

1. Research Title

Disentangling bilingualism and SLI

2. Summary

Bilingual children with language problems create a challenge for the clinical practice. Delays in the L2 development of these children may be caused by either poor learning of the second language or by a specific language impairment (SLI) that by definition also affects their learning of L1. Diagnostic criteria to disentangle the potential causes are lacking to date. A systematic study of the two factors and their interaction could provide an empirical basis for the development of such criteria.

The language acquisition of bilingual SLI children is not just a clinical issue. This population also forms an ideal testing ground for theoretical issues in linguistic research. Because of their slower rate of acquisition, the SLI population typically provides a more detailed window on stages in language development.

SLI manifests itself differently across languages and cross-linguistic comparisons are needed for a better understanding of SLI. Even within one language SLI children are a heterogeneous group. Bilingual SLI children make valid cross-linguistic comparisons possible by investigating two languages within one and the same subject.

The project focuses on Turkish-Dutch bilingual children. The linguistic focus is on inflection in two domains: the inflectional phrase (IP) and phenomena related to inflection, and the Determiner Phrase (DP). The expected differences between effects of SLI and bilingualism enable us to explore the respective influence of language impairment and the bilingual situation. Clear typological contrasts between L1 (Turkish) and L2 (Dutch) are helpful in teasing apart language-specific and impairment-induced influences. The present project has a natural connection to the NWO 'Variation in Inflection' project (Variflex; 360-70-110); a common data set can be accessed for use in both projects and the focus will be on a similar subject matter.

3. Main applicant

Prof. dr. F.P. Weerman (UvA)

4. Previous Submissions

Not applicable

5. Institutional setting

University of Amsterdam (UvA) / Amsterdam Center of Language and Communication (ACLC)

6. Period of funding

September 2004 – September 2008

7. Composition of the research team

	<i>Name</i>	<i>Affiliation</i>	<i>Discipline code</i>	<i>Promotor(es)</i>	<i>Funding</i>
<i>Main applicant</i>	Prof. Dr. F.P. Weerman	University of Amsterdam	52001		UvA
<i>Co-applicant</i>	Prof. Dr. A.E. Baker	University of Amsterdam	52001		UvA
<i>Postdoctoral researcher (Variflex)</i>	Dr. E. Blom	University of Amsterdam	52001		NWO (360-70-110)
<i>Postdoctoral Researcher</i>	Dr. J. de Jong	University of Amsterdam	52001		NWO (this project)
<i>PhD researcher</i>	To be recruited			Prof. Dr. F.P. Weerman Prof. Dr. A.E. Baker	NWO (this project)
<i>Research assistant for Turkish language data</i>	To be recruited				NWO (this project)

Scientific committee

Prof. Dr. P. Fletcher (SLI; University of Cork)

Prof. Dr. J. Hulstijn (L2 acquisition; UvA)

Prof. Dr. L.B. Leonard (SLI; Purdue University)

Prof. Dr. J. Meisel (Bilingualism, acquisition, morphosyntax; Hamburg University)

Dr. J. Paradis (Bilingualism, SLI; University of Alberta)

Dr. J. Aarssen (Turkish, L2 acquisition; Sardes, Utrecht)

Dr. F. Kuiken (SLI, L2 acquisition; UvA)

Adviser for subject recruitment and clinical matters

Drs. M. Blumenthal (Coordinator Audiological Center Den Haag)

8. Thematic classification

Architecture, context, processing

9. Description of the proposed research

Research topic; Research questions

The aim of this project is two-fold. One goal is to disentangle effects of multilingualism and pathology in the language of Turkish-Dutch children. A second goal is to investigate symptoms of SLI in two different languages, Turkish and Dutch.

The study focuses on the productive language of Turkish-Dutch children with SLI. There are various reasons for exploring acquisition and impairment in Turkish children (rather than in another bilingual group). First, in the Netherlands, Turkish-Dutch bilinguals represent a significant share of the caseload of speech therapists and of the population who attend schools for language-impaired children. Secondly, Turkish is typologically very different from Dutch. The choice for Turkish can make the differences between effects of L2 and SLI visible. Thirdly, the normal language development of both Dutch and Turkish monolinguals has been described in sufficient detail – a prerequisite for research on language pathology.

In order to meet the main research aims the focus is on phenomena that allow for dissociation between effects of bilingualism and SLI. In addition, the phenomena must allow for a fruitful typological comparison. For that reason, two functional domains have been selected: the IP (Inflectional Phrase) and the DP (Determiner Phrase). Within the IP, the productive use of verbal inflectional morphology and verb placement will be studied. Within the DP, the focus will be on productive use of adjectival inflection and of determiners.

