Growing up with Frisian and Dutch: The role of language input in the early development of Frisian and Dutch among preschool children in Friesland

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7 Results of the morphosyntactic measure

This chapter presents the results of the morphosyntactical measure. First, the subgroup of participants used in this study is briefly described in the introduction (§ 7.1). Next, the results of the analyses of mean length of utterance in words (MLUw) in both languages (§ 7.2) are given, followed by a correlation study in which the relation between the MLUw scores and NDW and the scores on the receptive and productive vocabulary tests are examined (§ 7.3). Finally, the results are discussed (§ 7.4).

7.1 Introduction

MLUw (see § 3.5.5) was generated from a subgroup of 20 participants from the main vocabulary study (see § 3.4.2 for a description of these participants’ characteristics). The analyses do not have missing data, because only those children were selected who had three samples in Frisian and three samples in Dutch that lasted over eleven minutes so each sample would generate 100 child utterances (see § 3.4.1). The data were analysed using repeated measures ANOVA techniques (see § 3.5.6).

7.2 Mean length of utterance (MLUw)

This section will first present the results for Frisian MLUw (§ 7.2.1) and then for Dutch MLUw (§ 7.2.2). Before these results are given, the samples of both home language groups were first compared with each other in order to avoid the possibility of attributing differences between both home language groups to the fact that one group used shorter utterances than the other, due to feelings of anxiety when they were confronted with an interlocutor who spoke their L2. A repeated measures ANOVA analysis with home language as

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11 The results in this chapter were also used in a paper that has been submitted for publication as: Dijkstra, J., Kuiken, F., Jorna, R. J., & Klinkenberg, E. L. (submitted). The role of language input in the early development of a bilingual morphosyntax and its relation to lexical measures: minority and majority language.
independent variable was performed on data including all words in the child utterances, i.e. all Frisian specific words, all cognates and all Dutch specific words, for both the Frisian and the Dutch sessions. No significant differences were found in MLUw between the two home language groups in the three Frisian sessions \( F(1,18)=0.29, p>.05, \eta^2_{\text{partial}}=.02 \), or in the three Dutch sessions \( F(1,18)=1.63, p>.05, \eta^2_{\text{partial}}=.08 \). This means that participants in both home language groups used equally long utterances in the samples. Differences in either the Frisian MLUw scores (Frisian specific words and cognates) or the Dutch MLUw scores (Dutch specific words and cognates) (see § 3.5.5) cannot be caused by the fact that the participants from one home language group used shorter utterances compared to the participants from the other group, for example because they did not feel at ease when their interlocutor spoke their L2.

### 7.2.1 Frisian MLUw

The Frisian MLUw scores were based on the Frisian specific words and the cognates in the utterances of the participants (see § 3.5.5). Figure 7.1 presents the observed means of Frisian MLUw in all three rounds for both home language groups. It seems clear that the HL-Frisian participants outperformed the HL-Dutch participants. Moreover, the gap between both groups increased over time.

![Frisian MLUw](image)

**Figure 7.1:** Frisian MLUw: observed mean scores (standard deviations) for HL-Frisian participants \((N=10)\) and HL-Dutch participants \((N=10)\) over the three measurement points.
A two-way repeated measures ANOVA with home language and outside home exposure as independent variables revealed that there was an effect of time (F(1,22)=5.45, p<.05, η² partial =.25). Contrasts revealed that growth in Frisian MLUw was only significant in the interval between rounds 1 and 2 (F(1,16)=4.72, p<.05, η² partial =.23). The participants’ Frisian MLUw did not grow significantly between rounds 2 and 3 (F(1,16)=2.98, p>.05, η² partial =.16). This means that the MLUw scores differed substantially only between rounds 1 and 2. Further, an interaction effect was found between home language and time (F(1,22)=5.42, p<.05, η² partial =.25). Contrasts revealed that this interaction effect was significant in the interval between rounds 1 and 2 (F(1,16)=5.12, p<.05, η² partial =.24), whereas it was not between rounds 2 and 3 (F(1,16)=2.39, p>.05, η² partial =.13). Thus, the gap between both home language groups grew larger only during the interval between rounds 1 and 2. There was a between-subject effect of home language (F(1,16)=16.60, p<.01, η² partial =.51). Outside home exposure did not give a substantial effect (F(1,16)=0.00, p>.05, η² partial =.00).

