

Introduction

- People with aphasia (PWA) experience difficulties in daily communication
- Language disorder can affect different levels of linguistic processing
- It is important to assess their spared linguistic skills with a thorough method that takes into account all linguistic levels
- Recent interest towards **discourse** (spontaneous speech)
- Evidence showed that spontaneous speech can provide more information than classical standardized tests for aphasia
- Need of automatization for analysis to guarantee replicability and precision for future studies
- **AphasiaBank**: international shared database about spontaneous speech in persons with aphasia (MacWhinney et al., 2011)



Purpose

- To contribute to AphasiaBank with data from Italian speaking PWA
- To assess the linguistic skills of a group of persons with fluent aphasia in spontaneous speech with a multi-level approach (Marini et al., 2011)
- Check the clinical implications of the discourse evaluation by correlating spontaneous speech measures with measures from a classical standardized test for aphasia: Aachener Aphasia Test (AAT, Luzzatti et al., 1991)

Materials and Methods

PARTICIPANTS:

- 11 people with fluent aphasia
- Italian native speakers
- Mean age: 64,72 (st.dev. = 9,24)
- Neurological stability

MATERIALS:

- AphasiaBank protocol (free speech samples, picture descriptions, story narrative, procedural discourse, Verb Naming Test)
- AAT Test (Aachener Aphasia Test, Luzzatti et al., 1991)
- Three extra pictures for storytelling (one single picture, two cartoon stories)

METHODS

- Videorecording of conversations
- Transcriptions with CHAT format (Codes for the Human Analysis of Transcripts, MacWhinney, 2000)



Fig. 1: Example from AphasiaBank protocol (retelling of Cinderella)

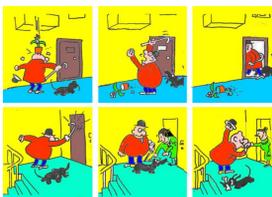


Fig. 2: Example of extra storytelling: the Flower Pot (Huber and Gleber, 1982)

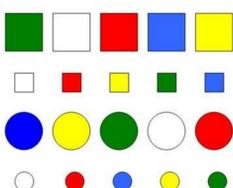


Fig. 3: Example of a subtest from AAT: Token Test

Data analysis

1. Automatic analysis with CLAN (Computerized Language Analysis, MacWhinney, 2000)



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19 *PAR: buono ( ) si ( ) nelle ( ) nella si'tuazione in cui sono .
20 %mor: n|buono-m&sg adv|si prepar|ne-f&pl prepar|ne-f&sg n|situazione&f
21 prep|n-in pro:rel|cur=which v|esse-3&PRES=be .
22 *PAR: cioè ( ) mi sembra che è abbastanza comprensibile [ comprensibile]
23 [ p.n]
24 %mor: conj|ciò pro:clit|mi&1S v|sembra-3&PRES=seem pro:rel|che=that
25 v|esse-3&PRES=be adv|abbastanza adj|comprensibile-sg=comprendibile
26
27 *PAR: se non [ ] se non alt(ro) [ * p ] ( ) per ( ) cioè ( ) . [ + / ]
28 %mor: conj|se conj|se adv|non pro:det|altro-m&sg=another_one prep|per=for
29 conj|ciò .
30
31 *PAR: se non altro non [ ] ( ) non .&n ( ) no ho di ( ) del ( ) . [ + - ]
32 %mor: conj|se adv|non pro:det|altro-m&sg=another_one adv|non adv|no
33 v|ave-1&PRES=have prep|tr=of nrepart|de-m&sg .
34 *PAR: come si dice ( )
35 %mor: adv|come pro:clit|si&3SP v|dice-3&PRES=say .
36 *PAR: mi sembra buono
37 %mor: pro:clit|mi&1S v|sembra-3&PRES=seem adj|buono-m&sg=good .
38
39 *INV: ti ricordi quando hai avuto l'ictus ?
40 %mor: pro:clit|ti&2S v|ricorda-2&PRES=remind adv|quando
41 v|ave-2&PRES=have v|ave-PPART&sg&m=have art|il&sg n|ictus&m=attack
42 ?
43 *PAR: sì sì si sei anni fa
44 %mor: adv|sì adv|sì adv|sì v|esse-2&PRES=be n|anno-m&pl

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2. Discourse analysis focusing on four main aspects of linguistic processing (Marini et al., 2011):

PRODUCTIVITY	MICRO-LINGUISTIC ANALYSIS
LEXICAL AND GRAMMATICAL PROCESSING	
NARRATIVE ORGANIZATION	MACRO-LINGUISTIC ANALYSIS
INFORMATIVENESS	

3. Bivariate Pearson product-moment correlation between AAT subtests and discourse measures

Results

Selected results of correlations between AAT subtests and discourse measures.

	LEXICAL INFORM.	PHON. ERRORS	SEMANTIC PARAPH.	GLOB. COHER. ERRORS	SEM. UNREL. UTTERANCES	TANGENTIAL UTTERANCES
AAT REPETITION	.41	-.03	-.36	-.45	-.30	-.60
AAT NAMING	.65	.11	-.57	-.70	-.56	-.68
AAT COMPREHENSION	.56	.22	-.52	-.65	-.59	-.67
AAT TOKEN	-.36	-.31	.10	.46	.49	.47
AAT COMMUNICATIVE BEHAVIOR	.45	-.69	-.62	-.33	.12	-.38
AAT ARTICUL. AND PROSODY	-.13	-.35	.19	.37	.13	-.18
AAT AUTOMATIC LANGUAGE	.80	-.30	-.66	-.80	-.29	-.45
AAT SEMANTIC STRUCTURE	.70	-.60	-.85	-.74	-.27	-.57
AAT PHON. STRUCTURE	.00	-.59	-.20	.07	.12	.05
AAT SYNTACTIC STRUCTURE	.52	-.19	-.40	-.56	-.32	-.15
AAT WRITTEN	.54	-.43	-.73	-.57	-.10	-.56

Table 1: Pearson's values. Values b/w .10 and .29 = small; b/w .30 and .49 = medium; b/w .50 and 1.0 = large (Cohen, 1988)

CORRELATIONS BETWEEN NARRATIVE MEASURES AND AAT ASSESSMENT



Table 2: graphical representation of Pearson's values, showing the distribution between negative and positive correlations.

Conclusions

- Discourse analysis provides information about PWA's linguistic skills that we don't find in AAT (e.g. **Informativeness**)
- Discourse analysis has a remarkable value even in a theoretical framework, providing researchers and clinicians a window to observe how the linguistic levels interact on the bases of quantitative and pragmatic measures
- Correlations with a classical standardized test confirmed the validity of spontaneous speech assessment
- In the future: need to implement the Italian sample for AphasiaBank

References

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