you think that the bird is feeling good/ fine/ happy etc.?[18]	there/ saved/ rescued the goat/ sees that the goats are happy/ unharmed/ now the fox won't come back	the baby goat himself		his foot (0 points)
D10.	Who does the mother goat like best, the fox or the bird? Why?	The bird – give at least one reason (he saved/ helped the baby goat/ chased the fox away)	The fox/ I don't know/ other irrelevant answer	0 1	This question was not asked
D11.			**Total score out of 10:**		6 out of 8

Afrikaans-English bilingual child age 6;06

1. *CHI: one day was three goats.
2. *CHI: and the baby goat fell in the water.
3. *CHI: he cried because he can't swim.
4. *CHI: and the father goat helped him out.
5. *CHI: and the fox wanted to catch the other baby goat.
6. *CHI: and the fox jumped out to catch him.
7. *CHI: and the baby goat screamed.
8. *CHI: and the fox caught his foot.
9. *CHI: and there came a bird and he saw that.
10. *CHI: and the bird grab his tail.
11. *CHI: and the goats are safe.

18 Use the same IST provided by the child in response to D8.

Section I: Production

A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)

A. Story Structure

		Examples of correct responses[19]	Score	Comments[20]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ in a meadow/ at the lake/ at the pond…	0 1 2[21]	*1 point "one day.."*
Episode 1: Mother/ Goat (episode characters: baby goat and mother/ goat)				
A2.	IST as initiating event	**Baby** goat was scared/ in danger/ drowning/ needed help/ cried/ called the mother <**Mother/ Goat etc**.> saw that baby goat was scared/ in danger/ drowning/ couldn't swim/ was worried about the baby goat in the water	0 1	*1 point "he cried because he can't swim"*
A3.	Goal	**Mother goat** wanted to help the baby/ to save/ rescue the baby/ to push the baby out of the water	0 1	---
A4.	Attempt	**Mother goat** ran/ went into the water/ is pushing	0 1	---
A5.	Outcome	**Mother goat** pushed the baby out of the water/ saved/ rescued the baby **Baby** goat was saved/ out of the water	0 1	*1 point "father helped him out"*
A6.	IST as reaction	**Mother** goat was happy/ relieved **Baby** goat was relieved/ satisfied/ happy/ glad/ not scared any more	0 1	---
Episode 2: Fox (episode characters: fox and baby goat)				
A7.	IST as initiating event	**Fox** saw mother looking away/ saw that the baby was alone/ saw that there was food/ fox was hungry	0 1	---
A8.	Goal	**Fox** wanted to eat/ catch/ kill the baby goat	0 1	*1 point "fox wanted to catch the other baby"*

19 If in doubt or the response of the child is not on this scoring sheet consult the manual.

20 Write down responses here or indicate No response.

21 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

A9.	Attempt	**Fox** jumped towards/ jumped up/ out/ tried to reach/ grab/ catch the baby goat	0	1	*1 point "fox jumped out to catch him"*
A10.	Outcome	**Fox** got/ grabbed/ caught the baby goat	0	1	*1 point "fox caught his foot"*
A11.	IST as reaction	**Fox** was happy **Baby** goat was scared	0	1	*1 point "baby goat screamed"*
Episode 3: Bird (episode characters: bird, fox and baby goat)					
A12.	IST as initiating event	**Bird** saw that the goat was in danger **Baby goat** was in danger	0	1	*1 point "bird saw that"*
A13.	Goal	**Bird** decided/ wanted to stop the fox, help/ protect/ save the baby goat	0	1	---
A14.	Attempt	**Bird** bit/ dragged the fox's tail/ attacked/ chased the fox	0	1	*1 point "bird grabbed his tail"*
A15.	Outcome	**Bird** chased the fox away **Fox** let go of the baby goat/ ran away **Baby goat** was saved/ rescued	0	1	---
A16.	IST as reaction	**Bird** was relieved/ happy/ proud to have saved/ rescued the baby goat **Fox** was angry/ disappointed **Baby goat/ goats** was/ were relieved/ happy/ safe	0	1	*1 point " goats were safe"*
A17.		**Total score out of 17:**			10 out of 17

B. Structural complexity (Note: B. results from subsection A. above)

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.
(0)	(0)	(0)	(1)

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*;	4 (wanted, saw, cried, screamed)

	Mental verbs e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	

Section II: Comprehension (Telling)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why was the mother goat in the water? (point to pictures 1-2) (Episode 1: Goal/ IST as initiating event)	Wants to save/ to help/ rescue/ worried about the baby/ the baby goat is in danger/ drowning/ scared/ the baby was crying for help	Is swimming/ playing/ wants to take a bath/ to wash herself/ to wash the baby goat	0 1	*To get the baby (1 point)*
D2.	How does the baby goat feel? (point to baby goat in the water, picture 1) (IST as initiating event)	Bad/ scared/ in danger/ horrified	Good/ fine/ happy/ playing/ freezing/ refreshed/ cold/ hungry/ thirsty/ dirty/ clean/ stupid	0 1	*Scared (1 point)*
D3.	*(Only ask D3 if the child gives a correct response without explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the baby goat is feeling bad/ scared/ in danger etc.?[22]	Because he has fallen into the water/ is not able to get out of the water/ is drowning/ cannot swim	Because he is hungry/ swimming/ playing in the water/ wasn't allowed to stand there	0 1	*Because he cannot swim (1 point)*
D4.	Why does the fox	Wants/ to get/	To play with	0 1	*Because he*

22 Use the same IST provided by the child in response to D2.

	leap forward? (point to picture 3) (Episode 2: Goal)	to kill/ to eat the baby goat/ couldn't resist to eat the baby goat/ takes the opportunity when mother is not looking/ is far away	the baby goat		*wants to grab him (1 point)*
D5.	How does the fox feel? (point to picture 5-6) (IST as reaction)	Bad/ sad/ angry/ mad/ scared/ still hungry/ hurt/ stupid/ disappointed	Good/ fine/ happy/ playful	0 1	*Angry (1 point)*
D6.	*(Only ask D6 if the child gives a correct response without an explanation/ rationale in D5. If a correct explanation is provided in D5, then give a point in D6 and proceed to D7.)* Why do you think that the fox is feeling bad/ scared/ hungry/ disappointed etc.?[23]	Because he did not get the baby goat/ he was still hungry/ afraid/ scared of the bird/ the bird was biting/ chasing him	Because the bird saw that the goat was in danger/ the fox is running away/ I don't know	0 1	*Because he did not get the baby (1 point)*
D7.	Why does the bird bite the fox's tail? (point to picture 5) (Episode 3: Goal)	Wants/ decided to save/ rescue the baby goat/ wants to stop the fox/ to make the fox let the goat go/ saw that the goat was in danger	Wants to eat the fox/ eat the goat/ play with the fox	0 1	*He didn't want the fox to eat the baby (1 point)*
D8.	Imagine that the bird sees the goats. How does the bird feel? (point to picture 6)	Good/ fine/ happy/ relieved/ satisfied/ proud/ like a hero	Bad/ sad/ angry/ mad/ sorry/ stupid/ "I have to get the fox"	0 1	*Glad (1 point)*

23 Use the same IST provided by the child in response to D5.

D9.	*(Only ask D9 if the child gives a correct response without an explanation/ rationale in D8. If a correct explanation is provided in D8, then give a point in D9 and proceed to D10.)* Why do you think that the bird is feeling good/ fine/ happy etc.?[24]	Because he stopped the fox/ got the fox out of there/ saved/ rescued the goat/ sees that the goats are happy/ unharmed/ now the fox won't come back	Because he is smiling/ angry at the fox/ wants to eat the baby goat himself	0 1	(Because they are safe (1 point)
D10.	Who does the mother goat like best, the fox or the bird? Why?	The bird – give at least one reason (he saved/ helped the baby goat/ chased the fox away)	The fox/ I don't know/ other irrelevant answer	0 1	The bird because he helped them (1 point)
D11.			**Total score out of 10:**		10 out of 10

3.7 Scoring decisions for Section I: Production

Here are some illustrations of how children's productions are scored concerning story structure and internal state terms (IST). We also give the rationale behind that scoring.

Baby Birds

The child says: *The birds were hungry and they were crying. They asked the mother if she could bring some food and she said 'yes' so the mother flew away….*

1. Even though "hungry", "crying," "asked" are all possible ISTs as initiating event, only 1 point is given for IST as initiating event in A2. (Note that credit can be given only <u>once</u> per story component per episode). However, "hungry", "crying" and "asked" will be counted as 3 IST tokens (3 points) in subsection C.

24 Use the same IST provided by the child in response to D8.

2. "…asked if she could bring some food and she said 'yes'" is scored as a Goal (1 point) in A3 and "flew away" is scored as an Attempt (1 point) in A4.
   RATIONALE: The mother's goal is expressed by the babies (who asked "if she could bring some food") and confirmed by the mother (who said "yes") indicating her intention, which equals a Goal statement. If there had not been any such response by the mother (e.g. if the child had only said "The baby birds asked the mother if she could bring food. She flew away.") there would be NO goal statement, and consequently no point for goal.

The child says: *... the mother flew away to get him food. Then the mother came back. The birds ate their food.*

1. The child explicitly states both the mother's intention/goal ("to get him food") and her attempt ("flew away"), which earns 1 point for Goal in A3 and 1 point for Attempt in A4.
2. For "the birds ate their food" the child is given 1 point for Outcome in A5 since the explicitly stated goal ("to get him food") has been achieved ("the birds were fed"). Thus, birds ate their food is not a mere description of the picture.

Baby Goats

The child says: *... the fox saw the baby goat and the mother, and said: "I am going to get them".*

The Fox's intention is not stated by means of IST (e.g., the fox wanted to get them) but rather expressed by direct speech ("I am going to get them"), which equals a Goal statement. This is scored 1 point in A7.

The child says: *... a crow came and saw the fox and thought "I am going to get her". It went and bit her tail…*

1. The Bird's intention is not stated by means of an IST (e.g., the bird/crow wanted to get the fox), but is rather expressed by internal speech ("I am going to get her"), which equals a Goal statement and is scored 1 point in A13.
2. Note that "I am going" is not an Attempt statement here. The bird's Attempt is stated explicitly as "it went and bit her tail", so Attempt is scored 1 point in A14.

The child says: *... and then there was a fox and she was drooling when she saw them (= the baby goats) and she saw the young one. Then she went for it.*

1. Even though "she saw them… drooling,… and she saw the young one" are all possible ISTs as initiating event, only 1 point is given for IST as initiating event in A7. (Recall that credit is given only once per story component per episode.) However, the ISTs "saw", "drooling" and "saw" will be counted as 3 IST tokens (3 points) in subsection C.
2. "Then she went for it" is an explicit Attempt statement, so Attempt is scored 1 point in A9. However, no Goal point is given because no intention (e.g. wanted to catch/eat it) is stated. Even though the child mentions "drooling" in response to seeing the goat, the child does not express what the fox's explicit goal is. The IST (drooling) is clearly shown in the picture and therefore cannot count as the child's interpretation of the underlying intention of the Fox.

The child says: *... and the goat did think "Oh we have to help him (the crow) chase the fox away".*

No points are given for this in subsection A, since it is not part of the 3 episodes of the story. However, "think" will be counted as one IST token in subsection C.

