

Introduction

- Increasing use of authentic materials in second language (L2) teaching and testing highlights need for understanding of passage-based factors that make L2 listening difficult
- L2 listeners may point to **passage length** as a source of difficulty (Thompson & Rubin, 1996), but there is limited evidence for its role in L2 listening comprehension difficulty
- More research needed on the effect of **passage length**. Studies reporting significant effects of length have:
 - Combined analyses across reading and listening passages (Rupp, Garcia, & Jamieson, 2001)
 - Confounded length with number of items (Henning, 1991)
 - Found effects only for higher proficiency listeners (Carrell, Dunkel, & Mollaun, 2002)
- Related factors may better characterize the amount of information listeners must comprehend

Speech Rate

- Takes into account the fact that spoken passages of equal **duration** can vary in **word count**, and vice versa
- Faster **rates** increase difficulty (e.g., Griffiths, 1992)
- Syllables per second** controls for variation in word length and provides better cross-linguistic coverage.

Information Density

- Characterizes the amount of **information** in a passage relative to the **duration** or **word count**
- Studies suggesting that increasing **information density** increases L2 listening comprehension difficulty have:
 - Combined reading and listening (Rupp et al., 2001)
 - Adopted varying definitions of **information**, e.g., content words (Nissan, DeVincenzi, & Tang, 1996); unique content words or nouns, attributive adjectives, and prepositional phrases (Rupp et al., 2001)
- The Computerized Propositional Idea Density Rater (CPIDR) automatically calculates **idea density** in English (Brown, Snodgrass, Kemper, Herman, & Covington, 2008; www.ai.uga.edu/caspr/)

Higher idea density = 5.26 ideas/10 words

At her death in 1817 at age 41, Jane Austen had published 4 novels, anonymously, which had sold a few thousand copies. A few years later, those novels, along with 2 more published posthumously, were out of print.

Maureen Corrigan, "Pride and Sensibility: Jane Austen's Literary Ambition," *NPR*, 22 Mar 2010

Lower idea density = 4.14 ideas/10 words

Behind the scenes, attorneys with vast class action experience are vying to be picked as one of the leaders in the charge against Toyota. So they're forming alliances with colleagues from past cases, factions are sprouting, and everyone is struggling to stay ahead of their competitors.

Amita Sharma, "Lawyers Jostle to Lead Charge Against Toyota," *NPR*, 25 Mar 2010

Redundancy

MORE TRANSPARENT (e.g., exact repetition)	LESS TRANSPARENT (e.g., paraphrase)
Decreases L2 listening difficulty across proficiency levels (e.g., Chaudron, 1983)	Decreases L2 listening difficulty at higher proficiency levels (e.g., Chiang & Dunkel, 1992)

- Type-Token Ratio (TTR)** (e.g., Richards, 1987; Rupp et al., 2001) treats words from the same word family as tokens of the same type (e.g., *play, plays, played*)
 - Higher TTR (lower redundancy) associated with greater difficulty (Rupp et al., 2001)
 - Relationship with length overcome with Moving-Average TTR Calculator (*MATTR*, Covington & McFall, 2010)

Types vs. Tokens

The United Nations refugee agency helps nearly 20 million people forced to flee their homes because of war. More than a third of these people are between the ages of 12 and 24. The agency says young refugees must be given every opportunity possible to develop their potential. They must be given the help and protection they deserve.

Do these factors differ with level?

