# Quail: A Python toolbox for analyzing and plotting free recall data

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## Summary

Quail (Andrew C. Heusser 2017b) is a Python package for analyzing and plotting behavioral data from memory experiments. (The current focus is on free recall experiments (Kahana 2012, Manning, Norman, and Kahana (2015)).) Quail implements classic and more recently developed memory analyses and provides easy plotting functions by wrapping Seaborn (Michael Waskom 2016). API documentation, tutorials and examples can be found on our readthedocs page (Andrew C. Heusser 2017a). Key features include:

- Creating and plotting serial position curves (probability of recalling items presented at each presentation position) (Ebbinghaus 1913, Murdock (1962))
- Creating and plotting probability of $N$th recall curves (probability of recalling items at each presentation position as the $N$th recall in the recall sequence) (Hogan 1975)
- Creating and plotting lag-Conditional Response Probability curves (probability of transitioning between items in the recall sequence, as a function of their relative presentation positions) (Kahana 1996)
- Computing clustering metrics (e.g. single-number summaries of how often participants transition from recalling a word to another related word, where "related" can be user-defined; (Kahana 2012, Manning, Norman, and Kahana (2015)))
- Many nice additional plotting functions
- Convenience functions for loading and saving data
- Wrapper functions for automatically transcribing speech data (audio files) using the Google Cloud Speech-to-Text API

The intended user of this toolbox is a memory researcher who seeks an easy way to analyze and visualize data from free recall psychology experiments.

The toolbox name is inspired by Douglas Quail, the main character from the Philip K. Dick short story *We Can Remember It for You Wholesale* (the inspiration for the film *Total Recall*).

## References

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