The child says: *"...and then the crow attacked the fox and now the fox's tail is hurting. Finished!"*

The Bird's Attempt is stated explicitly ("attacked the fox"), earning 1 point for Attempt in A14. The child does not express the Outcome of episode 3 (i.e. that the fox is chased away and that the goat is rescued), so no point is given for Outcome in A15. Nor does the child express the internal state as reaction resulting from the bird's intervention (i.e. the bird feeling happy/relieved, the goat(s) feeling happy/relieved, the fox feeling angry/disappointed), therefore no point is given in A16. Instead, the child states that "the fox's tail is hurting". Especially younger children often express this physiological state, without mentioning the overarching outcome of the episode, namely that the fox's intended killing of the baby goat is foiled by the intervening bird, and that the baby goat is thus saved. However , "hurting" is an internal state term and will be counted as one IST token in subsection C.

Cat

The child says: *...the cat saw the butterfly but landed in the bush.*

There is an IST as initiating event ("saw"), which earns one point in A2, as well as an Outcome ("landed in the bush"), which earns one point in A5. However, there is neither a Goal nor an Attempt statement. The IST "saw" is also counted as an IST token in subsection C.

The child says: *... and he tried to get his ball back. Oh yes!!!*

1. This is an explicit Attempt statement ("tried to get his ball back"), which earns one point in A9.
2. Although the child may produce "oh yes!!!" in connection with the boy fishing out his ball, "oh yes!!!" cannot be considered as an Outcome statement. Therefore, no point is given in A10.

Dog

The child says: *... and then the boy saw the dog and let go of his balloon and it went up in the tree.*

Even though this is a nicely expressed part of the story, no points are given in subsection A for it, since none of this information is part of the scorable Episodes. However, "saw" is counted as one IST token in subsection C.

The child says: *the dog means to take mouse but ….*

This child has limited L2 proficiency. Lexical and morphosyntactic features are not targetlike, but this is irrelevant, as the dog's Goal ("means to take mouse") is clearly expressed and scores 1 point in A3.

The child says: *...and then dog said: "now will come good with sausage". And he take.*

This child has limited L2 proficiency.

1. The dog's intention is not stated by means of an IST (e.g. the dog wanted to take the sausages) but rather by direct speech ("dog said: now will come good with sausage"). This equals a Goal statement in episode 3 and is scored 1 point in A13. It does not matter that the way the child expresses this goal is nontargetlike as regards lexical and morpho-syntactic features.
2. The dog's Attempt is expressed ("And he take") and earns 1 point in A14.

3.8 Scoring decisions for Section II: Comprehension

Here are some illustrations of how children's responses to the comprehension questions are scored in the MAIN concerning story structure and internal state terms. The list below complements the examples of correct responses and wrong responses provided on the scoring sheets for the four stories.

	Comprehension questions	**Examples of children's answers**	**Score**
	Dog		
D1.	Why does the dog leap/jump forward?	Because he was curious. He wanted to catch the mouse.	0 1
D3.	Why do you think that the dog feels angry/ disappointed/ hurt, etc.?	Because you said so. Because he thought that he would get the mouse. Because he wants to play. Perhaps he has never seen a mouse before. Because he sees the mouse.	0 1 0 0 0
D7.	Why is the dog grabbing the sausages?	Because dogs like sausages. Because he wants to play.	1 0
D8.	Imagine that the boy sees the dog. How does the boy feel?	He feels distressed. It is embarrassing.	1 1
D9.	Why do you think that the boy is feeling bad?	Because he has wasted the money.	1
	Cat		
D3.	Why do you think that the cat is feeling angry/ disappointed/ hurt etc.?	Because his face looks that way.	0
D7.	Why is the cat grabbing the fish?	Because he thinks that it is tasty. Because the boy didn´t notice anything and the cat didn´t catch the butterfly.	1 0
D9.	Why do you think that the boy is feeling bad/angry/mad etc.?	Because he is smiling. Because he looks this way.	0 0
	Baby Birds		
D2.	How do the baby birds feel? (point to picture 1)	They are happy because their mum is getting something to eat. Surprised. Lonely, because they are small	1 0

		babies. They are happy. They are frightened because the cat is coming to eat them. *(RATIONALE FOR SCORING ZERO POINTS HERE: When asking this question, the examiner points to picture 1 where the birds do NOT see yet the cat, and can thus not be frightened of it.)* They are afraid of the cat. Bad, because they see the cat. Bad, because they want to come along with mummy.	0 0 0 0 0 0
D3.	Why do you think that the baby birds are feeling bad/ hungry etc.?	Little birds are always hungry. Because they didn´t get anything to eat until now.	1 1
D6.	Why do you think that the cat is feeling hungry? Why do you think that the cat is feeling scared?	Otherwise he would not chase birds. Because the dog is coming.	 1 1
D8.	Imagine that the dog sees the birds. How does the dog feel?	He thinks that he should protect them. He feels like a hero.	 1 1
	Baby Goats		
D2.	How does the baby goat feel?	Sad. Freezing. Refreshed. Scared. Calm. Bored. Shy.	1 0 0 1 0 0 0
D3.	Why do you think that the baby goat is feeling bad/ scared/ in danger etc.?	Because the ears hang down. Because it looks calm. Because she is a bit bored. Because it is a pity that mummy didn´t come for a swim as well. Because it is swimming and it is not able to swim. Because he has never been in the water.	0 0 0 0 1 1
D6.	Why do you think that the fox feels bad/ disappointed etc.?	Because he is chased by the pigeon. Because he is running away.	1 0

4 Preliminary findings across languages

During the COST Action IS0804, different research groups conducted pilot studies investigating macrostructure in the narratives of monolingual and bilingual children with and without language impairment. This was done for different languages and age groups. Members reported the results of their pilot studies at COST meetings and workshops and in online discussions. This information was continually used to inform the development and refinement of the MAIN materials.

The following tables report the results of some of these studies conducted during 2011 and 2012.

Table 4: MAIN preliminary data for **267** monolingual children with typical language development and with specific language impairment: Means and standard deviations for telling and retelling production and comprehension measures in terms of Story Structure (SS); Structural Complexity (SC); Internal States Terms (IST) and Comprehension Questions (CQ) in various languages

			Telling				**Retelling**			
			Production			**CQ (SD)**	**Production**			**CQ (SD)**
Language	**Age in months (SD)**	**N**	**SS (SD)**	**SC (SD)**	**IST (SD)**		**SS (SD)**	**SC (SD)**	**IST (SD)**	
Monolinguals Typical development*										
Afrikaans[25]	65 (2.1)	28	5.0 (1.9)	0.7	2.4 (2.3)	6.7 (2.8)	no retelling performed			
Albanian	78.8 (3.7)	14	6.6 (2.3)	4.9	-[26]	-	8.9 (1.8)	6.5	8.5 (2.7)	-
Albanian[27]	78.3 (3.7)	10	5.1 (0.9)	4.8	-	-	7.6 (2.1)	5.9	1.9 (1.3)	-
Croatian[28]	78.6 (7.1)	20	8.0 (2.2)	0.8	-	-	8.8 (1.6)	0.5	-	-
Cypriot Greek	79.8 (2.9)	6	5.0 (3.3)	1.5	5.5 (3.8)	10	5.2 (2.2)	0.3	6.1 (0.8)	10
Finnish	66.8 (3.0)	21	4.6 (1.6)	-	-	-	7.0 (1.7)	-	-	-
French[29]	82.0 (3.9)	8	7.8 (1.4)	0.9 (0.6)	6.8 (3.1)	6.5 (1.6)	10.8 (2.1)	1.6 (0.9)	7.5 (3.0)	7.8 (1.0)
French[30]	81.9	12	9.7 (2.0)	1.1	-	8.0 (1.0)	no retelling performed			
German	68.1 (4.8)	10	6.1 (1.9)	0.7 (0.8)	3.1 (2.3)	6.3 (1.7)	-	-	-	-
Greek	73.0 (0.3)	5	9.8 (1.5)	1.8	5.9 (1.2)	-	11.5 (1.7)	1.4	6.6 (1.0)	-
Lithuanian	65 (2.4)	12	5.1 (2.1)	0.3 (0.5)	2.6 (2.5)	5.0 (1.1)	no retelling performed			
Russian[31]	68 (3.5)	15	7.3 (1.6)	-	1.3. (1.1)	8.0 (1.3)	14.8	-	2.7 (1.2)	8.4 (1.7)

[25] Paper method is used as a default if not specified otherwise.
[26] The sign "-" means that the data were collected, but not analyzed.
[27] Computer method.
[28] Computer method.
[29] Only 9 comprehension questions were asked.
[30] Data collection and analysis by Anne Haessig and Linda Tuvås, supervised by Ute Bohnacker, June 2012-December 2012. Only 9 comprehension questions were asked.
[31] Only 9 comprehension questions were asked.

Swedish[32]	80.9 (3.9)	9	8.5 (1.4)	1.1	-	7.7 (0.9)	no retelling performed			
Turkish[33]	65 (9.0)	15	6.5 (1.7)	0.3	4.3 (3.7)	7.7 (2.1)	no retelling performed			7.9 (1.4)
Monolinguals with Specific language impairment										
Afrikaans	106 (3.0)	9	2.8 (2.4)	0	2.2 (1.5)	6.1 (2.0)	no retelling performed			
Croatian	77.8 (6.9)	20	6.0 (2.0)	0.4	-	-	7.3 (2.0)	0.3	-	-
German	61.5 (9.2)	18	3.6 (2.0)	0.3 (0.5)	1.4 (1.1)	3.1 (1.9)	-	-	-	-
Greek	100.6 (13.1)	18	3.9 (2.8)	0.4	2.8 (1.1)	8.0 (1.1)	5.8 (4.0)	1.0	5.5 (1.6)	8.4 (0.6)
Lithuanian	65 (2.4)	8	-	-	-	-	no retelling performed			
Russian[34]	68	9	6.7 (2.1)	-	1.9 (1.3)	7.5 (1.8)	6.7	-	2.1 (0.9)	7.2 (1.7)

* Exclusionary criteria: history of hearing, neurological or developmental problems.

Table 5: MAIN preliminary data for **302** bilingual children with typical language development and with specific language impairment: Means and standard deviations for telling and retelling production and comprehension measures in the language outside the home followed by means and standard deviations in the home language in terms of Story Structure (SS); Structural Complexity (SC); Internal States Terms (IST) and Comprehension Questions (CQ) in various languages. Length of exposure (LE) in months and quantity of input (QI) in the language outside the home is indicated in the two rightmost columns

Language outside the home/in the home	**Age in months (SD)**	**N**	**Telling**				**Retelling**				**LE**	**QI (%)**
			Production			**CQ (SD)**	**Production**			**CQ (SD)**		
			SS (SD)	**SC (SD)**	**IST (SD)**		**SS (SD)**	**SC (SD)**	**IST (SD)**			
Bilinguals Typical development*												
Afrikaans/ English	78 (2.6)	10	4.2/ 3.9 (1.5/ 1.2)	0.4/ 0.1 -	3.2/ 2.2 (1.6/ 1.2)	6.5/ 7.4 (1.0/ 1.0)	no retelling performed				78	50.0
	103 (5.6)	19	4.6/ 4.9 (1.5/ 1.7)	0.4/ 0.7 -	3.8/ 4.3 (1.5/ 2.3)	6.6/ 7.1 (2.0/ 1.2)	no retelling performed				103	50.0

[32] Data collection and analysis by Anne Haessig and Linda Tuvås, supervised by Ute Bohnacker, June 2012-December 2012. Only 9 comprehension questions were asked.

[33] Computer version.

[34] Only 9 comprehension questions were asked.

