

Introduction

Core Lexicon Measures

- Lexicon-based analysis is time-efficient and highly reliable for quantifying word retrieval ability at the discourse level (e.g., Dalton, Kim, Richardson, & Wright, 2020)
- Based on previous research, the core lexicon measure was able to differentiate PWA's impaired lexical access from healthy controls (Dalton & Richardson, 2015) and identify overall language severity (Kim et al., 2019 & 2021)

Validity and Reliability of Core Lexicon Measures

- Significant correlations were found with other discourse measures
- Main concept (Dalton & Richardson, 2015)
- Micro and Macro-linguistic measures (Kim & Wright, 2020)
- High inter-rater reliability was found (Kim & Wright, 2020)

Different Criteria for Core Lexicon Measures

- Percentage criterion:** Lexical items produced by greater than 50% of the sampling cohorts are selected as "core lexicon" (Dalton & Richardson, 2015)
- Frequency criterion:** 25 most frequently produced lexical items are selected (Kim, Kintz, Zelnosky & Wright, 2019)
- Lack of statistical guidance for the criterion poses a serious challenge to the robustness of the measure, and the potential use of the measure in clinical settings

Purpose of the study

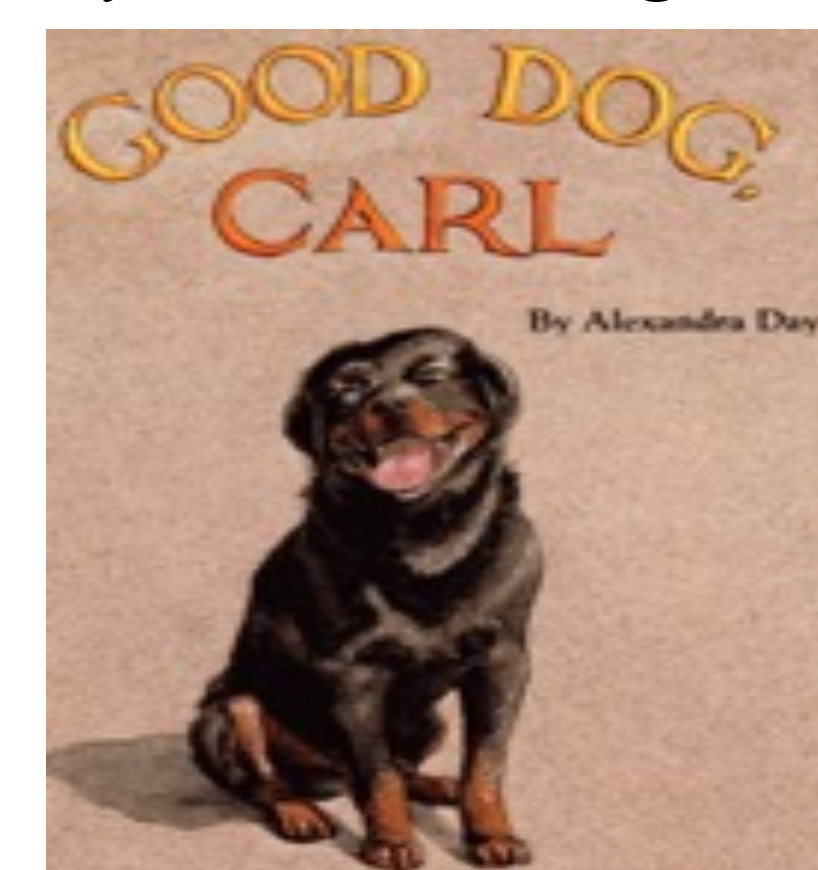
- Examine the better criterion (frequency vs percentage) for identifying core lexicon items to enhance the quality of measurement in core lexicon measures
- Explore possibility of context-invariant core lexicon measures for clinical purposes

Selected references

Dalton, S. G., Kim, H., Richardson, J. D., & Wright, H. H. (2019). A compendium of core lexicon checklists. *Seminars in speech and language*, 41(1), 45-60.
Kim, H., Kintz, S., Zelnosky, K., & Wright, H. H. (2019). Measuring word retrieval in narrative discourse: Core lexicon in aphasia. *International journal of language & communication disorders*, 54(1), 62-78.

