

# Non prototypical emotion

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- Our experiments with **ecological HH dialogs** (call center, interviews) have highlighted the presence of **non prototypical emotion**
  - **Mixture of emotions** : masked, superposed, sequential (rapid sequence)
  - **Emotional nuances** can be perceived differently by several subjects

Ex : corpus collected in a **Medical emergency** call center (700 dial., 20 h)  
30% Speaker-Turns was annotated with emotional content  
we combine the perception of the coders in a soft-vector  
-> ~40% mixture of emotions

Ex: coder 1: ANGER, DESPAIR

coder 2: STRESS, ANGER

SOFT VECTOR -> (2 ANGER, 1 DESPAIR, 1 STRESS) -> Major emotion ANGER

# Prediction for the conflictual segments with a neg/pos classifier

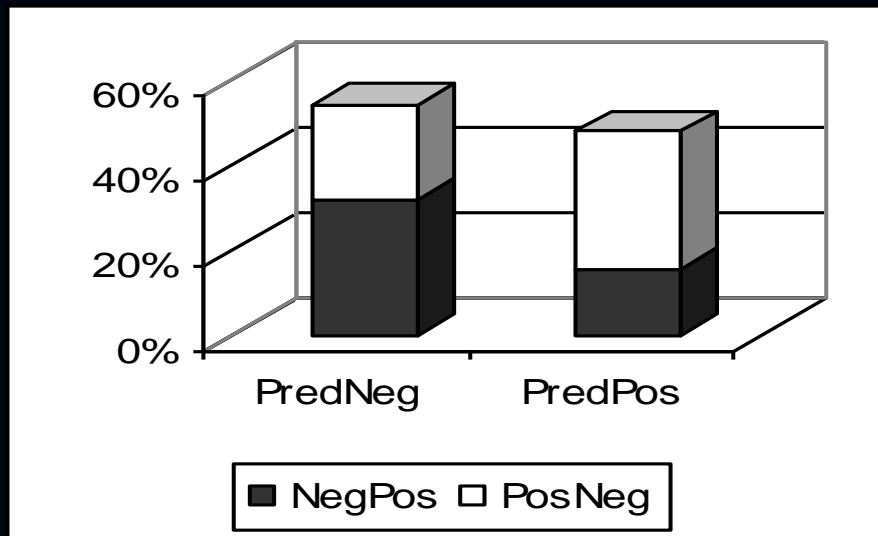
- Real dialogs recorded in a French medical call center (10 hours, ~400 dial)

Typical examples of pos/neg mixtures:

Agent feeling both compassion and annoyance

Caller feeling both stress and relief

- Conflictual segments excluded from the training data were used as a test (300 seg.)



- Low performance in the detection of the Major emotion are totally correlated to the results of the perceptive study (Vidrascu & Devillers, interspeech 05)

# Mixtures of Positive/Negative emotions raise a descriptive challenge for emotion annotation

- Example of a clip from French TV news (EMOTV): someone saying that « I thank you for saying that I was innocent » => mixture of negative/positive emotions

- Naturalistic clips often feature several events eliciting the emotional behavior:

- event #1: the person that is videotaped has been accused although she is innocent
- event #2: she was recognized innocent
- event #3: she is interviewed

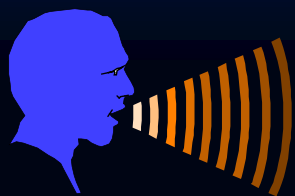
-> very difficult to detect



# Integration of emotion recognition from speech into real-life technology: non-prototypicality in an open microphone setting

Emotion's detection for monitoring an artificial agent by voice (ex: skype)

French Affective Avatar ANR project



Automatic  
Segmentation  
Emotion detection



Robot interaction with emotion detection:

