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year old children with a typical language development.

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Cross-linguistic differences in narration

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## **Abstract**

Narration is becoming an important method to evaluate child language development. It requires complex language abilities and language use can be evaluated in a more or less natural context. The Dutch adaptation of the Renfrew Language Scales was used to examine cross-linguistic differences in Flemish and Dutch four year old children, matched on age, sex and social economic status. Differences were found on two variables concerning the pragmatics of story retelling and on the semantic-lexical aspect, more specific on GAP-verbs. Further research is suggested to examine both the semantic-lexical and semantic-grammatical aspect.

**Keywords:** cross-linguistic differences, Renfrew Language Scales Dutch Adaptation, retelling, Bus Story Test

## **Introduction**

### *Cross-linguistic differences in Dutch and Flemish speaking children*

Dutch, the language spoken in the Netherlands and in the Flemish part of Belgium (Flanders) is generally considered as one standard language. This is not true. Northern Dutch (spoken in the Netherlands) and Southern Dutch (or Flemish, spoken in Flanders) differ strongly in many language aspects. According to Van Bezooijen (2002), Northern Dutch and the Southern Dutch vary in phonetics and on all linguistic levels, in phonology (also in prosody), morphology, vocabulary, semantics, grammar. According to her, there would even be a difference in voice quality. She does not describe language differences in the field of pragmatics.

Therefore, cross-linguistic research concerning the Dutch language sometimes results in different standardizations, for the northern group in one hand and the southern at the other hand. Two important language tests to evaluate language ability in young children with a Dutch and separately a Flemish standardization are the Reynell Developmental Language Scales (Reynell, 1977) and the Taaltoets Alle Kinderen (Language Test for All Children), abbreviated TAK (Verhoeven & Vermeer, 2001).

Hollanders (2003) found that Flemish children age 4;07, 5;07 and 6.03 reached higher scores on the 'Verteltoon' (Narration Task) of the TAK (Verhoeven & Vermeer, 2001) compared to Dutch peers. No statistic tests were carried out to prove significant differences between both groups at each age. Van Dorst (2004) looked at Dutch and Flemish children at the age of 7;00-7;06 years and found the same, Flemish children showed much higher scores on the 'Verteltoon' (Narration Task) of the TAK (Verhoeven & Vermeer, 2001). At the age of 8;00-8;06 years the group differences did still exist, but the group difference was smaller than before. Unfortunately, also Van Dorst (2004) did not prove this difference with help of statistic tests. A significant difference was not established.

### *Narration in pragmatic studies*

Pragmatics is the study dealing with what people do with their language in communicative interaction towards their listeners, how they act using language (Schaerlaekens & Gillis, 1987). Not the meaning of words or sentences are important, but the intention of the message. The speaker has to deliver his intention in such a way that the listener can easily react in a way the speaker wants him to do. Pragmatics are studied in the situation of discourse in normal communication but also in narration, subject of the present study.

In story (re)telling as in conversation the use of language can be checked in a more or less natural context (Manders & Scheys, 2006). Both narration as well as conversation require complex language skills, in which cognitive, social and linguistic abilities especially morpho-syntactic and semantic ones are integrated well (Pankratz et al., 2007). Events have to be sequenced neatly in order to transfer a logical line of thinking, understandable for the listener, one has to use explicit linguistic markers to create a cohesive text, the vocabulary has to be used precisely and the meaning of the words has to be specific (Paul & Smith, 1993). The story needs to be adapted to the listener's level of background information (Pankratz et al., 2007). Each aspect is important to assess in the study of typical as well as atypical child language development.

In the literature has been stated that not only language content, but also language form, elicited in different speaking contexts (narration or conversation) varies in multiple aspects such as fluency of speaking, Mean Length of Utterance (MLU) and syntactic complexity (Wagner et al., 2000). Roelofs (1998) used both conversation and narration in her research concerning the development of pragmatic skills in young children (4;00 to 8;00 years of age). With regard to syntactic aspects (especially sentence complexity), children seem to have comparable scores in narration as well as in conversation.