These results suggest that there was an effect of time, especially between rounds 1 and 2. During this interval the scores of all participants showed significant growth over time. Home language was an important factor. The HL-Frisian participants showed substantially higher scores in Frisian MLUw than their HL-Dutch peers. Outside home exposure did not influence the scores substantially. The interaction effect between home language and time observed in the first test interval suggests that the HL-Frisian participants showed faster growth in MLUw scores than the HL-Dutch participants over this period.

### 7.2.2 Dutch MLUw

The Dutch MLUw scores were based on the Dutch specific words and the cognates in the utterances of the participants (see § 3.5.5). Figure 7.2 displays the observed means of Dutch MLUw in all three rounds for both home language groups. In contrast to the MLUw scores in Frisian (see Figure 7.1), there is only a small difference in performance between both home language groups. Overall, the HL-Dutch participants had slightly higher Dutch MLUw scores. The growth in MLUw scores seems faster between rounds 2 and 3, compared to the first test interval.
A two-way repeated measures ANOVA with home language and outside home exposure as independent variables indicated that there was an effect of time ($F(1,23)=7.28$, $p<.01$, $\eta^2_{\text{partial}}=.31$). Contrasts revealed that growth of Dutch MLUw was only significant between rounds 2 and 3 ($F(1,16)=7.81$, $p<.05$, $\eta^2_{\text{partial}}=.33$), and not between rounds 1 and 2 ($F(1,16)=1.36$, $p>.05$, $\eta^2_{\text{partial}}=.08$). Regarding between-subject effects, the analysis revealed that neither home language ($F(1,16)=.10$, $p>.05$, $\eta^2_{\text{partial}}=.01$), nor outside home exposure ($F(1,16)=.05$, $p>.05$, $\eta^2_{\text{partial}}=.00$) were significant factors. More specifically, as their F-value showed, both factors had almost no effect. No interaction effects were found either.

For Dutch MLUw only an effect of time was found. This effect was most evident between rounds 2 and 3. Neither home language nor outside home exposure from caregivers other than the parents turned out to be important factors in Dutch MLUw.
7.3 Correlations between MLUw and lexical measures

This section presents the analysis relevant to the third research question, namely the relation between the development of morphosyntax and vocabulary (see § 2.7). The correlations of the participants’ MLUw scores with NDW and their performance on the receptive and productive vocabulary tests in the same language were calculated. The results for Frisian are displayed in Table 7.1.

<table>
<thead>
<tr>
<th>Frisian</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLUw vs. receptive vocabulary</td>
<td>$r = .65^{**}$</td>
<td>$r = .26$</td>
<td>$r = .12$</td>
</tr>
<tr>
<td>MLUw vs. productive vocabulary</td>
<td>$r = .70^{**}$</td>
<td>$r = .84^{**}$</td>
<td>$r = .77^{**}$</td>
</tr>
<tr>
<td>MLUw vs. NDW</td>
<td>$r = .89^{**}$</td>
<td>$r = .89^{**}$</td>
<td>$r = .92^{**}$</td>
</tr>
</tbody>
</table>

Table 7.1: Pearson correlations between Frisian MLUw scores and the Frisian lexical measures (N=20).