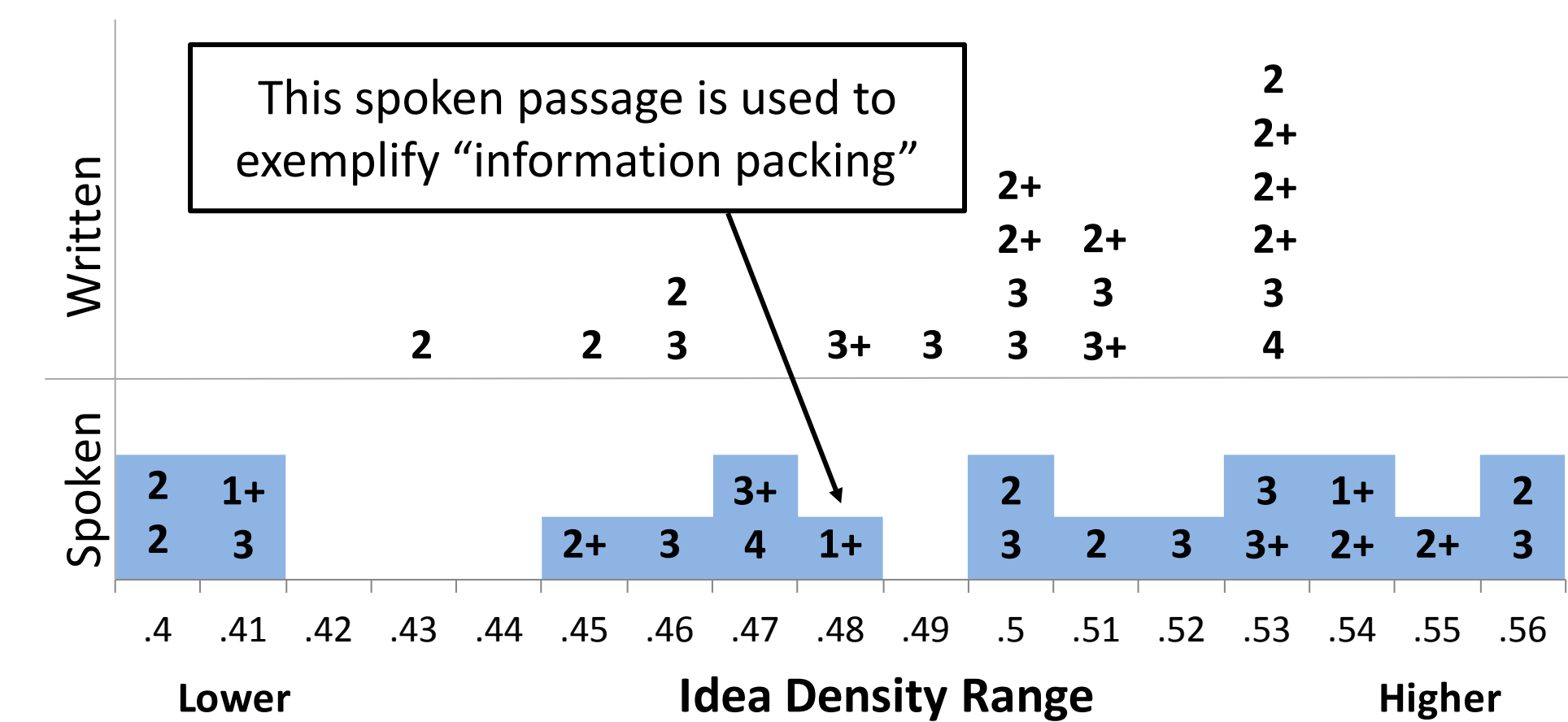
- Examined 40 spoken and written passages used by the National Foreign Language Center (www.nflc.org) to exemplify difficulty levels 1+ to 4 in *Introduction to Passage Rating* course

Identify Main Purpose(s)			
Provide basic facts and info	Provide factual info without commentary	Focus on analysis, evaluation, persuasion, influence	Complex argumentation persuasion & influence
*Vocabulary			
Simple vocabulary			Precise use of vocabulary
*Target Language Linguistic Features			
Isolated words and phrases			Complex discourse structure
Author-Intended Inferences			
Reading the lines	Reading between the lines	Reading beyond the lines	
Cultural References			
Few and/or references are explained			Many references, not explained
0+	1	1+	2
		2+	3
			3+
			4