### *Narration in children with language problems*

In child language research, most available tests are concerned with vocabulary, grammar, phonology, or auditory-verbal memory. They do not address sufficiently the issue of language use (Bishop et al., 2000). However, the use of narratives in language assessment is an important issue for certain group of children with language problems namely those with semantic-pragmatic language disorders (SPLD) (Rapin & Allen, 1998), more recently also mentioned as 'pragmatic language impairment' (PLI). This language problem represents a disorder in which language content and use show more often problems than language form (Bishop, 2004). Botting (2002) has the opinion that narrative ability is one of the most interesting and valid ways to measure the communicative competence of children both in the normal population as in clinical groups. Bochane (2006) and Van Dijk (2007) looked at story retelling with help of the Bus Story Test (part of Renfrew's Language Scales Dutch Adaptation) in children with Semantic Pragmatic Language Disorder. They studied this group of children longitudinally at age five and six (Bochane, 2006; Van Dijk, 2007) and compared them with matched peers, also studied longitudinally. In both studies a significant difference exists between atypically developing children and typical ones with respect of narration. This Bus Story narration task turns out to be an important instrument to recognize and examine children with a Semantic Pragmatic Disorder.

### *Renfrew's Language Scales Dutch Adaptation*

The 'Renfrew Taalschalen Nederlandse Aanpassing' (RTNA) (Renfrew's Language Scales Dutch Adaptation, Jansonius et al., 2007a, 2007b) are an adaptation of the original Renfrew Language Scales (RLS), developed by Catherine Renfrew, a British speech therapist (1997). The RTNA is also extended with other relevant linguistic aspects, such as plot structure component analysis and an argument structure analysis. The Dutch version aims to look at language skills in children 4;00 until 10;00 years of age. Besides the collection of data, described by Renfrew in her test manuals (1997), the Dutch version looks also at children's strengths and weaknesses in responding to the tasks. There

are three tasks to execute, in which always pictures are used to elicit child language. The 'Word Finding Vocabulary Test' (50 pictures) assesses the extent in which pictures of objects or animals can be named correctly. The 'Action Picture Test' with 10 pictures increasing in complexity, assesses the quality of information in the context of sentence construction. The 'Bus Story Test' looks at narration in retelling a story (12 pictures).

With help of the 'Bus Story Test' children's quality of information transfer in retelling the story is evaluated in this study. When specific words are expressed one point is given, when specific word groups are expressed, two points are given. The total score of all points is called the Renfrew Information Score (RIS). Also grammatical aspects are studied such as Mean Length of Five Longest Utterances as well as the Number of Subordinations. The semantic quality of the story can therefore be related to the child's grammatical complexity. In this respect, Renfrew (1997) is followed in the Dutch version of the Bus Story Test. However -as is said before- also the episodic plot structure, inherent to each story structure, is studied as well. Specific plot structure components are determined, divided in e.g. setting, in which the leading persons have to be introduced, initiating events, all other events, calamity and solutions. Often a story is ended with a morality or is closed with other ending remarks. Besides plot structure components (24), there are side issues (13), aspects of secondary importance. Both of them are considered as the backbone of the story (the signal, all elements told to the child), while all other spontaneous utterances of the child (repetitions and unfinished utterances not included) are seen as 'noise', not belonging to the story told to the child before.

Another addition in analyzing children's narration is the argument structure analysis, in which based on the content of the lexical verb, specific semantic issues in the sentence have to be uttered. Therewith semantic-grammatical aspects, semantic-lexical aspects and semantic-pragmatic aspects can be analyzed (Jansonius et al., 2007b).

Pankratz et al. (2007) describe two studies providing evidence indicating the diagnostic and predictive validity of an American adaptation of the original Renfrew Language Scales (RLS). The first study evaluates the diagnostic validity and results in a sensitivity of 84,4% and a specificity of 78,1%. According to Pankratz et al. (2007) this is a poor specificity and not acceptable in order to answer the question 'is there a language impairment?'. Pankratz et al. (2007) describe an effect of bias relative to ethnic background in this study. A slightly higher than expected proportion of minority children in the group with typical language development was misidentified as having specific language impairment. SLI children that were misidentified as having a typical language development were more frequently Caucasian than of minority background. So further research is necessary to confirm or reject these findings. In the Dutch and Flemish studies, no ethnic minorities are included. So this type of bias has been excluded correctly.

The second study described by Pankratz et al. (2007) evaluates the predictive validity. There were found large and moderate effect sizes between the Bus Story Test scores and later language measures. These correlations indicate that the Bus Story Test is a good predictor of future language performance.

As mentioned above, Bochane (2006) and Van Dijk (2007) reported a significant difference in test results between the normal population and the clinical population (children with semantic-pragmatic disorder) using the Bus Story Test.