	79 (2.7)	20	6.9/ 6.8 (1.6/ 1.9)	0.4/ 0.4 -	3.3/ 3.7 (2.0 /1.8)	8.6/ 7.5 (0.9/ 1.9)	6.4/ 7.4 (2.1/ 1.9)	0.4/ 0.5	4.7/ 5.6 (2.4/ 2.3)	8.0/ 8.2 (1.1/ 1.3)	79	50.0
Dutch/ Turkish[35]	94.3 (15.7)	6	-/7.0 (-/2.0)	-/0.5 -	-/6.2 (-/3.6)	-/6.5 (-/1.9)	-/8.1 (- /1.8)	-/0.8	-/6.2 (- /3.2)	-/7.0 (- /1.5)	69.3	50.0
English/ Hebrew	67.3	9	6.0/ 4.1 -	0.2/ 0.1 -	4.3/ 2.4 -	4.4/ 4.4 -	6.1/ 5.7 -	0.4/ 0.3 -	6.1/ 5.7 -	5.5/ 4.2 -	46.7	
	71.7	12	-	-	-	-	8.3/ 9.0	0.6/ 0.3	-	5.1/ 5.4	54	
English/ Polish	78.5 (0.5)	12	7.9/ 8.3 (1.9/ 1.9)	1.8/ 0.8 (1.5/ 1.4)	4.2/ 2.3 (2.1/ 1.2)	-						
Finnish/ Russian[36]	68.2 (5.4)	10	6.1/ 6.4 (1.8/ 1.4)	0.3/ 0.9 (0.9/ 1.5)	3.1/ 3.0 (3.0/ 1.8)	-	8.0/ 6.8 (2.1/ 1.8)	0.6/ 1.2 (1.3/ 1.6)	3.7/ 5.1 (1.7/ 3.9)	-	48	7/50 3/25
Finnish/ Swedish	65 (3.8)	10	4.2/ 5.2	-	0.8/ 1.4	-	5.6/ 6.0	-	2.4/ 2.9	-	48	7/50 3/25
German/ Russian	66.9 (6.0)	10	6.3/- (1.3/-)	0.4/- (0.5/-)	4.3/- (3.1/-)	6.7/- (1.8/-)	-	-	-	-	67	53.6
	109.0 (6.0)	22	9.7/ 7.0 (2.1/ 2.1)	0.4/ 0.8 (0.6/ 0.6)	-	-/8.6 (-/0.8)	model story			-/8.6 (-/1.1)		50.0
German/ Turkish	43.6 (3.6)	6	6.3/- -	0.2/- -	2.0/- -	2.5/- -	model story					
German/ Turkish[37]	65 (8)	15	-/5.3 (-/2.0)	-/0.2 -	-/3.2 (-/2.9)	-/6.6 (-/2.8)	model story			-/7.3 (- /2.1)	34.7	56.3
German/ Turkish[38]	78 (13.9)	7	-/5.6 (-/1.1)	-/0.3 -	-/3.3 (-/0.8)	-/6.9 (-/ 2.1)	-/6.4 (- /1.7)	-/0.3	-/4.3 (- /2.5)	-/7.3 (- /2.4)	57.6	56.3
Greek/ Albanian	78 (3.1)	6	7.5/ - (1.0/ -)	0.3/ -	4.6/ - (1.6/ -)	-	9.6/ - (1.2/ -)	0.6	5.1/ - (1.4/ -)		54.3	66.7

[35] Computer version.

[36] Elisa Kangasaho conducted this experiment with the assistance of Ekaterina Protassova on bilingual children age 5-7 in May 2012 in Helsinki. The comprehension questions were not asked. The sessions were not conducted in a monolingual mode. One and the same experimenter, Elisa Kangasaho, collected data from both languages on the same day.

[37] Computer version.

[38] Computer version.

Italian/ English[39]	66 (4.0)	13	6.9/ 6.1 (1.9/ 1.3)	-	3.9/ 2.8 (2.8/ 1.5)	5.2/ 4.3	6.5/ 6.9 (1.7/ 1.9)		3.8/ 4.4 (1.8/ 2.7)	8.5/ 6.9	28	50.0
	78 (3.0)	25	6.5/ 6.4 (2.4/ 2.0)	-	3.5/ 2.9 (2.8/ 2.3)	6.1/ 6.2	7.4/ 7.1 (2.2/ 1.9)		5.1/ 4.5 (2.5/ 2.0)	8.3/ 8.3	28	50.0
Lithuanian/ Russian	65.3 (1.3)	6	7.2/ 6.1 (1.3/ 2.1)	0.5/ 0.1 -	1.5/ 0.4 (1.0/ 0.5)	3.7/ 4.0 (1.0/ 1.5)	7.2/ 6.0 (1.3/ 2.2)	0.5/ 0.2	1.5/ 0.5 (1.0/ 0.5)	3.7/ 4.0 (1.0/ 1.5)	65	
Swedish/ English[40]	81 (6.0)	16	7.2/ 7.4 (2.6/ 2.6)	0.4/ 0.4 (0.7/ 0.6)	-	5.9/ 6.3 (1.9/ 1.6)	no retelling performed				81	50.0
Swedish/ English[41]	77 (6.0)	20	6.9/ 6.6 (1.7/ 1.9)	0.4/ 0.3 -	-	7.0/ 6.9 (1.5/ 1.9)	no retelling performed				60	15/75 4/50 1/25
Swedish/ French[42]	82 (5.5)	21	9.4/ 9.4 (2.0/ 1.9)	1.4/ 1.4 -	-	8.1/ 8.1 (0.5/ 0.5)	no retelling performed					50 to 75
Swedish/ Russian[43]	64 (6.0)	10	6.8/ 6.8 (2.4/ 2.4)	1.4/ 1.4 -	-	8.1/ 8.1 (0.5/ 0.5)	no retelling performed					9/50 1/25
Bilinguals with Specific language impairment												
Greek/ 4-Albanian, 3-Bulgarian, 1-French, 1-German, 3-Romanian	111.3 (16.3)	12	8.0/ - (4.6/ -)	1.0/ -	2.3/ - (0.9/ -)		7.1/ - (4.4/ -)	0.2/ -	4.1/ - (1.3/ -)			

[39] Computer version.

[40] Data collection and analysis by Annika Leback, Lisa Nilsson, Ute Bohnacker October-December 2012. Only 9 comprehension questions were asked.

[41] Data collection and analysis by Ingrid Naylor, Sara Härdelin & Ute Bohnacker, October-December 2012. Only 9 comprehension questions were asked.

[42] Data collection by Anne Haessig & Linda Tuvås, supervised by Ute Bohnacker, June 2012 - December 2012. Only 9 comprehension questions were asked.

[43] Data collection and analysis by Julia Koivistoinen & Ute Bohnacker, May 2012-December 2012. Only 9 comprehension questions were asked.

Swedish/ Russian[44]	66 (14)	5	3.8/ 5.6 (2.5/ 2.5)	0.1/ 0.2 -	-	3.8/ 5.6 (2.6/ 2.6)	no retelling performed	70	3/50 2/25

* Exclusionary criteria: history of hearing, neurological or developmental problems.

These preliminary results are based on the same picture sequences but come from studies performed during the fine-tuning of the MAIN comprehension questions, paper vs. computer design and retelling vs. model story. They show some trends, but must be taken with caution and should not be generalized. The data come from more than 250 bilingual children between the ages of 3 years and 10 years and from 15 different language pairs. It is evident that the number of story structure components in production increases with age, from the lowest score of 4.2 points (out of 17) at 65 months (Finnish-Swedish bilinguals: 4.2-5.2) and 65 months (Lithuanian-Russian bilinguals 7.2-6.1) towards 9.7 points at 109 months (German-Russian bilinguals 6.3, no data for Russian). However, age-matched children from disadvantaged backgrounds, i.e. Afrikaans-English bilinguals, show lower scores concerning production of story structure: 4.2-4.9.

At present, it is too early to say whether there are measurable differences between children with diagnosed SLI and bilingual TD children concerning story components on the MAIN. However, typically developing (TD) bilingual children who produce few macrostructural components in their narrations often still show evidence of good story comprehension on the MAIN. Moreover, preliminary findings suggest that bilingual children score similarly on story structure in *both* their languages, even if one language is stronger than the other.

5 Conclusions

The MAIN was developed by the COST Action IS0804 Working Group for Narrative and Discourse as a tool for the evaluation of narrative abilities of bilingual children across languages. The intent was to develop materials for the assessment of narratives in both languages of bilingual children, in order to screen and identify children at risk for Specific Language Impairment (SLI). Two sets of parallel picture sequences that are controlled for macro- and microstructural features were developed, as well as guidelines for implementation, and protocols for administering and scoring. Materials development was informed by the experience gathered while pilot versions of

[44] Data collection and analysis by Julia Koivistoinen & Ute Bohnacker, May 2012-December 2012. Only 9 comprehension questions were asked.

the assessment tool were tested in more than 20 countries and with children speaking 15 different languages. MAIN is currently available in 27 languages.

The design of the MAIN allows for the elicitation of narratives in three modes: i) story generation (telling), ii) retelling and, iii) telling after listening to a model story. A set of comprehension questions which focus on macrostructure components and internal state terms also forms part of the assessment procedure.

This instrument can be used to collect data from bilingual children with and without diagnosed language impairment for a variety of languages and language combinations. This allows for cross-linguistic comparisons and the development of theoretical perspectives. MAIN also provides clinicians with a diagnostic tool to guide and inform intervention in children with language impairment.

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Appendix: MAIN English version

(Daleen Klop, Ute Bohnacker, Koula Tantele, Sari Kunnari, Taina Välimaa, Ingrida Balčiūnienė, Joel Walters and Natalia Gagarina)

Protocols and scoring sheets for Cat, Dog, Baby Birds, Baby Goats

Protocol for Cat
Retelling/Model story

Name of child: _____
Date of birth: _____
Date of testing: _____
Age of testing (in months): _____
Gender: _____
Name of examiner: _____
Exposure to L2 (in months): _____
Kindergarten entry date: _____
Name of kindergarten: _____

Be sure that all the envelopes are on the table before testing begins. Prepare the audio recorder in order to record the session. Begin recording before warming up.

Warming-up

Ask for example: Who is your best friend? What do you like to watch on TV? Do you like telling stories? Do you like listening to stories?

Instructions

Sit opposite the child. Say to the child: *Look, here are 3 envelopes. There is a different story in each envelope. Choose one and then I will tell you the story*. Unfold the pictures so that the whole sequence is visible to the child only. *First look at the whole story. Are you ready? I am going to tell you the story and then you can tell it to me again*. (For the option Model story say: *I am going to tell you the story and then I will ask you some questions*. Tell the child the story and then ask the comprehension questions.)

Unfold picture 1 and 2. *The story starts here*: (point to picture 1). *One day there was a playful cat who saw a yellow butterfly sitting on a bush. He leaped forward because he wanted to catch it. Meanwhile, a cheerful boy was coming back from fishing with a bucket and a ball in his hands. He looked at the cat chasing the butterfly*.

Unfold picture 3 and 4 (so that all pictures from 1 to 4 are now visible). *The butterfly flew away quickly and the cat fell into the bush. He hurt himself and was very angry. The boy was so startled that the ball fell out of his hand. When he saw his ball rolling into the water, he cried: "Oh no, there goes my ball!". He was sad and wanted to get his ball back. Meanwhile, the cat noticed the boy's bucket and thought: "I want to grab a fish."*

Unfold picture 5 and 6 (so that all pictures from 1 to 6 are now visible). *At the same time the boy began pulling his ball out of the water with his fishing rod. He did not notice that the cat had grabbed a fish. In the end, the cat was very pleased to eat such a tasty fish and the boy was happy to have his ball back.*

And that is the end of the story.