Morphology in the IP domain is an affected area of SLI in Dutch: Dutch children with SLI omit finite verbal inflection and overuse bare stems and infinitival main verbs. Turkish and Dutch differ in verb placement: whereas Dutch has verb movement, Turkish has not. Verb placement is not a problem for Dutch children, not even for children with SLI: use of infinitival verbs in finite position is, for instance, unattested. For adults learning Dutch, however, correct verb placement is difficult to acquire; for child L2 learners of Dutch this issue has not yet been settled. Prévost's (2003) study indicates that child L2 resembles L1 acquisition with respect to verb placement. Cornips and Hulk's study (2004), however, suggests that there are differences due to L1 transfer. Determiners and adjectival inflection are also persistent problem loci for Dutch L2 learners (Sabourin, 2003; Weerman et al., 2003). Again, the two languages in this project differ: there are no determiners in Turkish and, unlike in Dutch, attributive adjectives are not inflected.

Typologically, it has been shown that whereas IP is a key symptom area in SLI in Germanic languages, it is less of a problem for children with SLI who learn a morphologically rich language. This has been evidenced for Italian (Leonard et al., 1998) and Hebrew (Rom & Leonard, 1990) and can be predicted for Turkish (see Leonard, 1990:382).

In short, the domains that are investigated offer variables that allow for differential predictions.

The first research question is:

(1) To what extent can bilingualism and SLI be distinguished in the output of Turkish-Dutch children with SLI?

The sub-questions are:

(1a) What are the differences in the output of Turkish-Dutch bilingual children with and without SLI?

This comparison between typical and language-impaired bilinguals can reveal the characteristics that flag impairment - these are exclusive to the SLI group - and the ones that are due to L2 acquisition - common to typical and impaired bilinguals (and different from typical monolinguals).

(1b) What are the differences in the output of Turkish-Dutch bilinguals with SLI and monolingual children with SLI?

Language-impaired bilinguals are not only compared to non-impaired bilinguals, but also to language-impaired monolingual children. Whereas the comparison between typical and impaired bilinguals can isolate the characteristics of SLI, a comparison with monolingual children with SLI can reveal the effect of bilingualism on SLI. The problems of a language-impaired child might be increased by the taxing effect of having to learn a second language (a 'double load').

Project 1 deals with the Dutch output of the population. Project 2 deals with the Turkish output of the same population. A comparison between the two languages is part of the second project. Table 1 lists the groups that figure in these comparisons. Question (1a) should help us identify characteristics of SLI in the Turkish children with SLI who live in the Netherlands. Question (1b) should lead to an evaluation of the extent to which the bilingual situation affects the difficulties of language-impaired children. In the present study data from monolingual children with SLI are used, not collected. The appendix specifies the sources for these data.

	<i>Dutch output</i>	<i>Turkish output</i>
<i>Bilingual SLI</i>	project 1	project 2
<i>Bilingual typical</i>	project 1	project 2
<i>Monolingual SLI</i>	project 1	project 2

Table 1: groups to be compared, distribution of groups over projects 1 and 2

The specific research questions for each of the two projects (the questions that are subordinate to question (1)) will be formulated in the description of the projects.

Once the two data sets (Dutch and Turkish) have been collected, the second main question can be answered:

(2) What are the differences and commonalities between the Turkish and Dutch output of Turkish-Dutch bilingual children with SLI?

This question is a linguistic-typological one. In short, symptoms of SLI represent a combination of impairment and typology. In question (1) we focus on distinctive group characteristics. In question (2) the commonalities and differences between the Turkish and Dutch symptoms of SLI are investigated. This question constitutes a part of project 2. It is important to note that in cross-linguistic research, different languages are investigated in different children. The present project focuses on two languages in the same children. Thus subject variables remain constant. In view of the heterogeneity of SLI groups, this is a significant gain.

In answering the questions above, we will be able to contribute to a number of current issues. One of them is the notion of inflectional defaults. In normal language acquisition (monolingual and bilingual alike) and in SLI, children rely on certain forms that they substitute for other forms. In SLI, prolonged use of default forms is a marker of impairment. This study may bring us closer to the definition of default forms.

The data are relevant for the discussion about the linguistic locus of SLI. Competing theories claim that the root of the grammatical problem may be finiteness or agreement. Given our variables, the data enable us to contribute significantly to that discussion.

A final issue is the extent to which language learning is constrained by a critical period. Since children with SLI show a prolonged period of acquisition for certain linguistic markers, their development may exceed the critical stage – perhaps even more so for the learning of a second language.

Empirical background

To answer the research questions information about many different populations is needed. Not all data need to be collected within the present project. Table 2 gives an overview of the different “data sources”: references to the literature, references to other projects (that are currently undertaken or that will be carried out in the near future) and data to be collected in the present study. Based on current knowledge we can formulate predictions for our research, to be specified in the appendix.