Van Cleuvenbergen & Van den Heuvel (2009) explored the internal validity of the RTNA in four and five year old children. They reported an increase of the mean values on the three parts they examined (Renfrew Information Score, Mean Length of the Five Longest Utterances and Subordinations). These differences were significant ( $p < .05$ ) between the year groups.

The construct validity of the Bus Story Test was not studied yet. As far as is known no other narration tests using story retelling are available to do so.



## **Research questions**

On behalf of the standardization of the RTNA (Jansonius et al., 2007a) Dutch as well as Flemish children were examined. Students in Speech Language Pathology and Audiology educated in the Netherlands (Eindhoven, Utrecht, Rotterdam, Nijmegen and Groningen) and Flanders (Leuven, Bruges and Antwerp) were trained intensively by two experienced trainers (50 hours for each year group of four students) in order to collect all language material and all data of analysis in the most uniform way. These databases could be used to answer the following question:

Do four year old children without language problems in The Netherlands differ from peers in Flanders in narration elicited with use of the Bus Story Test of the RTNA?

$H_0$  : Four year old children without language problems in The Netherlands do not differ from peers in Flanders in narration elicited with use of the Bus Story Test of the RTNA

$H_1$ : Four year old children without language problems in The Netherlands do differ from peers in Flanders in narration elicited with use of the Bus Story Test of the RTNA

If so, are the differences predominantly present in the field of language content, language form and/or language use?

A description of the variables is given below (see par. Variables).

## **Methods**

### *Research design*

This research was carried out as a non-experimental descriptive design. The results of children in the Dutch group will be compared to the results of children in the Flemish group.

### *Subjects*

Fifty-eight four-year old strictly selected children from Flanders divided neatly with respect to age in months, sex, social economic status were taken as one group and matched with fifty-eight Dutch

children. Within this year group, there was a correct number of children with a mean age of 4;00-4;03, 4;03-4;06, 4;06-4;09 and 4;09-5;00. The children were recruited from different counties and from different schools in cities and villages. Parental permission was obtained for all subjects.

Inclusion criteria for the children were based on the Dutch manual (Jansonius et al., 2007):

The parents of the children were born respectively in Flanders and the Netherlands and all monolingual, Dutch-speaking at home.

None of the parents or brothers and sisters of the children showed speech, language, hearing or learning disabilities. Children of the three different social ranges (high, medium and low) were included.

The child was born between the 37th and 42th week of pregnancy and the birth weight was between 2750 and 4250 gram. The Apgar score five minutes after birth was 8 or higher. The child possessed no congenital abnormality, was not deaf or severe hearing disabled and had no severely visually or physically handicap. In the child no psychiatric abnormalities were concluded by a child psychiatrist and no intellectual disability was present. The child followed a regular primary school. The learning development showed no abnormalities, the child would not repeat his class and had not repeated any yet. No specific extra learning support was given. The child had no speech disorder, no receptive or expressive language problem, no expressive language disorder, no problems in word retrieval, no semantic-pragmatic language disorder, no pragmatic disordered language use, was not cooperating with behaviour problems or disorders in the autistic spectrum. Children had to be understandable, but were allowed to have little problems with articulation, not abnormal for this age.

### *Variables*

The independent variable in this study is the research group to which the children belong to (The Dutch or Flemish group). The dependent variables are the language variables, the results on the Bus Story Test.

- Total Number of Utterances in the narration of the story
- Renfrew Information Score expressed in number of points
- ML5LU rounded off with two decimals
- Number of Subordinated Clauses
- Number Plot Structure Components
- Number of Side Issues
- Percentage of Utterances considered as ‘Signal’ (Plot Structure Components and Side Issues) respectively ‘Noise’ (see below) on the total Amount of Utterances (without unfinished utterances and repetitions)
- Within the ‘Noise’ Utterances
  - The Number of Incomprehensible Utterances
  - The Number of Utterances Made Up by the child fitting in the story
  - The Number of Utterances uttered in the Wrong Episode.
- Within the ‘Signal’ Utterances
  - The Total Amount of Errors belonging to the argument analysis expressed in average number of errors per each utterance
  - Percentage of Semantic-Grammatical Errors (errors specifically described in the manual)
  - Percentage of Semantic-Lexical Errors (errors specifically described in the manual)
  - Percentage of Semantic-Pragmatic Errors (errors specifically described in the manual)

### *Reliability*

Inter-judge and intra-judge reliabilities were calculated on ten percent of the data for all relevant variables, mentioned above.

