The pilot database exemplar: Towards a standard labelling scheme

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Towards a standard labelling scheme: Baseline requirements

- The labelling system should be relevant to
  - A range of data from induced to naturalistic
  - Emotion in action and interaction
- The labelling scheme should describe
  - Emotional content
  - Signs that convey it
  - Relevant contextual factors (to interpret the signs)
- Application of the labelling scheme should be well specified
  - E.g., training, randomisation of clips, test of reliability of and among labellers

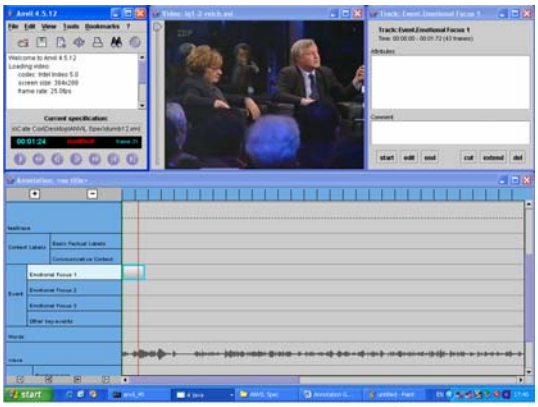
Towards a standard labelling scheme: The concept of *'standard'*

- ***Not*** an imposed norm –
- ***Rather*** a structured set of resources
  - From which users select as appropriate

- Facilitated by
  - Modular approach
  - Where appropriate, a tiered approach with surface and deeper level tiers depending on use

The platform

- ANVIL platform
  - Mix of 'live' labelling on ANVIL…
  - …and imported labels from other sources (e.g. PRAAT, TRACE suite)



Towards a standard labelling scheme: Proposed modules

- The proposed modules
  - Emotion global module (static)
  - Emotion over time module
  - Speech and language module
  - Gesture/face module
  - Physiological module

Emotion global (index) module: Towards a standard index

- Global emotion labels across whole emotion episode
- Based on
  - QUB/LIMSI-CNRS pilot validation work on range of data
  - Combining psychological literature and practical experimentation
- Functions
  - Index of which clips might be of interest
  - Orientation before finer labelling (learn, select)
  - Sufficient for some purposes

Emotion global (index) module: Towards a standard set of descriptive categories

- Standard resources for describing
  - Emotion words
  - Emotion-related states
  - Combination types (mix of emotions)
  - Authenticity
  - *'Core affect'* dimensions
  - Appraisal categories
  - Context labels
  - Key events: what the emotion is about, etc.

Towards a standard list of emotion words (combining LIMSI / GERG / QUB lists)

anger	amusement	courage
contempt	delight	hope
disgust	elation	pride
annoyance	excitement	satisfaction
irritation	happiness	trust
anxiety	joy	doubt
embarrassment	pleasure	envy
fear	calm	frustration
helplessness	content	guilt
powerlessness	serene	shame
worry	relaxed	tension
boredom	relieved	stress
disappointment	affection	shock
hurt	empathy	surprise
sadness	friendliness	interest
despair	love	politeness

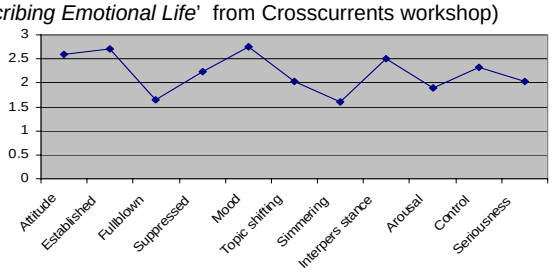
Towards a standard list of emotion-related states

- **Attitudes**
- Established emotion
- **Emergent emotion** (full-blown)
- Emergent emotion (suppressed)
- **Moods**
- Partial emotion (topic shifting)
- Partial emotion (simmering)
- **Stance towards person**
- Stance towards object/situation
- Interpersonal bonds
- Altered state of arousal
- Altered state of control
- Altered state of seriousness
- Emotionless

