Recognizing Affect in Spoken Language

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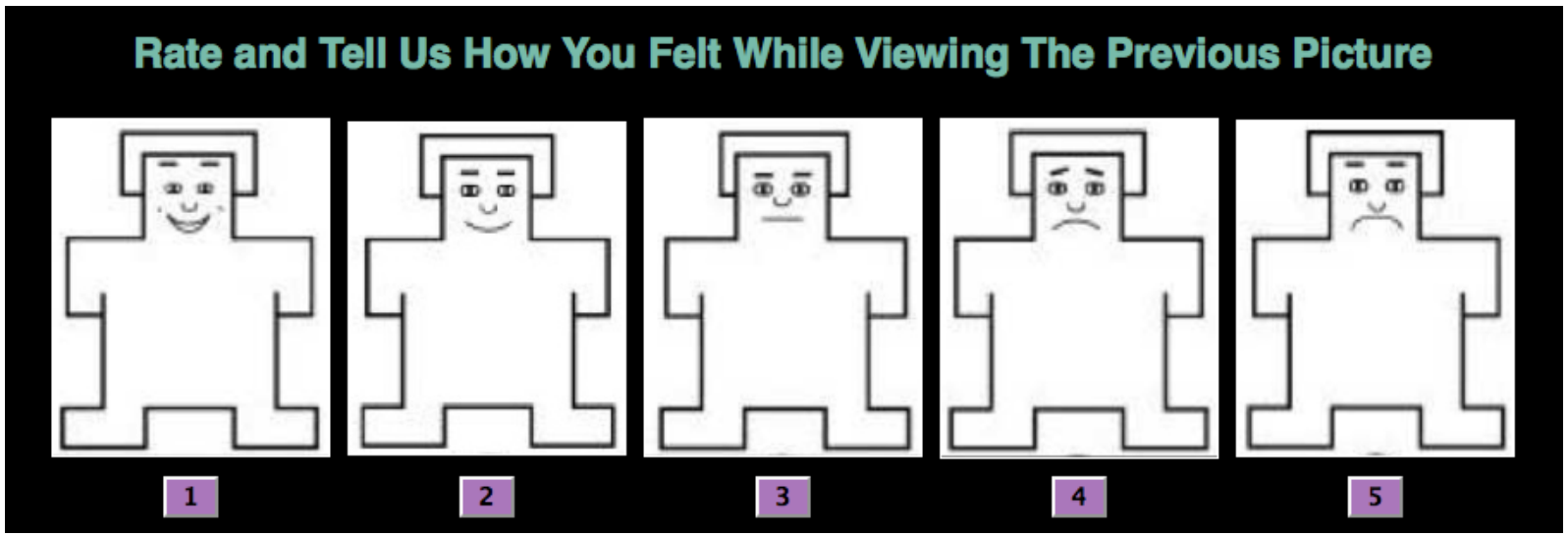
Overview

- Accurately recognizing affect is important for many applications, ranging from text-to-speech to monitoring mental health.
- This project studies how older people vary in their expressions of affect by exposing them to stimuli meant to ellicit positive or negative emotion.
- We have built a pipeline to train Support Vector Machines on a variety of lexical and semantic textual features.
- We have tested this pipeline on data made available by Cecilia Alm and preliminary data from the Social Engagement meter.

