

LING 696A: Syntax and Computation

- Lecture 1

- Sandiway Fong
- **University of Arizona**
- `sandiway.arizona.edu`
- `sandiway@arizona.edu`

Course key details

- Meet here: Social Sciences Rm 307
- My office: Douglass 308
- Time: Mondays at 2:30pm – 5pm until Dec 7th
- No meeting: Sept 7th (Labor Day)
- Deliverables (**for registered students**): some project
 - theoretical: syntax or computation
 - or practical: using the SMT Parser
 - group work okay

Course Outline

- **Today (Lecture 1):**

- start with a rough sketch of the theoretic components and mechanisms
- will go deeper into theory and computation in later lectures

- **Next time (Lecture 2):**

- **SMT Parser** software (*the course version, less buggy*)
- has some English and Spanish
- how to run and modify LEX
- hope you have a laptop!

Course Outline

- **Next next time (Lecture 3):**
 - **let's get deeper into background and theory!**
 - Minimalism: Where Are We Now, and Where Can We Hope to Go, Chomsky N. A.
 - *GENGO KENKYU* 2021 Volume 160 Pages 1-41
 - Download:
 - https://www.jstage.jst.go.jp/article/gengo/160/0/160_1/article
 - **more than one session needed?**

Course Outline

- **Other lectures (theory):**
 - *Expanded details drawn from*
 - **On the Nature of Minimal Search (MS)**
 - based on *Society of Modern Grammar* talk (Jan 2026)
 - **On the Nature of Form Set (FS)**
 - based on (Fong & Oishi 2025)

Course Outline

- **Possible lecture topics:**

- background: theory of computation and computational complexity
- background: evolution
- background: history of science and study of language
- outstanding technical issues (problems for the **SMT Parser**)
- **Miracle Creed and SMT** (Chomsky 2024)
- **Displacement** (Chomsky, to appear)

- **Research topics:**

- other languages/phenomena (*your contribution?*)

Course Outline

- **Proposed (unimplemented) SMT Parser components:**
 - **Processing** (*competence vs. performance*)
 - Resource Restrictions (RR) apply differently here
 - **Statistical** component (*where it belongs in the SMT framework*)
 - there's a joint paper (proposal for experiments) I'll circulate ...
 - **Acquisition** (*language parameterization*)
 - we need a theory of **EXT** (*Externalization*)
 - linear vs. hierarchical constraints
 - **INT** (Interpretation) ... e.g. selectional restrictions / world knowledge

Today: SMT Parser

- start with a rough sketch of the theoretic components and mechanisms
- **Slides based on an invited talk given this summer:**
 - **The SMT Parser:** where Merge and Perception meet
 - *5th International Conference on Biolinguistics and Language Acquisition*
 - *Beijing Foreign Studies University, July 12th 2026*
- Companion paper (email me):
 - **please do not circulate** (incomplete, early draft)

Outline:

- **Introduction:** atoms and molecules of syntax
- **SMT Parser:** system architecture
- **Theory and Computation Model:** some highlights
- **SMT:** motivating optimal simplicity