Language Samples

- Study 1** – 470 cognitively healthy adults



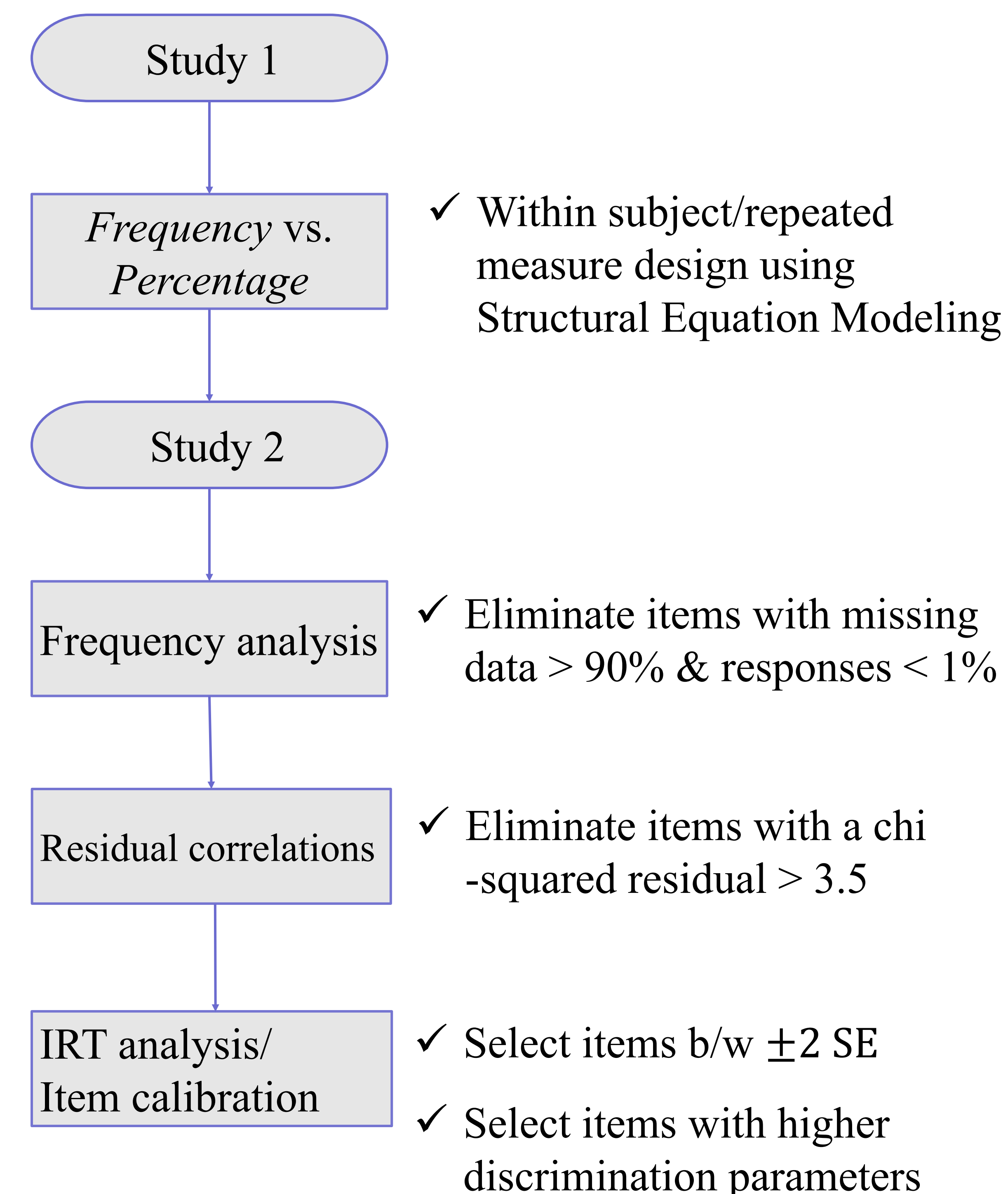
- Study 2** – 272 persons with aphasia from AphasiaBank



✓ Language samples from the Cinderella story were applied to a core lexicon measure developed using GDC & Picnic