\* $p < .05$, \** $p < .01$ (1-tailed)

As Table 7.1 shows, the expressive measures, MLUw and productive vocabulary, were strongly positively correlated. The same was true for MLUw and NDW. This means that participants who had high MLUw scores in Frisian also had high NDW scores and high scores on the productive vocabulary test in Frisian, and vice versa. The strong correlation of MLUw with productive vocabulary and NDW can be explained by the strong correlation between NDW and productive vocabulary (see § 6.5). Over time, the correlation coefficient generally remained stable, especially between MLUw and NDW. The relation between Frisian MLUw and receptive vocabulary was less obvious. Only in round 1 did these two measures correlate. Overall, it seemed that the correlation between MLUw and the productive lexical measures, i.e. productive vocabulary and NDW, was much stronger than between MLUw and the receptive vocabulary scores.

<table>
<thead>
<tr>
<th>Dutch</th>
<th>Round 1</th>
<th>Round 2</th>
<th>Round 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>MLUw vs. receptive vocabulary</td>
<td>$r = .60^{**}$</td>
<td>$r = .39^{*}$</td>
<td>$r = .23$</td>
</tr>
<tr>
<td>MLUw vs. productive vocabulary</td>
<td>$r = .82^{**}$</td>
<td>$r = .61^{**}$</td>
<td>$r = .48^{*}$</td>
</tr>
<tr>
<td>MLUw vs. NDW</td>
<td>$r = .85^{**}$</td>
<td>$r = .70^{**}$</td>
<td>$r = .72^{**}$</td>
</tr>
</tbody>
</table>

Table 7.2: Pearson correlations between Dutch MLUw scores and the Dutch lexical measures (N=20).

\* $p < .05$, \** $p < .01$ (1-tailed)
Table 7.2 presents the correlation of the participants’ MLUw scores with NDW and their performance on the Dutch receptive and productive vocabulary test. As for Frisian it also holds for Dutch that participants who had high scores in MLUw also had high scores in productive vocabulary and NDW. Again, this can be explained by the strong correlation between NDW and productive vocabulary (see § 6.5). Over time, it appears that the correlation between high MLUw scores and high productive vocabulary scores became less pronounced, since the coefficient decreased substantially in size in round 3. This decreasing trend was not found between MLUw and NDW. The correlation between MLUw and NDW remained high in all three test rounds. This might be explained from the fact that both measures were derived from the same sample. Nonetheless, the correlations concerning Dutch MLUw are comparable with the results found for Frisian. Together, they confirm the relation between morphosyntax and productive vocabulary.

In comparison with the high correlation between the expressive measures, a less strong relation was found between MLUw and receptive vocabulary. In Dutch, a strong relation was found but only in round 1. This relation decreased in size to a moderate relation in round 2 and no significant relation in round 3. This is similar to the correlations found between MLUw and receptive vocabulary in the Frisian measures.

No cross-linguistic correlations were found between Dutch MLUw and Frisian vocabulary or between Frisian MLUw and Dutch vocabulary in the three rounds, except for one negative correlation between Frisian MLUw and Dutch NDW in round 3 (r = -0.45, p < 0.05).

### 7.4 Discussion

The current study investigated the role of home language and outside home exposure in mean length of utterance in words (MLUw) in both Frisian and Dutch and the relation of MLUw to lexical measures within and across both languages. During three successive rounds, vocabulary scores and recordings in both languages were collected from 20 participants, matched in home language, non-verbal intelligence and gender. Per participant six language samples (three in Frisian and three in Dutch) of 100 child utterances each were transcribed and analysed (see § 3.5.5).
For the Frisian MLUw, only home language was an essential factor, whereas outside home language input was not. For the Dutch MLUw, neither the language spoken at home nor the language exposure from caregivers other than the parents were significant factors. The results also show that home language is a more important factor than outside home exposure.

The HL-Frisian participants had substantially higher MLUw scores in Frisian compared to their HL-Dutch peers. These differences were not caused by the fact that the HL-Dutch participants spoke in shorter utterances when talking to a Frisian-speaking interlocutor, since the participants in both home language groups used equally long utterances in the samples. In contrast to the results for Frisian, the HL-Frisian and HL-Dutch participants did not differ substantially in their Dutch MLUw scores. In other words, the participants performed similarly in Dutch, irrespective of their home language.

