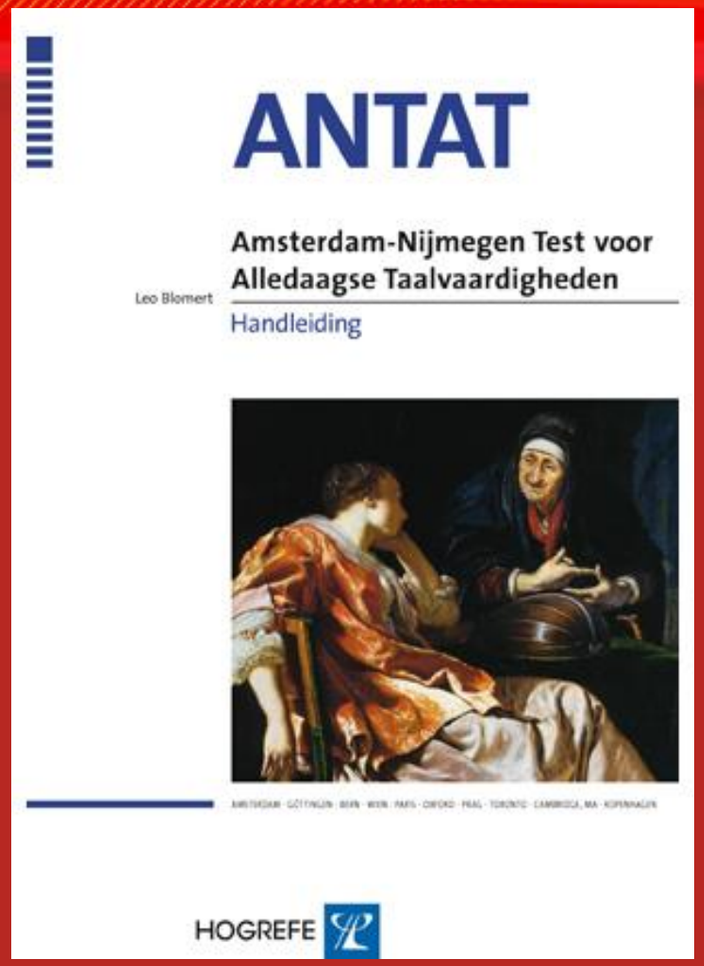
Amsterdam-Nijmegen Everyday Language Test (ANELT: Blomert et al., 1995)

Towards improved construct validity using a quantitative scoring procedure



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Overview

- Goal and results of our ANELT-studies
- Current state of affaire of the web version of the Dutch and adapted Reduced Syntax Therapy (e-REST; Ruiter, Holtus, Van Limbeek & Rietveld, 2011)

ANELT: Towards improved construct validity

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Amsterdam-Nijmegen Everyday Language Test (ANELT; Blomert et al., 1995)

PWA are instructed to give a spoken response to (orally presented) scenarios of daily life situations

“Suppose you are at the dry cleaner’s. When you come to collect this, you get it back like this [shirt with burn hole]. What would you say?”

Functional *verbal* communication: effectiveness only, no measures of verbal efficiency included.

Current *qualitative* scoring procedure of the ANELT

Verbal effectiveness is a function of:

- **Comprehensibility of the message, regardless of the linguistic form of the utterances used (A-scale)**
- Intelligibility of the utterances used (B-scale)

Each scale has 5 points, ranging from *very bad* to *very good*.

Current scoring is concerned with subjectivity

<u>A-scale</u>: Comprehensibility of the message, regardless of the linguistic form of the utterances used

No external criterion provided:

- ***Which*** *element of meaning* are essential in each scenario?
- ***How many*** of these elements need to be conveyed to be assigned a particular score?

Study Ruiter et al. (2011)

Research question:

Does substitution of the qualitative score by a **quantitative one** that takes the essential number information units into account further **improve** the **construct validity** of the Dutch ANELT?