Retell Instructions

Unfold the pictures so that the first 2 pictures are visible to the child only. Say to the child: *Now I want <u>you</u> to tell the story. Look at the pictures and try to tell the <u>best</u> story you can.* Allowable prompt if the child is reluctant to begin: *"Tell me the story"* (point to picture). When the child has finished telling the first 2 pictures, unfold the next (so that all pictures from 1 to 4 are now visible). Repeat the process until you have reached the end of the story. Allowable prompts if the child is silent in the middle of the story: *"Anything else?", "Continue", "Tell me more", "Let's see what else is in the story".* If the child stops talking without indicating that he/she has finished, ask: *"Tell me when you have finished".*
When the child has finished, praise the child and then ask the comprehension questions.

Model Story instructions

After you told *And that is the end of the story* ask the comprehension questions.

Scoring sheet for Cat
Section I: Production (Retelling)

A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)

A. Story Structure

		Examples of correct responses[45]	Score	Comments[46]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ at the lake/ at the river bank…	0 1 2[47]	
Episode 1: Cat (Episode characters: cat and butterfly)				
A2.	IST as initiating event	**Cat** was playful/ curious/ saw a butterfly	0 1	
A3.	Goal	**Cat** wanted to catch/ get/ chase the butterfly/ play with the butterfly	0 1	
A4.	Attempt	**Cat** jumped forward/ up	0 1	
A5.	Outcome	**Cat** fell into the bush/ did not get the butterfly/ cat was not quick enough **Butterfly** escaped/ flew away/ was too quick	0 1	
A6.	IST as reaction	**Cat** was disappointed/ angry/ hurt **Butterfly** was happy/ glad	0 1	
Episode 2: Boy (Episode character: boy)				
A7.	IST as initiating event	**Boy** was sad/ unhappy/ worried about his ball/ saw the ball in the water	0 1	
A8.	Goal	**Boy** decided/ wanted to get his ball back	0 1	
A9.	Attempt	**Boy** was pulling/ tried to pull the ball out of the water	0 1	
A10.	Outcome	**Boy** got his ball back/ again/ the ball was saved	0 1	
A11.	IST as reaction	**Boy** was glad/ happy/ pleased/ satisfied	0 1	

45 If in doubt or the response of the child is not on this scoring sheet consult the manual.

46 Write down responses here or indicate No response.

47 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

Episode 3: Cat (Episode character: cat)					
A12.	IST as initiating event	**Cat** noticed/ saw the fish/ was hungry/ curious	0	1	
A13.	Goal	**Cat** wanted/ decided to get/ grab/ eat/ have/ steal the fish	0	1	
A14.	Attempt	**Cat** took/ grabbed/ reached for the fish	0	1	
A15.	Outcome	**Cat** ate/ got the fish	0	1	
A16.	IST as reaction	**Cat** was satisfied/ glad/ pleased/ not hungry	0	1	
A17.		**Total score out of 17:**			

B. Structural complexity

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	

Section II: Comprehension (Retelling/Model Story)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why does the cat jump/ leap forward? (point to pictures 1-2) (Episode 1: Goal)	Wants/ to get/ catch/ chase the butterfly/ to play with the butterfly	Is leaving/ running/ wanted to jump	0 1	
D2.	How does the cat feel? (point to picture 3) (IST as reaction)	Angry/ bad/ disappointed/ hurt	Good/ happy	0 1	
D3.	*(Only ask D3 if the child gives a correct response without explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the cat is feeling angry/ disappointed/ hurt etc.?[48]	Because he couldn't catch the butterfly/ he fell into the bush/ it hurts to fall into a prickly bush	Inappropriate/ irrelevant answer	0 1	
D4.	Why does the boy hold the fishing rod in the water? (point to picture 5) (Episode 2: Goal)	Wants/ to get his ball back	To play in the water	0 1	
D5.	How does the boy feel? (point to picture 6)	Good/ fine/ happy/ satisfied/ pleased	Bad/ angry/ mad/ sad	0 1	
D6.	*(Only ask D6 if the child gives a correct response without explanation/ rationale in D5. If a*	Because he has/ got the ball back	Because he is smiling/ he looks like that/ other inappropriate	0 1	

48 Use the same IST provided by the child in response to D2.

	correct explanation is provided in D5, then give a point in D6 and proceed to D7.) Why do you think that the boy is feeling good/ fine/ happy/ satisfied etc.?[49]		answer		
D7.	Why does the cat grab the fish? (point to picture 5) (Episode 3: Goal)	Decided/ wants to eat/ have/ steal the fish/ takes the chance/ opportunity when the boy is not looking	Wants to play with the fish	0 1	
D8.	Imagine that the boy sees the cat. How does the boy feel? (point to picture 6)	Bad/ angry/ mad	Fine/ good/ happy/ satisfied/ pleased	0 1	
D9.	*(Only ask D9 if the child gives a correct response without explanation/ rationale in D8. If a correct explanation is provided in D8, then give a point in D9 and proceed to D10.)* Why do you think that the boy feels bad/ angry/ mad etc.?[50]	Because the cat ate/ is eating/ took/ has taken his fish	Fishing rod is on the ground or other inappropriate answer	0 1	
D10.	Will the boy be friends with the cat? Why?	No - give at least one reason (cat ate fish) or any other appropriate answer	Yes/ I don't know/ other irrelevant answer	0 1	
D11.			**Total score out of 10:**		

49 Use the same IST provided by the child in response to D5.
50 Use the same IST provided by the child in response to D8.

Protocol for Dog
Retelling/Model story

Name of child: _____
Date of birth: _____
Date of testing: _____
Age of testing (in months): _____
Gender: _____
Name of examiner: _____
Exposure to L2 (in months): _____
Kindergarten entry date: _____
Name of kindergarten: _____

Be sure that all the envelopes are on the table before testing begins. Prepare the audio recorder in order to record the session. Begin recording before warming up.

Warming-up

Ask for example: Who is your best friend? What do you like to watch on TV? Do you like telling stories? Do you like listening to stories?

Instructions

Sit opposite the child. Say to the child: *Look, here are 3 envelopes. There is a different story in each envelope. Choose one and then I will tell you the story*. Unfold the pictures so that the whole sequence is visible to the child only. *First look at the whole story. Are you ready? I am going to tell you the story and then you can tell it to me again*. (For the option Model story say: *I am going to tell you the story and then I will ask you some questions*. Tell the child the story and then ask the comprehension questions.)

Unfold picture 1 and 2. *The story starts here*: (point to picture 1). *One day there was a playful dog who saw a grey mouse sitting near a tree. He leaped forward because he wanted to catch it. Meanwhile, a cheerful boy was coming back from shopping with a bag and a balloon in his hands. He looked at the dog chasing the mouse.*

Unfold picture 3 and 4 (so that all pictures from 1 to 4 are now visible). *The mouse ran away quickly and the dog bumped into the tree. The boy was so*

startled that the balloon slipped out of his hand. When he saw his balloon flying into the tree, he cried: "Oh no, there goes my balloon!" He was sad and wanted to get his balloon back. Meanwhile, the dog noticed the boy's bag and thought: "I want to grab a sausage."

Unfold picture 5 and 6 (so that all pictures from 1 to 6 are now visible). *At the same time, the boy began pulling his balloon out of the tree. He did not notice that the dog had grabbed a sausage. In the end, the dog was very pleased to eat such a tasty sausage and the boy was happy to have his balloon back.*

And that is the end of the story.

Retell Instructions

Unfold the pictures so that the first 2 pictures are visible to the child only. Say to the child: *Now I want <u>you</u> to tell the story. Look at the pictures and try to tell the <u>best</u> story you can.* Allowable prompt if the child is reluctant to begin: *"Tell me the story"* (point to picture). When the child has finished telling the first 2 pictures, unfold the next (so that all pictures from 1 to 4 are now visible). Repeat the process until you have reached the end of the story. Allowable prompts if the child is silent in the middle of the story: *"Anything else?", "Continue", "Tell me more", "Let's see what else is in the story".* If the child stops talking without indicating that he/she has finished, ask: *"Tell me when you have finished".*
When the child has finished, praise the child and then ask the comprehension questions.

Model Story instructions

After you told *And that is the end of the story* ask the comprehension questions.

Scoring sheet for Dog
Section I: Production (Retelling)

A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)

A. Story Structure

		Examples of correct responses[51]	Score	Comments[52]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago…in a forest/ park/ meadow/ by the road …	0 1 2[53]	
Episode 1: Dog (Episode characters: dog and mouse				
A2.	IST as initiating event	**Dog** was playful/ curious/ saw a mouse	0 1	
A3.	Goal	**Dog** wanted to catch/ get/ chase the mouse/ play with the mouse	0 1	
A4.	Attempt	**Dog** jumped forward/ up	0 1	
A5.	Outcome	**Dog** bumped his head/ dog did not get the mouse/ dog was not quick enough **Mouse** escaped/ ran behind the tree/ mouse was too quick	0 1	
A6.	IST as reaction	**Dog** was disappointed/ angry/ hurt **Mouse** was happy/ glad/ relieved	0 1	
Episode 2: Boy (Episode character: boy)				
A7.	IST as initiating event	**Boy** was sad/ unhappy/ worried about his balloon/ saw the balloon in the tree	0 1	
A8.	Goal	**Boy** decided/ wanted to get his balloon back	0 1	
A9.	Attempt	**Boy** was pulling/ tried to pull the balloon down from the tree/ jumped after the balloon	0 1	
A10.	Outcome	**Boy** got his balloon back/ again/ the balloon was saved	0 1	
A11.	IST as reaction	**Boy** was glad/ happy/ satisfied to get his balloon back	0 1	

51 If in doubt or the response of the child is not on this scoring sheet consult the manual.

52 Write down responses here or indicate No response.

53 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

Episode 3: Dog (Episode character: dog)					
A12.	IST as initiating event	**Dog** saw/ noticed the sausages in the bag/ was hungry/ curious	0	1	
A13.	Goal	**Dog** wanted/ decided to get/ grab/ eat/ have/ steal the sausages	0	1	
A14.	Attempt	**Dog** took/ grabbed/ stole the sausages out of the bag	0	1	
A15.	Outcome	**Dog** ate/ got the sausages	0	1	
A16.	IST as reaction	**Dog** was satisfied/ glad/ pleased/ not hungry	0	1	
A17.		**Total score out of 17:**			

B. Structural complexity

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	

Section II: Comprehension (Retelling/Model Story)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why does the dog leap/ jump forward? (point to pictures 1-2) (Episode 1: Goal)	Wants/ to get/ catch/ chase the mouse/ to play with the mouse	Is leaving/ running/ wanted to jump/ dogs are always jumpy	0 1	
D2.	How does the dog feel? (point to picture 3) (IST as reaction)	Angry/ bad/ disappointed/ hurt	Good/ happy	0 1	
D3.	*(Only ask D3 if the child gives a correct response without explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the dog is feeling angry/ disappointed/ hurt etc.?[54]	Because he couldn't catch the mouse/ he bumped his head/ bumped into the tree	Inappropriate/ irrelevant answer	0 1	
D4.	Why does the boy leap upwards? (point to picture 5) (Episode 2: Goal)	Wants/ to get his balloon back/ because he lost his balloon	To climb the tree/ climb trees	0 1	
D5.	How does the boy feel? (point to picture 6)	Good/ fine/ happy/ satisfied/ pleased	Bad/ angry/ mad/ sad	0 1	
D6.	*(Only ask D6 if the child gives a correct response without explanation/ rationale in D5. If a correct*	Because he has/ got the balloon back	Because he is smiling/ he looks like that/ other inappropriate	0 1	

54 Use the same IST provided by the child in response to D2.

	explanation is provided in D5, then give a point in D6 and proceed to D7.) Why do you think that the boy is feeling good/ happy etc.?[55]		answer		
D7.	Why does the dog grab the sausages? (point to picture 5) (Episode 3: Goal)	Decided/ wants to eat/ have/ steal the sausages	Wants to play with the bag	0 1	
D8.	Imagine that the boy sees the dog. How does the boy feel? (point to picture 6)	Bad/ angry/ mad	Fine/ good/ happy/ satisfied/ pleased	0 1	
D9.	*(Only ask D9 if the child gives a correct response without explanation/ rationale in D8. If a correct explanation is provided in D8, then give a point in D9 and proceed to D10.)* Why do you think that the boy feels bad/ angry/ mad etc.?[56]	Because the dog ate/ took his sausages	Inappropriate answer	0 1	
D10.	Will the boy be friends with the dog? Why?	No - give at least one reason (dog ate sausages) or any other appropriate answer	Yes/ I don't know/ other irrelevant answer	0 1	
D11.			**Total score out of 10:**		

55 Use the same IST provided by the child in response to D5.
56 Use the same IST provided by the child in response to D8.