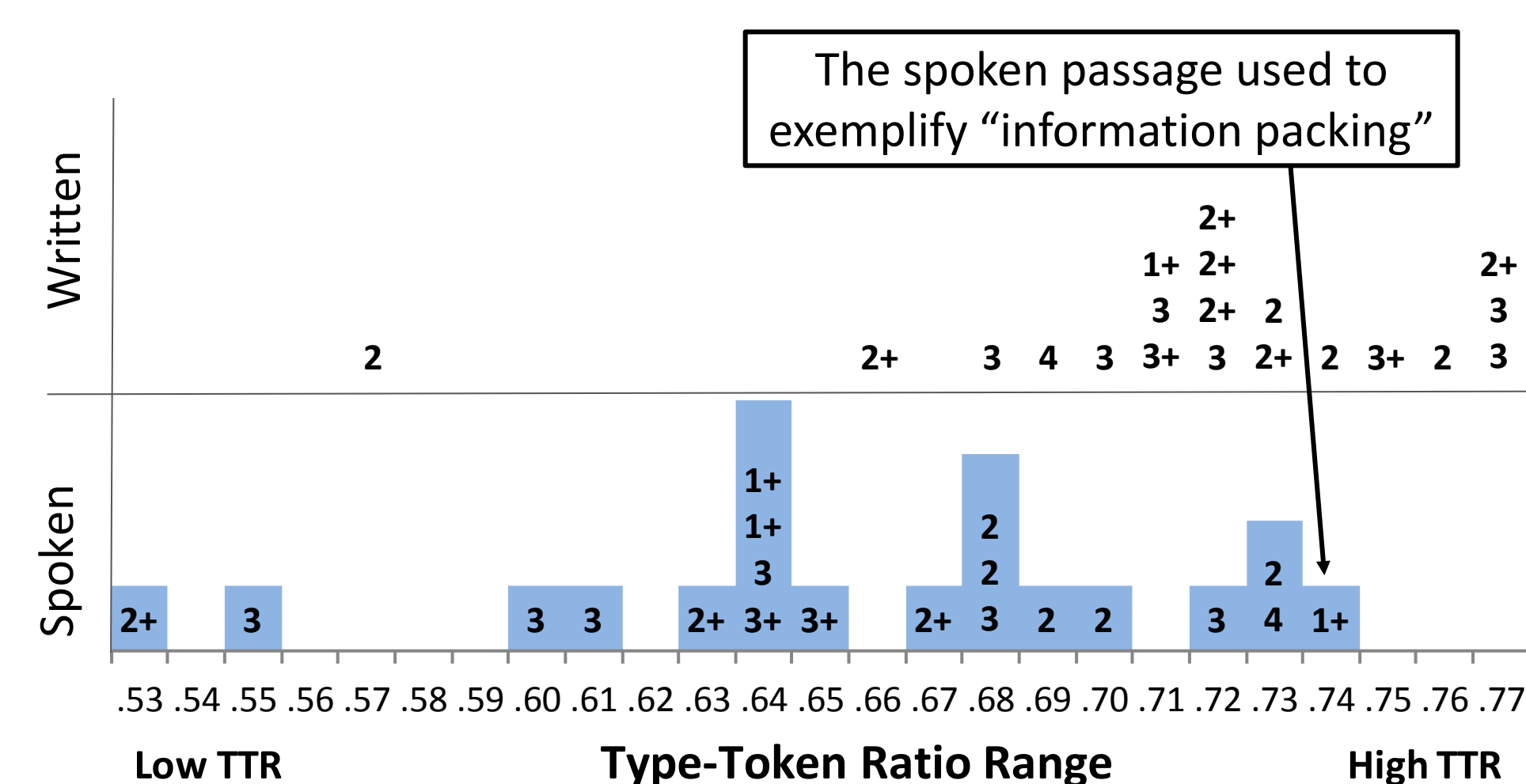
Other relationships?

- Density may tend to be higher for written passages (e.g., Biber, 1988)
- What captures the impression of "information packing"?