Possible benefits of a quantitative ANELT score:

- Improved sensitivity in measuring verbal effectiveness (Grande et al., 2008)
- Derivation of a measure of verbal efficiency;

Methods Ruiter et al. (2011)

(1) Orthographical transcription of the responses of Dutch-speaking healthy controls (*N* = 24) to the ANELT scenarios (version I & II)

(2) Composition a list of the propositions produced

One and the same proposition can be put into words in various manners.
For example: *spoiled (shirt)* can be expressed as:

"*You ruined my blouse*"; or
"*There is a burn hole in this shirt*"; or
"*Shirt spoiled*"

Methods Ruiter et al. (2011)

(3) Subdividing each proposition into CUs (Yorkston and Beukelman; 1980) → ANELT-CU

Content Unit (CU): "a grouping of information that is always expressed as a unit by normal speakers" (p.30)

Proposition: *Spoiled (shirt)*
CUs: spoiled$^{(CU\ 1)}$, shirt $^{(CU\ 2)}$

(4) Scoring the responses of aphasic speakers of Dutch (*N* = 10) with ANELT-CU

Preparation

Spoken responses of non-aphasic speakers of Dutch (n = 24)

↓

A quantitative scoring scheme for the ANELT (i.e. ANELT-CU)

Study Ruiter et al. (2011)

Split-plot design

Subjects (N = 30)	Outcome measures - ANELT -traditional - ANELT- CU - PDT (with quantitative measure)		
	T 1	8 weeks	T 2
Non-aphasic speakers of Dutch (n = 20) S 1 ⋮ S 20		No intervention	
Aphasic speakers of Dutch in sub-acute phase (n = 10) S 1 ⋮ S 10		Restoration Therapy	

≠

Summary study Ruiter et al. (2011)

Results suggest that a quantitative scoring procedure further improves the construct validity of the ANELT:

Improved sensitivity (verbal effectiveness, i.e. %CU)

An **additional measurement of verbal efficiency** (i.e. CUs/min)