Protocol for Baby Birds
Telling

Name of child: _____
Date of birth: _____
Date of testing: _____
Age of testing (in months): _____
Gender: _____
Name of examiner: _____
Exposure to L2 (in months): _____
Kindergarten entry date: _____
Name of kindergarten: _____

Be sure that all the envelopes are on the table before testing begins. Prepare the audio recorder in order to record the session. Begin recording before warming up.

Warming-up

Ask for example: Who is your best friend? What do you like to watch on TV? Do you like telling stories? Do you like listening to stories?

Instructions

Sit opposite the child. Say to the child: *Look, here are 3 envelopes. There is a different story in each envelope. Choose one and then I will tell you the story*. Unfold the pictures so that the whole sequence is visible to the child only. *First look at the whole story. Are you ready?*

Unfold picture 1 and 2. Say to the child: *Now I want <u>you</u> to tell the story. Look at the pictures and try to tell the <u>best</u> story you can.* Allowable prompt if the child is reluctant to begin: *"Tell me the story"* (point to picture). When the child has finished telling the first 2 pictures, unfold the next (so that all pictures from 1 to 4 are visible). Repeat the process until the end of the story. Allowable prompts if the child is silent in the middle of the story**:** *"Anything else?", "Continue", "Tell me*

more", "Let's see what else is in the story". If the child stops talking without indicating that he/she has finished, ask: *"Tell me when you are finished".*

When the child has finished, praise the child and then ask the comprehension questions.

Scoring sheet for Baby Birds
Section I: Production
A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)
A. Story Structure

		Examples of correct responses[57]	**Score**	**Comments**[58]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ meadow/ garden/ bird's nest/ up a tree…	0 1 2[59]	
Episode 1: Mother bird (Episode characters: mother bird and baby birds)				
A2.	IST as initiating event	**<Mother/ Parent/ etc.>** saw that the baby birds were hungry/ wanted food **Baby birds** were hungry/ wanted food/ cried/ asked for food	0 1	
A3.	Goal	**Mother** wanted to feed chicks/ to catch/ bring/ get/ find food/ worms	0 1	
A4.	Attempt	**Mother** flew away/ went away/ fetched food/ looked for food	0 1	
A5.	Outcome	**Mother** got/ caught/ brought/ came back with food/ a worm/ fed the babies **Baby birds** got food/ a worm	0 1	
A6.	IST as reaction	**Mother** was happy/ satisfied **Baby birds** were happy/ satisfied/ not hungry any more	0 1	
Episode 2: Cat (Episode characters: cat and birds)				
A7.	IST as initiating event	**Cat** saw mother flying away/ saw that baby birds were all alone/ saw that there was food/ **Cat** was hungry/ cat's mouth watered/ cat thought "yummy"	0 1	
A8.	Goal	**Cat** wanted to eat/ catch/ kill the/ a baby bird/ s	0 1	
A9.	Attempt	**Cat** climbed up the tree/ jumped up/ tried to reach/ get a/ the baby bird	0 1	

57 If in doubt or the response of the child is not on this scoring sheet consult the manual.
58 Write down responses here or indicate No response.
59 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

A10.	Outcome	**Cat** grabbed/ got a/ the baby bird	0	1	
A11.	IST as reaction	**Cat** was happy **Bird/ -s** was/ were scared	0	1	
Episode 3: Dog (episode characters: dog, cat and birds)					
A12.	IST as initiating event	**Dog** saw that the bird was in danger/ that cat caught/ got the bird	0	1	
A13.	Goal	**Dog** decided/ wanted to stop the cat, help/ protect/ save/ rescue the bird(-s)	0	1	
A14.	Attempt	**Dog** pulled dragged the cat down/ bit/ attacked the cat/ grabbed the cat's tail	0	1	
A15.	Outcome	**Dog** chased the cat away **Cat** let go of the baby bird/ ran away **Bird/ -s** was/ were saved	0	1	
A16.	IST as reaction	**Dog** was relieved/ happy/ proud to have saved the baby bird **Cat** was angry/ disappointed **Bird/ -s** was/ were relieved/ happy/ safe	0	1	
A17.		**Total score out of 17:**			

B. Structural complexity

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	

Section II: Comprehension (Telling)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why does the mother bird fly away? (point to pictures 1-2) (Episode 1: Goal/ IST as initiating event)	Wants/ to get food/ worms to feed baby birds/ baby birds are hungry	Is leaving/ going to work	0 1	
D2.	How do the baby birds feel? (point to picture 1) (IST as initiating event)	Bad/ hungry	Good/ fine/ happy/ surprised/ lonely/ scared/ frightened	0 1	
D3.	*(Only ask D3 if the child gives a correct response without an explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the baby birds are feeling bad/ hungry etc.?[60]	Because their mouths are open/ asking for food/ the mother went to get food/ the mother came back with a worm to feed them/ baby birds are always hungry	Because they are happy/ singing/ because they wanted to come along with mummy/ scared of the cat/ scared because they saw the cat	0 1	
D4.	Why is the cat climbing the tree? (point to picture 3) (Episode 2: Goal)	Wants/ to get/ to kill/ to eat the baby bird/ because cats like to eat birds	To play with the baby birds	0 1	
D5.	How does the cat feel? (point to picture 5-6) (IST as reaction)	Still hungry/ bad/ angry/ scared/ disappointed	Good/ fine/ happy/ playful	0 1	
D6.	*(Only ask D6 if the child gives a correct response without an*	Did not get the baby birds/ is afraid of the	Happy/ playful/ starts to fly/	0 1	

60 Use the same IST provided by the child in response to D2.

	explanation/ rationale in D5. If a correct explanation is provided in D5, then give a point in D6 and proceed to D7.) Why do you think that the cat is feeling bad/ hungry/ scared etc.?[61]	dog/ still hungry/ because the dog is chasing it/ pulling/ biting the cat's tail	because dog took the cat's food		
D7.	Why does the dog grab the cat's tail? (point to picture 5) (Episode 3: Goal)	Decided/ wants to stop the cat/ save/ rescue the baby bird/ help the birds	Wants to eat the bird himself/ play with the cat	0 1	
D8.	Imagine that the dog sees the birds. How does the dog feel? (point to picture 6) (IST as reaction)	Good/ fine/ happy/ relieved/ pleased/ satisfied/ proud/ like a hero	Bad/ angry/ mad/ sad/ "I must get the cat"/ hungry	0 1	
D9.	*(Only ask D9 if the child gives a correct response without an explanation/ rationale in D8. If a correct explanation is provided in D8, then give a point in D9 and proceed to D10.)* Why do you think that the dog feels good/ fine/ happy/ satisfied etc.?[62]	Because he stopped the cat/ gets the cat out of there/ saved the birds/ sees that the birds are safe/ happy/ unharmed	Because he is smiling/ the dog looks like that/ didn't get the cat/ wants to eat the birds himself	0 1	
D10.	Who does the mother bird like best, the cat or the dog? Why?	The dog – give at least one reason (he saved/ helped the baby bird/ chased the cat away)	The cat/ I don't know/ other irrelevant answer	0 1	
D11.			**Total score out of 10:**		

61 Use the same IST provided by the child in response to D5.
62 Use the same IST provided by the child in response to D8.

Protocol for Baby Goats
Telling

Name of child: _____
Date of birth: _____
Date of testing: _____
Age of testing (in months): _____
Gender: _____
Name of examiner: _____
Exposure to L2 (in months): _____
Kindergarten entry date: _____
Name of kindergarten: _____

Be sure that all the envelopes are on the table before testing begins. Prepare the audio recorder in order to record the session. Begin recording before warming up.

Warming-up

Ask for example: Who is your best friend? What do you like to watch on TV? Do you like telling stories? Do you like listening to stories?

Instructions

Sit opposite the child. Say to the child: *Look, here are 3 envelopes. There is a different story in each envelope. Choose one and then I will tell you the story*. Unfold the pictures so that the whole sequence is visible to the child only. *First look at the whole story. Are you ready?*

Unfold picture 1 and 2. Say to the child: *Now I want <u>you</u> to tell the story. Look at the pictures and try to tell the <u>best</u> story you can.* Allowable prompt if the child is reluctant to begin: *"Tell me the story"* (point to picture). When the child has finished telling the first 2 pictures, unfold the next (so that all pictures from 1 to 4 are visible). Repeat the process until the end of the story. Allowable prompts if the child is silent in the middle of the story**:** *"Anything else?", "Continue", "Tell me*

more", "Let's see what else is in the story". If the child stops talking without indicating that he/she has finished, ask: *"Tell me when you are finished".*

When the child has finished, praise the child and then ask the comprehension questions.

Scoring sheet for Baby Goats
Section I: Production
A. Story Structure; B. Structural complexity; C. Internal State Terms (IST)
A. Story Structure

		Examples of correct responses[63]	Score	Comments[64]
A1.	Setting	Time and/ or place reference, e.g. once upon a time/ one day/ long ago... in a forest/ in a meadow/ at the lake/ at the pond…	0 1 2[65]	
Episode 1: Mother/ Goat (episode characters: baby goat and mother/ goat)				
A2.	IST as initiating event	**Baby** goat was scared/ in danger/ drowning/ needed help/ cried/ called the mother <**Mother/ Goat etc**.> saw that baby goat was scared/ in danger/ drowning/ couldn't swim/ was worried about the baby goat in the water	0 1	
A3.	Goal	**Mother goat** wanted to help the baby/ to save/ rescue the baby/ to push the baby out of the water	0 1	
A4.	Attempt	**Mother goat** ran/ went into the water/ is pushing	0 1	
A5.	Outcome	**Mother goat** pushed the baby out of the water/ saved/ rescued the baby **Baby** goat was saved/ out of the water	0 1	
A6.	IST as reaction	**Mother** goat was happy/ relieved **Baby** goat was relieved/ satisfied/ happy/ glad/ not scared any more	0 1	
Episode 2: Fox (episode characters: fox and baby goat)				
A7.	IST as initiating event	**Fox** saw mother looking away/ saw that the baby was alone/ saw that there was food/ fox was hungry	0 1	
A8.	Goal	**Fox** wanted to eat/ catch/ kill the baby goat	0 1	

63 If in doubt or the response of the child is not on this scoring sheet consult the manual.
64 Write down responses here or indicate No response.
65 Zero points for wrong or no response, 1 point for one correct response, 2 points for reference to both time and place.