Outside home exposure was not a relevant factor for Frisian MLUw nor Dutch MLUw. The fact that outside home exposure was not an essential factor might be due to the small number of participants in this study. The unbalanced design for language input outside the home might also have played a role here, since the OH-same participants outnumbered the OH-other participants (see § 3.4.3). The OH-other participants all had Frisian as their home language, except for one HL-Dutch participant. Therefore, the HL-Frisian participants had far more L2-exposure than the HL-Dutch participants. Furthermore, the current study based the outside home exposure merely on the exposure from caregivers other than the parents (see § 3.2 for the quantification of this variable). Outside home exposure would possibly have a stronger effect if factors such as peer contacts, reading and media, had also been also included.

Over time, all participants showed a substantial growth in MLUw in both languages. For Frisian this growth was only significant between rounds 1 and 2, while for Dutch a substantial growth was found between rounds 2 and 3. This discrepancy in growth might be caused by a ‘first time’ effect in testing (see also § 6.6). In the first round, the Frisian session preceded the Dutch one, while in the second round the order was reversed, i.e. Dutch before Frisian. So, the Frisian session in round 1 was the first time participants were confronted with this new situation, i.e. outside the playgroup together with a stranger (research assistant) (see § 3.5.1). Although every effort was taken to prevent this, the new experience might have caused some feelings of anxiety. A few weeks later in the Dutch session the participants experienced this new situation for the second time with another stranger (research assistant for Dutch). However, they already knew what to expect and probably
felt more at ease. The Frisian scores in round 1 should therefore be seen as an underestimation of their performance. In a follow-up study it would be preferable to counterbalance participants with respect to the language sessions.

The results of this study lead to the conclusion that the acquisition of Frisian does not impede the acquisition of Dutch. This is true for both the HL-Frisian and the HL-Dutch participants. The HL-Frisian participants acquired both languages, irrespective of their outside home exposure. They outperformed their HL-Dutch peers in Frisian and they did not differ in Dutch from the HL-Dutch participants. In contrast, the HL-Dutch participants had substantially lower MLUw scores in Frisian. These MLUw results were different from the findings from the larger vocabulary study (see § 6.6) where home language is an important factor in Dutch productive vocabulary. The relatively small number of 20 participants and the selection process of participants in the subgroup might explain this discrepancy. According to the first selection criterion, only children with speech samples longer than eleven minutes were selected (see § 3.4.1). Therefore, the subgroup might have consisted of the less anxious, more talkative participants in the main vocabulary study. Perhaps these children were also more advanced in their language development, compared to the children who were not selected. Despite the discrepancy with the main vocabulary study, the outcomes of the current study support the findings of previous studies with school-aged children in the Frisian-Dutch context (van Ruijven, 2006; de Jager et al., 2002a, b, c; Ytsma, 1999, 1995). It is therefore expected that the children will perform similarly in Dutch proficiency regardless of their home language after a few years of primary education. It is further expected that they will continue to show differences in Frisian proficiency. The results of the present study also agree with studies outside the Frisian-Dutch language context, e.g. Gathercole and Thomas (2009) in Wales. Differences in development of the community’s majority language seem to decrease after all participants reach a certain minimum amount of input in that language (e.g. Gathercole & Thomas, 2009; Gathercole & Hoff, 2007; Gathercole, 2002; Oller & Eilers, 2002). However, the point where differences between home language groups diminished seems to be reached slightly earlier in the Frisian-Dutch context compared to the Welsh-English one (see § 2.3). This might be due to the fact that Frisian and Dutch are closely related languages and Welsh and English are not. In other words, the Frisian children might benefit from the overlap in structure and vocabulary in the two languages and therefore show faster progress in Dutch than Welsh children do in English.
An obvious additional factor in explaining why the acquisition of Dutch is more successful in both home language groups than the acquisition of Frisian is the higher status of Dutch. Dutch is present in every area of life which might make children unconsciously prefer to speak Dutch rather than Frisian, the minority and less frequently used language. Moreover, the higher status of Dutch results in a much larger supply of Dutch children’s books and media, e.g. children’s TV programmes, CDs, etc. The difference in performance in L2 between both home language groups might further be explained by the fact that HL-Frisian participants receive far more input in Dutch than HL-Dutch participants in Frisian (see § 3.4.3). For example, parents of HL-Frisian participants tend to read to their children in both languages whereas the HL-Dutch participants are read to in Dutch only in most cases. Additionally, the HL-Frisian participants watch both Frisian and Dutch child television programmes. Furthermore, the HL-Frisian participants use their L2 more, for example during (solo) play. This means that L2-output, i.e. speaking the second language, might also explain why one L2 is acquired more than the other (a.o. Unsworth, 2012; Bohman et al., 2010) (see § 2.4). Another plausible explanation is the lack of need to speak Frisian, since all Frisian-speaking people are able to speak Dutch. It is not always the case that Dutch-speaking people can speak Frisian. In Canada, Paradis and Nicoladis (2007) also found that bilingual preschoolers with English as their home language used mainly English when speaking to a French-speaking adult, while bilingual preschoolers with French as their home language used French with a French-speaking adult and English with an English-speaking adult. Paradis and Nicoladis emphasized the fact that the French-speaking people are always bilingual in Canada, while this is not always the case with the English-speaking population and proposed this might be a reason why the French-speaking participants used L2 more than the English-speaking participants. Given that their Canadian study was of a minority-majority language context, Paradis and Nicoladis’ (2007) explanation might also apply to the Frisian-Dutch context. There is no need for HL-Dutch participants to speak Frisian, since Frisian-speaking adults and most children also speak Dutch.

