Constructed languages

Mar 19, 2026

Outline

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Constructed languages

- Constructed languages (`ConLangs`) are artificially created languages designed to be as expressive as naturally evolved human languages.
- They differ from other artificial language systems, such as mathematical notation, which are more limited in the types of messages they can convey.

Constructed languages: Examples

- Esperanto and Interlingua, which were intentionally designed to resemble natural languages
  - Reducing grammatical complexity
  - Serving as alternatives to naturally evolved languages.
- Fantasy languages (e.g., Tolkien's Quenya)
  `https://www.youtube.com/watch?v=VFlyQk_uVAI`
- Fictional alien languages (e.g., Klingon, Na'vi)
- Logically designed languages (e.g., LogLan).

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Purpose

- This study focuses on using large language models (LLMs) to help create ConLangs that resemble natural human languages, particularly those similar to fantasy-language types rather than languages intended to replace natural ones.

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Introduction

This tutorial introduces a simple way to explore the **IASC (Interactive Agentic System for ConLangs)** repository and submit a short reflection on the outputs you obtain. (`https://github.com/SakanaAI/IASC`)

Goal

The goal is not to understand the full system, but to quickly run part of the pipeline, inspect the outputs, and reflect on what the system generates. More detailed explanations of the architecture and design choices can be found in the accompanying paper. In this activity you will:

1. run a small part of the ConLang generation pipeline,
2. inspect the generated outputs, and
3. briefly reflect on what the system produced.

Step 1: Install the repository

Clone the repository and install the required packages.
Make sure the LLM API credentials required by the repository (e.g., Claude, OpenAI, or Gemini) are properly set in your environment variables.

Step 2: Run a small morphosyntax experiment

Instead of running the full pipeline, we generate a simple morphosyntax configuration.
For instructions, see the repository:
`https://github.com/SakanaAI/IASC#run-morphosyntax`

This step generates grammatical properties for a constructed language using a predefined feature set (e.g., a *French-like* configuration).

Step 3: Inspect the generated outputs

After running the scripts, explore the output files located in:
`modular_experiment_outputs_controlled/`
Look for:

- generated sentence examples
- morphosyntactic descriptions
- intermediate outputs for grammar features

Short reflection (submit)

Write a short paragraph (150–200 words) describing:

- what part of the pipeline you ran,
- what kind of outputs were generated,
- one interesting property of the generated language, and
- one question or limitation you noticed.

Note

This tutorial only demonstrates a small part of the IASC system. The repository includes additional components for generating phonology, lexicons, orthography, and grammar handbooks. Students interested in the full workflow should refer to the paper and repository documentation for further details.

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What to Submit

Submit a **zip file** named `Lab8_YourName.zip` including:

- **Output files** (`.txt`) generated from the pipeline (more than one file is expected)
- **Short reflection** (150–200 words) describing:
  - what part of the pipeline you ran
  - what outputs were generated
  - one interesting observation
  - one question or limitation

Reflection file format: `.docx` or `.pdf`

Evaluation (6 points)

- **2 pts** Output files generated from the pipeline
- **2 pts** Clear description of the outputs
- **1 pt** Interesting observation about the generated language
- **1 pt** Question or limitation

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Upcoming assignments

(Uploaded on MyCourses last Sunday)

- Background Research Presentation:
  `https://hksung.github.io/Spring26_PSYC681/assignments/3_background%20research%20presentation`
- Midway Report:
  `https://hksung.github.io/Spring26_PSYC681/assignments/4_midway%20report`

Distinguished Computational Linguistics Lecture

- **Speaker:** Kenji Sagae, Ph.D.
- **Talk:** *Automatic Assessment of Child Language and Adult L2 Acquisition with Neural Language Models*
- **Time:** 10:00 AM, Friday, April 3
- **Location:** SHED-4350

Participation Credit (1 point)

- Take a photo of a slide you found interesting
- Write a short explanation of why it interested you
- Submit both via MyCourses

Tuesday's Class

- **No in-person class**
- Asynchronous activity: Watch a YouTube video about LLMs in 2025 (about 40 mins; *will be shared via MyCourse announcement tab*)
- Complete a short follow-up quiz to confirm participation (available 8:00 AM – 6:00 PM on Tuesday)