Postural Expressions of Action Tendency

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Plan

1. Introduction
2. Objectifs
3. Stimuli design
4. Test de perception
5. Conclusion

Plan

Definition
Action Tendency

- states of readiness to achieve or maintain a given kind of relationship with the environment. (Frijda et al. 1987)

- perceivable structure that is intended to indicate an implicit quality about the people or their environment (Frijda et al. 1987)

Plan

Research goals

- to explore whether postural expressions may convey discriminative and reliable features of action tendencies

- to consider the perception of postures in social scenes featuring multiple characters.

- to extend the posture library of our MARC platform with postural expressions of

Plan

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3. **Stimuli design**
4. Perception test
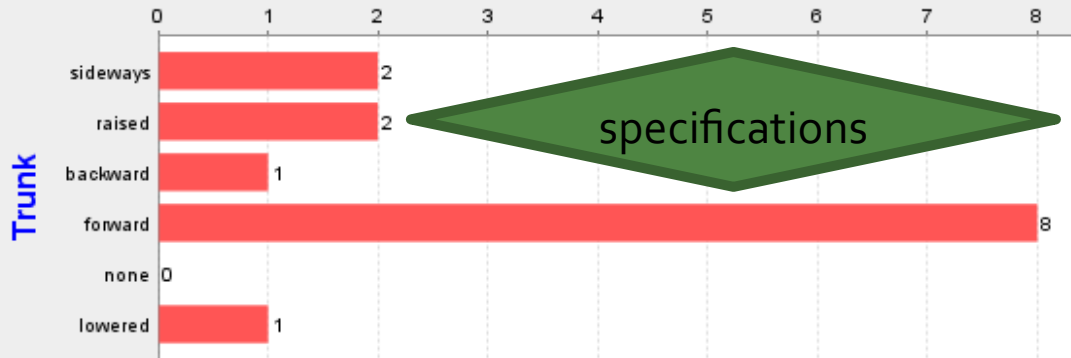5. Conclusion

Process to design postures of action tendencies

annotations

design

Histograms for Track: Trunk (4 files)

specifications

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Corpus of Postural Expressions of Action Tendencies

- 14 video clips selected from our corpus (PERMUTATION Clavel et al. 2009) with annotations in terms of

  - action tendencies

    - Disappear from view, antagonistic, attending, exuberant, in command (Frijda et al. 1989)

  - postures

    - head, shoulder, trunk and arm (Bull 1987; Kipp et al.

MARC Platform

- MARC (Multimodal Affective and Reactive Characters) is the platform that we develop for conducting experimental studies using interactive virtual characters (Courgeon et al. 2009).

Stimuli (1)

- Static pictures

- 2 postures per action tendency

- Action tendency labels (Frijda et al. 1989; Tcherkassof 1996)

Exuberant

J'ai envie de faire pleins de choses!

J'ai envie de sauter!

Stimuli (2)

Attending
    J'essaie d'observer .
    J'ai envie de bien comprendre.

Disappear from view
    J'ai envie de me cacher …
    J'ai envie d'être ailleurs .

Stimuli (3)

In command
    Je me sent supérieur aux autres.
    J'ai la situation bien en main !

Antagonistic
    J'ai envie de m'opposer!
    J'ai envie de m'insurger !

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Participants

- 20 subjects: 7 female, 13 male, aged 21-60;
- 79% European, 16% African, and 5% Asian.

- We investigate:

1) whether subjects recognized the two target postures that we designed for each action tendencies;

2) how they attributed emotion categories to

Procedure
Step 1: Action Tendency Recognition

- For each action tendency, we showed

  - a short description

  - 2 target images

    - i.e. the action tendency specified in the written description

  - 4 distracting images

    - randomly selected out of the other 10 postures

- Subjects were instructed to choose one **OR**

Voici differentes photographies où sont presents deux personnages.

Celui que vous voyez de face correspond à l'agent Mary, elle a un tee-shirt et les cheveux bruns.

Regardez bien les photographies suivantes et selectionnez une ou deux photos en mettant une croix sous la ou les photographie(s) caracterisant le mieux Mary **quand elle aimerait disparaître, se**

Procedure
Step 1: Action Tendency Recognition

Action tendency	Target posture #1	Target posture #2	Distracters (other postures than targets)	Total
Attending	52%	10%	38%	100%
Disappear from view	67%	33%	0%	100%
Exuberant	54%	21%	25%	100%
In Command	25%	6%	69%	100%
Antagonistic	39%	27%	33%	100%

Procedure
Step 2: Emotion Attribution

Subjects assigned one emotional label to each of the 12 postures:

Sadness, Joy, Anger, Anxiety, Surprise, Fear, Irritation, Shame, Contempt, Guilt, Disgust, Pleasure, Despair, Pride (Frijda et al. 1989)

- Selon vous, quelle émotion l'agent Mary va-t-elle éprouver dans cette situation? Mettez un   dans la case correspondant à l'é   qui vous paraît la plus probable.

Results
Step 2: Emotion Attribution

Action tendency	Attributed emotions in our study	Predicted emotions in Frijda et al. 1989
disappear from view	shame, guilt	shame
exuberant	joy, pride, pleasure	Challenged, enthusiame, relief, pride, joy, happy, in love
antagonistic	irritation, contempt, anger, anxiety	Contempt, annoyance, anger, rage
attending	anxiety, anger, irritation	Anxiety, startled, jealousy, disappointment, annoyance, distrust, enthusiam, happy, surprise, in love, fascinated, moved
in command	Contradictory results	22 predicted emotion categories

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Conclusion

- Postures of three action tendencies (*Attending, Disappear from view, Exuberant*) received a high recognition rate,

- The emotional attribution is quite consistent across the two target postures for each emotion excepted *In command*,

- The action tendency for which the error rate is the highest (*in command*) corresponds to postures for which subjects attributed few and different emotions categories.

Conclusion

- The results suggest that postures expressed in a social interaction scene may provide information about action tendencies in virtual characters.

- Future directions

  - dynamic features of action tendency

  - a library of dynamic postures collected with motion capture

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