The inter-judge reliability was high or very high for all the variables (according to Sackett et al., 1991)

The intra-judge variability was high or very high for all the variables with exception of the variable 'Percentage of Substitution of Adverbs', part of the 'Semantical-Lexical Errors', which showed no significant correlation ( $r=.715$ ,  $p= .110$ ). However, in the raw scores no difference exists on this variable between the first and second analysis. In spite of the identical raw scores, the non significant correlation in this variable does not allow us to compare the results on this variable between the Dutch and Flemish children.

### *Measures*

The RTNA was carried out entirely, containing the Word Finding Vocabulary Test, the Action Picture Test and the Bus Story Test.

Besides the RTNA, four tests were assessed in each child, namely the Peabody Picture Vocabulary Test, the subtests 'Zinsbegrip 1' and 'Zinsbegrip 2' of the TAK and the Raven Coloured Progressive Matrices. The purpose of these tests is to check if the development of language and IQ follows the standard development. As was said before (see par. Subjects in which all children showed a normal language and IQ development), in the present study, only the results of the Bus Story Test will be analyzed further.

### *Data collection*

The implementation of the RTNA is recorded on video. This video is used to make transcriptions of the test. The results of the Bus Story Test are transcribed literally, with help of the RTNA manual. All the utterances of the child are transcribed in T-units (Hunt, 1970) including utterances that are an extension of the theme, a repetition, a non-fluency or nonsense utterances. The order of utterances in which the child tells the story was followed. At the beginning of the process of segmentation of utterances in T-units, transcription and analysis a 50 hours during training course was followed in order to analyse in an uniform way.

### *Statistical Analysis*

The normal distribution of each variable was checked by calculating the mean, standard deviation, the skewness and kurtosis.

A two tailed paired samples t-test was carried out between the two research groups (Dutch and Flemish children) on each of the variables described before.

The Pearson correlation coefficient was calculated to determine the correlation between the Number of Plot Components and the Number of Side Issues.

### *Power*

An a priori power analysis was conducted on behalf of this study to verify if the power of our study would be strong enough to accept the rejection of the  $H_0$  (that there are no differences in narration between the Flemish and Dutch group) with our maximal amount of 58 subjects in each group. This calculation was based on the results of Hollanders (2003) and Van Dorst (2004) and carried out with help of a specialist in statistics.

An acceptable power (at least .80) can be reached with our 60 subjects in case we find a difference of mean (D) that is at least 2.5 with  $n=60$ ,  $\sigma = 4.2$  and  $\alpha=.05$  (two-tailed). In that case  $D=2.5$  results in a power of .899,  $D=3$  results in a power of .973. In this cases the liability that the  $H_0$  will be wrongly rejected is low, so there will be a high probability the alternative hypothesis  $H_1$  (that there is a difference in narration between the Flemish and Dutch group) is correct.

Although this power was calculated the question remains if this it is possible to calculate a power for the 'Bus Story Test', part of the RTNA. As mentioned above the 'Bus Story Test' uses retelling to evaluate narration while the Narration Task of the TAK and some other tests (e.g. the Frog Story Test) are story generating tests. As mentioned above, no other tests using retelling in order to evaluate narration are available up to now.

## Results

The results of the Dutch and Flemish groups were compared on 22 variables, described below in 7 paragraphs. In case of a normal distribution, the paired t-test is used. Some of the variables had no normal distribution. For handling these variables a non-parametric test are used (Wilcoxon Signed Ranks Test).

### *Total number of utterances*

Table 1 delivers the Total Amount of Utterances used by the child. There is no significant difference on the total amount of utterances between the two research groups. ( $t= 1.253$ ,  $p= .215$ ). Both groups use more or less the same number of utterances to retell the bus story.

[insert table 1]

### *Renfrew Information Score*

Table 2 reports the mean of the Renfrew Information Score (RIS). The paired T test shows no differences between the mean score in both groups of children ( $t= 1.114$ ,  $p= .270$ ). So, Dutch children use a comparable quality of information transfer, measured by specific content words and word groups in retelling the story as compared with the Flemish group.