A more complete picture of functional verbal communication skills

Follow-up studies on ANELT-CU*

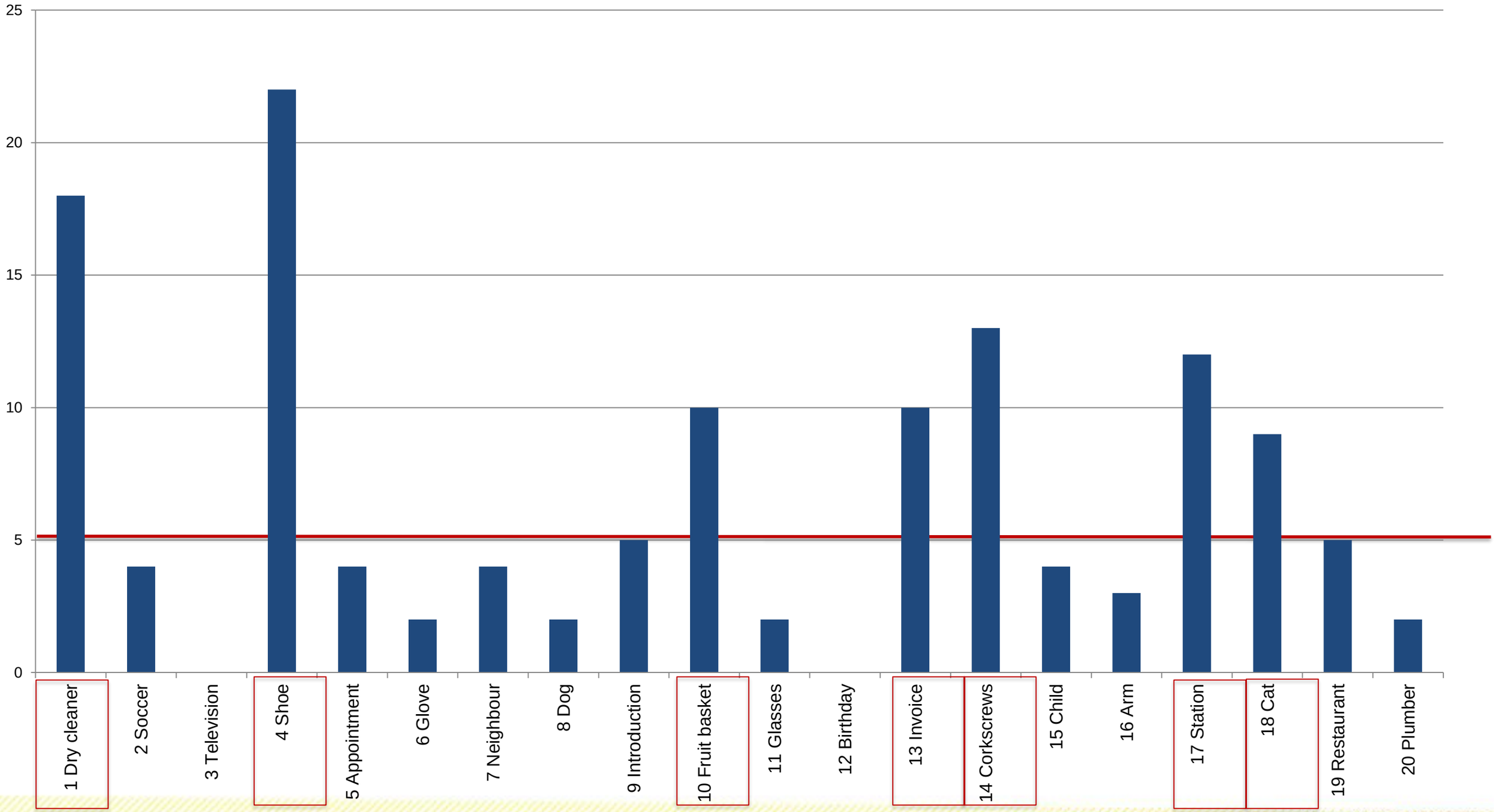
The findings of Ruiter et al. (2011) and Bilda et al. (submitted) raised the question whether the construct validity of the Dutch ANELT could be further improved.

It was investigated in non-aphasic speakers of Dutch (*n* = 58) whether the **scenarios which are included in the original ANELT** are **still valid** in the sense that they are:

1) Imaginable to be engaged in by participants at present time
2) Unambiguously interpreted. That is, do participants take the intended **role** in each scenario? (data not presented here)

* S. Dassek, V. Bakx, M. Giessen, F. Filipinski, & S. aan de Stegge, under supervision of E. Lotgering, T. Rietveld & M. Ruiter

Original ANELT scenarios that were identified as unimaginable by 58 non-aphasic speakers of Dutch (5% cut-off)



New test items: 15 of the original items adapted

***Table 1*. Examples of original scenarios of the Dutch ANELT and new scenarios.**

The examples are translated from Dutch.

Scenario	Original	New
17	You are at the train station. You would like to go to Zwolle. You are at the ticket counter. What would you say?	You are at the train station. You would like to go to Zwolle. The train is leaving from another platform. You are in hurry but you do not know where to go. You walk over to the conductor and ask …?
4	You take this shoe to the shoemaker [tester presents shoe]. There is a lot wrong with this shoe, but for some reason you want him to repair only one thing. You may choose what he is to repair. What would you say?	You take this shoe to the shoemaker [tester presents photo]. What would you say?

Testing the experimental items

Do the adapted scenarios fulfilled the criteria of **imaginability** as well as **unambiguous role identification**?

New items presented to 60 non-aphasic speakers of Dutch

- Imaginability: Six of the 15 new scenarios were significantly better rated than the original scenarios with regard to imaginability. Thus, the new scenarios better represent daily communication settings.

- Role identification: there were no significant changes between the old and new scenarios.

Do these experimental changes further improve the methodological quality of ANELT-CU2?