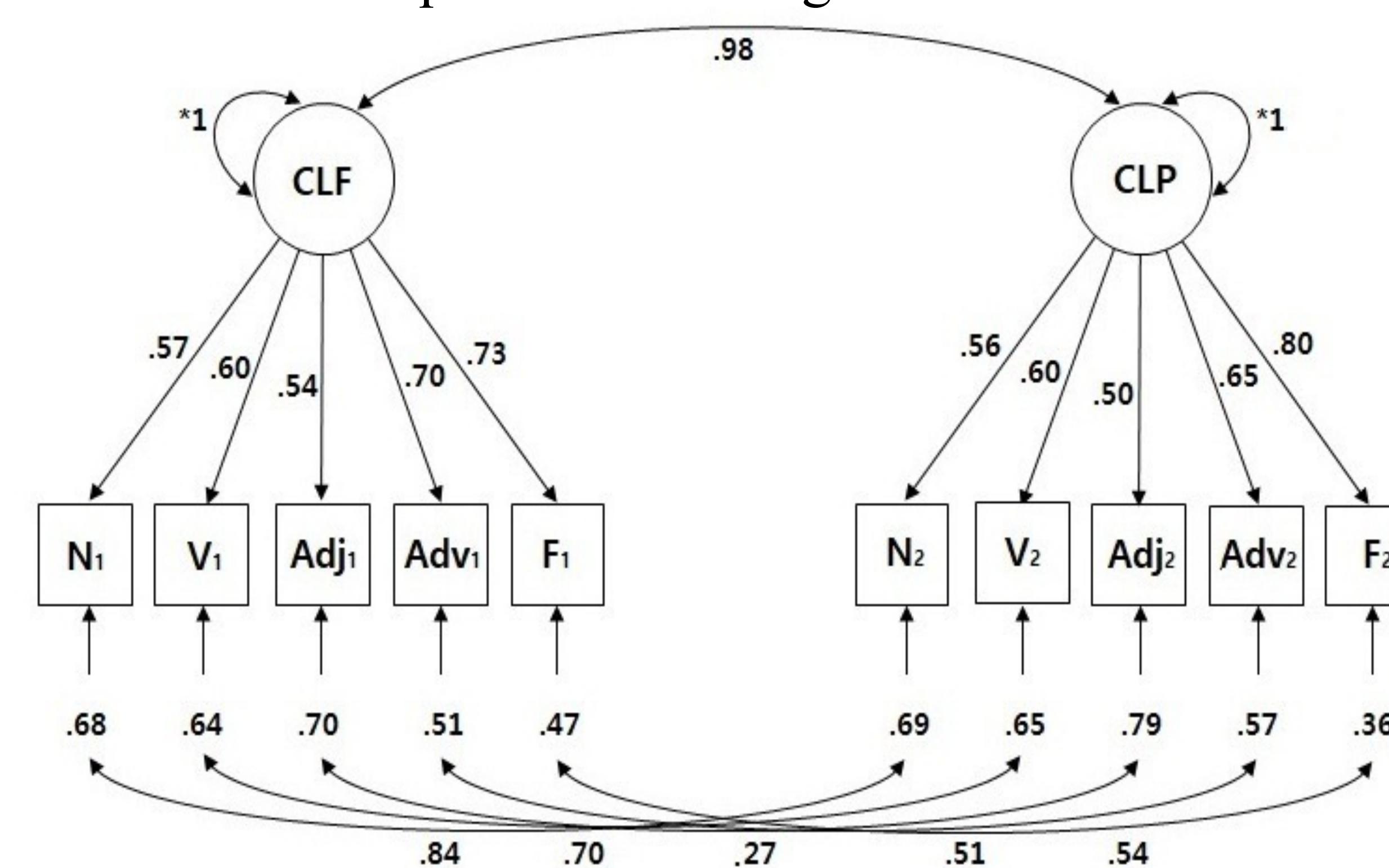
- Core lexicon measures** consist of 5 word classes (nouns, verbs, adjectives, adverbs, function words) by 7 age cohort (20s, 30s, 40s, 50s, 60s, 70s, 80s)