[insert table 2]

### *Mean Length of Utterances the Five Longest Utterances.*

Table 3 reports the Mean Length of the Five Longest Utterances (ML5LU). The Dutch ML5LU-scores do not result in a normal distribution. Therefore, the Wilcoxon Signed Ranks Test was carried out. This test shows no differences between the mean ML5LU in both groups. ( $Z=-1.116$ ,  $p= .265$ ). The children in both groups use sentences of comparable length to retell the story.

[insert table 3]

### *Subordination*

Table 4 reports the Total Amount of Subordinations. The scores of both research groups are not normally distributed. So the Wilcoxon Signed Ranks Test was used for this variable. No difference was shown between subordinations in both groups using this test. ( $Z = -0.668$ , sig: 0.504)

[insert table 4]

### *Plot structure components and matters of secondary importance*

The Plot Structure Components and the matters of secondary importance (Side Issues) are seen as the 'signal' utterances in the story. A moderate correlation between both is seen in the Flemish group ( $r = 0.546$ ,  $p = .000$ ). In the Dutch group the correlation is low ( $r = 0.366$ ,  $p = .005$ ). Flemish children seem to tell the story in a more cohesive way.

Table 5 reports means and standard deviations of the Number of Plot Structure Components and Side Issues, told by the children in each group. There were no group differences found on the variable Number of Plot Structure Components ( $t = -0.555$ ,  $p = .581$ ). The number of side issues was not normally distributed. The Wilcoxon Signed Ranks Test was used. Also with respect to this variable no significant difference was seen between the two groups. ( $Z = -0.231$ ,  $p = .818$ )

[insert table 5]

The percentage of Plot Structure Components told by both Dutch and Flemish children is higher than the percentage matters of secondary importance (in the Flemish group  $t = 2.643$ ,  $p = .011$ , in the Dutch group:  $t = 2.648$ ,  $p = .010$ ). This is shown in table 6.

[insert table 6]

In both groups the percentage of 'Signal Utterances' (Plot Structure Components and Side Issues) was calculated, based on the Total Amount of Utterances (minus Repeated Sentences and Unfinished

Utterances). The means and standard deviations of these percentages in both groups are given in table 7. The Dutch variables were not normally distributed, so the Wilcoxon test was used. This test shows no group differences concerning these two variables ( $Z=-1.800$ ,  $p=.072$ ).

[insert table 7].

#### *'Noise' Utterances*

Table 8 shows the 'Noise' Utterances, counted in relation to the total number of utterances. None of these variables is distributed normally, so the Wilcoxon Signed Ranks test was used. This test shows a significant difference on the variables 'utterances made up by the child' and 'utterances placed in the wrong episode'. Flemish children use more 'made up' utterances than Dutch children do. Dutch children use more often utterances placed in the wrong episode, which violates the cohesion in telling the story more than Flemish children do.

[insert table 8]

#### *Argument Structure Errors*

In first place the overall argument errors were calculated in relation to the 'Signal' utterances, expressed in Amount of Argument Errors per Utterance (see table 9). The paired T-test shows no differences between both groups of children ( $t=-1.321$ ,  $p=.192$ ).

[insert table 9]

A percentage of semantic-grammatical, semantic-lexical and semantic-pragmatic errors has been calculated (see table 10). The three variables show a normal distribution in both groups.

No significant differences are established on the variables Percentage Semantic-Grammatical Errors ( $t=-1.397$ ,  $p=.168$ ) and Percentage Semantic-Pragmatic Errors ( $t=-0.423$ ,  $p=0.674$ ).



Only a significant group difference has been found in the percentage Semantic-Lexical Errors ( $t=2.013$ ,  $p=.049$ ). Therefore, this variable will be explored further by looking at the different sub-variables within the domain of Semantic-Lexical Errors.

[insert table 10]

The variables 'Substitution of Verbs', 'General All Purpose verbs (GAP-Verbs)', 'Substitution of Nouns', 'Substitution of Prepositions', 'Substitution of Adverbs' and 'Other Errors, such as substitutions of conjuncts' have been looked at one by one. None of the variables was distributed normally. So the Wilcoxon Signed Ranks Test has been used. Within this category it turned out that only differences existed in the subcategory of lexical verbs. Not the Substitutions of Lexical Verbs itself showed a significant difference, but the amount of GAP-verbs (General All Purpose Verbs) did (see table 11). The variable 'Other Errors' also resulted in a significant difference, however, because of the high amount of different variables, it is not recommended to elucidate conclusions on that variable.

