

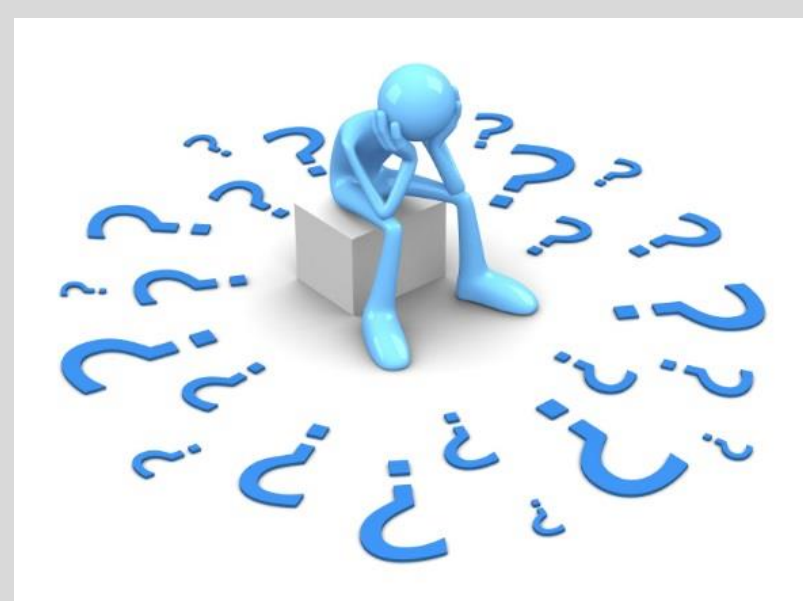
# Verbal Fluency: Norms for the Lakota Population in Semantic and Phonemic Fluency Tasks

Larissa M. Jordan, MS, MA, CCC-SLP  
University of North Dakota  
Department of Linguistics

## 1 Introduction

How can SLPs know if there is a deficit if we do not know what is typical?

- No verbal fluency normative data were available for the Lakota of western South Dakota
- Verbal fluency tasks are used as part of neurological assessments
  - Montreal Cognitive Assessment (MoCA; Nasreddine et al., 2005)
  - Boston Diagnostic Aphasia Examination (Goodglass & Kaplan, 1983)
- Lack of normative data can skew evaluation results



- The words named during the tasks show concepts which are important to the Lakota