Flow chart for analysis

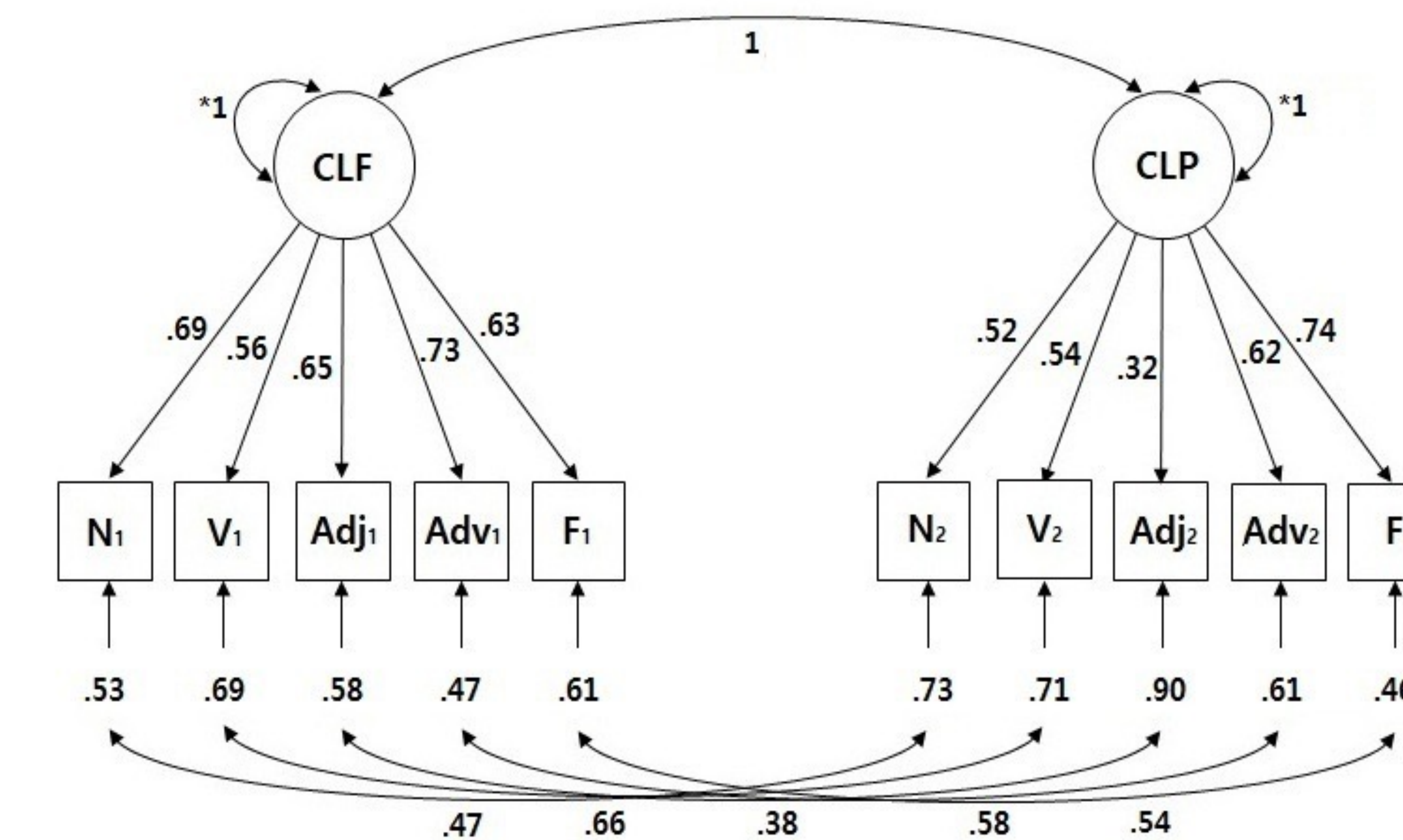


Results

- Structural Equation Modeling

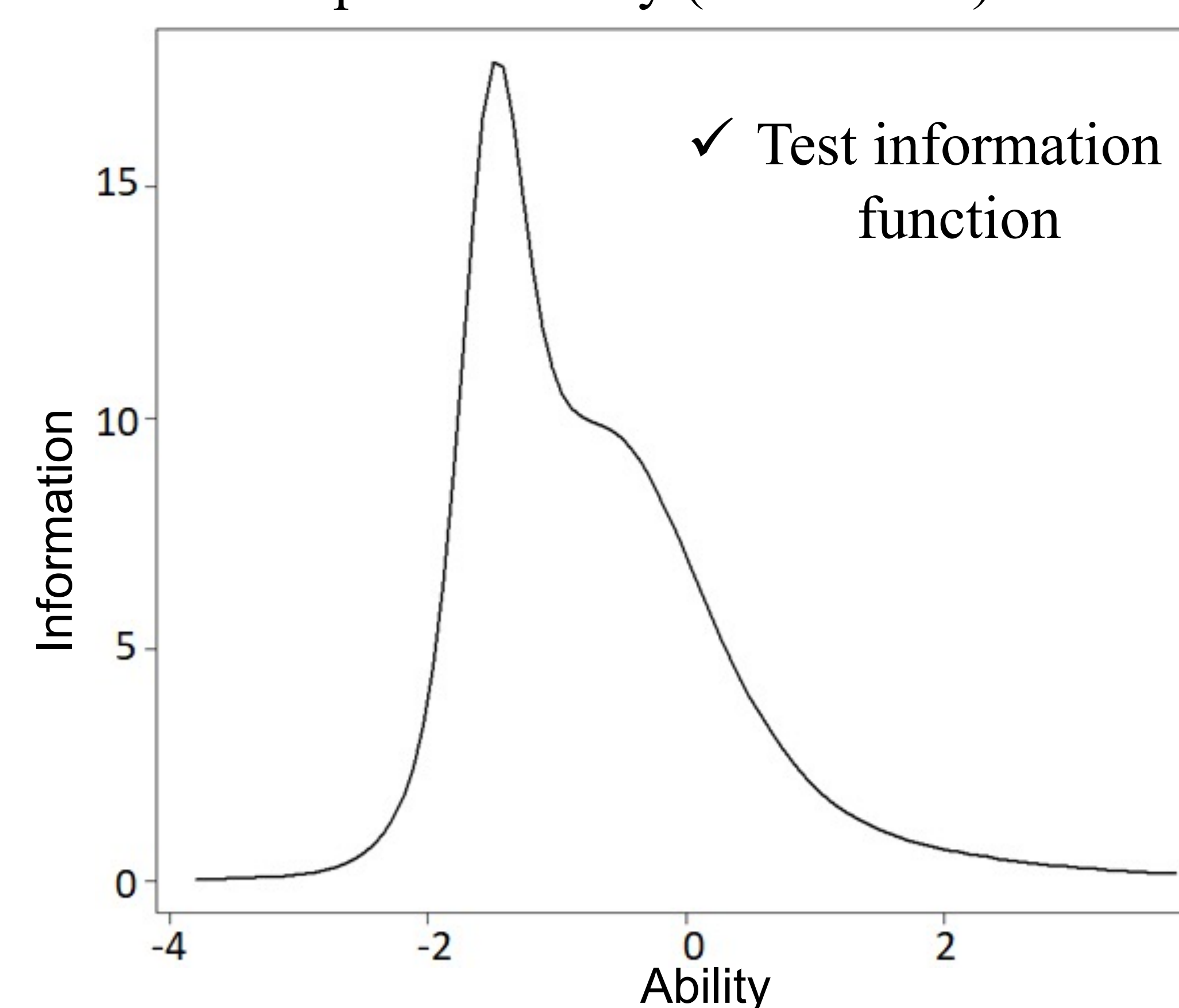


	χ^2	RMSEA	SRMR	CFI	TLI	$\Delta\chi^2$	ΔCFI
Configural	106.820**	0.076	0.034	0.973	0.957		
Weak	143.570**	0.084	0.061	0.961	0.947	36.751**	0.012
Modified Weak	110.596**	0.074	0.035	0.972	0.960	3.7762	0.001
Strong	628.294**	0.190	0.292	0.793	0.734	517.7**	0.179
Residual	512.975**	0.168	0.228	0.834	0.792	402.38**	0.138



	χ^2	RMSEA	SRMR	CFI	TLI	$\Delta\chi^2$	ΔCFI
Configural	46.514*	0.036	0.025	0.992	0.988		
Weak	94.936**	0.063	0.052	0.973	0.963	48.421**	0.019
Modified Weak	47.521*	0.034	0.026	0.993	0.989	1.007	0.001
Strong	459.683**	0.161	0.244	0.813	0.760	412.16**	0.179
Residual	494.036**	0.165	0.203	0.798	0.778	446.51**	0.194

- Item Response Theory (2PL model)



Function Words	χ^2	Difficulty	Discrimination
A	4.18	-1.03	2.30
And	4.80	-1.52	6.02
Be	2.89	-1.43	4.05
For	5.00	0.28	1.98
Her	8.61	-0.52	3.28
His	9.78	1.53	1.11
On	9.60	0.93	1.20
They	9.51	-0.29	2.92
To	6.80	-0.87	3.29
With	9.20	-0.03	2.10

Conclusions

- Using frequency as a criterion for core lexicon measures may induce more accurate scoring interpretation for content words, while the percentage criterion seems to be better suited for function words.
- Universal core function words may be viable for clinical purposes; however, use of a universal core function word checklist needs further investigation to determine its clinical applicability.