[insert table 11]

## **Conclusion and Discussion**

Based on 116 transcripts of neatly selected and thoroughly examined Flemish (58) and Dutch (58) children, matched with respect of age in months, sex, socio-economic status of the parents and address (living in a city of village) the following results were found.

The  $H_0$ , the hypothesis posing that Dutch and Flemish children did *not* differ in language ability, had to be rejected. Flemish children did differ from Dutch ones. Predominantly, they differ only in two variables belonging to the subdivision of 'Noise' within the story (Number of utterances made up by the child and Number of utterances put within the wrong episode). The Flemish children significantly possess more made up utterances, while Dutch children show more often utterances within the wrong episode. Both groups also differed in Percentage of Semantic-Lexical Errors, a category

containing the substitutions of all content words, i.e. Nouns, Verbs and Adjectives, part of the Argument Structure Analysis. Then Dutch children showed far more often the use of GAP-verbs instead of more specific lexical verbs. So, the children differed only in 3 out of 22 variables .

When children use more often made up utterances, the impression is given that they utter more utterances in telling the story. This was not true. Flemish children were as talkative as Dutch children were, although the first ones spoke a little bit more, looking at the standard deviation and the range of the Total Number of Utterances (see Table 1). When Flemish children tell a story, they are more cohesive (looking at the correlation between Plot Structure Components and Side Issues). Also in their use of more utterances made up by the child ( $p \leq .001$ ) the cohesion in story telling is not violated. These utterances are permitted within a story. Often, the use of these utterances represent a vivid way of telling towards the listener. Dutch children gave quite another picture. The correlation between Plot Structure Components and Side Issues was weak and the children showed far more often that their utterances did not fit into the right episode ( $p \leq .05$ ). Flemish children showed more capacity to tune in to the listener in order to give him more cohesive and relevant information than Dutch children did.

These two variables (sharing more ideas around a topic with others (within the made up utterances) and the violation of the requirement to speak in a logical and coherent way towards the listener (the utterances placed incorrectly in another episode) can be considered as important ingredients of communication. Although communication in general includes not only language use, but also language content (semantics) and language form (grammar), the results do not give the impression that primarily the differences in language content and grammar are causing these differences in language use.

Concerning some other pragmatic variables, present in this study (such as the knowledge how to structure a story in terms of Plot Structure Components and Side Issues, the backbone of each story)

no group differences could be found. Flemish and Dutch children knew equally well how to built up a story with help of the right protagonists, actions, situations etc., expressed with the right content words and with the right word groups (as expressed in the Renfrew Information Score) and they did so in an equally score concerning grammatical aspects (Total Number of Utterances, Mean Length of the Five Longest Utterances and same Amount of Subordinations).

Also in the field of other semantic-pragmatic aspects (implicit referents, ambiguity within an utterance) no group differences were found. The first aspect however (the implicit referent) is closely connected with the sufficient use of nouns instead of pronouns. Herewith, the listener receives directly the right information by most of the time semantically clearly imaginative concepts.

In spite of all these positive aspects both groups of children possess (i.e. no semantic differences in the field of Renfrew's Information Score, right selection of content words in the case of plot structure variables and side issues, sufficiently expressed nouns in the pragmatic setting of reference) deep water feelings are felt when –not expected- significant group differences are found in the field of communication as well as semantic-lexical aspects.

It was necessary to look more specific to the variables in this domain in order to find theoretically plausible explanations for the group difference. Although Flemish and Dutch children use other word forms for the same semantic concept (for example *kopje* (Dutch) = *tas* (Flemish); *laarzen* (Dutch) = *bottines* (Flemish)) these differences did not play a role in story telling. Both groups did not differ in Renfrew Information Score. Group differences were predominantly found in the field of the use of GAP-verbs (i.e. General All Purpose Verbs, such as to do, to go, to be, to have instead of a semantically more specific lexical verb). An example is the sentence in the Bus Story that 'the bus driver had to repair his bus first'. Many children tell us that 'the bus driver had to make his bus first'. Dutch children significantly uttered more often General All Purpose Verbs ( $p \leq .000$ ) than Flemish children did.

How come? Supplies the Flemish language learning environment (parents and the education in the elementary schools) these children more specific content words than is offered in normal Dutch language learning environments? Such differences are not present looking at the reference scores of the tests for Language Reception, namely the Peabody Picture Vocabulary Test, the Sentence Comprehension Test 1 and 2 of the TAK.