<i>Linguistic variables → Groups ↓</i>	<i>Finiteness</i>	<i>Subj-V-Agreement</i>	<i>Verb placement</i>	<i>(Det)-Adj-N-Agreement</i>
<i>Dutch Monolingual Typical</i>	Wijnen & Verrips, 1998 Blom, 2003	De Haan, 1999 Blom, 2003	Van Kampen, 1997 Zuckerman, 2001	Weerman et al., submitted De Houwer, 1990
<i>Dutch Monolingual SLI</i>	De Jong, 1999 Wexler, Schaeffer & Bol, in press	De Jong, 1999	De Jong, 1999 Wexler, Schaeffer & Bol, in press	Leemans, 1996
<i>Dutch Bilingual Typical</i>	Variflex project UvA	Variflex project UvA	Variflex project UvA	Variflex project UvA
<i>Dutch Bilingual SLI</i>	This study	This study	This study	This study
<i>Turkish Monolingual Typical</i>	Batman-Ratyosyan & Stromswold, 2001 Aksu-Koç & Ketrez, 2003	Batman-Ratyosyan & Stromswold, 2001 Aksu-Koç & Ketrez, 2003	Not applicable	Not applicable
<i>Turkish Monolingual SLI</i>	Contributed by Bogazici University	Contributed by Bogazici University	Contributed by Bogazici University	Contributed by Bogazici University
<i>Turkish Bilingual Typical</i>	This study	This study	This study	This study
<i>Turkish Bilingual SLI</i>	This study	This study	This study	This study

Table 2: Overview of data sources for different groups and variables. Data for the groups in bold are collected within this study (cf. Table 1)

Subject selection

For the research outlined here bilingual SLI children will be newly recruited (normal bilinguals have been selected in the Variflex project). Since SLI is most reliably diagnosed after 5 years of age, subjects from that age and upward will be included. The children with SLI will conform to the usual exclusion criteria. Inclusion criteria will be based on instruments that address the children's native language skills. Turkish assessment tools are available. They include a Turkish version of the SALT analysis (Miller & Chapman, 1996), authored by Funda Acarlar, that will be available for use when this project starts.

The minimal length of the children's stay in the Dutch educational system is two years, which guarantees at least two years of systematic input in Dutch. The bilingual control group is selected from the Turkish-Dutch subjects in the Variflex project.

Scientific impact

Data from two languages, collected from the same individuals, provide an empirical basis for cross-linguistic generalizations. Data gathered in this way contribute considerably to the scientific debate on SLI. Systematic experimental study of inflection in language development and the comparison between different language-acquiring populations will push forward the discussion on properties of inflectional defaults, and the processes underlying default use. In addition, it supplies data that are highly relevant for discussions about the linguistic locus of SLI. Finally, it adds to the debate about a critical period for language acquisition by including a group of children that shows two characteristics that potentially extend the language learning period: bilingualism and SLI.

Goals of Language Acquisition & Multilingualism

In studies on SLI, two opposing viewpoints can be distinguished. According to one view, the output of children with SLI reflects a deficient grammar. This hypothesis requires detailed study of what exactly

are the expressions of the child's grammatical system, the architecture. In the present study this is explored via the typological differences of L1 and L2 and the comparative symptoms found in both languages. Within the other perspective children's processing of language is under review. One observation has been that language impairment is vulnerable to factors that maintain or add to the impairment. In this case, bilingualism is the additional factor that taxes processing. We can also legitimately reverse the issue, in saying that bilingualism is studied within a specific context, that is: with the added factor of SLI.

Innovative power

Although cross-linguistic research on SLI has been carried out before, cross-linguistic research in one and the same group of bilingual children with SLI has seldom been undertaken. There are various studies on inflectional defaults, but in this project verbal inflections in two domains (IP and DP) will be investigated simultaneously. The comparison between verbal and adjectival inflection within one language and between different populations is theoretically (and methodologically) desirable and has not been carried out before.

Practical relevance

The multilingual population of the Netherlands is rapidly growing. Consequently, the number of bilingual SLI children is increasing in such a way that the absence of diagnostic criteria for bilingual children with language problems is becoming a serious problem. As mentioned before, the differential diagnosis between SLI proper and temporary difficulties with the mastering of the second language proves to be problematic. Schools (that have to decide about admission) and speech therapy services (that address the language problems within and without schools) require clear guidelines for diagnostic markers of SLI in bilingual children. The research that is proposed here aims to locate these markers and contrast them with common characteristics of second language acquisition. While the study focuses on one language pair, the rationale and results may provide a guideline for dealing with bilingual SLI children from other language backgrounds.

