



# VISUAL AFFECT AROUND THE WORLD: A LARGE-SCALE VISUAL SENTIMENT ONTOLOGY

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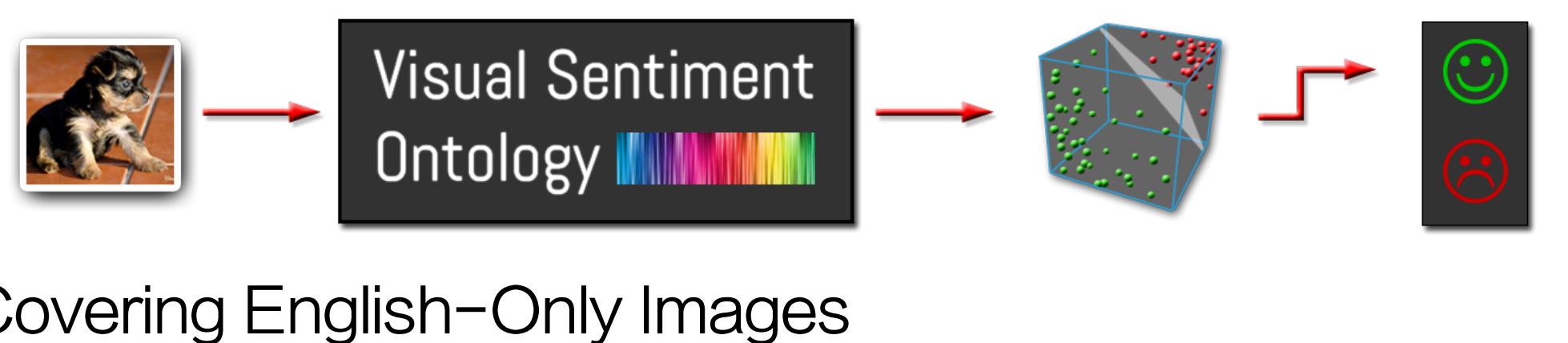
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## MOTIVATION: SENTIMENT VS CULTURE

- Psychology Theories  
Emotions: culture-specific or universal?
- Building culture-specific applications  
Personalized affective image search and retrieval
- Literature: visual sentiment ontology



## RESEARCH QUESTIONS

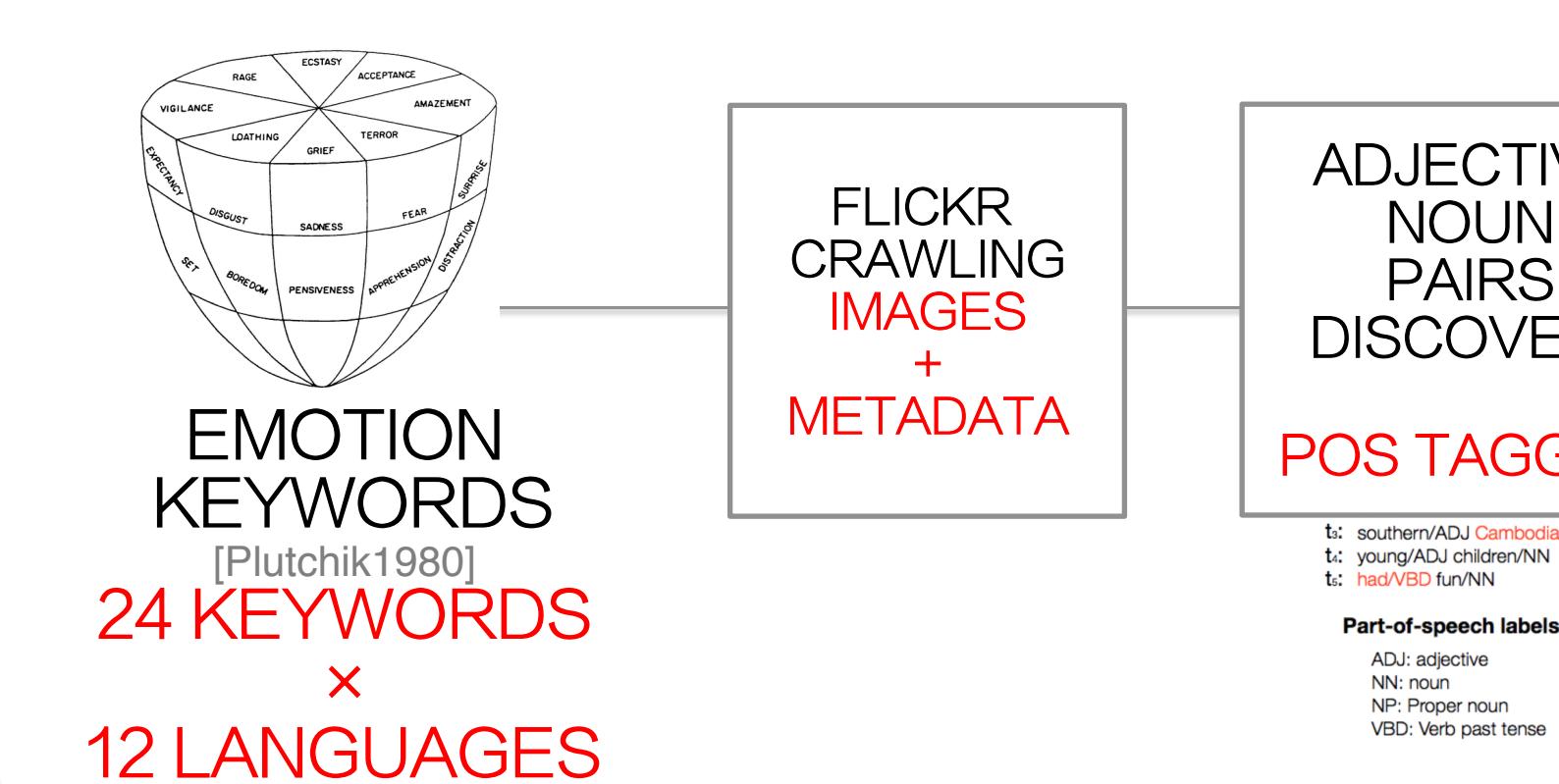
- 1) How do different cultures use images to express sentiment and emotions?
- 2) How similar are different cultures when expressing visual emotions?