Another explanation can be offered. Four year old children are considered as young language learners showing a language ability which is specific for the linguistic developmental stage of differentiation (Schaerlaekens, 2008). At that moment, language development is seen in many linguistic domains and for example 51% of the variance in mean length of utterances is accounted for by the total number of different words in the language sample (Dethorne et al., 2005). Lexical and grammatical development can be seen as triggered by an underlying cognitive system (Bates & Goodman, 2001). There are strong intermingled relations between the language learning mechanisms of semantics and those of syntax. So, looking at the means of percentages of errors in the semantic-grammatical domain in relation to those in the semantic-lexical one, the number of percentages found in both domains cross. Where the Flemish children show a mean of 38.83% and the Dutch 42.51% in the semantic-grammatical domain (i.e. the domain of deletions of grammatical classes such as Subject, Verb, (Indirect) Object, Adverbial Phrases), the Dutch group shows a comparable amount of 37.82% and the Flemish one 41.77% in the field of semantic lexical errors. It looks like the weights on a pair of scales. Where one group shows more problems in the grammatical domain, the other one shows it in the field of semantic-lexical problems. It is necessary to look to the grammatical errors in both groups in more detail. Therewith, our findings of more semantic lexical errors in the Dutch group has momentarily to be weakened.

At the start of this study, the results of Hollanders (2003) and Van Dorst (2004) were discussed. These authors described independently of each other differences in narration between Flemish and Dutch children based on the Narration Task of the TAK, however without any help of statistics. They

suggest that the language itself is the source of these differences. In our research, with use of another kind of narration task, also differences were found, but predominantly in the communicative and pragmatic way of story telling, namely the transfer towards the listener. So, to conclude, in future research, besides aspects of Northern and Southern Dutch, also those of communication style in child rearing practices and the quality of educational semantic input have to be looked at in more detail.

### **Summary and conclusion**

The current study describes the difference in narration between Flemish and Dutch four year old children (matched on age, sex and social economic status) using the Bus Story Test, part of the RTNA (Jansonius et al., 2007a, 2007b). We agreed with Hollander (2003) and Van Dorst (2004) that Flemish children tell stories in a different way as compared to Dutch ones. In our study this finding was statistical proven.

Differences were found on two variables concerning the pragmatics of story telling. Flemish children use more 'made up' utterances that fit within the story. Dutch children showed more often utterances that did not fit into the right episode. They disrupt the logical and coherent unity of the story more easily.

Another difference was seen in the field of the semantic-lexical aspects of story retelling. The differences were predominantly found in the use of GAP-verbs. Dutch children produced these multifunctional verbs more often, while Flemish children gave their lexical verbs more specificity. However, if we look into the data in more detail, in both groups of children the percentages of semantic-lexical aspects cross with those of semantic-grammatical ones. In the literature the influence of semantics on grammar is acknowledged. This weakens at this moment the results of our findings in the semantic-lexical domain. More research has to be undertaken first in the field of grammatical errors, which could not be done yet.

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**Table 1: Total Number of Utterances (TNU) in Flemish and Dutch children**

	<b>Mean</b>	<b>N</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>Range</b>
<b>TNU Flemish group.</b>	18.72	58	5.167	5	31	26
<b>TNU Dutch group</b>	17.78	58	4.779	8	28	20

*Note:* TNU, Total Number of Utterances; N, number of subjects, Std.Dev., Standard Deviation;

Min, Minimum score; Max, Maximum score

**Table 2: Renfrew Information Score (RIS) in Flemish and Dutch children**

	<b>Mean</b>	<b>N</b>	<b>Std. Dev.</b>
<b>RIS Flemish group</b>	12.71	58	5.106
<b>RIS Dutch group</b>	11.78	58	4.180

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 3: Mean Length of the Five Longest Utterances  
(ML5LU) in Flemish and Dutch children**

	<b>Mean</b>	<b>N</b>	<b>Std. Deviation</b>
<b>ML5LU Flemish</b>	8.141	58	1.6048
<b>ML5LU Dutch</b>	7.900	58	1.2728

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 4: Number of Subordinations (NSO) in Flemish and Dutch children**

	<b>Mean</b>	<b>N</b>	<b>Std. Dev.</b>
<b>NSO Flemish Group</b>	1.48	58	1.5364
<b>NSO Dutch Group</b>	1.28	58	1.3740