References

- Aksu-Koç, A. (1994). Development of linguistic forms: Turkish. In R. Berman and Dan I. Slobin (eds.), *Relating events in narrative: A cross-linguistic developmental study*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Aksu-Koç, A. & D.I. Slobin (1985). The acquisition of Turkish. In D.I. Slobin (ed.), *The cross-linguistic study of language acquisition. Volume 1: The data.* Hillsdale, NJ: Lawrence Erlbaum Associates.
- Aksu-Koç, A. & N. Ketz (2003). Early verbal morphology in Turkish: the emergence of inflections. In: D. Bittner, W.U. Dressler & M. Kilani-Schoch (eds.) *Development of verb inflection in first language acquisition: A cross-linguistic perspective*. Studies on language acquisition #21. Berlin: Mouton De Gruyter. 27-52.
- Batman-Ratyosyan, N. & K. Stromswold (2001). Early bare stems in an agglutinative language. *Proceedings of the 25th Annual Boston University Conference on Language Development*, vol. 1, 102-113.
- Blom, E. (2003). *From root infinitive to finite sentence*. Doctoral dissertation. University of Utrecht
- Bol, G. & F. Kuiken (1990). Grammatical analysis of developmental language disorders: a study of the morphosyntax of children with specific language disorders, with hearing impairment and with Down's syndrome. *Clinical Linguistics and Phonetics*, 4, 77-86.
- Clahsen, H. (1989). The grammatical characterisation of developmental dysphasia. *Linguistics*, 27, 897-920.
- Cornips, L. & A. Hulk (2004). The boundaries between child L2 and (2) L1: DO-support in child Dutch. Paper presented at Eurosla 2003, Edinburgh.
- De Houwer, A. (1990). *The acquisition of two languages from birth: a case study*. Cambridge: Cambridge University Press.
- Fletcher, P. (2002). Perspectives on Language development and language impairment. Paper presented at the SRCLD/IASCL. Madison.
- Gürel, A. (2001). First language attrition: the effects of second language. Paper presented at the 26th Annual Boston University Conference on Language Development. Boston
- Haan, A. de (1996). *De verwerving van morfologische finietheid in het Nederlands*. MA thesis. University of Groningen.
- Jong, J. de (1999) *Specific language impairment in Dutch: inflectional morphology and argument structure*. Doctoral dissertation. University of Groningen.
- Kampen, van J. (1997). *First steps in WH-movement*. Doctoral dissertation, University of Utrecht.
- Leemans, G. (1996). The structure of noun phrases in Dutch SLI-children. Paper presented at the Seventh International Congress for the Study of Child Language. Istanbul.
- Leonard, L.B. (1990). The cross-linguistic study of language-impaired children. In : J. Miller (ed.), *Research on child language disorders: A decade of progress*. Austin, TX: Pro-Ed.
- Leonard, L.B. (1998). *Children with specific language impairment*. Cambridge, MA: MIT Press.
- Leonard, L.B., L. Sabbadini, V. Volterra, & J.S. Leonard (1988). Some influences on the grammar of English- and Italian-speaking children with specific language impairment. *Applied Psycholinguistics*, 9, 39-57.
- Leonard, L.B., U. Bortolini, M.C. Caselli, K.K. McGregor & L. Sabbadini (1992). Morphological deficits in children with specific language impairment: the status of features in the underlying grammar. *Language Acquisition*, 2, 151-180.
- Lewis, G. (2000). *Turkish Grammar. Second edition*. Oxford: Oxford University Press.
- Miller, J.F., & R.S. Chapman (1996). *SALT: a computer program for the systematic analysis of language transcripts*. Madison, WI: Language Analysis Lab, Waisman Center.
- Montrul, S. (2002). Incomplete acquisition and attrition of Spanish tense/aspect distinction in adult bilinguals. *Bilingualism: Language and Cognition*, 5, 39-68.
- Paradis, J. & M. Crago (2000). Tense and temporality: Commonalities and differences in French-speaking children with specific language impairment and French second language speakers. *Journal of Speech Language and Hearing Research*, 43, 834-848.
- Paradis, J. & M. Crago (2001). The morphosyntax of Specific Language Impairment in French: Evidence for an Extended Optional Default account? *Language Acquisition*, 9, 269-300.
- Prévost, P. (2003). Truncation and missing inflection in initial child L2 German. *Studies in Second Language Acquisition*, 25, 65-97.
- Rice, M.L., K. Wexler & S. Hershberger (1998). Tense over time: The longitudinal course of tense acquisition in children with specific language impairment. *Journal of Speech and Hearing Research*, 41, 1412-1431.
- Rom, A. & L. Leonard (1990). Interpreting deficits in grammatical morphology in specifically language-impaired children: preliminary evidence from Hebrew. *Clinical Linguistics and Phonetics*, 4, 93-105.
- Sabourin, L. (2003) Grammatical Gender and Second Language Processing: An ERP Study. Doctoral Dissertation, University of Groningen.
- Steenge, J., L. Verhoeven & H. van Balkom (2003). Verb use of bilingual children with and without language impairment. Paper presented at the 4th International Symposium on Bilingualism, Phoenix, AZ.
- Weerman, F., J. Bisschop & L. Punt (submitted). L1 and L2 acquisition of Dutch adjectival flexion. *Second Language Research*.
- Wexler, K., J.C. Schaeffer & G.W. Bol (in press), Verbal syntax and morphology in typically developing Dutch children and children with SLI: How developmental data can play an important role in morphological theory. *Syntax*.
- Wijnen, F. & M. Verris (1998). The acquisition of Dutch syntax. In: S. Gillis & A. de Houwer (Eds.), *The acquisition of Dutch*. Amsterdam: Benjamins.
- Zuckerman, S. (2001). *The acquisition of 'optional' movement*. Doctoral dissertation. University of Groningen.