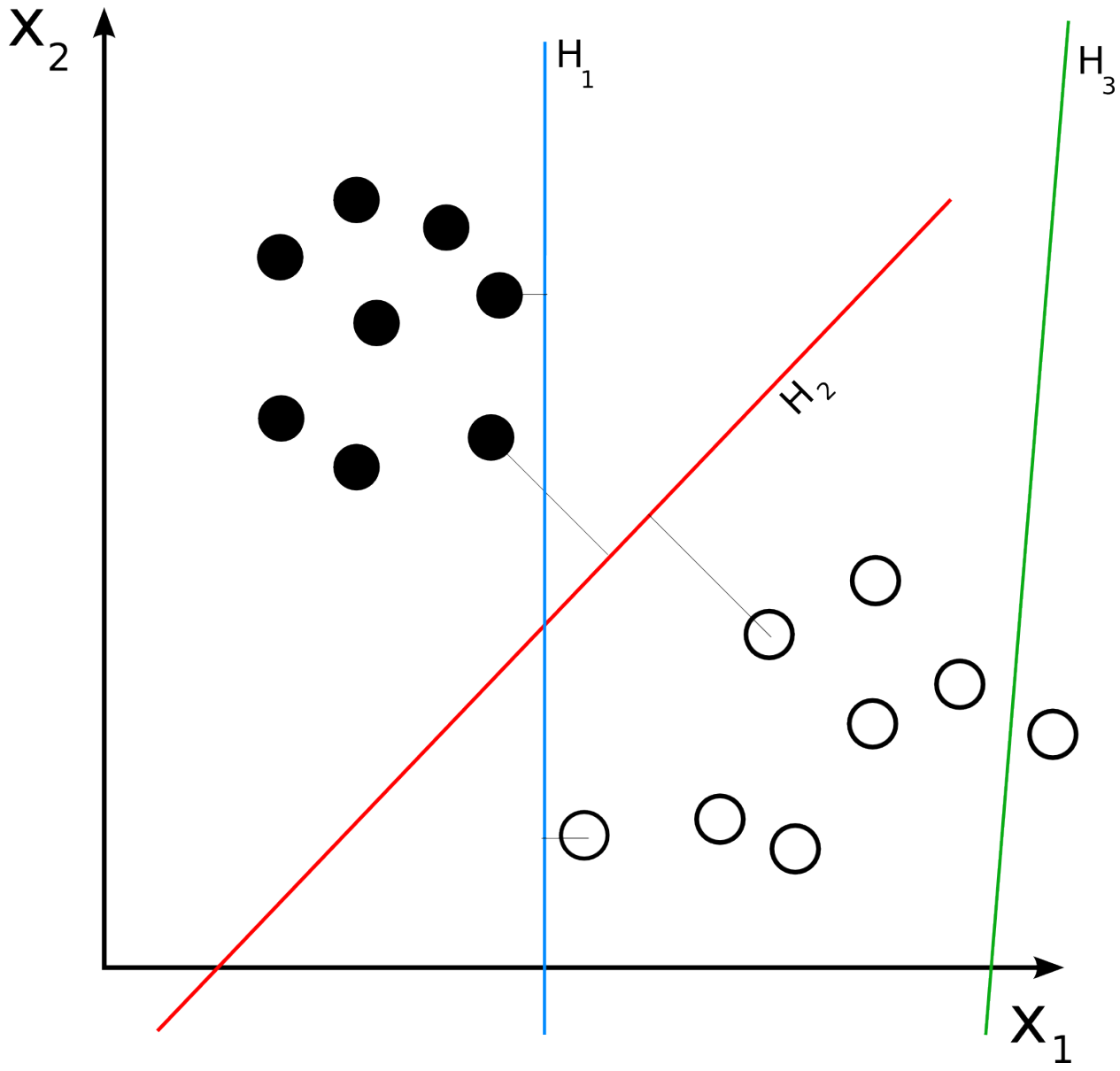
Positive slide

Negative slide

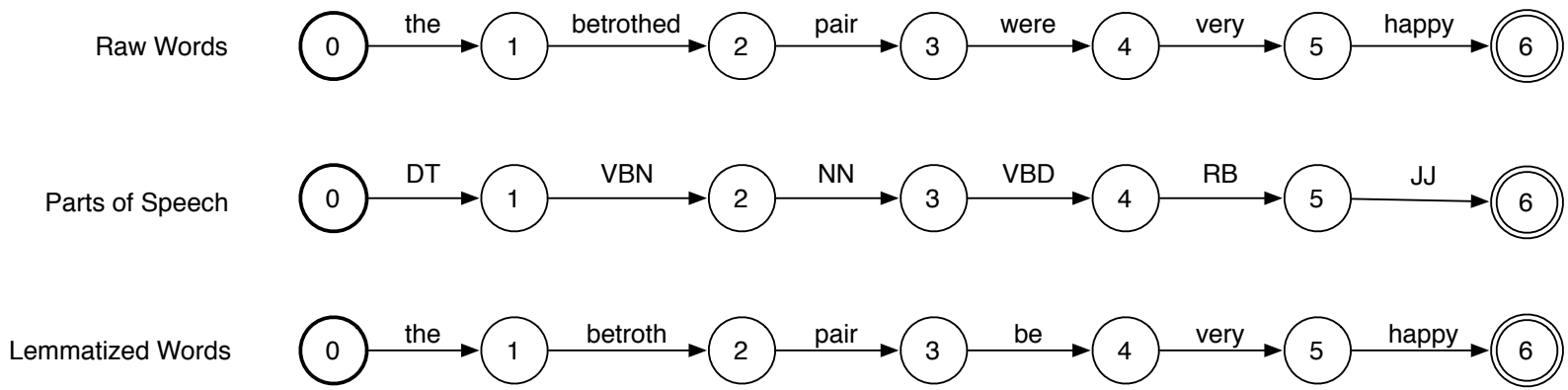
Rating stage



Support Vector Machines



