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Exploring the Application of NLP in Narrative Patterns of Adult Attachment

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Background Research Project

The Adult Attachment Interview (AAI) is widely used to evaluate individuals' attachment narratives, but manual transcript coding is time-consuming. Waters and Facompré (2021) developed a coding system focusing on secure base script knowledge through the AAI's first six questions. See the boxes on the right.

Integrating machine learning and NLP offers promise in automating aspects of AAI analysis. This ongoing research project explores these technologies' practical application.

Examining 1,410 AAI transcripts across 12 studies in three languages revealed inconsistencies in AAI administration. The varying quality per transcript has raised concerns about transcript suitability for assessing secure base script knowledge.

The focus of the first study is to develop a model for automatic transcript suitability assessment, starting with English studies.

The model will evaluate interview characteristics such as unintelligibility and non-compliance with the AAI protocol.

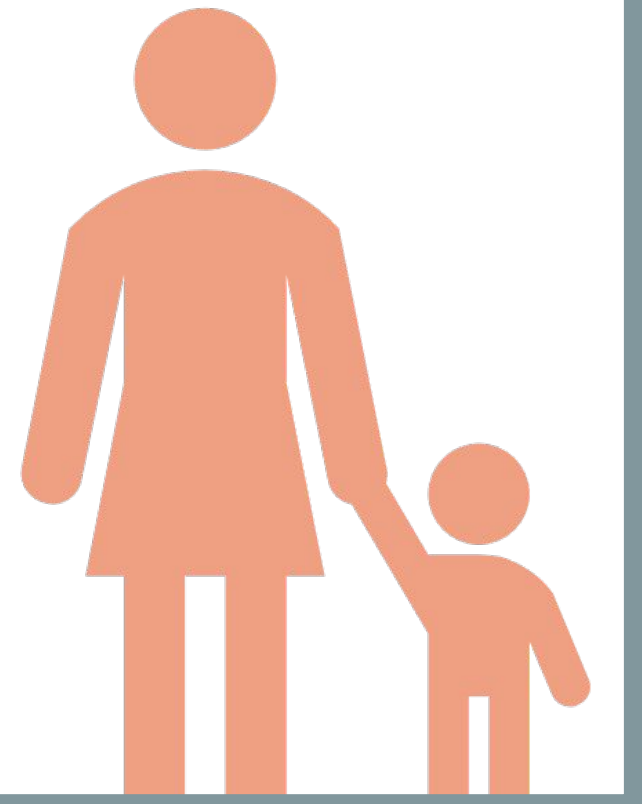
Future objectives of this research project involve using sentiment analysis to examine the correlation between participant-provided adjectives and their associated narratives. Ultimately, the study aims to automate secure base script knowledge coding within AAI transcripts.



What is the AAI?

A semi-structured interview of 20 questions centered around childhood memories and relationships with the primary caregivers. This project only uses the initial six questions, which explore:

- Describing five adjectives for the relationship with each caregiver
- Identifying the closest caregiver and why
- Recalling experiences of feeling upset, hurt, and sick