Preparation

Spoken responses of non-aphasic speakers of Dutch (n = 60) to new, experimental items of the ANELT

↓

A quantitative scoring scheme for the experimental ANELT scenarios (i.e. ANELT-CU2)

≠

Current study

Split-plot design

Subjects (N = 50)	Outcome measures - ANELT -traditional - ANELT-CU2 (version with new, experimental items)		
	T 1	8 weeks	T 2
Non-aphasic speakers of Dutch (n = 30) S 1 ⋮ S 30		No intervention	
Aphasic speakers of Dutch in sub-acute phase (n = 20) S 1 ⋮ S 20		Restoration Therapy	

Study with PWA currently running in Orbis Medisch Centrum (NTR6041)

SIMPTELL

LANGUAGE in INTERACTION

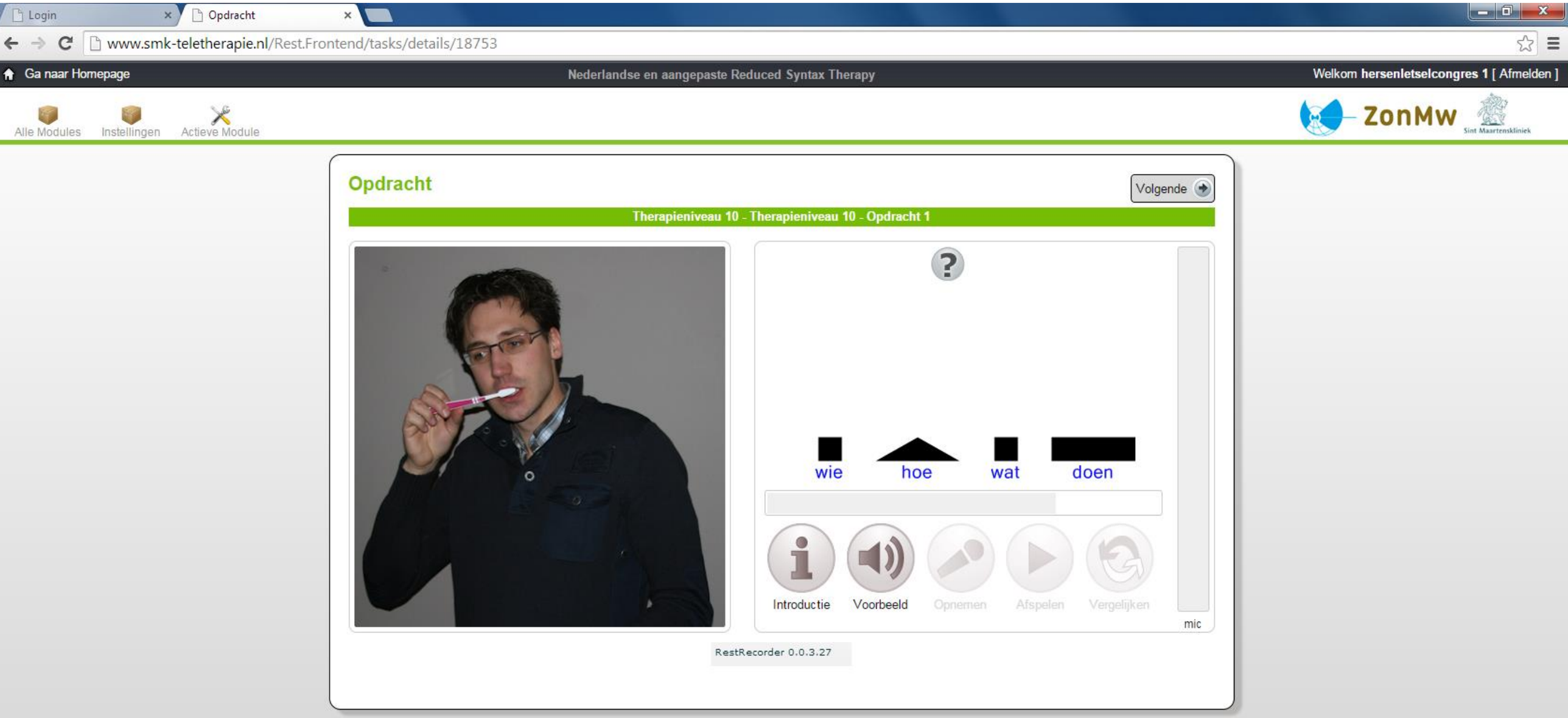
Current state of affaire of the web version of the Dutch and adapted Reduced Syntax Therapy (e-REST; Ruiter, Holtus, Van Limbeek & Rietveld, 2011)