Investigating the relationship between the measure of MLUw, NDW and the outcomes of the receptive and productive vocabulary tests, MLUw was shown to correlate highly with both productive vocabulary and NDW, and to a lesser degree with receptive vocabulary. These results suggest that also in the Frisian-Dutch bilingual context, morphosyntax and vocabulary seem to influence each other during language development, thus confirming the
findings from previous studies (a.o. Trudeau & Sutton, 2011; Simon-Cereijido & Gutiérrez-Clellen, 2009; Stolt et al., 2009; Conboy & Thal, 2006; Szagun et al., 2006; DeThorne et al., 2005; Devescovi et al., 2005; Marchman et al., 2004; Thordardottir et al., 2002; Ukrainetz & Blomquist, 2002; Rollins et al., 1996) (see § 2.5). Although the slightly higher correlations between MLUw and NDW might seem logical because both measures were derived from the same samples, the relation between MLUw and productive vocabulary was also strong. This can be explained by the strong relation found between NDW and productive vocabulary (see § 6.5). However, because these two lexical measures were gathered in different contexts, i.e. a conversational context versus an experimental context, the relation found here between morphosyntax and vocabulary within each language is a strong finding.

In both Frisian and Dutch, the relation between MLUw and receptive vocabulary was less strong (see § 7.3), as DeThorne et al. (2005) and Ukrainetz and Blomquist (2002) also found. In addition, NDW and productive vocabulary also showed a less strong relation with receptive vocabulary, particularly with respect to Frisian (see § 6.5). An explanation for the weaker correlation between the expressive measures and receptive vocabulary might be that productive abilities demand additional skills other than receptive abilities, e.g. oral motor abilities as DeThorne et al. (2005) also suggested.

In line with Simon-Cereijido and Gutiérrez-Clellen (2009), there were hardly any relations found across languages, i.e. between Frisian morphosyntax and Dutch lexicon, or Dutch morphosyntax and Frisian lexicon. Only in round 3 we found a relation between Frisian MLUw scores and Dutch NDW and that was negative. Since the data did not contain any other cross-linguistic correlations, this might be a coincidence. In general the cross-linguistic results from the current study did not support interdependence of these two language components in the bilingual development of Frisian and Dutch. However, since the subgroup had a small number of participants, further research is necessary to confirm the lack of interdependence between the two languages.