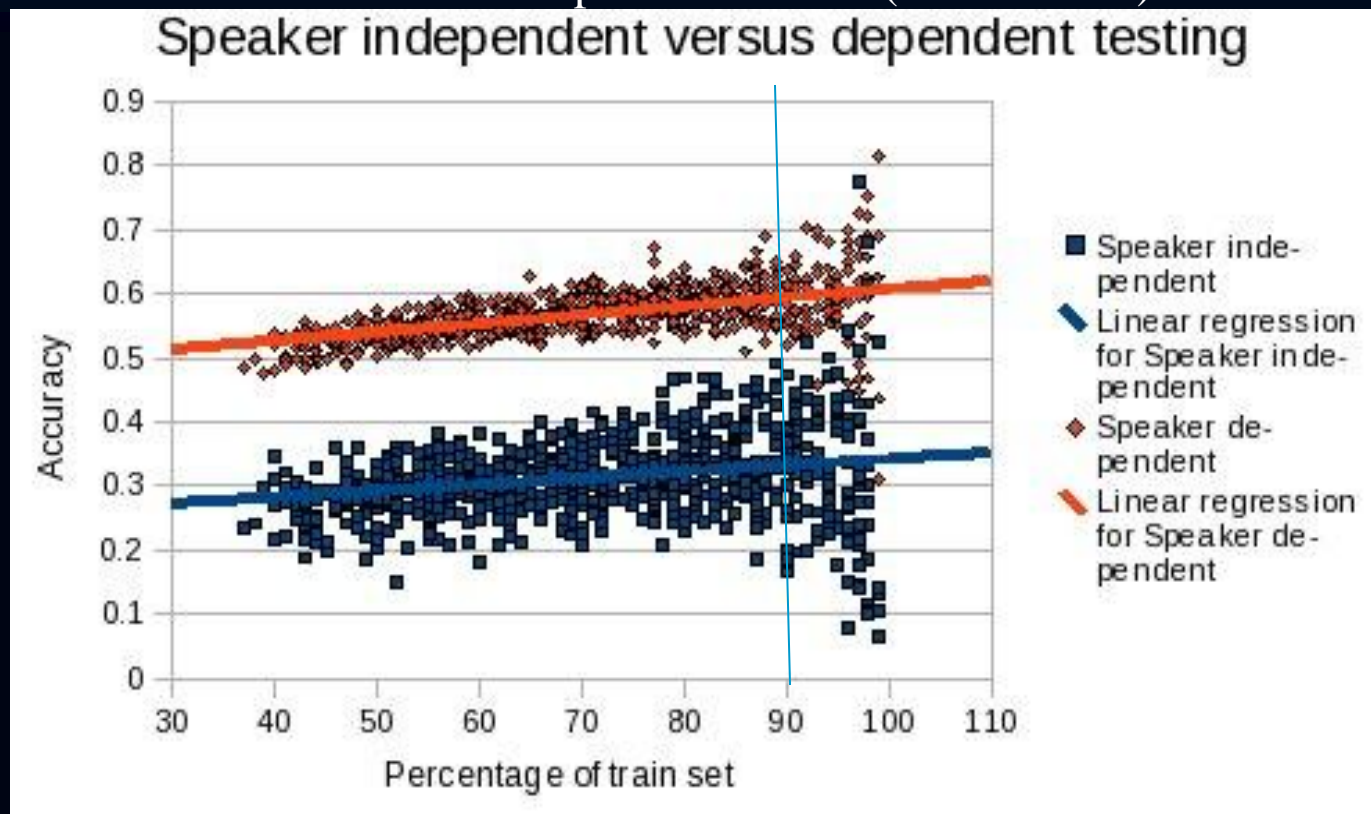
2 goals : gaming with children and assisting disabled persons

French Cap digital ROMEO project

# Other challenge for Integration of emotion recognition from speech into real-life technology: speaker independence

Example: Affective Avatar Corpus (~3k seg.) used for emotion detection (5 classes : Anger, Sadness, Happiness, Fear, Neutral) contains **prototypical data and non prototypical data (mixtures, low intensity) – not optimized model**

Accuracy for 5 emotions detection – 45 sp. 90% – 10% (10-folds CV): SPD 60% - SPI 33%



# Conclusion

- How to cope with non prototypical emotion is an open issue:
  - Use different models for classifying non-prototypical utterances and prototypical emotional speech
  - Concentrate on few main categories and to add a "garbage" class
  - Do emotion spotting detection at the turn level and emotion interpretation in the context of a sub-dialog or dialog.
- Other challenges for the Integration of emotion recognition from speech into real-life technology:
  - Speaker independence
  - Noisy environment, record without close-microphone
- Large corpora collected in real-life applications with large amount of speakers are needed for training more efficient models