Radboud University

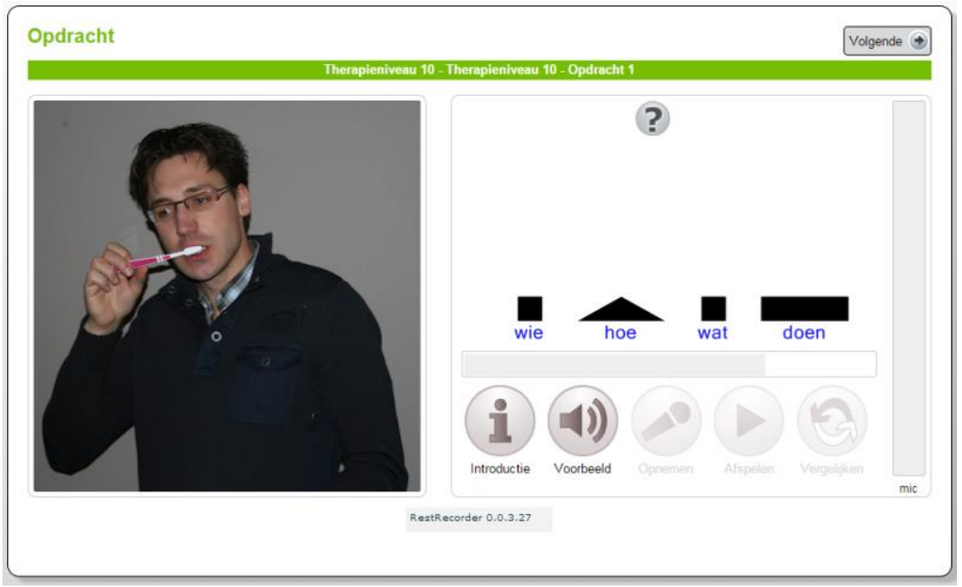
Sint Maartenskliniek

ZonMw Radboud Universiteit

eREST (Dutch and adapted Reduced Syntax Therapy)



E-REST: A web-based therapy programme for chronic Broca's aphasia



Target ellipsis:
Paul zonder tandpasta tanden poetsen,
'Paul brushing teeth without toothpaste'

It seeks to enhance **self-initiated compensatory speech behaviour** in persons with chronic Broca's aphasia:

Speaking in ellipses

E-REST may deliver the **drill and practice aspects of compensation therapy intensively**, needed to automate the new behaviour (to some degree).

Parallel to e-REST: in-person language therapy aimed at generalisation

Dutch & adapted *Reduced Syntax Therapy (REST)*

Level	*Elliptical construction (Dutch)*	*Dutch example (*English*)*
1.	V (non-finite: infinitive / past participle)	Lezen *(reading)*
2.	Direct object + V	Koffie drinken *(drinking coffee)*
3.	Adjunct + V	In zee zwemmen *(swimming in sea)*
4.	Adjunct + Direct object + V	Gisteren kleren gekocht *(bought cloths yesterday)*
5.	Subject + non-verbal predicate (NP/AP/PP)	Tim broer *(Tim brother)*
		Man boos *(man angry)*
		Sam op school *(Sam at school)*
6.	Subject + V	Vrouw slapen *(woman sleeping)*
7.	Subject + Direct object + V	Man haar wassen *(Man washing hair)*
8.	Adjunct + Subject + V	Sam in Zweden kanoën *(Sam canoeing in Sweden)*
9.	Subject + Indirect Object + Direct Object + V	Jongen man koekje geven *(Boy giving cookie to man)*
10.	Adjunct + Subject + Direct object + V	Gisteren Lisa huis verkocht *(Lisa sold house yesterday)*