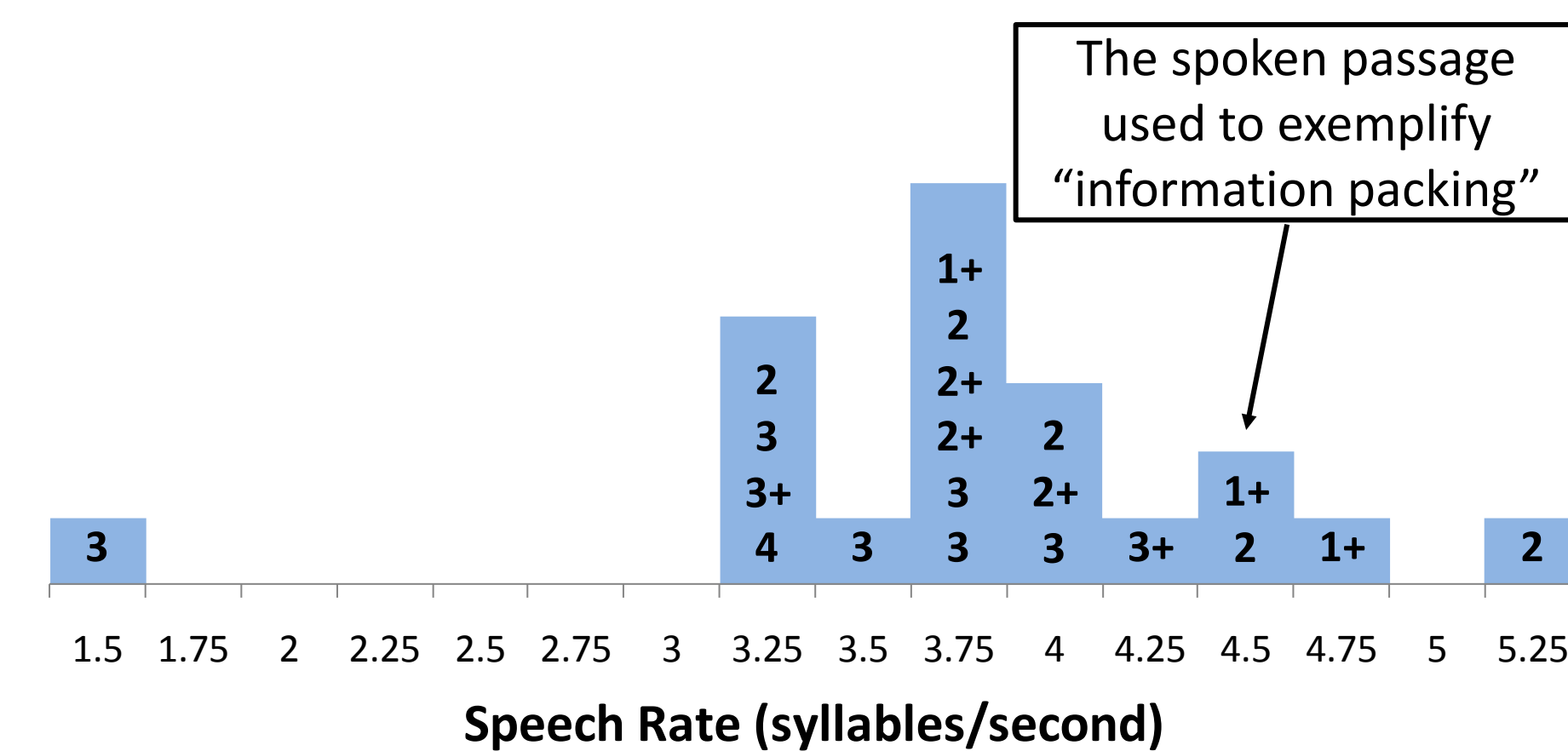
Results



- CPIDR used to calculate **idea density**; densities ranged from .40 to .56, unrelated to passage level
 - One additional level 1+ written passage had an idea density of .32, but had a repeating time and title format
- Spoken passages had a wider range of densities
- Idea density may not be the best indicator of "information packing"
- More spoken than written passages fell at or below .48, consistent with claims that speech is typically less dense than writing (e.g., Biber, 1988; Halliday, 1979)



- TTR from 0.53 to 0.77 with MATTR window at 100 words
 - No relationship between TTR and level, despite TTR's link to use of precise vocabulary (Biber, 1988)
- Spoken passages again demonstrated somewhat wider range than written passages
- The "information packing" passage had the highest TTR
- More spoken than written passages fell at or below mid-range of 0.65, again consistent with claims that speech is generally less dense than writing (e.g., Biber, 1988)



- Speech rates often above level found to interfere with L2 listening comprehension (~3.7 syll/s, Griffiths, 1992) but below the "normal" rate for native listeners (e.g., 5.12 syll/s, Jacewicz, Fox, O'Neill, and Salmons, 2009)
 - No relationship between level and speech rate
- The "information packing" passage among those passages with the highest rates

Spoken Passages					
Passage	Level	Idea Density (Z)	TTR (Z)	SR(Z)	Length (syll)
1	1+	0.94	-0.31	1.37	234
2	1+	-1.51	-0.36	0.03	166
3	1+	-0.22	1.48	0.86	220
4	2	1.35	0.58	1.79	299
5	2	-1.68	1.32	-0.09	221
6	2	-1.57	0.44	1.05	305
7	2	0.15	0.33	-0.65	813
8	2	0.32	0.69	0.36	668
9	2+	1.11	-2.22	0.06	556
10	2+	0.89	-0.54	0.35	428
11	2+	-0.66	0.21	-0.10	686
12	3	0.61	-0.94	-0.86	874
13	3	0.74	1.06	0.34	850
14	3	-1.51	-1.88	-2.92	95
15	3	-0.46	-0.87	0.04	456
16	3	0.20	-0.31	-0.06	635
17	3	1.35	0.37	-0.55	2266
18	3+	0.74	-0.15	-0.80	1635
19	3+	-0.44	-0.27	0.61	1322
20	4	-0.35	1.36	-0.83	675

Conclusions

- Results for idea density and TTR analyses indicate density varies across passage levels
- Consistent with previous work, spoken passages are often less dense than written passages
- Rater's impression of "information packing" may arise from high TTR or a faster speech rate
- Density factors (idea density and TTR) not related in the passage set
- Future research should explore how factors like TTR and idea density trade off against each other
- Research examining passage length should equate density and speech rate of passages

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