A9.	Attempt	**Fox** jumped towards/ jumped up/ out/ tried to reach/ grab/ catch the baby goat	0	1	
A10.	Outcome	**Fox** got/ grabbed/ caught the baby goat	0	1	
A11.	IST as reaction	**Fox** was happy **Baby** goat was scared	0	1	
Episode 3: Bird (episode characters: bird, fox and baby goat)					
A12.	IST as initiating event	**Bird** saw that the goat was in danger **Baby goat** was in danger	0	1	
A13.	Goal	**Bird** decided/ wanted to stop the fox, help/ protect/ save the baby goat	0	1	
A14.	Attempt	**Bird** bit/ dragged the fox's tail/ attacked/ chased the fox	0	1	
A15.	Outcome	**Bird** chased the fox away **Fox** let go of the baby goat/ ran away **Baby goat** was saved/ rescued	0	1	
A16.	IST as reaction	**Bird** was relieved/ happy/ proud to have saved/ rescued the baby goat **Fox** was angry/ disappointed **Baby goat/ goats** was/ were relieved/ happy/ safe	0	1	
A17.		**Total score out of 17:**			

B. Structural complexity

Number of AO sequences	Number of single G (without A or O)	Number of GA / GO sequences	Number of GAO sequences
B1.	B2.	B3.	B4.

C. Internal State Terms (IST)

C1.	Total number of IST in tokens. IST include: **Perceptual state terms** e.g. *see, hear, feel, smell;* **Physiological state terms** e.g. *thirsty, hungry, tired, sore*; **Consciousness terms** e.g. *alive, awake, asleep*; **Emotion terms** e.g. *sad, happy, angry, worried, disappointed*; **Mental verbs** e.g. *want*, *think, know, forget, decide, believe, wonder, have/ make a plan*; **Linguistic verbs/ verbs of saying/ telling** e.g. *say, call, shout, warn, ask.*	

Section II: Comprehension (Telling)

		Examples of correct responses	Examples of wrong responses	Score	Comment
0	Did you like the story?	**Warm-up question, not scored**			
D1.	Why was the mother goat in the water? (point to pictures 1-2) (Episode 1: Goal/ IST as initiating event)	Wants to save/ to help/ rescue/ worried about the baby/ the baby goat is in danger/ drowning/ scared/ the baby was crying for help	Is swimming/ playing/ wants to take a bath/ to wash herself/ to wash the baby goat	0 1	
D2.	How does the baby goat feel? (point to baby goat in the water, picture 1) (IST as initiating event)	Bad/ scared/ in danger/ horrified	Good/ fine/ happy/ playing/ freezing/ refreshed/ cold/ hungry/ thirsty/ dirty/ clean/ stupid	0 1	
D3.	*(Only ask D3 if the child gives a correct response without explanation/ rationale in D2. If a correct explanation is provided in D2, then give a point in D3 and proceed to D4.)* Why do you think that the baby goat is feeling bad/ scared/ in danger etc.?[66]	Because he has fallen into the water/ is not able to get out of the water/ is drowning/ cannot swim	Because he is hungry/ swimming/ playing in the water/ wasn't allowed to stand there	0 1	
D4.	Why does the fox leap forward? (point to picture 3) (Episode 2: Goal)	Wants/ to get/ to kill/ to eat the baby goat/ couldn't resist to eat the baby goat/ takes the	To play with the baby goat	0 1	

66 Use the same IST provided by the child in response to D2.

		opportunity when mother is not looking/ is far away			
D5.	How does the fox feel? (point to picture 5-6) (IST as reaction)	Bad/ sad/ angry/ mad/ scared/ still hungry/ hurt/ stupid/ disappointed	Good/ fine/ happy/ playful	0 1	
D6.	*(Only ask D6 if the child gives a correct response without an explanation/ rationale in D5. If a correct explanation is provided in D5, then give a point in D6 and proceed to D7.)* Why do you think that the fox is feeling bad/ scared/ hungry/ disappointed etc.?[67]	Because he did not get the baby goat/ he was still hungry/ afraid/ scared of the bird/ the bird was biting/ chasing him	Because the bird saw that the goat was in danger/ the fox is running away/ I don't know	0 1	
D7.	Why does the bird bite the fox's tail? (point to picture 5) (Episode 3: Goal)	Wants/ decided to save/ rescue the baby goat/ wants to stop the fox/ to make the fox let the goat go/ saw that the goat was in danger	Wants to eat the fox/ eat the goat/ play with the fox	0 1	
D8.	Imagine that the bird sees the goats. How does the bird feel? (point to picture 6)	Good/ fine/ happy/ relieved/ satisfied/ proud/ like a hero	Bad/ sad/ angry/ mad/ sorry/ stupid/ "I have to get the fox"	0 1	
D9.	*(Only ask D9 if the child gives a correct response without an explanation/ rationale in D8. If a correct*	Because he stopped the fox/ got the fox out of there/ saved/	Because he is smiling/ angry at the fox/ wants to eat the baby goat	0 1	

67 Use the same IST provided by the child in response to D5.

	explanation is provided in D8, then give a point in D9 and proceed to D10.) Why do you think that the bird is feeling good/ fine/ happy etc.?[68]	rescued the goat/ sees that the goats are happy/ unharmed/ now the fox won't come back	himself		
D10.	Who does the mother goat like best, the fox or the bird? Why?	The bird – give at least one reason (he saved/ helped the baby goat/ chased the fox away)	The fox/ I don't know/ other irrelevant answer	0 1	
D11.				**Total score out of 10:**	

68 Use the same IST provided by the child in response to D8.

Background questions

1. Child's name (forename, surname) _____

2. Date of birth _____

3. Does your child currently go to a kindergarten/ day care/ school?

○ Yes, kindergarten from ____
○ No

If yes, what kind of kindergarten?

○ Bilingual
○ Monolingual L1 = child's native language
○ Monolingual L2 = child's second language
○ Other. What kind of other?
_____

○ Yes, school from _____
○ No

If yes, what kind of school?

○ Bilingual
○ Monolingual L1 = child's native language
○ Monolingual L2 = child's second language
○ Other. What kind of other?
_____

4. In what country was your child born?

○ In country of L1, which is _____
○ In country of L2, which is _____
○ In other country, which is _____

5. Since when has your child lived in the country of L2? _____

(Year, Month)

6. Birth order

○ 1
○ 2
○ 3
○ Put the number

7. How old was your child when he/she spoke the first words? _____

(year(s), months)

8. Have you ever been concerned about your child's language?

○ No
○ Yes. Specify why? _____

9. Has anyone in your family had any speech or language difficulties?

○ No
○ Yes. Specify who, e.g., mother, father, sibling(s)? _____

10. Has your child ever had hearing problems?
Hearing impairment?
○ No
○ Yes
Frequent ear inflections?
○ No
○ Yes. How many? _____
○ Grommets (ear tubes)

11. In your opinion, does your child hear normally?
○ No
○ Yes

12. Information about the parents

	Specify your native language (L1)	Specify your second language (L2)	Specify other languages you speak	How long have you been living in XX country?	Your education	Your occupation
Mother						
Father						

13. What language do you speak with your child?

Mother
○ My native language (L1)
○ My second language (L2)
○ Both native and second language
○ Other language(s). Specify which?
_____

Father
○ My native language (L1)
○ My second language (L2)
○ Both native and second language
○ Other language(s). Specify which?
_____

14. What languages does your child speak now?
○ Child's L1, which is _____
○ Child's L2, which is _____
○ Other languages, which are _____

15. What languages is your child exposed to?
○ Child's L1, which is _____
○ Child's L2, which is _____
○ Other languages, which are _____

16. At what age did your child's exposure for L2 begin?

○ From birth
○ Before age 1
○ Before age 3
○ Before age 5
○ From age _____

17. Is your child exposed to L2 in

○ Kindergarten or school
○ With friends
○ With siblings/ parents/ other relatives
○ TV/ computer/ books
○ Other _____

18. Estimate, in terms of percentages, how often your child is exposed to different languages per day (in all daily activities combined)?

His/ her native language (L1)	His/ her second language (L2)	Other languages
○ 25%	○ 25%	○ 25%
○ 50%	○ 50%	○ 50%
○ 75%	○ 75%	○ 75%
○ 100%	○ 100%	○ 100%

19. Please, estimate your child's language skills by ticking the appropriate box

	Very well	Quite well	Quite badly	Very badly
How well does your child understand his/ her native language (L1)				
How well does your child understand his/ her second language (L2)				
How well does your child speak his/ her native language (L1)				
How well does your child speak his/ her second language (L2)				

20. In your opinion, which language does your child speak best?

○ His/ her L1
○ His/ her L2
○ Other language, which is _____

21. In your opinion, does your child like/ prefer any of the languages more than others?

○ No
○ Yes, which is _____

22. Please, indicate the frequency of the following activities carried out with your child during the last month

	His/ her native language (L1)				His/ her second language (L2)			
	Never	Twice a month	Once or twice a week	Almost every day	Never	Twice a month	Once or twice a week	Almost every day
Telling stories								
Reading books								
Listening to songs or singing								
Watching TV/ DVD/ computer games								

Story scripts

The following story scripts are provided to illustrate the framework used to create narratives with parallel macro- and microstructure and to guide coding and analysis. Furthermore, these story scripts should be used for translation and adaptation to other languages (see Guidelines for adapting the story scripts to other languages).

The marking of story structure components and internal state terms in the scripts below is given in the following way:

goal attempt outcome *internal state terms*

Baby Birds (Total number of words: 178)

Pictures 1/ 2: One day there was a mother bird who *saw* that her baby birds were *hungry*. She flew away because she wanted to find food for them. A *hungry* cat *saw* that the mother bird was flying away and *meowed*: "Mmm, nice, what do I see here in the nest?"

Pictures 3/ 4: The mother bird came back with a big worm for her children, but she did not *see* the cat. She was *happy* about the juicy worm for her babies. Meanwhile the *mean* cat started climbing up the tree because he wanted to catch a baby bird. He grabbed one of the baby birds. A *brave* dog that was passing by *saw* that the birds were in great danger. He decided to stop the cat and save them.

Pictures 5/ 6: He *said* to the cat: "Leave the baby birds alone". And then he grabbed the cat's tail and pulled him down. The cat let go of the baby bird and the dog chased him away. The dog was very *glad* that he could save the birds, and the cat was still *hungry*.

Baby Goats (Total number of words: 185)

Pictures 1/ 2: One day there was a mother goat who *saw* that her baby goat had fallen into the water and that it was *scared*. She jumped into the water because she wanted to save it. A *hungry* fox *saw* that the mother goat was in the water and *growled*: "Mmm, nice, what do I see here on the grass?"

Pictures 3/ 4: The mother goat pushed the baby goat out of the water, but she did not *see* the fox. She was *glad* that her baby did not drown. Meanwhile the *mean* fox jumped forward because he wanted to catch the other baby goat. He grabbed the baby goat. A *brave* bird that was flying by *saw* that the baby goat was in great danger. He decided to stop the fox and save the baby goat.

Pictures 5/ 6: The bird *said* to the fox: "Leave the baby goat alone". And then he flew down and bit the fox's tail. The fox let go of the baby goat and the bird chased him away. The bird was very *happy* that he could save the baby goat, and the fox was still *hungry*.

Cat (Total number of words: 178)

Pictures 1/ 2: One day there was a *playful* cat who *saw* a yellow butterfly sitting on a bush. He leaped forward because he wanted to catch it. Meanwhile, a *cheerful* boy was coming back from fishing with a bucket and a ball in his hands. He *looked* at the cat chasing the butterfly.

Pictures 3/ 4: The butterfly flew away quickly and the cat fell into the bush. He *hurt* himself and was very *angry*. The boy was so *startled* that the ball fell out of his hand. When he *saw* his ball rolling into the water, he *cried*: "Oh no, there goes my ball". He was *sad* and wanted to get his ball back. Meanwhile, the cat *noticed* the boy's bucket and *thought*: "I want to grab a fish."