Based on Scherer's grid of design features (categories covered there in **bold**)

Extended to cover other commonly occurring states with related features through O'Neil study (in '*Describing Emotional Life*' from Crosscurrents workshop) and ongoing ambulatory study

Note the ones people rate as important in everyday life:



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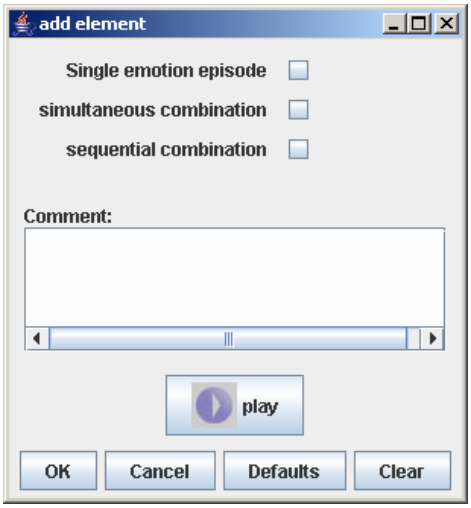
Towards a standard description of *Combination types* (based on LIMSI classification)



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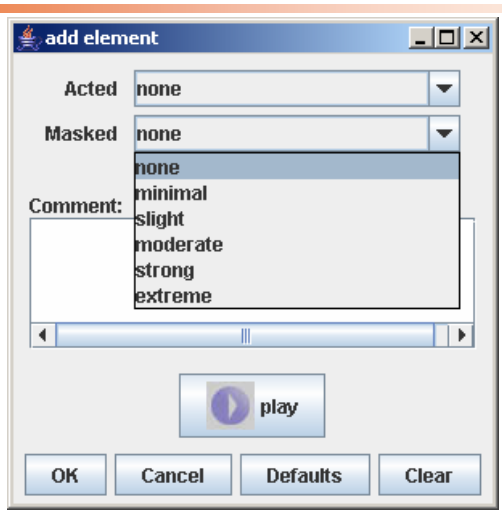
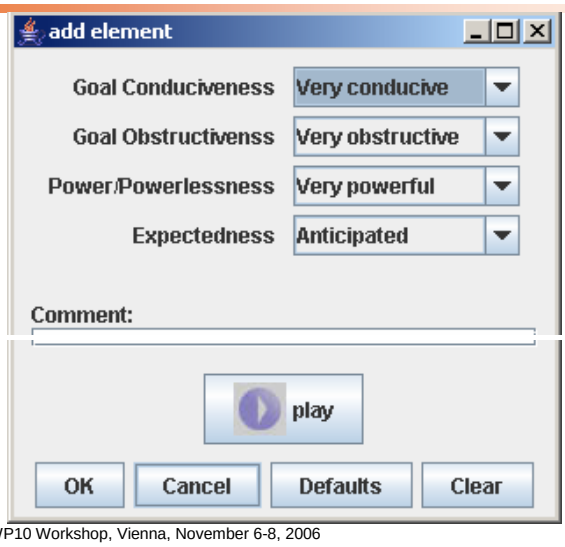
Towards a standard description of *Authenticity* (based on LIMSI / QUB classification)

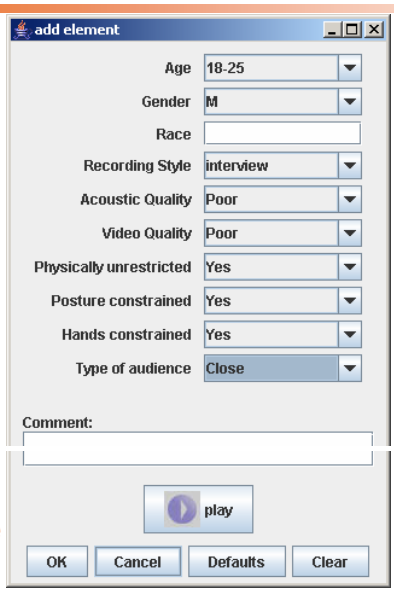


Towards a standard coding for '*core affect*' dimensions (after psychologists from Wundt to Russell)