## CONTRIBUTIONS:

- Context-aware pipeline for designing a multilingual visual sentiment ontology
- Multilingual Visual Sentiment Ontology mined from social multimedia data
- Multilingual sentiment-driven visual concept detector bank
- Multilingual and cross-lingual sentiment predictors.

## MULTILINGUAL VISUAL SENTIMENT ONTOLOGY

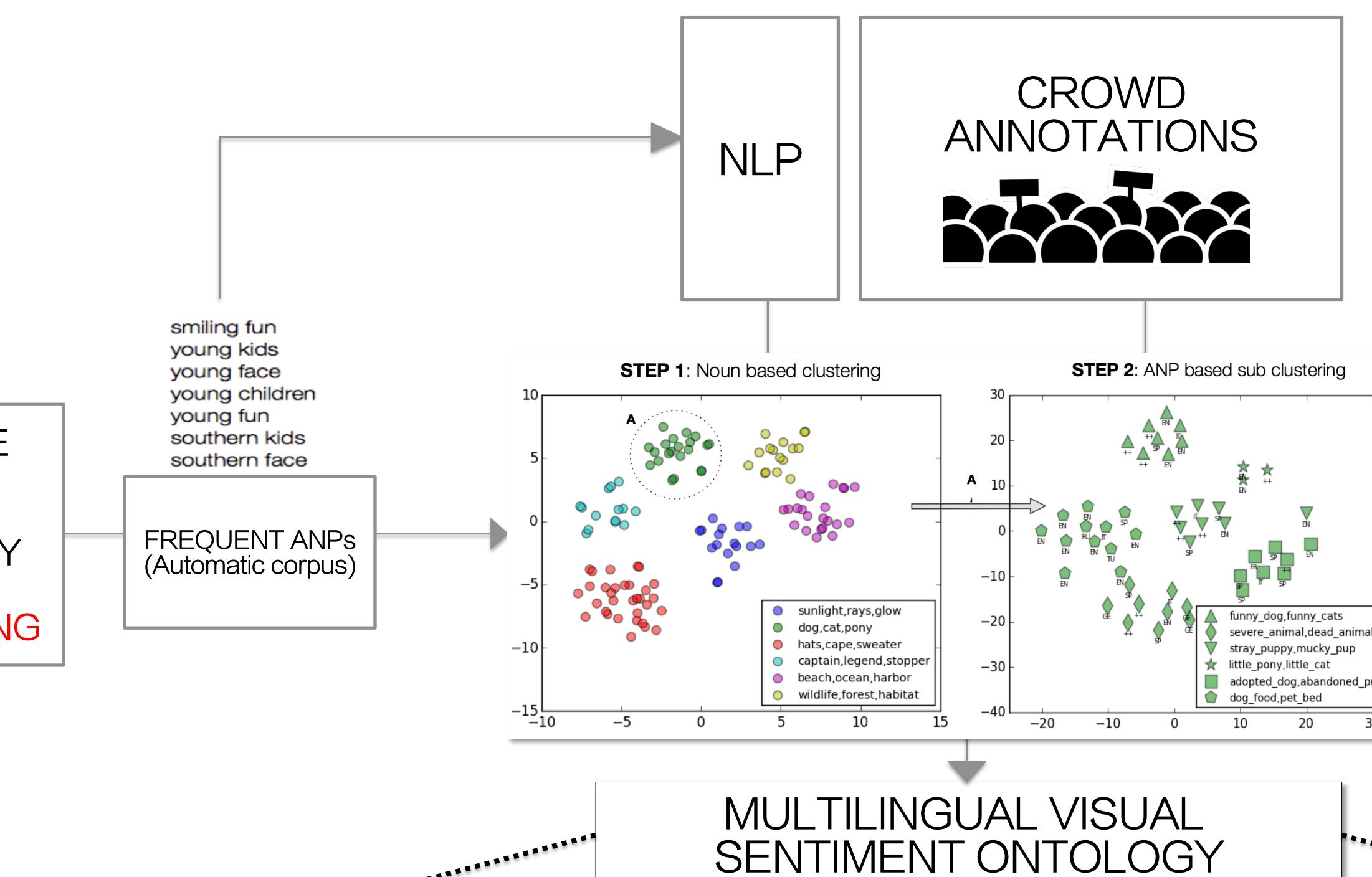
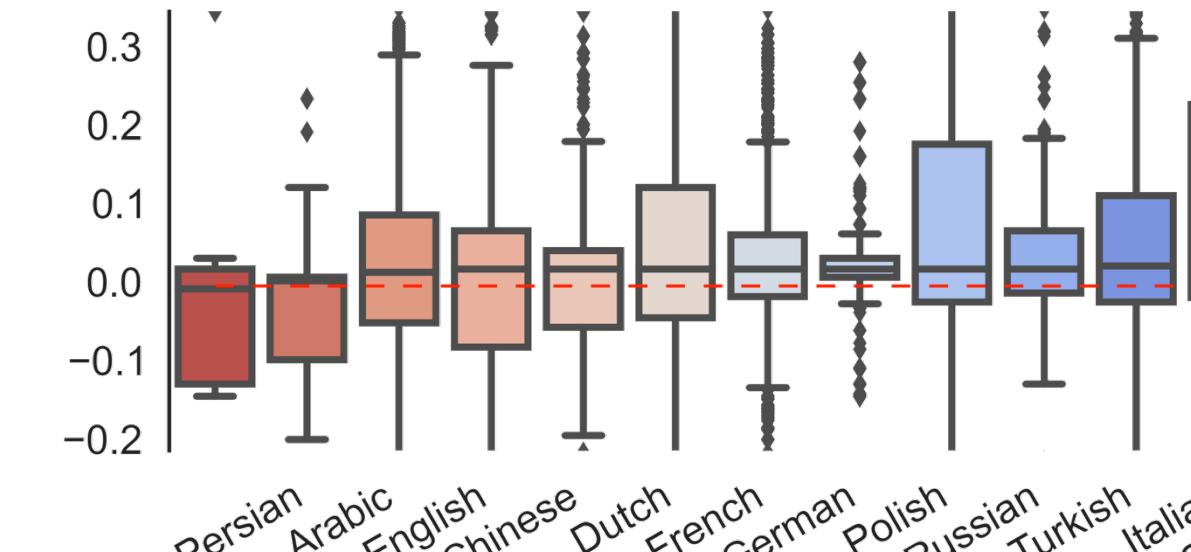
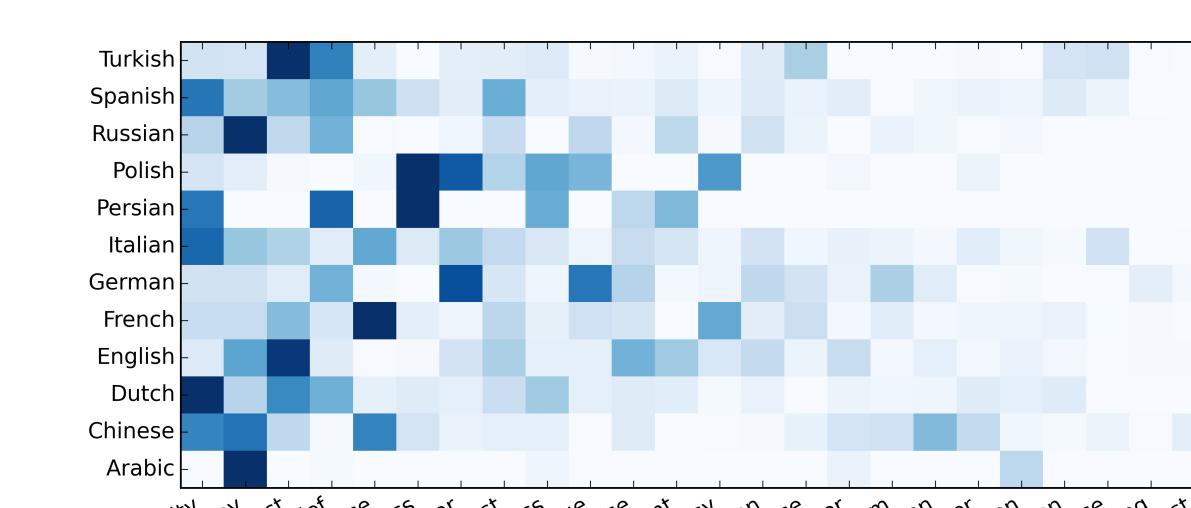
- ◆ 7M+ Flickr Images
- ◆ 12 Languages
- ◆ ~16K Adjective Noun Pairs (ANPs)
- ◆ Sentiment Values
- ◆ Emotion Keywords