10. Word count

Main project description: 1975

Project 1: 800

Project 2: 746

11. International collaboration

Collaboration with Turkey

Prof. Dr. Ayhan Aksu-Koç of Bogazici University in Istanbul is an established researcher on the acquisition of Turkish. She will be able to advise us on the intricacies of Turkish language development. Dr. Ayse Gürel of the Department of Linguistics at Bogazici University has just received a grant, together with Dr. Mine Demiralp, to investigate SLI in Turkish children. Their research project will take place in the next two years. The fortunate implication is that, as soon as our data are analysed and interpreted, crucial information is available about the symptoms of SLI in Turkish. We will collaborate closely with these researchers.

The project will also benefit from collaboration with Turkish researchers in a different way: we will be able to select an adequate assessment tool for evaluating the children's Turkish language skills (our *inclusion* criterion). For that purpose, we have contacted Dr. Funda Acarlar of Ankara University, who has prepared a method for diagnostic analysis of Turkish data.

Collaboration with Hamburg

Prof. Dr. M. Rothweiler of Hamburg University is the director of a project on the effects of bilingualism and SLI in Turkish-German bilinguals ("Spezifische Sprachentwicklungsstörung und früher L2-Erwerb: Zur Differenzierung von Abweichungen im Grammatikerwerb"). Her colleague Michael Bernreuter conducts the study. As in our study, the Hamburg project focuses on functional domains like IP and (from 2005) DP. Both studies are complementary since the Hamburg project includes younger children and German differs from Dutch in relevant aspects.

12. Work programme

	<i>Project 1 (PhD)</i>	<i>Project 2 (Post-doc)</i>
<i>Year 1</i>	Research: literature study; design of research tasks, pilot experiments Courses: following of Ph.D. courses (LOT, ACLC)	Literature study; design of research tasks, pilot experiments; recruitment of assistant
<i>Year 2</i>	Research: data collection, beginning of transcription and analysis, writing of article Courses: following of Ph.D. courses (LOT, ACLC) Teaching: observation and teaching of a basic level course in linguistics	Data collection, beginning of transcription and analysis, writing of article
<i>Year 3</i>	Research: completion of data analysis, comparison of data groups and beginning of writing of dissertation Courses: following of Ph.D. courses (LOT, ACLC) Teaching: observation and teaching of a basic level course in linguistics	Completion of data analysis, comparison of data groups; comparison of Turkish and Dutch data, Writing of article
<i>Year 4</i>	Research: writing of dissertation	Writing of articles

13. Planned deliverables and knowledge dissemination

Scientific

The results from project 1 will result in a doctoral dissertation. The results from project 2 and the combined results from projects 1 and 2 will result in a number of articles in peer-refereed journals. Journals are available that focus on various aspects of the research:

- language pathology (e.g. *Journal of Speech, Language and Hearing Research*)
- language acquisition (e.g. *Journal of Child Language, Language Acquisition*)
- bilingualism (e.g. *Journal of Multilingual Communication Disorders, Journal of Bilingualism*)
- theoretical linguistics (e.g. *Linguistics, Lingua*)

Members of the full research group will participate, as co-authors, in these publication efforts. Typological SLI research is evaluated in depth every two years during the meetings of the European Group on Child Language Disorders (EUCLDIS), a research community that comprises linguists and psychologists who represent about 15 language backgrounds. Prof. Dr. Baker and Dr. de Jong are members of this group. Results from the project will be presented at meetings of EUCLDIS. This is a crucial platform for presenting and discussing research results, together with other recurrent scientific meetings that are relevant to the research topic (IASCL, SRCLD). Results from the present project will also provide an important contribution to symposia/workshops organised within the Variflex programme. EUCLDIS can also provide the conditions for an international workshop in which the findings from this study are confronted with SLI data from other languages.

Clinical practice

Subjects will be recruited primarily from special schools for language-impaired children. These schools are associated in the Siméa organisation. Siméa organises an annual conference that is addressed to teachers, speech therapists and other people working with language-impaired children. This conference supplies a natural (and recurring) opportunity to discuss research results with the people who are most directly involved with these children and to 'return the favour' for the schools' willingness to collaborate. There is also a journal for the special schools, *Van horen zeggen*. This is an additional medium by which our progress can be reported. Taken together, both media represent the target group for which the results of the present research are most relevant.

14. Curricula vitae of the applicants and the postdoctoral researcher

Fred Weerman is currently professor of Dutch linguistics at the University of Amsterdam and is (with Prof. Dr. H. Bennis) leader of the NWO program *Variation in Inflection*. Combining theoretical work with work on change and acquisition, his research focuses on the role of inflection in natural languages.