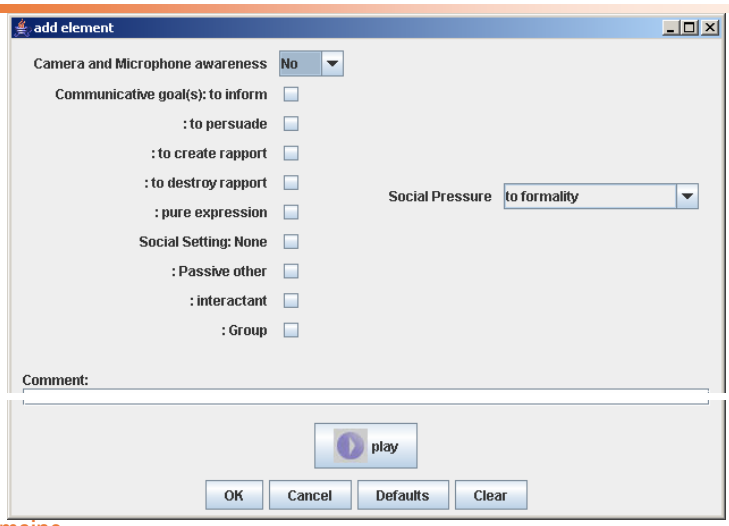
Towards a standard coding for *appraisal categories* (based on Scherer, particularly the grid study)



Towards a standard description of context: *Basic factual labels* (based on LIMSI / QUB collaboration)



Towards a standard description of context: *Communicative context* (based on LIMSI / QUB collaboration)



Towards a standard description of *Key events* (based on LIMSI / QUB collaboration & crosscurrents paper)

'*Focus*'

- What the person's feelings are 'about'
- Is it current, recalled, anticipated or imagined?

Other key types of event

- '*Trigger*' – an event that prompts emotion about or towards another person/thing (OHP malfunction)
- '*Cause*' – long term influence behind current state of mind (e.g., crushing workload)
- '*Aspiration*' – long term goal that underlies the way the person reacts (e.g., retirement)

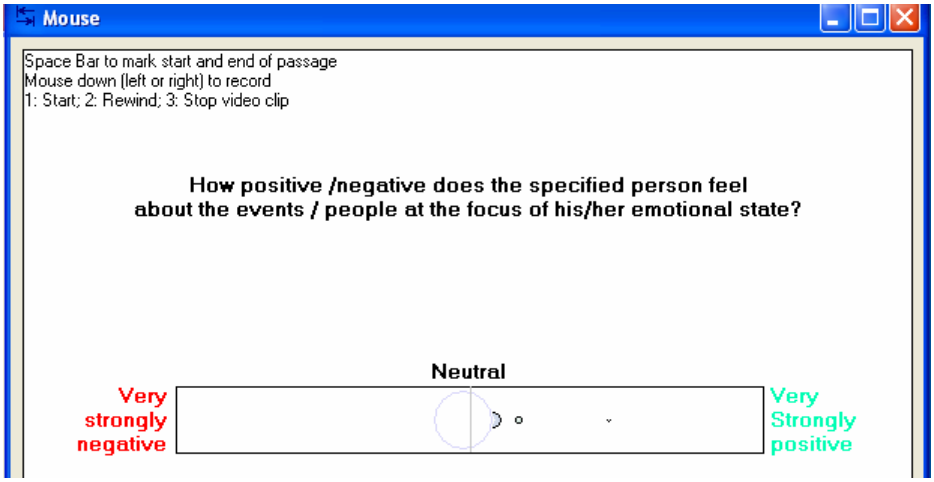
Emotion over time module: Towards a standard approach

