

Speech and Language Processing (3rd ed. draft)

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Here's our Jan 7, 2023 draft! This draft is mostly a bug-fixing and restructuring release, there are no new chapters, applications section earlier, reflecting how we and others tend to teach NLP, and combines the linguistic structure

We've put up a [list here](#) of the amazing people who have sent so many fantastic suggestions and bug-fixes for improving the book. We help, the book would not be possible without you!

Individual chapters are below; [here is a single pdf of all the chapters in the Jan 7, 2023 draft of the book so far!](#)

Feel free to use the draft chapters and slides in your classes, the resulting feedback we get from you makes the book better!

As always, typos and comments very welcome (just email slp3edbugs@gmail.com and let us know the date on the draft)! (Don't bother reporting missing refs due to cross-chapter pdfs, those are fixed in the full book draft)

When will the whole book be finished? Don't ask.

If you need last year's December/Jan 2021/2 draft chapters, they are [here](#):

Chapter	Slides	Relation to 2nd ed.
Part I: Fundamental Algorithms		
1: Introduction		[newly written]
2: Regular Expressions, Text Normalization, Edit Distance	2: Text Processing [pptx] [pdf] 2: Edit Distance [pptx] [pdf]	[Ch. 2 and parts of Ch. 3 in 2nd ed.]
3: N-gram Language Models	3: N-grams [pptx] [pdf]	[Ch. 4 in 2nd ed.]
4: Naive Bayes and Sentiment Classification	4: Naive Bayes + Sentiment [pptx] [pdf]	[new in this edition]
5: Logistic Regression	5: LR [pptx] [pdf]	[new in this edition]
6: Vector Semantics and Embeddings	6: Vector Semantics [pptx] [pdf]	[new in this edition]
7: Neural Networks and Neural Language Models	7: Neural Networks [pptx] [pdf]	[new in this edition]
8: Sequence Labeling for Parts of Speech and Named Entities	8: POS/NER Intro only [pptx] [pdf]	[expanded from Ch. 5 in 2nd ed.]
9: RNNs and LSTMs		[new in this edition]
10: Transformers and Pretrained Language Models		[newly written for this edition]
11: Fine-tuning and Masked Language Models		[new in this edition]
12: Prompting and Instruct Tuning		
Part II: NLP Applications		
13: Machine Translation		[newly written for this edition, earlier MT]
14: Question Answering and Information Retrieval		[mostly newly written ; a few sections ex
15: Chatbots and Dialogue Systems	15: Dialog [pptx] [pdf]	[mostly new, parts expanded from Ch 24
16: Automatic Speech Recognition and Text-to-Speech		[mostly newly written, ASR and TTS wei
Part III: Annotating Linguistic Structure		
17: Context-Free Grammars and Constituency Parsing		[expanded from Ch. 12 and 13 in 2nd ed
18: Dependency Parsing		[new in this edition]
19: Logical Representations of Sentence Meaning		[Ch. 17 in 2nd ed.]
20: Computational Semantics and Semantic Parsing		
21: Relation and Event Extraction		[expanded from Ch. 22 in 2nd ed.]
22: Time and Temporal Reasoning		[expanded from Ch. 22 in 2nd ed.]
23: Word Senses and WordNet		[expanded from Ch. 20 in 2nd ed.]
24: Semantic Role Labeling and Argument Structure		[expanded from parts of Ch. 19, 20 in 21
25: Lexicons for Sentiment, Affect, and Connotation	25: Affect [pptx] [pdf]	[new in this edition]
26: Coreference Resolution		[mostly newly written; some sections ex
27: Discourse Coherence		[mostly new for this edition]
28: Phonetics		[Ch 7 in 2nd ed]
Appendix Chapters (will be just on the web)		
A: Hidden Markov Models		
B: Spelling Correction and the Noisy Channel		
C: Statistical Constituency Parsing		
D: Context-Free Grammars		
E: Combinatory Categorical Grammar		[new in this edition]