Finite State Transducers



More complicated transducers

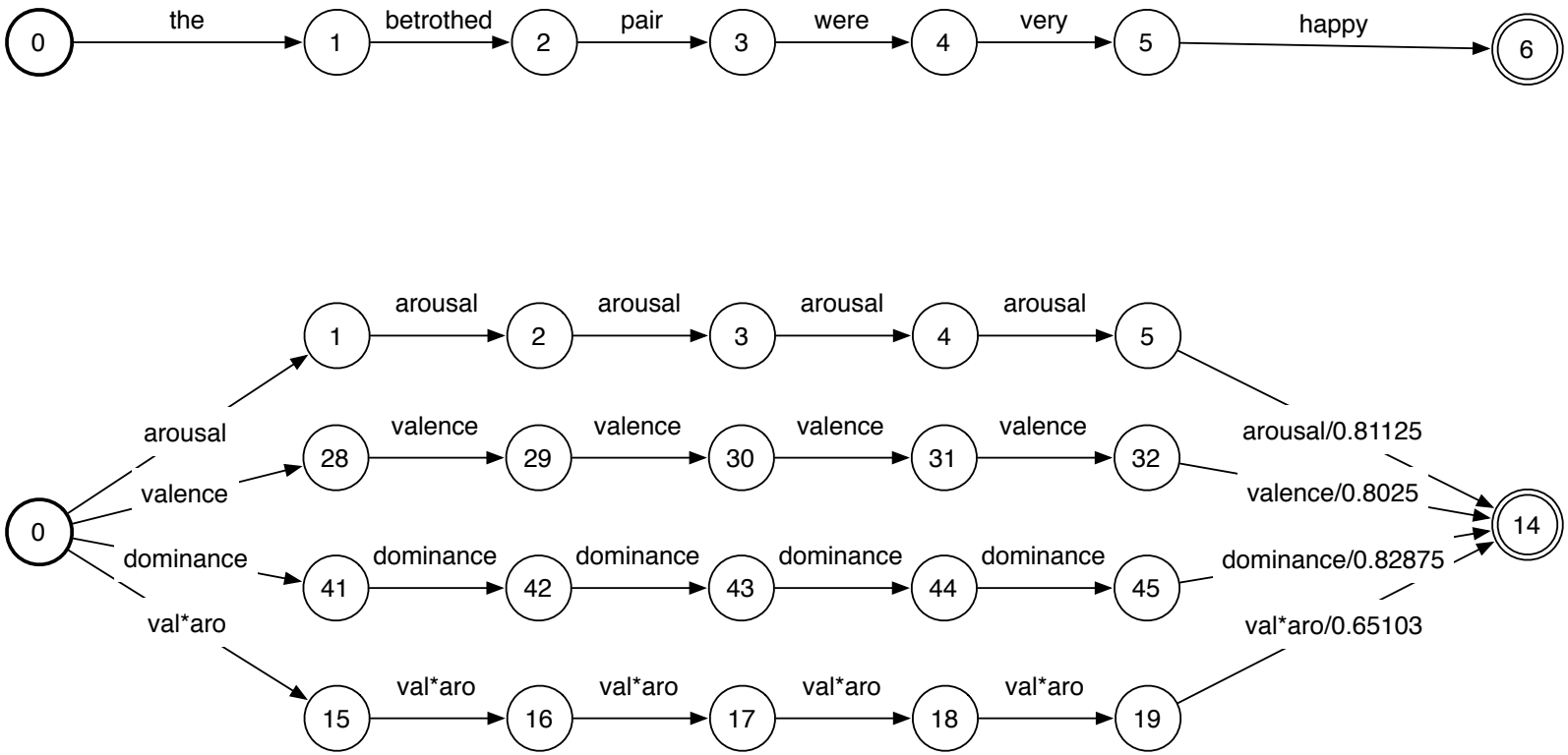


Figure: Multipath FST labelling using the ANEW dataset

Alm data (2002)