Pictures 5/ 6: At the same time the boy began pulling his ball out of the water with his fishing rod. He did not *notice* that the cat had grabbed a fish. In the end, the cat was very *pleased* to eat such a tasty fish and the boy was *happy* to have his ball back.

Dog (Total number of words: 174)

Pictures 1/ 2: One day there was a *playful* dog who *saw* a grey mouse sitting near a tree. He leaped forward because he wanted to catch it. Meanwhile, a *cheerful* boy was coming back from shopping with a bag and a balloon in his hands. He *looked* at the dog chasing the mouse.

Pictures 3/ 4: The mouse ran away quickly and the dog bumped into the tree. He *hurt* himself and was very *angry*. The boy was so *startled* that the balloon slipped out of his hand. When he *saw* his balloon flying into the tree, he *cried*: "Oh no, there goes my balloon". He was *sad* and wanted to get his balloon back. Meanwhile, the dog *noticed* the boy's bag and *thought*: "I want to grab a sausage."

Pictures 5/ 6: At the same time the boy began pulling his balloon out of the tree. He did not *notice* that the dog had grabbed a sausage. In the end, the dog was very *pleased* to eat such a tasty sausage and the boy was *happy* to have his balloon back.

Part II. MAIN materials to be used for assessment (available at http://www.zas.gwz-berlin.de/zaspil56.html):

IIa. Pictorial stimuli

IIb. Adaptation of MAIN in different languages:

- ***Guidelines for assessment***
- ***Protocols***
- ***Scoring Sheets for Cat, Dog, Baby Birds, Baby Goats***
- ***Background questions***
- ***Story scripts***

Languages

Afrikaans (Daleen Klop, Monique Visser and Helena Oosthuizen)
Albanian (Enkeleida Kapia and Anila Kananaj)
Basque (Maria-José Ezeizabarrena)
Bulgarian (Eva Valcheva and Milena Kühnast)
Croatian (Gordana Hrzica and Jelena Kuvac Kraljevic)
Cypriot Greek (Koula Tantele)
Danish (Kristine Jensen de López)
Dutch (Elma Blom and Jan de Jong)
English (Daleen Klop, Ute Bohnacker, Koula Tantele, Sari Kunnari, Taina Välimaa, Ingrida Balčiūnienė, Joel Walters and Natalia Gagarina)
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ZASPiL 5 Artemis Alexiadou, Nanna Fuhrop, Paul Law and Sylvia Löhken (eds.):
Papers on syntax. Contributions by Artemis Alexiadou & Spyridoula Varlokosta, Elena Herburger, Paul Law, Alan Munn, Cristina Schmitt, Juan Uriagereka, Chris Wilder and Petra de Wit & Maaike Schoorlemmer.

ZASPiL 6 Artemis Alexiadou, Nanna Fuhrop, Paul Law and Sylvia Löhken (eds.):
Papers on clitics. Contributions by Artemis Alexiadou & Elena Anagnostopoulou, Piotr Banski, Monika Baumann, Loren A. Billings, Damir Cavar, Uwe Junghanns, Ursula Kleinhenz, Jaklin Kornfilt, Christine Maaßen, Cristina Schmitt, Petra de Wit & Maaike Schoorlemmer, Maaike Schoorlemmer, Chris Wilder and Ilse Zimmerman.

ZASPiL 7 Artemis Alexiadou, Nanna Fuhrop, Paul Law and Ursula Kleinhenz (eds.):
Papers on phonetics and phonology. Contributions by Loren Billings, Christina Kramer & Catherine Rudin, Janet Grijzenhout, T. A. Hall, Haike Jacobs, Peter M. Janker, Manuela Noske, Bernd Pompino-Marschall, Peter M. Janker and Christine Mooshammer.

ZASPiL 8 Artemis Alexiadou, Nanna Fuhrop, Paul Law and Ursula Kleinhenz (eds.):
Papers on syntax, semantics, phonology and acquisition. Contributions by Artemis Alexiadou & Elena Anagnostopolou, Artemis Alexiadou & Melita Stavrou, Dagmar Bittner, Hans-Olav Enger, Manuela Friedrich, Wladimir D. Klimonow and Heike Wiese.

ZASPiL 9 Artemis Alexiadou, Nanna Fuhrop, Paul Law and Ursula Kleinhenz (eds.):
Papers on focus and ellipsis. Contributions by Loren A. Billings, Horst-Dieter Gasde, Uwe Junghanns, André Meinunger, Kerstin Schwabe and Ning Zhang.

ZASPiL 10 Artemis Alexiadou, Nanna Fuhrop, Paul Law and Ursula Kleinhenz (eds.):

Papers on syntax of clefts, pseudo-clefts, relative clauses, and the semantics of present perfect Contributions by Artemis Alexiadou & Anastasia Giannakidou, Marcel den Dikken, André Meinunger and Chris Wilder, Caroline Heycock & Anthony Kroch, Jason Merchant, Renate Musan, Wolfgang Sternefeld, Peter Svenonius and Chris Wilder.

ZASPiL 11 Artemis Alexiadou, Nanna Fuhrop, Ursula Kleinhenz and Paul Law (eds.):

Papers on morphology and phonetics. Contributions by H.G. Tillmann, K.J. Kohler, P.A. Keating, F. Schiel & A. Kipp, Ch. Draxler, A. Mengel, R. Benzmüller & M. Grice, A. P. Simpson, L. Ellis & W. J. Hardcastle, K. Russell, E. Farnetani, M. Jessen, B. Kröger, L. Faust and B. Pompino-Marschall & P. M. Janker.

ZASPiL 12 Artemis Alexiadou, Nanna Fuhrop, Ursula Kleinhenz and Paul Law (eds.):

Papers on morphology and phonology. Contribution by Ursula Kleinhenz.

ZASPiL 13 Artemis Alexiadou, Nanna Fuhrop, Ursula Kleinhenz and Paul Law (eds.):

Papers on morphology. Contributions by Werner Abraham, Nanna Fuhrhop, Livio Gaeta, Rüdiger Harnisch, Heinrich Hettrich, Bernhard Hurch, Wladimir D. Klimonow, Ekkehard König & Peter Siemund, Elisabeth Leiss, Elke Ronneberger-Sibold, Peter Schrijver, Richard Schrodt, Anja Voeste and Wolfgang Ullrich Wurzel.

ZASPiL 14 Ewald Lang and Ljudmila Geist (eds.):

Papers on semantics of the copula. Contributions by Ewald Lang, Ljudmila Geist, Claudia Maienborn, Gerhard Jäger, Johannes Dölling, Ilse Zimmermann, Ning Zhang, Renate Musan, Renate Steinitz and Cristina Schmitt.

ZASPiL 15 Artemis Alexiadou, Nanna Fuhrop, Ursula Kleinhenz and Paul Law (eds.):

Papers on language change and language acquisition.Contributions by Werner Abraham, Nanna Fuhrhop, Gregory K. Iverson & Joseph C. Salmons, Wladimir Klimonow, Michail Kotin, Peter Suchsland, Letizia Vezzosi, Dagmar Bittner, Manuela Friedrich, Natalia Gagarina, Insa Gülzow and Theodore Marinis.

ZASPiL 16 Ewald Lang (ed.*)*:

Papers on copular- and AUX-constructions. Contributions by Ewald Lang, Gerhard Jäger, Michail Kotin, Cristina Schmitt, Nanna Fuhrhop, Ljudmila Geist and Joanna Blaszczak

ZASPiL 17 Cathrine Fabricius-Hansen, Ewald Lang and Claudia Maienborn (eds.):

Approaching the grammar of adjuncts. Proceedings of the Oslo conference. Contributions by Assinja Demjjanow & Anatoli Strigin, Johannes Dölling, David Dowty, Thomas Ernst, Marina V. Filipenko, Werner Frey, Graham Katz, Claudia Maienborn, Barbara Partee & Vladimir Borschev, Karin Pittner, Inger Rosengren, Susan Rothstein, Benjamin Shaer, Arnim von Stechow and Ilse Zimmermann.

ZASPiL 18 Dagmar Bittner, Wolfgang U. Dressler and Marianne Kilani-Schoch (eds.):

First verbs: On the way to mini-paradigms. Contributioins by Dagmar Bittner, Wolfgang U. Dressler & Marianne Kilani-Schock, Sabine Klampfer, Insa Gülzow, Klaus Laalo, Barbara Pfeiler, Marianne Kilani-Schoch, Carmen Aquirre, Antigone Katicic, Pawel Wójcik and Natalia Gagarina.

ZASPiL 19 T. A. Hall and Marzena Rochon (eds.):

Investigations in prosodic phonology. Contributions by Bozena Cetnarowska, Laura J. Downing, T. A. Hall, David J. Holsinger, Arsalan Kahnemuyipour, Renate Raffelsiefen, Marzena Rochon and Caroline R. Wiltshire.

ZASPiL 20 Kerstin Schwabe, André Meinunger and Horst-Dieter Gasde (eds.):

Issues on topics. Contributions by André Meinunger, Yen-Hui Audrey Li, Liejiong Xu, Danqing Liu, Marie-Claude Paris, Kleanthes K. Grohmann, Artemis Alexiadou, Werner Frey and Michael Grabski.

ZASPiL 21 Oliver Teuber and Nanna Fuhrhop (eds.):

Papers for Ewald Lang. Contributions by Dagmar Bittner and Klaus-Michael Köpcke, Werner Frey, Nanna Fuhrhop, Michael Grabski, Kleanthes Grohmann, Tracy Alan Hall, Wladimir D. Klimonov, Paul Law, Kerstin Schwabe, Patrick O. Steinkrüger, Oliver Teuber and Wolfgang Ullrich Wurzel.

ZASPiL 22 Gerhard Jäger, Anatoli Strigin, Chris Wilder and Ning Zhang (eds.):

Papers on Predicative Constructions. Contributions by John F. Bailyn, Misha Becker Patrick Brandt, Assinja Demjjanow & Anatoli Strigin, Roland Hinterhölzl, Orin Percus, Susan Rothstein, Sze-Wing Tang, Wei-Tien Dylan Tsai and Ning Zhang.

ZASPiL 23 Klaus von Heusinger and Kerstin Schwabe (eds.):

***Information Structure and the Referential Status of Linguistic Expressions*.** Contributions by Franz-Josef d'Avis, Carsten Breul, Dina Brun, Daniel Büring, Donka F. Farkas, Hans-Martin Gärtner, Michael Hegarty, Jeanette K. Gundel & Kaja Borthen, Jügen Lenerz, Horst Lohnstein, Norberto Moreno & Isabel Pérez, Paul Portner, Ingo Reich, Elisabeth Stark, Anita Steube and Carla Umbach.

ZASPiL 24 Klaus von Heusinger and Kerstin Schwabe (eds.):

Sentence Type and Specificity. Contributions by Raffaella Zanuttini & Paul Portner, Horst-Dieter Gasde, Kleanthes K. Grohmann, Remus Gergel, Kerstin Schwabe, Klaus von Heusinger, Bart Geurts, Nicholas Asher and Werner Frey.

ZASPiL 25 Anatoli Strigin and Assinja Demjjanow (eds.):

Secondary Predication in Russian. Contributions by Anatoli Strigin and Assinja Demjjanow.

ZASPiL 26 Ning Zhang (ed.):

The Syntax of Predication. Contributions by David Adger & Gillian Ramchand, Tor A. Åfarli & Kristin M. Eide, Ana Ardid-Gumiel, Kleanthes K. Grohmann, Youngjun Jang & Siyoun Kim, Jaume Mateu, Joan Rafel, Kylie Richardson, Peter Svenonius and Ning Zhang.

