

# A quantitative measure of functional communication skills in German: a German version of the new ANELT-CU scoring system

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## Introduction

A test for measuring functional communication skills is the **Amsterdam-Nijmegen Everyday Language Test (ANELT)** [1]. In the ANELT persons with aphasia (PWA) are instructed to give a spoken response to orally presented scenarios of everyday life situations, such as:

“Suppose you have an appointment with your family doctor; however, something else has come up. Therefore you need to reschedule your appointment. When you call the doctor, what do you say to him?”

Ruiter et al. [2] further improved the construct validity of the Dutch ANELT by substituting the initial qualitative scoring procedure (a 5-point rating scale) for verbal effectiveness (i.e. ANELT-traditional) by a quantitative one (i.e. ANELT-CU), which is based on the **elements of meaning** (content units, **CU**) [3] that are essential to achieve the communicative goal in each scenario. In comparison to ANELT-traditional, ANELT CU was more sensitive to measure improvements in verbal effectiveness over time. Furthermore ANELT-CU allowed a derivation of a measure of **verbal efficiency** (i.e. average number of CUs produced per minute).

Until now, the quantitative scoring procedure only exists for the Dutch ANELT where it was found to be more sensitive to detect changes in functional communication over time. Therefore, the **aim** of the current study is to apply the quantitative scoring procedure to German and to compare it with the qualitative procedure concerning sensitivity and reliability.

### Research questions:

**(I)** Is ANELT-CU able to tell aphasic speakers apart from non-aphasic speakers? **(II)** Is ANELT-CU more sensitive than the current ANELT A-scale to detect relevant clinical change in verbal effectiveness over time?

## Method

### The quantitative scoring procedure

- the responses of German-speaking healthy controls ( $n=22$ ) to the ANELT scenarios were orthographically transcribed
- a list of the propositions produced by at least 20% of the healthy speakers was compiled
- each proposition got subdivided into Content Units

### Participants

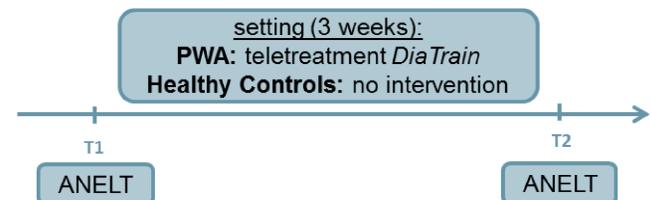
#### PWA

- $n=13$  ( $m=9$ ,  $f=4$ , age in years:  $M=56,9$ ,  $SD=8,7$ ), suffering from chronic aphasia following a single left hemisphere stroke (years post-onset:  $M=5,86$ )
- severe to moderate naming and communication disorder
- German native speakers, right-handed

#### Healthy Controls

- $n=7$  ( $m=4$ ,  $f=3$ , age in years:  $M=59,1$ ,  $SD=4,2$ )
- German native speakers, right-handed
- none of them had participated in the study conducted to compose the ANELT-CU list

### Design



### Procedure

- The data was collected within the therapy study “Telerehabilitation in aphasia following a stroke”, funded by the European Regional Development Fond (EFRE)
- Between T1 and T2 the PWA received the web and video based language therapy *DiaTrain* ([www.diatrain.eu](http://www.diatrain.eu))
- The non-aphasic and PWA's responses to the ANELT were scored with both the qualitative and the quantitative scoring procedure

## Results

- At both, T1 and T2, the non-aphasic speakers scored significantly higher than the PWA on ANELT-CU and ANELT traditional ( $p>.000$ ; Mann-Whitney U test; two-tailed) (see Figures 1 and 2).
- The non-aphasic speakers performed stable over time on ANELT-CU and ANELT traditional (see Figures 1 and 2).
- PWA showed significant increased performance from T1 ( $M=11,29$ ,  $SD=5,82$ ) to T2 ( $M=13,98$ ;  $SD=6,49$ ) in ANELT-CU ( $p=.023$ ; Wilcoxon test; two-tailed;  $d=.44$ ), but not on ANELT-traditional ( $p=.207$ ; Wilcoxon test; two-tailed;  $M_{T1}=27,69$ ,  $SD_{T1}=15,29$ ,  $M_{T2}=31,23$ ,  $SD_{T2}=17,39$ ), (see Figures 1 and 2).

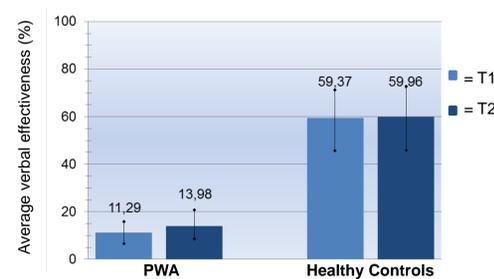


Figure 1: Average verbal effectiveness score on ANELT-CU for both groups at T1 and T2

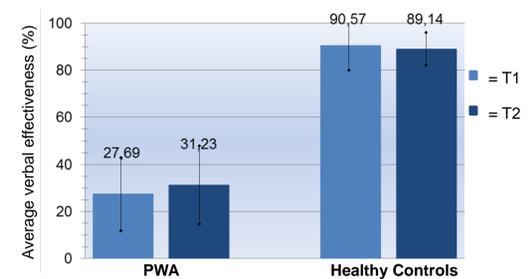


Figure 2: Average verbal effectiveness score on ANELT-traditional for both groups at T1 and T2

## Conclusion

**(I)** The results show that the German ANELT-CU is able to tell aphasic speakers apart from non-aphasic speakers. **(II)** Furthermore it seems to be more sensitive than the current ANELT A-scale to detect relevant clinical change in verbal effectiveness over time.

Nevertheless, the current ANELT-CU scoring procedure is based on the responses of only 22 healthy controls to the ANELT and therefore doesn't comprise all possible CUs. This might be a reason, except of its improved sensitivity, why both, non-aphasic and aphasic speakers, scored significantly lower in ANELT-CU compared to ANELT-traditional at T1 and T2.

In **sum** ANELT-CU can enable a quantitative assessment of functional communications skills. But, for being used in clinical everyday life, it needs to be further investigated. Thus, the aim is to analyze more responses of German healthy speakers to the ANELT concerning more essential CUs. Then it shall be standardized on a larger group of both, non-aphasic speakers and PWA.