- 1993. Weerman F., The Diachronic Consequences of First and Second Language Acquisition: the Change from OV to VO. *Linguistics*, 31, 903-931.
- 1997. Neeleman A. & Weerman F., L1 and L2 Word Order Acquisition. *Language Acquisition*, 6, 125-170.
- 1999. Neeleman A. and Weerman F., *Flexible Syntax; A Theory of Case and Arguments*, Studies in Natural Language and Linguistic Theory. Dordrecht: Kluwer Academics.

Anne Baker is professor of psycholinguistics, language pathology and sign linguistics at the Universiteit of Amsterdam. As part of her research she has focused on the bilingual acquisition of a sign language and spoken language, as well as on language developmental problems in diverse populations.

- 1997. Baker A.E., Beers M., Bol G., De Jong J., Leemans G. (Eds.) *Child disorders in a cross-linguistic perspective: papers of the Fourth Symposium of the European Group on Child Language*. Amsterdam Series in Child Language Development, No.6 , Publ.No.71 Algemene Taalwetenschap, University of Amsterdam.

- 1999. Scheper A., Baker A.E., Siebelinck B. and Treffers Ph. Missing arguments in conversation of Dutch-speaking children with psychiatric disturbance. In: Beers M et al. (eds) *From Sound to sentence: studies on first language acquisition*. Centre for Language and Cognition, Groningen. Pp. 125-139
- 2002. Van den Bogaerde B. & Baker, A.E. Are young deaf children bilingual? In: G. Morgan & B. Woll (eds.) *Directions in Sign Language Acquisition*, Amsterdam etc.: John Benjamins. Pp. 183-206

CV Postdoctoral researcher

Jan de Jong's primary research interest is SLI. His PhD thesis (1999) concerned symptoms of SLI in Dutch. Presently he participates in a project on the overlap between SLI and dyslexia, at the University of Utrecht. He is also a lecturer at the University of Amsterdam.

- 1999. De Jong J., *Specific language impairment in Dutch: inflectional morphology and argument structure*. Doctoral dissertation, Groningen University
- 2002. De Jong J., Specific language impairment and linguistic theory. In: Y. Levy & J. Schaeffer (Eds.), *Language competence across populations*. Mahwah, NJ: Erlbaum.
- 2003 De Jong J., Grammatical impairment: an overview and a sketch of Dutch. In: L. Verhoeven & H. van Balkom (Eds.), *Classification of developmental language disorders. Theoretical issues and clinical implications*. Mahwah, NJ: Erlbaum.

15. Literature

See 9

16. Summary for non-specialists

De diagnostiek van tweetalige kinderen met een taalstoornis is een hachelijke zaak. Als taalgestoorde kinderen een tweede taal leren, laat hun taalproductie verschijnselen zien die we ook bij andere tweede-taalleerders aantreffen, maar ook verschijnselen die te maken hebben met hun taalstoornis. Deze twee effecten zijn moeilijk te ontwarren. Het is dan ook moeilijk om diagnostische criteria te formuleren voor een taalgestoord kind dat moeilijkheden heeft met het leren van een tweede taal. Zulke criteria zijn hard nodig.

In dit onderzoek proberen we dit probleem op te lossen door het taalprobleem in factoren te ontleden. Het onderzoek gaat over Turkse kinderen die in Nederland opgroeien en bij wie de diagnose *Specific Language Impairment* (SLI; specifieke taalstoornis) is gesteld. We vergelijken hen met kinderen die eveneens Turks als moedertaal hebben, maar die niet taalgestoord zijn. Bij beide groepen onderzoeken we de twee talen die de kinderen leren, Turks en Nederlands. We kijken daarbij naar een aantal taalkundige aspecten waarin de twee talen verschillen of overeenkomen. Zo worden Turkse en Nederlandse werkwoorden vervoegd voor werkwoordstijd en voor de eigenschappen van het onderwerp van de zin. Nederlandse werkwoorden horen thuis op de tweede plek van de zin, Turkse werkwoorden blijven achteraan staan. Het bijvoeglijk naamwoord in het Nederlands heeft onder bepaalde condities een uitgang *-e*, maar zulke woorden worden in het Turks niet verbogen.

Een aantal vergelijkingen wordt gemaakt om de verwarring op te heffen. Zo heeft wat Turkse taalgestoorde kinderen in het Nederlands anders doen dan hun leeftijdgenootjes met hun taalstoornis te maken. Wat ze anders doen dan Nederlandse kinderen heeft ook met de invloed van hun moedertaal te maken. Zo draagt iedere vergelijking bij aan het beantwoorden van de hoofdvraag: hoe we taalstoornissen moeten onderscheiden van voorbijgaande problemen met het leren van een tweede taal. We willen ook weten of de taal een rol speelt in de uitingvorm van de stoornis. We vragen ons daarom ook af of de symptomen van de taalstoornis in beide talen dezelfde zijn of dat het patroon verschillend is voor elk van de twee talen.