- Trace approach (continuous)
- Quantal approach (e.g., present/absent)
- Interrelation between Trace and Quantal
  - e.g. on IntensTrace most intense periods/sections can be identified by setting cut off parameters
  - these can inform the selection of sections for detailed quantal labelling

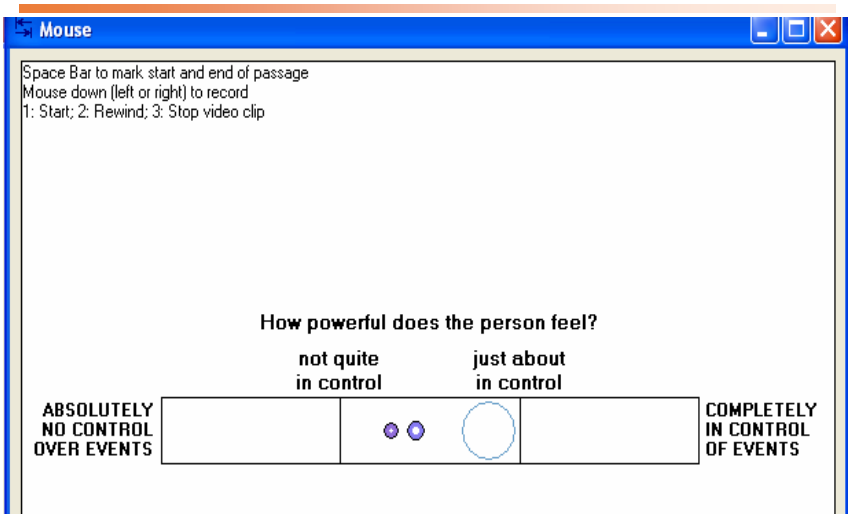
Towards a standard suite of Trace programs (piloted and validated at QUB)

- IntensTrace
- ActTrace
- MaskTrace
- ActivTrace
- ValenceTrace
- PowerTrace
- ExpectTrace
- WordTrace

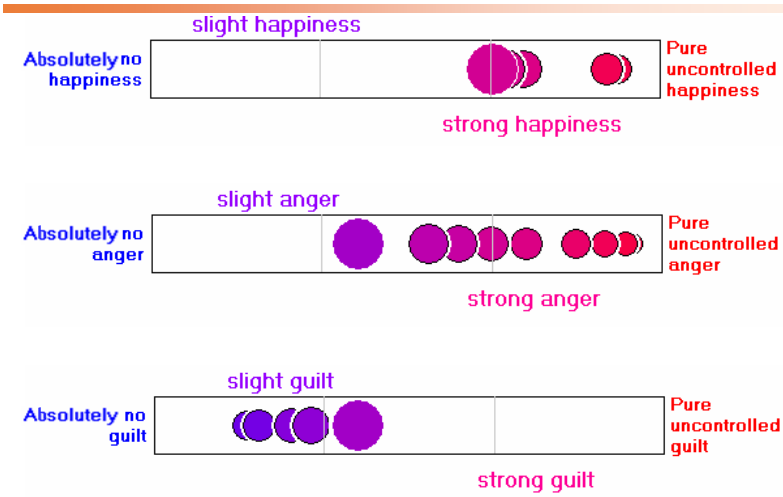
Valence Trace



Power Trace



Word Trace



Speech and language module: Towards a standard set of descriptors

- So far
  - Words
  - Time waveform
  - Pitch trace
  - Auditory descriptors
    - Paralanguage
    - Articulation
    - Voice quality
    - Timing
    - Pitch
    - Volume

Other modules (LIMSI-CNRS, ICCS, QUB, UA)

- Gesture module (LIMSI-CNRS)
  - In advanced state
  - Related to Gesticon
- Face
  - FAPs (ICCS)
- Physiological
  - Standard channels (GSR, ECG, heart rate)
  - Derived measures (rate of change, 'spike', etc.)

Conclusions & Way forward

- Achievements and application
- Developments needed
- Technical issues to be addressed
- Relationship to EARL