



# Story grammar elements and causal relations in the narratives of Russian-Hebrew bilingual children with SLI and typical language development

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## ABSTRACT

**Background:** While there is general agreement regarding poor performance of children with Specific Language Impairment (SLI) on microstructure measures of narrative production, findings on macrostructure are inconsistent.

**Purpose:** The present study analyzed narrative abilities of Russian-Hebrew bilingual preschool children with and without SLI, with a particular focus on story grammar (SG) elements and causal relations, in order to identify macrostructure features which distinguish bilingual children with SLI from those with typical development.

**Method:** Narratives were collected from 35 typically developing bilinguals (BiTD) and 14 bilinguals with SLI (BiSLI) in both Russian/L1 and Hebrew/L2 using a retelling procedure (*LITMUS-Multilingual Assessment Instrument for Narratives*) (Gagarina, Klop, Kunnari, Tantele, Välimaa, Balčiūnienė, Bohnacker, & Walters, 2012). Each story contained three episodes, and each episode introduced a different protagonist with explicitly stated Goals (G), Attempts (A) and Outcomes (O). Causal relations assessed included Enabling, Physical, Motivational, and Psychological relations, following Trabasso & Nickels (1992). Each Goal-Attempt-Outcome (GAO) episode was examined for the use of SG elements and causal relations. Results. Group differences emerged for both aspects of macrostructure. For causal relations, narratives of BiSLI children contained fewer Enabling and Physical relations, and differed qualitatively from those of BiTD children. For SG elements, BiSLI children referred to fewer SG elements than BiTD children in the first episode, but performed like BiTD children in the second and the third episodes.

**Conclusions:** Story grammar elements in specific episodes along with Enabling and Physical causal relations distinguish the narratives of children with BiSLI from those with BiTD, which stresses the importance of examining wider array of macrostructure features in narratives.

## 1. Introduction

The present paper examines macrostructure features of narratives produced by typically developing bilingual children (BiTD) and

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bilingual children diagnosed with Specific Language Impairment (BiSLI) in an attempt to contribute to the literature on clinical markers of SLI. Narrative macrostructure is analyzed by means of Story Grammar (SG) elements and causal relations that connect these elements into a coherent structure. In previous research analyzing narrative production, SG categories have been used as a tool to identify children with and without language impairment (Duinmeijer, de Jong, & Scheper, 2012; Heilmann, Miller, & Nockerts, 2010; Reilly, Losh, Bellugi, & Wulfeck, 2004; Schneider & Dubé, 2005); however, the utility of the story grammar model for clinical purposes has been questioned (Liles, Duffy, Merritt, & Purcell, 1995). Narrative as a tool to assess linguistic abilities of children with language impairment has been recommended because it reflects linguistic and communicative competence (Botting, 2002), including how the child makes inferences about events and expresses temporal and causal relationships between them. Recent studies have investigated narrative performance of bilingual children with SLI, pointing to similar performance across the two languages of bilinguals with and without impairment (Boerma, Leseman, Timmermeister, Wijnen, & Blom 2016; Botting, 2002; Cleave et al., 2010; Hipfner-Boucher et al., 2014; Iluz-Cohen & Walters, 2012; Paradis et al., 2013). In the present study, narrative abilities of bilingual Russian-Hebrew speaking children with BiSLI and their peers with BiTD are analyzed with a special focus on SG structure for each episode of the narrative and on causal relations among SG element between and within episodes.

### 1.1. Narratives in children with SLI

Narratives macrostructure features of children with SLI have been extensively investigated with somewhat contradictory findings. Some studies, analyzing both macro and microstructure in the narratives of children with SLI, have found that while productivity measures (Fey, Catts, Proctor-Williams, Tomblin, & Zhang, 2004; Schneider & Dubé, 2005) and morpho-syntax (Reilly et al., 2004) are impaired in the population with SLI, macrostructure elements are quite comparable to those of TD children (Merritt & Liles, 1989; Norbury & Bishop, 2003). Other studies have shown that children with SLI can be distinguished from their peers with TLD on story macrostructure elements as well (Bishop & Donlan, 2005; Duinmeijer et al., 2012; Soodla & Kikas, 2010). The narratives of bilingual children with SLI introduce the following challenge: on the one hand, bilinguals benefit from their first language in narrative macrostructure abilities due to cross-linguistic transfer (Hipfner-Boucher et al., 2014; Squires et al., 2014; Tsimpli, Peristeri, & Andreou, 2016). On the other hand, the gap between micro and macrostructure performance is more evident in bilinguals due to their varying levels of proficiency. Even though in interpreting the results from these studies, one should take into account their methodological differences (e.g., the complexity of narrative task, the level of detail in their analyses, inclusion criteria for SLI), it seems that not all macrostructure skills show poor performance in children with SLI. In this light, some researchers distinguish different macrostructure elements, e.g. basic story structure (goals, outcomes) versus mental states (Reilly et al., 2004). The present study focuses both on Goal-Attempt-Outcome structure at the episode level (Story Grammar categories) and the causal links between these elements both within and across episodes (Causal relations).

### 1.2. Story grammar categories

Most macrostructure analysis is based on Story Grammar (SG) categories (Stein & Glenn, 1979; Trabasso, van der Broek, & Suh, 1989). According to this approach, narratives begin with a Setting which provides background information on the characters and their environment. A setting is followed by one or more episodes which are temporally and causally related and are centered around a protagonist. Key elements in every story are: an Initiating Event (the problem that generates/prompts the narrative), a Goal reflecting the character's motivation to solve the problem, an Attempt to achieve the Goal, and an Outcome which may or may not be successful. The identification of 'goal-directed actions' is crucial in both comprehension and production of narrative because narrative coherence depends on encoding of actions as intentional attempts when character's goals are identified (Stein & Trabasso, 1982; Trabasso & Nickels, 1992).

Studies comparing macrostructure abilities of children with SLI and TLD children indicate that children with SLI have difficulty with text-level organization of narratives along with the use of appropriate vocabulary and grammar (Boudreau & Hedberg, 1999; Gillam & Johnston, 1992; Manhardt & Rescorla, 2002; Pearce, McCormack & James, 2003; Reilly et al., 2004). Nevertheless, both children with TLD and SLI have shown similar patterns in the use of Goal-Attempt-Outcome (GAO) structure and macrostructure complexity; this finding has been reported for monolinguals (Norbury & Bishop, 2003) and for bilinguals in both languages (Altman, Armon-Lotem, Fichman, & Walters, 2016; Tsimpli et al., 2016). The analysis of narratives of bilingual children with and without SLI is complicated by possible differences in performance in the two languages. The majority of studies agree on cross-linguistic similarities in macrostructure measures (Bohnacker, 2016 for Swedish-English bilinguals; Iluz-Cohen & Walters, 2012 for English-Hebrew bilinguals; Kunnari, Välimaa, Laukkanen-Nevala, 2016 for Finnish-Swedish bilinguals). However, it has been shown that differences exist for certain SG elements, with L2 proficiency as the sources of the differences (Kapalková, Polišenská, Marková, & Fenton, 2016). Few studies have compared the performance of TD children to that of children with SLI analyzing individual macrostructure elements at the episode level. Such was the analysis performed by Altman et al. (2016), which showed no significant group or language effects on GAO components for individual episodes in narratives of bilingual children with TD and SLI.

The findings reviewed here suggest that GAO categories are not subtle enough to distinguish the narratives of children with TD and with SLI and that analyses should be more detailed and a different description research strategy should be adopted. The present study is an attempt to move in these directions. In this light, the next section reviews studies that investigated the connections between the SG categories as part of macrostructure analyses.

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