17. Research budget

	Fte	Costs in k€
PhD-student (48 months)	1.0	157.5
Postdoctoral		
Researcher (48 months)	0.6	134.4
Assistance Turkish (24 months)	0.5	50.0
Other (equipment, travel, etc.)		58.1
Total		400.0

Appendix

Project 1 (PhD level): Analysis and interpretation of Dutch data elicited from Turkish-Dutch bilinguals

Research questions

The task of the PhD researcher is to examine the Dutch data. Typical acquisition of Dutch as well as the key symptoms of SLI in Dutch are sufficiently covered in the literature. This part of the research project can therefore depart from a well-defined territory. The first research question of the full project can be rephrased here as:

(1) To what extent can bilingualism and SLI be distinguished in the Dutch output of Turkish-Dutch SLI children?

(1a) What are the differences in the Dutch output of bilingual Turkish-Dutch children with and without SLI?

(1b) What are the differences between the Dutch output of bilingual Turkish-Dutch children and the output of monolingual Dutch children with SLI?

The answer to question (1b) can reveal symptoms of SLI that are exclusive to Turkish children with SLI. To exclude characteristics of child L2 acquisition, the answer to question (1b) has to be combined with the answer to (1a). Identification of the symptoms in the Dutch output of bilingual children would enable clinicians to diagnose SLI without having to assess first language skills.

The main question will be researched as follows: (1a) defines the effects of language impairment and (1b) defines the impact of bilingualism on the symptoms of SLI. Question (1b) also includes observations about language-specific influences of Turkish on the Dutch output of the bilingual children with SLI. Ultimately, the answers to these questions also contribute to the issues of default-use and critical period effects.

Questions (1a) and (1b) are asked separately for each of the four linguistic variables: finiteness, verb agreement, verb placement and agreement in the DP. Table 3 gives an overview of what is known about the relevant variables. Based on the literature, predictions can be formulated for each of the variables. Importantly, the table also demonstrates the expected dissociation between domains that we described above: IP is more vulnerable in SLI, DP is more vulnerable in L2.

The information about Dutch monolingual SLI is derived from the literature. Additional data are accessible: the Bol/Kuiken corpus on CHILDES (Bol & Kuiken, 1988); the data collected by de Jong (1999).

Method

Subjects

For this project, 30 bilingual children with SLI will be selected. They must conform to the exclusion criteria for SLI, in that they have normal hearing and intelligence and show no signs of neurological dysfunction. Children who attend schools for language-impaired children have to meet these criteria to be admitted, so they do not require additional assessment for this purpose. Language measures (to determine whether the children answer the inclusion criterion) are based on their first language. The children are matched to typical bilinguals on the basis of chronological age.

Procedure

The children are to be subjected to elicitation tasks. There are two reasons for preferring elicitation tasks that target specific structures, over spontaneous language sampling. Firstly, they are less time-consuming. Secondly, they allow for more focused collection of data, given that the relevant variables can be controlled for.

One viable procedure is the elicitation of sentences by contrasting pictures. A number of examples can be given for the IP domain. When two pictures have different agents and the researcher names the action on the first picture, the child has to explicitly mention the agent on the second

picture. In translation (Dutch word order maintained): *The bear jumps and... (The tiger falls over)*. A minimal contrast between agents allows testing for verb placement: *Here ... (eats the bear) and there ... (eats the tiger)*. Contrasting objects allow for testing verb placement in main and embedded clauses: *This bear ... (eats a cookie) and that bear ... (eats a sandwich) vs. This is the bear that ... (a cookie eats) and that is the bear that ... (a sandwich eats)*. Comparable elicitation tests are available for the DP (Weerman et al., submitted).

A narrative format by which spontaneous data are gathered, but in which the referents are consistently the same is the Frog Story. This is a simple narrative that is often used to elicit samples of language from children. The story has a limited length and the uniformity of the procedure increases comparability.

<i>Variables → Groups ↓</i>	<i>Finiteness</i>	<i>Subj-V-Agreement</i>	<i>Verb placement</i>	<i>(Det)-Adj-N- Agreement</i>
<i>Dutch Monolingual Typical</i>	Fast-developing; infinitival stage	Fast-developing; bare stem as default, error-stage after initial error-free period	Fast-developing; dummy auxiliaries in main clauses	Fast-developing; determiner omission, determiner <i>de</i> as default, schwa- suffix as adjectival default
<i>Dutch Monolingual SLI</i>	Delayed; extended infinitival stage	Delayed; extended use of bare stems; commission errors	Delayed; delay secondary to development of finiteness	Delayed; extended determiner- omission stage; agreement- difficulties
<i>Dutch Bilingual Typical</i>	<i>Fast-developing</i>	<i>Fast-developing</i>	<i>Fast-developing</i> dummy auxiliaries in embedded clauses	Delayed;
<i>Dutch Bilingual SLI</i>	Unclear	<i>Delayed¹</i>	Unclear	<i>Additional delay;</i>

Table 3: Observations from the literature and current research (in bold type) and expected observations (predictions – in italics) for project 1. For references, see Table 2.