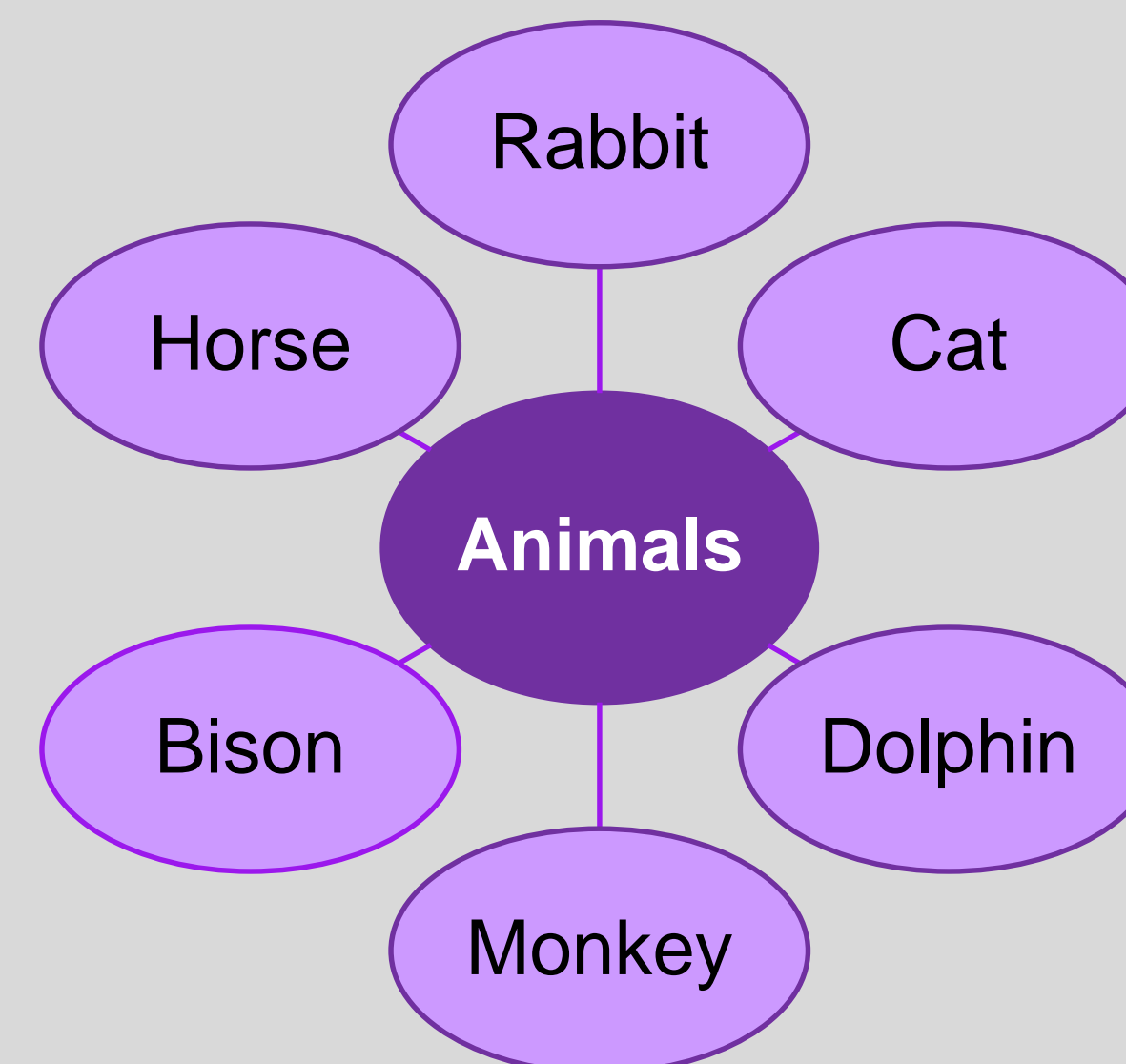
### Phonemic Verbal Fluency

- In 1 minute, name as many words as possible that begin with a specific letter of the alphabet



### Semantic Verbal Fluency

- In 1 minute, name as many words as possible in a specific semantic category



### QUESTIONS:

- What are bilingual Lakota verbal fluency normative data?
- Are they comparable to monolingual English normative data?
- Are there differences in the animals named by Lakota and English speakers?

## 2 Methods

### Participants:

Adults (18 and older)	Monolingual English	Bilingual Lakota
Males	18	23
Females	35	20
Total	53	43