Evidence for efficacy of face-to-face REST

(Ruiter, Kolk & Rietveld, 2010; Ruiter, Kolk, Rietveld & Feddema, 2013)

Results pilot into the efficacy of e-REST promising

(Ruiter, Rietveld, Hoskam, & van Beers, 2016)

Note: In English, the non-finite verb forms are the gerund -ing

E-REST: A web-based therapy programme for chronic Broca's aphasia

Bron: picasaweb.google.com

Protocolised training procedure (90%-criterion)

The PWA uploads his/her response to the central serve. Subsequently, the own response can be compared to an audio example.

When all items of a therapy level have been completed an email is automatically sent to the SLP, who then scores each response digitally.

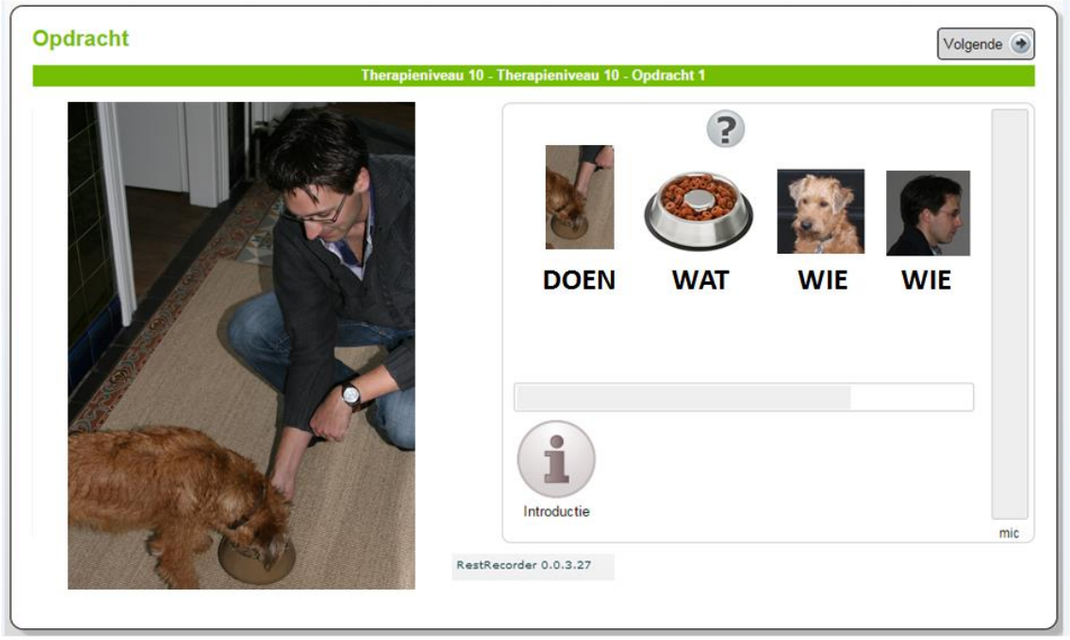
Feedback is *not* presented immediately

From e-REST to SIMPTELL within LANGUAGE in INTERACTION

SIMPTELL: **S**emi-independent **I**nteractive **M**ultimodal **P**roduction **T**raining of **ELL**ipses (in Broca's aphasia)

- Technical and functional improvements: touch-screen responses by hand, before generating a spoken response, 100% automatic and accurate feedback as well as automatic adaptation of the complexity of the trained utterances

- Theoretical improvement: Based on the newest insights on executive control in compensatory language production



Project group:

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www.languageininteraction.nl

Thank you for your attention

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All pictograms were (sometimes in adapted form) taken from Sclera.be
Unpublished data were removed from this presentation