Available online at www.sciencedirect.com

ScienceDirect

Procedia Social and Behavioral Sciences 6 (2010) 113–114

Procedia
Social and Behavioral Sciences

Academy of Aphasia 2010

Lexical Efficiency of Oral Narratives Produced Two Times in Succession

Jacqueline Ann Stark[a,*], Rebecca Janker[a], Christiane Pons[a]

[a] *Austrian Academy of Sciences, Dept of Linguistics and Communication Research*

Introduction

The task of producing a coherent, informative narrative calls for interaction among various linguistic levels. Due to the complexity of this task, analysis of narratives produced by a person with aphasia can shed light on the contribution of the individual parameters and their differential susceptibility to impairment. In this paper, picture descriptions and picture sequences produced by a chronic Broca's aphasic two times in a row are analyzed to establish what changes in content and structure are observed in the first versus second production. The following questions are addressed:

1. Does the first telling reveal more difficulties because of formulation and/or word-finding difficulties which are resolved in the second trial?
2. Is the second telling shorter and more concise because information mentioned in the first telling is assumed or is it more elaborated due to an accumulation of content?

Procedure

Participant TH suffered a left CVA at the age of 40. For this study, two test times five months apart (100 and 105 MPO) he revealed agrammatic, Broca's aphasia with a moderate sentence production impairment and mild apraxia of speech. Two times in succession he orally described the Cookie Theft (Goodglass and Kaplan, 2003) and three pictures from the Binetarium and produced narratives to seven WISC picture sequences. His videotaped narratives were transcribed for analysis. The Linguistic Communication Measure indices of lexical efficiency (**ILE**) and grammatical support (**IGS**) (Menn et al., 1994) were calculated for the 16 texts and 28 narratives and other text- and sentence-level analyses were performed.

Results

Table 1 shows the results for the **ILE** and **IGS**. From trial 1 to trial 2 a reduction in the **ILE** is observed in 82% of the cases, whereas the **IGS** shows variability across the narratives: 36% **IGS** is higher, i.e. better in the second trial, whereas in 64% of the cases it is lower. In 73% of the narratives more content units (**CU**) were produced in the second trial.

Discussion

The reduction in the **ILE** can be interpreted as more efficient language processing. At present, the data provide support for the first question. However, there appears to be a trade-off between the two measures: In many cases when TH's lexical efficiency improves in the second trial, his **IGS** decreases. Overall the data for the second trial

* Corresponding author.
E-mail address: jacqueline.stark@oeaw.ac.at .

1877-0428 © 2010 Published by Elsevier Ltd.
doi:10.1016/j.sbspro.2010.08.057

are more structured and informative. The results from the analyses for the task of producing each narrative two times in a row also have implications for the assessment and remediation of aphasic language production – in particular for complex narratives: Since the second trial reveals that a person with Broca's aphasia can perform better if given the opportunity to do so, one can obtain a more realistic picture of the range of relatively intact and impaired language functions by repeating a task, which is common practice in therapy.

References

Goodglass, H. & Kaplan, E. (2003). The Assessment of Aphasia and Related Disorders, Second Edition. Philadelphia: LeaFebiger.

Menn, L., Ramsberger, G., & Helm-Estabrooks, N. (1994). A linguistic communication measure for aphasic narratives. *Aphasiology, 8*, 343-359.

Table 1a. *Picture Description (Binet Pictures 1-3, Cookie Theft)*

Test time 1 (100 Months post onset)

Narrative Trial No.	No. of words	No. of CU[§]	ILE	No. of words in CU	Endings in CU	IGS
Man in love						
1	124	38	**3.3**	95	11	**2.8**
2	107	36	**3.0**	85	12	**2.7**
Blind man's buff						
1	79	27	**2.9**	62	14	**2.8**
2	116	41	**2.8**	91	22	**2.8**
Broken window						
1	93	28	**3.3**	69	7	**2.7**
2	94	34	**2.8**	84	8	**2.7**
Cookie theft						
1	112	46	**2.4**	105	22	**2.8**
2	121	44	**2.8**	95	25	**2.7**

Test time 2 (105 Months post onset)

Narrative Trial No.	No. of words	No. of CU	ILE	No. of words in CU	Endings in CU	IGS
Man in love						
1	81	31	**2.6**	69	10	**2.5**
2	116	41	**2.8**	97	16	**2.8**
Blind man's buff						
1	81	29	**2.8**	97	19	**3.0**
2	85	33	**2.6**	77	16	**2.8**
Broken window						
1	128	41	**3.1**	95	14	**2.7**
2	138	50	**2.8**	113	18	**2.6**
Cookie theft						
1	135	49	**2.8**	106	22	**2.6**
2	128	47	**2.7**	107	22	**2.7**

Table 1b. *Picture Sequences (WISC)*

Test time 1 (100 Months post onset)

Narrative Trial No.	No. of words	No. of CU	ILE	No. of words in CU	Endings in CU	IGS
Fire						
1	126	36	**3.5**	97	10	**3.0**
2	156	49	**3.2**	125	19	**2.9**
Burglar						
1	143	38	**3.8**	102	11	**3.0**
2	135	39	**3.5**	99	12	**2.8**
Farmer						
1	135	45	**3.0**	85	10	**2.1**
2	124	38	**3.3**	96	9	**2.8**
Picnic						
1	137	43	**3.2**	99	10	**2.5**
2	180	59	**3.1**	140	17	**2.7**
Getting up						
1	132	44	**3.0**	105	16	**2.8**
2	128	48	**2.7**	105	18	**2.6**
Gardener						
1	214	52	**4.1**	131	21	**2.9**
2	173	55	**3.1**	136	16	**2.8**
Umbrella						
1	149	47	**3.2**	108	16	**2.6**
2	128	57	**2.2**	136	21	**2.8**

Test time 2 (105 Months post onset)

Narrative Trial No.	No. of words	No. of CU	ILE	No. of words in CU	Endings in CU	IGS
Fire						
1	144	49	**2.9**	113	13	**2.6**
2	188	61	**3.1**	159	22	**3.0**
Burglar						
1	189	52	**3.6**	118	13	**2.5**
2	113	40	**2.8**	93	11	**2.6**
Farmer						
1	112	34	**3.3**	92	8	**2.9**
2	104	33	**3.2**	82	12	**2.8**
Picnic						
1	182	56	**3.3**	136	14	**2.7**
2	190	57	**3.3**	143	18	**2.8**
Getting up						
1	197	64	**3.1**	147	22	**2.6**
2	185	70	**2.6**	130	24	**2.2**
Gardener						
1	161	52	**3.1**	131	17	**2.8**
2	155	55	**2.8**	131	24	**2.8**
Umbrella						
1	176	55	**3.2**	141	16	**2.9**
2	171	58	**2.9**	143	14	**2.7**

Legend:

[§] **CU** = Content Unit

ILE: Index of lexical efficiency = number of words / number of content units (For example, for trial 1of the narrative 'man in love': 124/38=3.3)

IGS: Index of grammatical support = number of words in content units + endings in content units / content units (For example, for trial 1of the narrative 'man in love': (95 +11)/38= 2.8.)