### Procedure:

#### Phonemic Task:

Name as many words beginning with "P" as possible in 1 minute



#### Semantic Task:

Name as many animals as possible in 1 minute

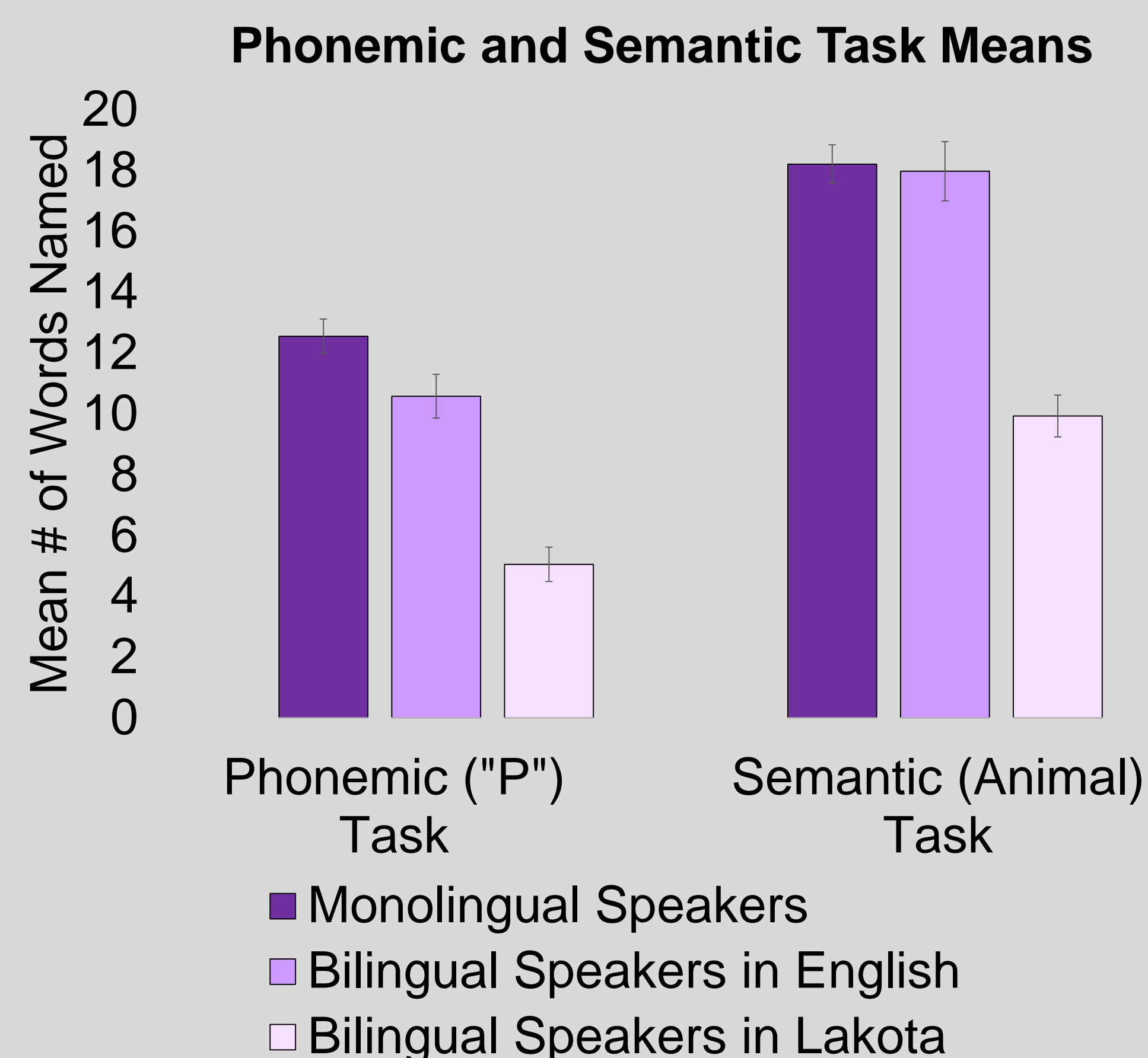


- Monolingual English speakers – both tasks in English
- Bilingual Lakota speakers – both tasks in English then both tasks in Lakota
- Tasks were presented in alternating order





### 3 Results



#### Monolingual vs. Bilingual in English

##### Phonemic

- Monolingual > bilingual speakers
- $t(94) = 2.18, p = .032$

##### Semantic

- Monolingual = bilingual speakers
- $t(74.26) = .199, p = .843$

#### Bilingual in English and in Lakota

##### Phonemic

- Bilingual speakers in English > in Lakota
- $t(42) = 6.58, p < .001$
- The number of "P" words and frequency of use likely differ between these languages

##### Semantic

- Bilingual speakers in English > in Lakota
- $t(42) = 8.66, p < .001$

#### Top 10 Animals Named by English and Lakota Speakers

English Animals (out of 53 speakers)	Lakota Animals named in English (out of 43 speakers)	Lakota Animals named in Lakota (out of 43 speakers)
1. <b>Cat</b> (48) / <b>Dog</b> (48)	1. <b>Dog</b> (39) / Horse (39)	1. <b>Sunka 'dog'</b> (41)
3. <b>Horse</b> (43)	3. <b>Cat</b> (36)	2. <b>Igmú 'cat'</b> (34) / <b>Sunkawakan 'horse'</b> (34)
4. <b>Cow</b> (40)	4. <b>Cow</b> (28)	4. <b>Wanbli 'eagle'</b> (20) / <b>Tatanka 'buffalo bull'</b> (20)
5. <b>Lion</b> (36)	5. <b>Buffalo</b> (25)	6. <b>Zuzeca 'snake'</b> (17) / <b>Pispiza 'prairie dog'</b> (17)
6. <b>Tiger</b> (34)	6. <b>Eagle</b> (24)	8. <b>Ptegleska 'cow'</b> (16) / <b>mato 'bear'</b> (16)
7. <b>Elephant</b> (30)	7. <b>Elephant</b> (23) / <b>Deer</b> (23)	10. <b>Sungamnitu 'coyote'</b> (15)
8. <b>Deer</b> (24)	9. <b>Elk</b> (19)	
9. <b>Pig</b> (22) / <b>Zebra</b> (22)	10. <b>Bear</b> (18)	

#### Top 10 Named

- All groups named *cat*, *cow*, *dog*, and *horse*
- Bilingual speakers in Lakota and English named *bear*, *buffalo*, and *eagle* but monolingual speakers did not
- Only 2/53 monolingual speakers named *eagle* at all
- Bilingual speakers in Lakota but not in English named *prairie dog*, *snake*, and *coyote*

### 4 Discussion

#### Summary

#### Bilingual Lakota normative data is not always comparable to monolingual English normative data

- Bilingual Lakota speakers named fewer English "P" words than monolingual English speakers
  - Use caution when comparing Lakota phonemic fluency results to English normative data
- Bilingual Lakota and monolingual English speakers named equivalent number of animals
  - Consider using semantic tasks rather than phonemic tasks when evaluating this population
- Bilingual Lakota gave more responses in English than in Lakota on both tasks
  - Participants were typical and this finding may not be true for those with neurological impairments

#### Bilingual Lakota speakers in English, bilingual Lakota speakers in Lakota, and monolingual English speakers did not name identical animals

- Bilingual Lakota speakers in English and monolingual English speakers named 6 of the same animals in the top 10
  - In English, bilingual Lakota speakers also named *buffalo*, *eagle*, *elk*, and *bear*, all culturally important
  - SLPs should ensure they consider words which are culturally significant when working with the Lakota or other minority people groups
- Bilingual Lakota speakers in English and in Lakota named 7 of the same animals in the top 10
  - In Lakota, bilingual Lakota speakers also named *prairie dog*, *snake*, and *coyote*

#### Future Directions:

- Evaluate other phonemic and semantic categories with the Lakota
- Examine potential differences between age, gender, and education levels
- Gather normative data for other minority populations

### 5 Acknowledgements

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In Memoriam  
Dr. Regina Blass

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