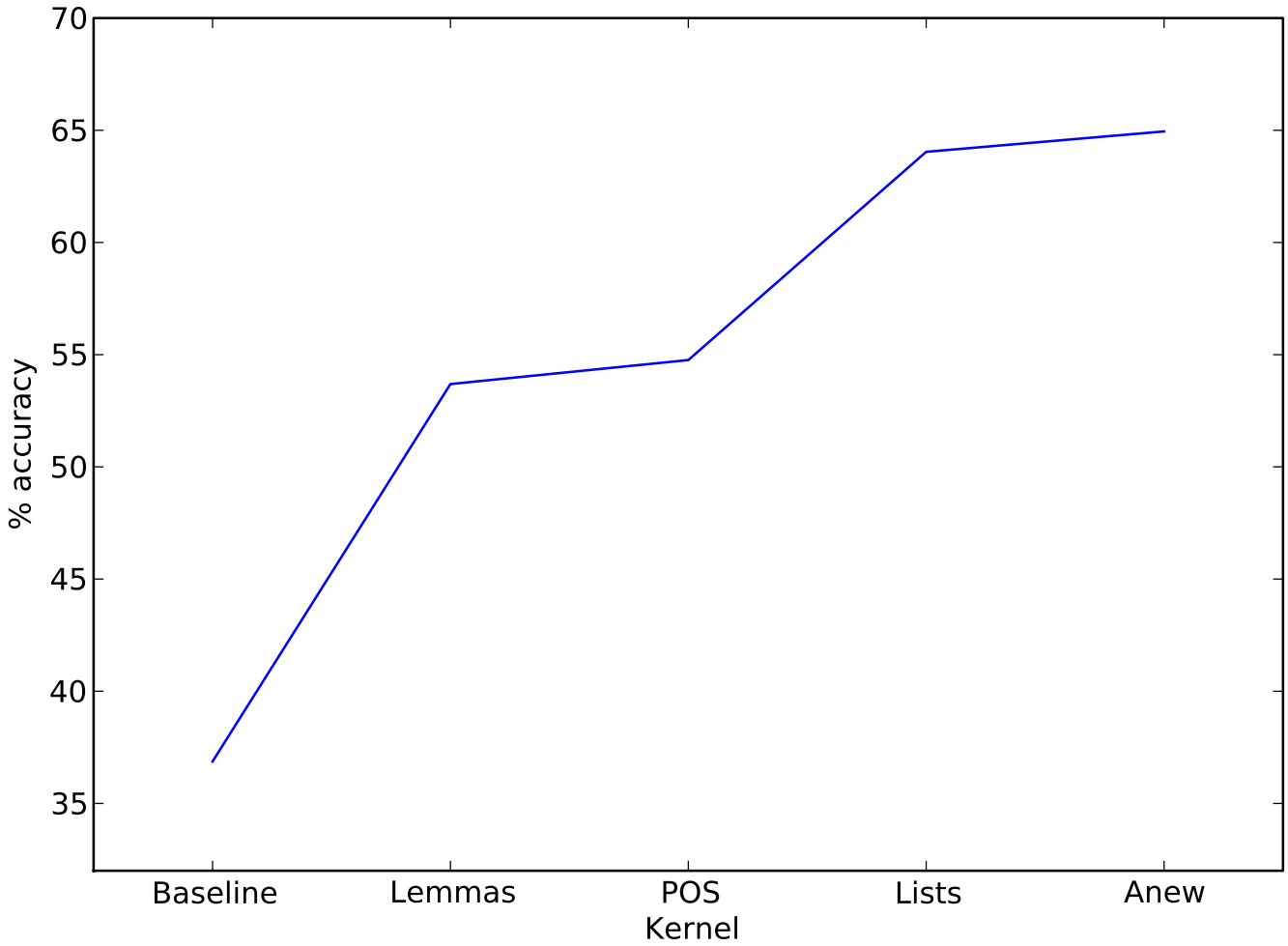


Figure: Consecutive summing of kernels.