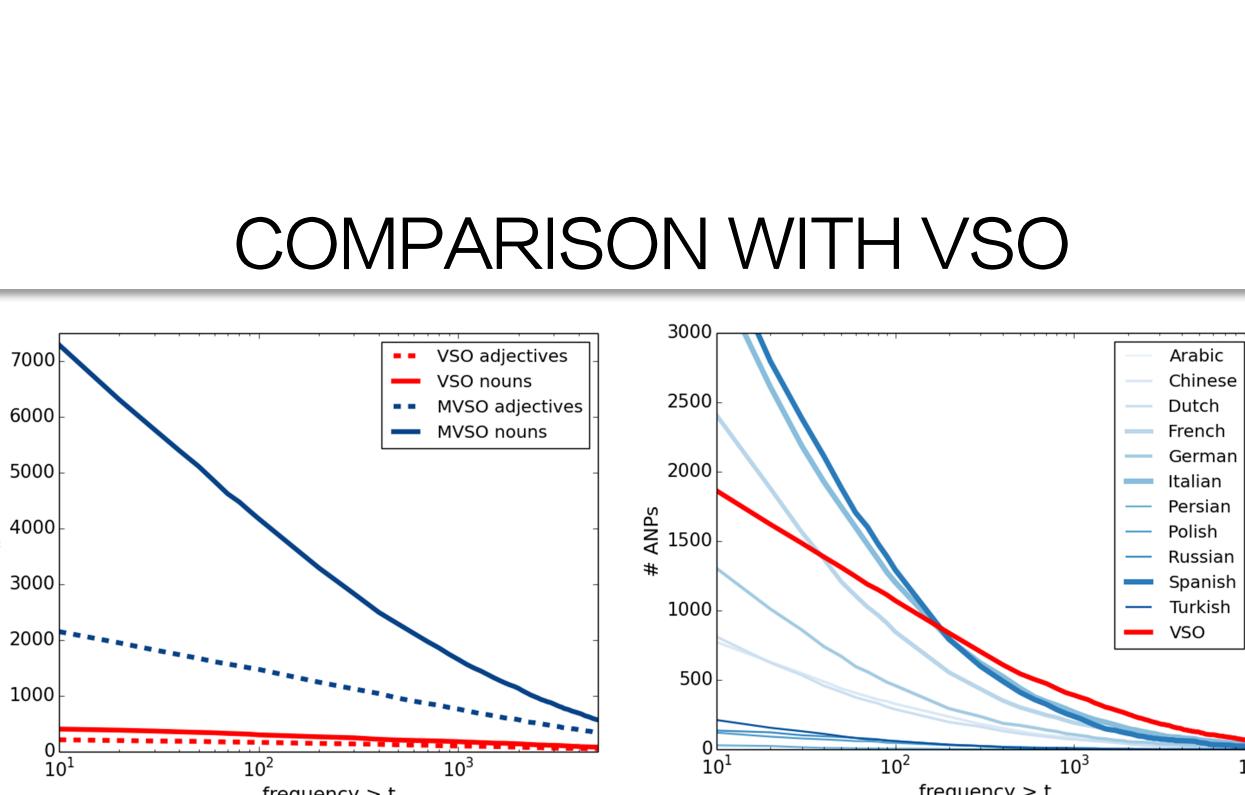
## MULTILINGUAL SENTIMENT ANALYSIS

WHICH SENTIMENTS/EMOTIONS OCCUR MOST FREQUENTLY ACROSS LANGUAGES?