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 5: Number of Plot Structure Components (PSC) and Side Issues (SI)  
in the Flemish and Dutch children**

	Number of PSC.			Number of SI		
	Mean	N	Std.Dev.	Mean	N	Std.Dev.
<b>Flemish group</b>	9.05	58	3.556	4.28	58	2.207
<b>Dutch Group</b>	9.36	58	3.302	4.41	58	1.777

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 6: Percentage (%) of Plot Structure Components (PSC) and Side Issues (SI)  
in Flemish and Dutch children**

	% PSC.			% SI		
	Mean	N	Std.Dev.	Mean	N	Std.Dev.
<b>Flemish group</b>	37.7148	58	14.81650	32.4650	58	16.74824
<b>Dutch Group</b>	39.0083	58	13.75660	33.5264	58	13.42364

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 7: Percentage (%) of 'Signal Utterances' (SU) in relation to the Total Number of Utterances (TNU) in the Flemish and Dutch children**

	<b>Mean</b>	<b>N</b>	<b>Std. Dev.</b>	<b>Min.</b>	<b>Max.</b>	<b>Range</b>
<b>% SU/TNU Flemish group</b>	72.8380	58	22.77069	10.53	110.00	99.47
<b>% SU/TNU Dutch group</b>	78.5911	58	17.36576	23.53	107.14	83.61

*Note:* N, Number of subjects; Std.Dev, Standard Deviation; Min, minimal score, Max, maximal score; Signal Utterances are the sum of Plot Structure Components and Side Issues.



**Table 8: Number of Incomprehensible Utterances, Utterances Made Up by the child and Utterances uttered in the Wrong Episode in Flemish and Dutch children**

	Flemish Group			Dutch Group			Wilcoxon	Sig.
	Mean	N	Std.Dev	Mean	N	Std.Dev	SRT (Z)	(p.)
<b>Incomprehensible</b>	0.62	58	1.006	1.09	58	1.848	-1.269	.205
<b>Made up</b>	5.33	58	4.161	2.91	58	2.459	-3.926	.000**
<b>Wrong Episode</b>	0.33	58	0.803	0.60	58	0.954	-2.056	.040*

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 9: Number of Argument Errors per Utterance (AAEU)**  
*in Flemish and Dutch children*

	<b>Mean</b>	<b>N</b>	<b>Std. Dev.</b>
<b>AAEU Flemish group</b>	1.6447	58	0.47432
<b>AAEU Dutch group</b>	1.7492	58	0.37927

*Note:* N, Number of subjects; Std.Dev, Standard Deviation

**Table 10: Percentage (%) Semantic-Grammatical, Semantic-Lexical and Semantic-Pragmatic Errors in Flemish and Dutch children**

	% Sem-Gram			% Sem-Lex			% Sem-Prag		
	Mean	N	Std.Dev.	Mean	N	Std.Dev	Mean	N	Std.Dev
<b>Flemish group</b>	38.83	58	11.406	41.77	58	10.591	18.79	58	11.163
<b>Dutch group</b>	42.51	58	14.467	37.82	58	11.581	19.74	58	11.130

Note: N, Number of subjects; Std.Dev, Standard Deviation

**Table 11: Semantic-Lexical Errors divided in subcategories.**

	Flemish Group			Dutch Group			Wilcoxon SRT (Z)	Sig. (p.)
	Mean(%)	N	Std.Dev	Mean(%)	N	Std.Dev.		
<b>Sub Verbs</b>	47.08	58	20.13767	43.20	58	22.4152	-1.290	.197
<b>Sub Preposition</b>	7.72	58	9.60151	7.97	58	7.86389	-0.085	.933
<b>Sub Nouns</b>	14.98	58	17.73717	14.16	58	12.16879	-0.501	.616
<b>Sub Adverbs</b>	7.80	58	11.38727	5.66	58	7.83355	-0.827	.408
<b>GAP-Verbs</b>	7.64	58	10.43725	22.08	58	22.28895	-4.311	.000**
<b>Other Errors</b>	14.68	58	10.43546	6.71	58	8.76404	-4.033	.000**

*Note:* Sub, Substitution; N, Number of subjects; Std.Dev, Standard Deviation; Wilcoxon SRT, Wilcoxon Signed Ranks Test (expressed in Z-value); Sig., Significance (expressed in p-value)