Social Engagement Meter data (2009)

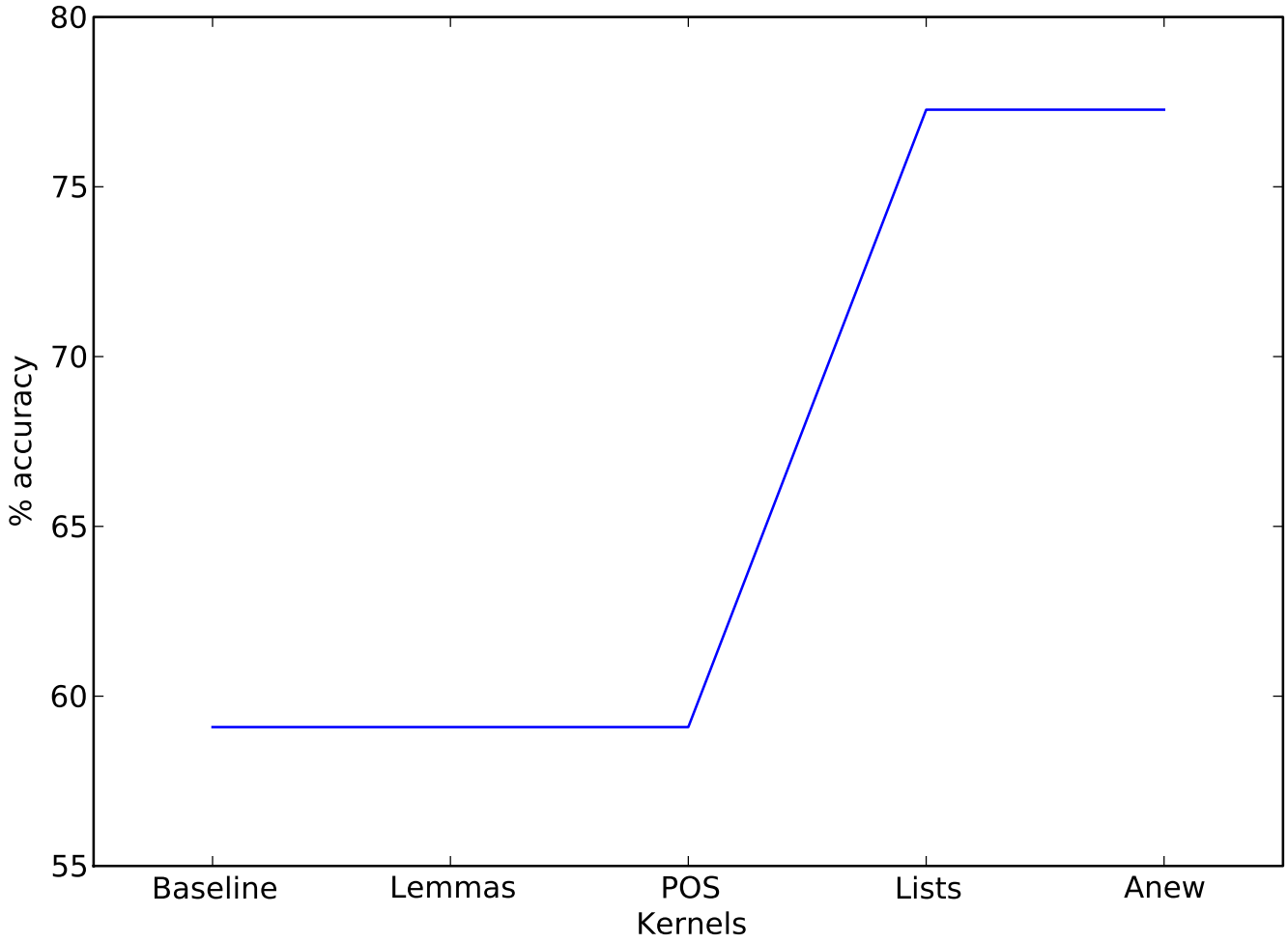


Figure: Consecutive summing of kernels.

Future Work

- Explore more combinations of kernels.
- Use probabilistic word lattices from the speech recognizer.
- Combine acoustic and lexical classification.

References

- Alm, C. (2002). *Affect in Text and Speech*. PhD thesis, University of Illinois at Urbana-Champaign, Urbana, Illinois.
- Cortes, C., Haffner, P., and Mohri, M. (2004). Rational kernels: Theory and algorithms. *Journal of Machine Learning Research*, 1:150.
- Shafran, I., Riley, M., Mohri, M. (2003) Voice Signatures. *Proc. of IEEE Automatic Speech Recognition and Understanding Workshop*, 31-36

Questions?