ZASPiL 27 Ewald Lang und Ilse Zimmermann (eds.):

Nominalizations. Contributions by Fritz Hamm & Michiel von Lambalgen, Veronika Ehrich, Veronika Ehrich & Irene Rapp, Ulrike Demske, Artemis Alexiadou, Klaus von Heusinger and Ilse Zimmermann.

ZASPiL 28 T. A. Hall, Bernd Pompino-Marschall and Marzena Rochon (eds.):

Papers on Phonetics and Phonology: The Articulation, Acoustics and Perception of Consonants. Contributions by Hansook Choi, Silke Hamann, Kenneth de Jong, Kyoko Nagao & Byung-jin Lim, Lisa M. Lavoie, Jeff Mielke, Marianne Pouplier & Louis Goldstein, Daniel Recasens, Rachid Ridouane, Zoë Toft, Nathalie Vallée, Louis-Jean Boë, Jean-Luc Schwartz and Pierre Badin & Christian Abry.

ZASPiL 29 Dagmar Bittner and Natalia Gagarina (eds.):

The Acquisition of Aspect. Contributions by Dagmar Bittner, Annerieke Boland Dina Brun & Babyonyshev, Sophia Delidaki & Spyridoula Varlokosta, Alison Gabriele, Gita Martohardjona & William McClure, Miren Hodgson, Linae Jeschull, Claire Martinot, Maja Andel & Sunil Kumar, Ayumi Matsuo, Barbara Schmiedtová, Yasuhiro Shirai and Ursula Stephany & Maria Voeikove.

ZASPiL 30 Regine Eckardt (ed.):

Questions and Focus. Contributions by Florian Schwarz and Markus Fischer.

ZASPiL 31 Dagmar Bittner (ed.):

Von starken Feminina und schwachen Maskulina. Contribution by Dagmar Bittner.

ZASPiL 32 T. A. Hall and Silke Hamann (eds.):

Papers in Phonology and Phonetics. Contributions by Karen Baertsch, Stuart Davis, Jana Brunner, Susanne Fuchs, Pascal Perrier, Hyeon-Zoo Kim, Antony Dubach Green, T. A. Hall, Silke Hamann, Jaye Padgett and Marzena Zygis.

ZASPiL 33 Natalia Gagarina and Dagmar Bittner (eds.):

Studies on the Development of Grammar in German, Russian and Bulgarian. Contributions by Dagmar Bittner, Natalia Gagarina, Milena Kühnast, Velka Popova, Dimitar Popov and Franziska Bewer.

ZASPiL 34 Paul Law (ed.):

Proceedings of AFLA 11, ZAS, Berlin 2004. Contributions by Edith Aldridge, Loren Billings & Daniel Kaufman, Chun-Mei Chen, Wen-yu Chiang & Fang-mei Chiang, Wen-yu Chiang & I Chang-Liao, Mark Donohue, Nelleke Goudswaard, Nikolaus Himmelmann, Arthur Holmer, Arsalan Kahnemuyipour & Diane Massam, Daniel Kaufman, Tomoko Kawamura, Edward Keenan & Cecile Manorohanta, Yuko Otsuka, Ileana Paul, Matt Pearson, Eric Potsdam, Craig Thiersch.

ZASPiL 35 Ben Shaer, Werner Frey and Claudia Maienborn (eds.):

Proceedings of the Dislocated Elements Workshop, ZAS Berlin, November 2003. Contributions by Maria Alm, Olga Arnaudova, Betty Birner, Ariel

Cohen, Cécile de Cat, Judit Gervain, Beáta Gyuris, Liliane Haegeman, Konstantina Haidou, Anke Holler, Ruth Kempson & Ronnie Cann & Jieun Kiaer, Anikó Lipták, Eric Mathieu, Sam Mchombo & Yukiko Morimoto, Nicola Munaro & Cecilia Poletto, Frederick J. Newmeyer, Andreas Nolda, Javier Pérez-Guerra & David Tizón-Couto, Benjamin Shaer & Werner Frey, Nicholas Sobin, Augustin Speyer, Malte Zimmermann.

ZASPiL 36 Anatoli Strigin:

Blocking Resultative Secondary Predication in Russian.

ZASPiL 37 Susanne Fuchs and Silke Hamann (eds.):

Papers in Phonetics and Phonology. Contributions by Laura J. Downing, Christian Geng, Antony D. Green, T. A. Hall, Silke Hamann, Al Mtenje, Bernd Pompino-Marschall, Christine Mooshammer, Sabine Zerbian, and Marzena Zygis.

ZASPiL 38 Jason Mattausch:

On the Optimization and Grammaticalization of Anaphora

ZASPiL 39 Jana Brunner:

Supralaryngeal mechanisms of the voicing contrast in velars

ZASPiL 40 Susanne Fuchs, Pascal Perrier and Bernd Pompino-Marschall (eds.):

Speech Production and Perception: Experimental analyses and models. Contributions by Susanne Albert, Jérôme Aubin, Pierre Badin, Sophie Dupont, Sascha Fagel, Roland Frey, Alban Gebler, Cédric Gendrot, Julia Gotto, Abraham Hirschberg, Ian S. Howard, Mark A. Huckvale, Bernd J. Kröger, Ines Lopez, Shinji Maeda, Lucie Ménard, Christiane Neuschaefer-Rube, Xavier Perlorson, Pascal Perrier, Hartmut R. Pfitzinger, Bernd Pompino-Marschall, Nicolas Ruty, Walter Sendlmeier, Willy Serniclaes, Antoine Serrurier, Annemie Van Hirtum and Ralf Winkler.

ZASPiL 41 Susanne Fuchs:

Articulatory correlates of the voicing contrast in alveolar obstruent production in German.

ZASPiL 42 Christian Geng, Jana Brunner and Daniel Pape (eds.):

Papers in Phonetics and Phonology. Contributions by Jana Brunner, Katrin Dohlus, Susanne Fuchs, Christian Geng, Silke Hamann, Mariam Hartinger, Phil Hoole, Sabine Koppetsch, Katalin Mády, Victoria Medina, Christine Mooshammer, Pascal Perrier, Uwe D. Reichel, Anke Sennema, Willy Serniclaes, Krisztián Z. Tronka, Hristo Velkov and Marzena Zygis.

ZASPiL 43 Laura J. Downing, Lutz Marten, Sabine Zerbian (eds.):

Papers in Bantu Grammar and Description. Contributions by Leston Buell, Lisa Cheng, Laura J. Downing, Ahmadi Kipacha, Nancy C. Kula, Lutz Marten, Anna McCormack, Sam Mchombo, Yukiko Morimoto, Derek Nurse, Nhlanhla Thwala, Jenneke van der Wal and Sabine Zerbian.

ZASPiL 44 Christian Ebert and Cornelia Endriss (eds.):

Proceedings of the Sinn und Bedeutung 10. Contributions by Stavros Assimakopoulos, Maria Averintseva-Klisch, Kata Balogh, Sigrid Beck &

Arnim von Stechow, Adrian Brasoveanu, Ariel Cohen, Paul Dekker, Ljudmila Geist, Wilhelm Geuder, Wilhelm Geuder & Matthias Weisgerber, Elsi Kaiser, Elsi Kaiser & Jeffrey T. Runner & Rachel S. Sussman & Michael K. Tanenhaus, Dalina Kallulli, Mana Kobuchi-Philip, Sveta Krasikova & Ventsislav Zhechev, Eric McCready, Telmo Móia, Karina Veronica Molsing, Fabrice Nauze, Francesca Panzeri, Doris Penka, Daniel Rothschild, Florian Schwarz, Torgrim Solstad, Stephanie D. Solt, Tamina Stephenson, Rachel Szekely, Lucia M. Tovena, Anna Verbuk, Matthias Weisgerber, Hedde Zeijlstra, Malte Zimmermann, Eytan Zweig.

ZASPiL 45 Sabine Zerbian:

Expression of Information Structure in the Bantu Language Northern Sotho

ZASPiL 46 Ines Fiedler & Anne Schwarz (eds.):

Papers on Information Structure in African Languages. Contributions by Klaus Abels & Peter Muriungi, Enoch O. Aboh, Robert Carlson, Bernard Caron, Klaudia Dombrowsky-Hahn, Wilfrid H. Haacke, Angelika Jakobi, Susie Jones, Gregory Kobele & Harold Torrence, H. Ekkehard Wolff & Doris Löhr.

ZASPiL 47 Barbara Stiebels (ed.):

Studies in Complement Control

ZASPiL 48 Dagmar Bittner & Natalia Gagarina (eds.):

Intersentential Pronominal Reference in Child and Adult Language. Proceedings of the Conference on Intersentential Pronominal Reference in Child and Adult Language. Contributions by Jeanette K. Gundel, Dimitris Ntelitheos & Melinda Kowalsky, H. Wind Cowles, Peter Bosch & Carla Umbach, Gerlof Bouma & Holger Hopp, Petra Hendriks, Irene Siekman, Erik-Jan Smits & Jennifer Spenader, Dagmar Bittner, Natalia Gagarina, Milena Kühnast, Insa Gülzow & Natalia Gagarina.

ZASPiL 49 Marzena Zygis & Susanne Fuchs (eds.):

Papers in Phonetics and Phonology. Contributions by Claire Brutel-Vuilmet & Susanne Fuchs, Marzena Zygis, Laura Downing, Elke Kasimir, Daniel Recasens, Silke Hamann & Susanne Fuchs, Anna Bloch-Rozmej, Grzegorz Nawrocki, Cédric Patin.

ZASPiL 50 Hristo Velkov:

Akustische Analysen zur koartikulatorischen Beeinflussung des frikativischen Teils stimmloser Plosive im Deutschen und im Bulgarischen

ZASPiL 51 Anton Benz & Reinhard Blutner (eds.):

Papers on Pragmasemantics. Contributions by Anton Benz, Reinhard Blutner, Michael Franke, Elena Karagjosova, Tom Lenz, and Henk Zeevat.

ZASPiL 52 Melanie Weirich & Stefanie Jannedy (eds.)

Papers from the Linguistics Laboratory. Contributions by Laura J. Downing, Scott Grimm, Stefanie Jannedy, Karsten Koch, Bernd Pompino-Marschall &

Marzena Zygis, Blake Rodgers & Susanne Fuchs, Melanie Weirich, Marzena Zygis.

ZASPiL 53 Laura Downing, Annie Rialland, Jean-Marc Beltzung, Sophie Manus, Cédric Patin, Kristina Riedel (eds.):

Papers from the Workshop on Bantu Relative Clauses. Contributions by Laura J. Downing, Annie Rialland, Cédric Patin, Kristina Riedel, Jean-Marc Beltzung, Martial Embanga Aborobongui, Lisa L.-S. Cheng, Al Mtenje, Larry M. Hyman, Francis X. Katamba, Shigeki Kaji, Charles W. Kisseberth, Emmanuel-Mossely Makasso, Sophie Manus, Sabine Zerbian.

ZASPil 54 Natalia Gagarina, Annegret Klassert, Nathalie Topaj:

Sprachstandstest Russisch für mehrsprachige Kinder. Sonderheft.

ZASPil 55 Laura J. Downing (ed.):

Questions in Bantu Languages: Prosodies and Positions. Contributions by Martial Embanga Aborobongui, Jean-Marc Beltzung, Laura J. Downing, Fatima Hamlaoui, Larry M. Hyman, Francis X. Katamba, Charles W. Kisseberth, Emmanuel-Mossely Makasso, Al Mtenje, Cédric Patin, Annie Rialland, Kristina Riedel.