Understanding how visual sentiment are expressed in different languages based on emotion/sentiment values on ANPs

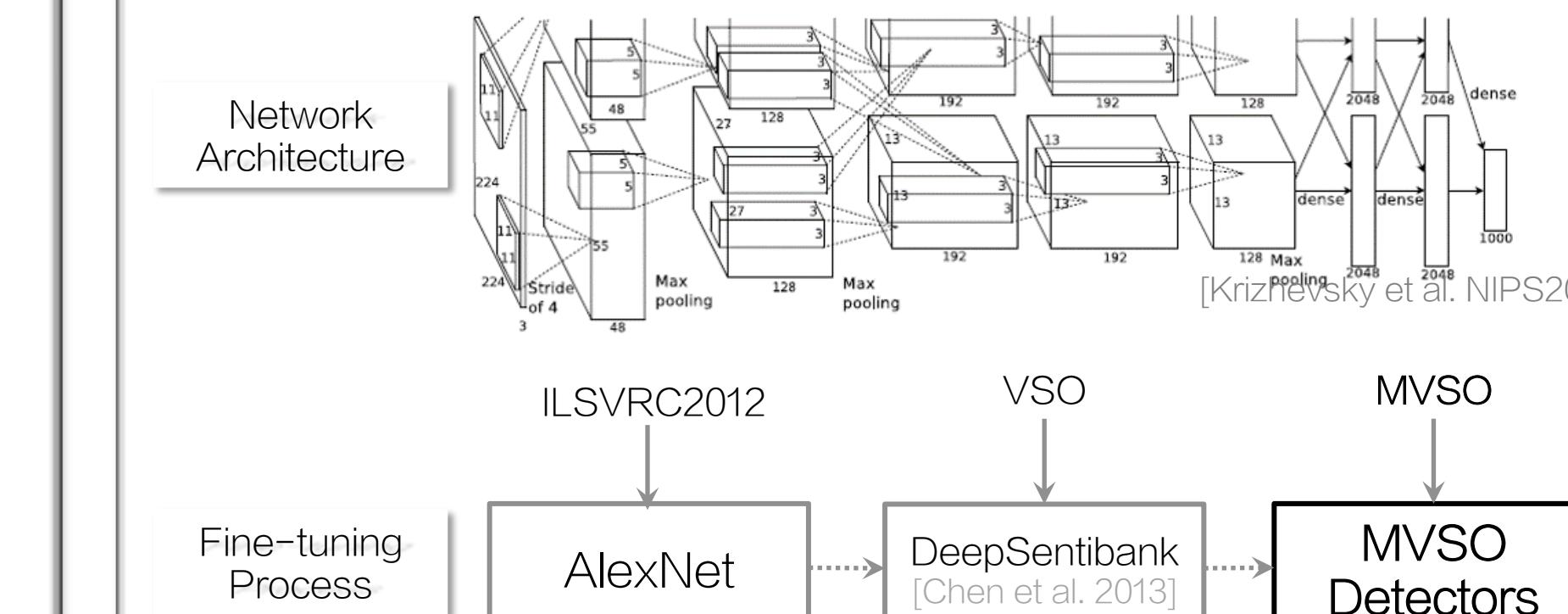


## VISUAL EXAMPLES



3 languages have bigger corpus (more popular)  
Other 9 are less diverse

## MULTILINGUAL AFFECTIVE CONCEPT BANKS



	#ANPs	#train	#test	trs (K)	time (hr)	top-1	top-5
English	4,342	3,236,728	807,447	50	40	10.1%	21.7%
Spanish	2,382	1,085,678	270,400	40	35	12.4%	25.4%
Italian	1,561	602,424	149,901	30	30	17.0%	30.9%
French	1,115	462,522	115,112	30	26	17.7%	35.5%
German	275	108,744	27,048	20	12	30.1%	52.8%
Chinese	243	102,740	25,575	20	15	27.1%	45.0%
DSB [7]	2,089	826,806	41,113	-	-	8.2%	19.1%



## CROSS-LINGUAL SENTIMENT PREDICTORS