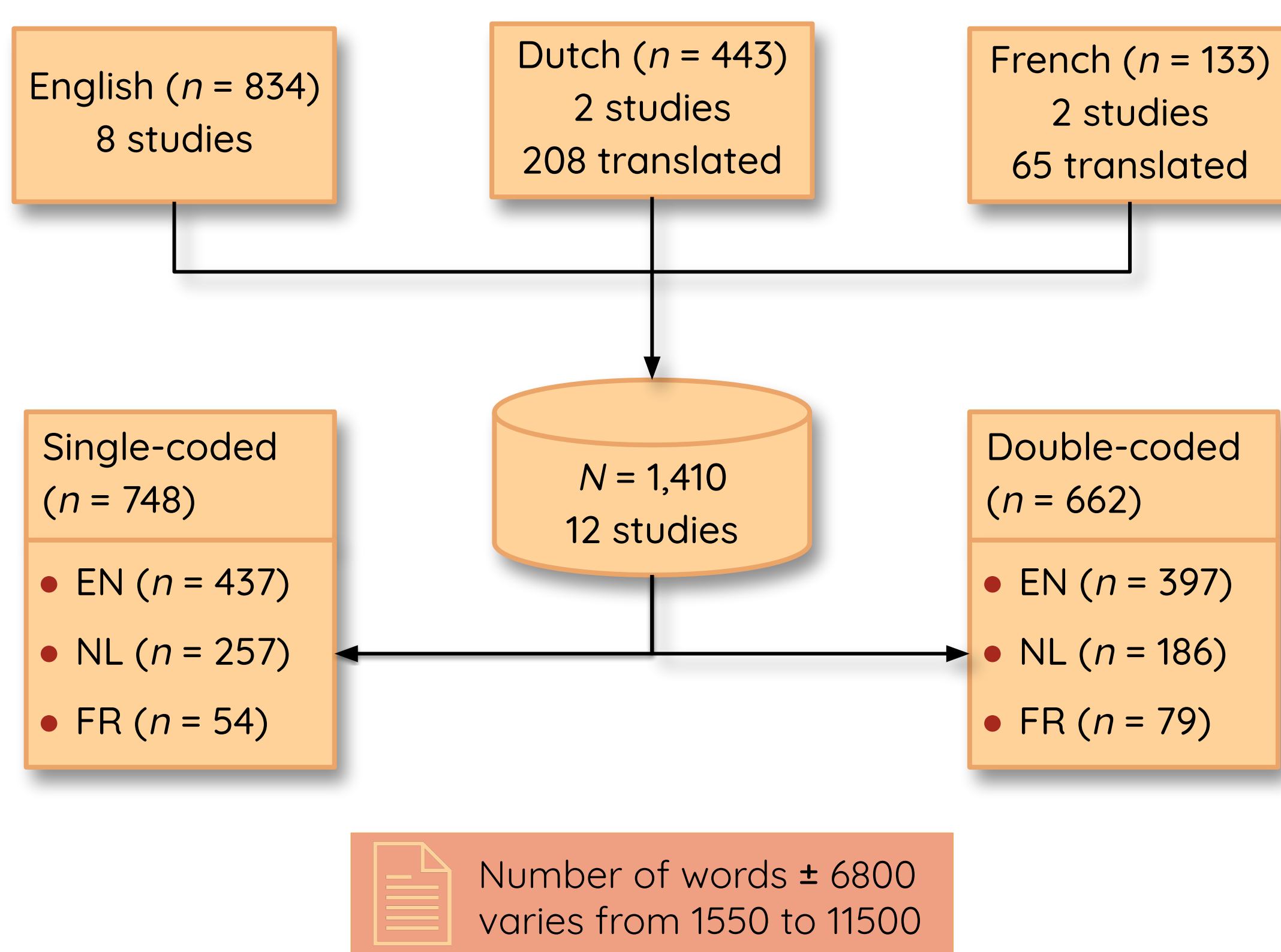
What is secure base script knowledge?

Secure base script knowledge refers to a script-like understanding of how parents responded to a person's distress during childhood.

Recognizing secure base script knowledge involves identifying four fundamental steps within an individual's narratives:

- Signaling or seeking support when distressed.
- Receiving instrumental care to address needs.
- Receiving emotional support during the distress.
- Experiencing a clear resolution of the distressful situation.

Data AAI Transcripts



Coders assigned a score of 0 to 2 to evaluate transcript suitability, where a score of 2 indicated a suitable transcript. The assessment was made based on their initial impressions, with documented reasons for lower scores. Factors leading to lower scores included instances of unintelligibility and non-compliance with the AAI protocol.



Research Approach

Current Stage

We are currently developing software to extract structured data from the transcripts and compile the corpus into JSON files. This involves creating metadata and 'label' paragraphs based on speaker identity and text type, derived from formatting styles. For example, bold text often denotes questions posed by the interviewer.

Python packages we want to use include NLTK, spaCy, and scikit-learn.

Upcoming Phases

Our subsequent stages, while not fully outlined yet, will involve systematic procedures:

- **Cleaning and Preprocessing:** Refining text by procedures involving noise removal, digit conversion, tokenization, and POS tagging.
- **Feature Extraction:** Identifying linguistic features indicating transcript quality
- **Model Development:** An iterative process involving data dividing for training, testing, and validation datasets.

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