¹ Steenge (2003) observed more agreement errors with bilingual SLI children than with bilingual controls. However, her database collapses Moroccan and Turkish children. There are no Dutch control groups.

Project 2 (Post-doctoral level): Analysis and interpretation of Turkish data elicited from Turkish-Dutch bilinguals; Comparison of Turkish and Dutch data

The postdoctoral researcher will examine the Turkish data. He is also responsible for the final comparison between the Dutch and Turkish data sets.

For the elicitation and analysis of the Turkish data he will collaborate closely with an assistant who is a native speaker of Turkish. The data collection will be constrained in a way that facilitates analysis and ensures maximal comparability of Dutch and Turkish data. As a consequence, targeted elicitation is adopted rather than spontaneous language sampling. An important preliminary challenge is to develop elicitation formats that fit both Dutch and Turkish. For example, closure tasks (sentences to be completed, exemplified earlier) crucially depend on the structure of the target language. A clear example is the effect of word order – a variable that distinguishes Turkish from Dutch.

Research questions

The first main question can be rephrased here as follows:

(1) To what extent can bilingualism and SLI be distinguished in the Turkish output of Turkish-Dutch SLI children?

- (1a) What are the differences between the Turkish output of Turkish-Dutch children with and without SLI?
- (1b) What are the differences between the Turkish output of bilingual Turkish children with SLI and the output of monolingual Turkish children with SLI?

As mentioned earlier, question (1b) specifies the influence of the bilingual situation as an (added) processing factor for children with SLI. Answering it, we can add to the discussion about whether bilingualism is a risk factor (either by increasing or by maintaining the impairment) in children with SLI. The answer to question (1a) identifies the ingredients of the SLI children's output that cannot be accounted for by their bilingualism alone. Taken together they answer the main question: (1a) defines the effects of language impairment, (1b) defines the impact of bilingualism on the reflexes of SLI.

Table 4 mirrors Table 3 (project 1); predictions are formulated here for the Turkish data (research question (1)). Table 4 contains more empty cells than Table 3. Whereas the analysis of Dutch data is supported by information about Dutch SLI, the analysis of Turkish SLI data covers new ground. The data on monolingual Turkish SLI (marked 'unclear' here) are derived from the project at Bogazici University (Gürel, Demiralp).

The second main question is also part of this project:

(2) What are the differences and commonalities between the Turkish and Dutch output of Turkish -Dutch bilingual children with SLI?

The answer to this question requires an interpretation of the data and a comparison with the literature on cross-linguistic differences. A direct comparison of *data* from two languages is hazardous, given the typological differences. A common procedure is to make language-internal comparisons between children with SLI and matched controls and then compare the *findings* by interpretation (see Leonard et al., 1992, for an example). The implication is that, to answer this question, not only the data from the project itself are relevant but also data from research on monolingual SLI (i.e. the project at Bogazici University; also: the project reported in de Jong, 1999).

Comparison of the data from Turkish and Dutch serves as a contribution to two issues outlined before. One is the discussion about the definition and the nature of default forms. It has been suggested recently (Paradis & Crago, 2001) that default forms may be language-specific and interact with language type. In studying two typologically different languages we are in a good position to test this hypothesis. Another issue is the nature of the grammatical problem. Several theories have been developed about what constitutes the linguistic locus of SLI children's difficulties. This is another area where impairment interacts with typology. In comparing the Dutch and Turkish data, we will have to deal with these questions.

Method

Subjects

For subject selection, see Project 1.

Procedure

The methods will be the ones designed for the Dutch data (Project 1), but – as mentioned above – the stimuli will have to be adapted to fit the structure of Turkish.

<i>Variables → Groups ↓</i>	<i>Finiteness</i>	<i>Subj-V-Agreement</i>	<i>Verb placement</i>	<i>(Det)-Adj-N- Agreement</i>
<i>Turkish Monolingual Typical</i>	Fast-developing; Bare stem as initial default	Fast-developing; Bare stem as initial default	Not applicable: No verb movement	Not applicable: Adjectives are not inflected
<i>Turkish Monolingual SLI</i>	Unclear	Unclear	Unclear	Unclear
<i>Turkish Bilingual Typical</i>	<i>Fast-developing:</i> <i>Like Turkish</i> <i>monolinguals</i> ²	<i>Fast-developing:</i> <i>Like Turkish</i> <i>monolinguals</i>	<i>Not applicable:</i> <i>Like Turkish</i> <i>monolinguals</i>	<i>Not applicable:</i> <i>Like Turkish</i> <i>monolinguals</i>
<i>Turkish Bilingual SLI</i>	<i>Unclear</i>	<i>Unclear</i>	<i>Unclear</i>	<i>Unclear</i>

Table 4: Observations from the literature and current research (in bold type) and expected observations (predictions – in italics) for project 2. For references, see Table 2.

² An additional delay can derive from the effects of incomplete acquisition of L1 in the L2 setting (see Montrul, 2002).