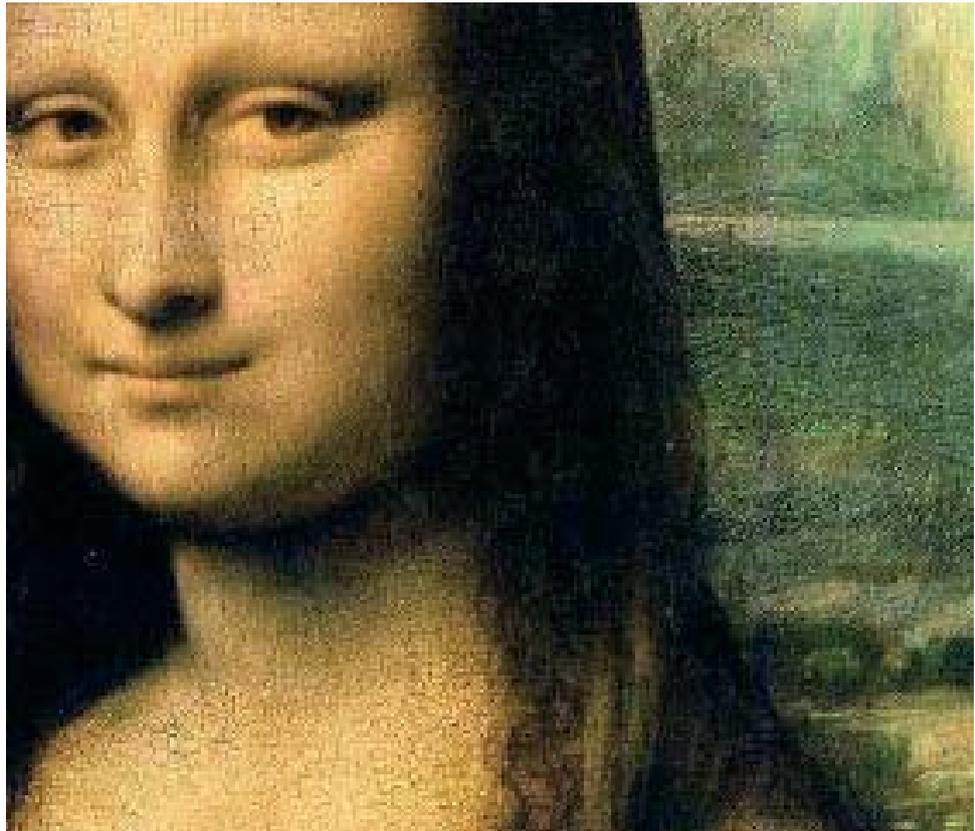


Affect & Emotion

Newsletter of the NCCR Affective Sciences

THE MEANING OF A SMILE



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RESEARCH FOCUS

What does this smile mean?



My PhD thesis project aims at investigating how context can change the interpretation of emotional stimuli, writes *PASCAL VRTICKA* of the NCCR. His article in *PLOS One* disentangles interpretation, social context and personality traits.

Facial expressions play a major role in non-verbal social communication among humans and other primates. This stems from the fact that faces do not only provide rapid access to information about the identity, but also about the internal states and intentions of the others. However, the interpretation of the latter information is not always trivial, as the example of Mona Lisa's "mystic smile" nicely shows.

My PhD thesis project here at the NCCR is thus aimed at investigating how context can change the interpretation of emotional stimuli in general, and facial expressions more specifically. Thereby, I am looking at the influence of external factors like the social context within which a face is perceived, but also at internal factors like individual personality traits. Using functional magnetic resonance imaging (fMRI) in combination with psychological questionnaires, I can not only grasp the neural signature of context-specific encoding of emotional facial expressions, but also see how the latter is modulated by the personality of the scanned participants.

In a first study, we manipulated the social significance of emotional facial expressions by presenting them in different contexts while participants performed a pseudo-interactive game with virtual partners in the fMRI scanner. The virtual partners could either be from allied or opponent teams and would display either a smiling or an angry expression in response to the success (or failure) of the participant. A smile could thus be perceived either as praising an accomplishment or mocking a failure, and a frown either as a sign of reproach or frustration. Concerning individual personality traits, we referred to the psychological concept of Adult Attachment Style (AAS). AAS is described as an aspect of the personality of normal people which defines how a person emotionally perceives and responds to others during social interactions. Psychology research has shown that most people fall in one of three possible categories: secure, anxious, or avoidant.

Our data revealed that, when the virtual partners were seen as allies (i.e. smiling in response to the success of the participant or looking angry when the participant failed), happy faces acti-

vated the ventral striatum and ventral tegmental area (areas of the brain associated with reward processing), but this response was much weaker in participants with an avoidant attachment style. Angry faces, on the other hand, displayed increased activation of the amygdala (an area of the brain implicated in fear and arousal), especially in participants with an anxious attachment style. Finally, opponents' expressions led to increased activity in different brain regions associated with the theory of mind and alertness (superior temporal sulcus and anterior cingulate gyrus).

The findings of this study show that specific expressions in faces are processed differently in the human brain depending on the personality of the individual and the social context where the faces are perceived. Moreover, our data provide novel biological support for a link between an individual's attachment style and activity in the brain systems implicated in reward and threat processing. Because both the ventral striatum and amygdala are key brain structures for learning and predicting motivational outcomes, they may play a critical role for the establishment of idiosyncratic affective responses to social cues based on past experience or developmental history. We could for the first time capture the neural signatures of such behaviors by showing that avoidant participants' brains responded much less to the rewarding value of social support, whereas anxious participants displayed increased threat- or distress-related brain activity to social punishment. These data may ultimately help better understand some clinical disorders of attachment and social functioning, including social anxiety, social phobias and autism.

For the continuation of my PhD Thesis, I am interested in determining whether the effects we found are specific for social and thus attachment-related stimuli, or whether they can also be seen for non-social and thus attachment-unrelated content. In addition, I would like to investigate how attachment traits influence emotion regulation, i.e. re-appraisal and suppression of behavioral expression. We already performed a behavioral experiment on 54 psychology students and scanned another set of 19 participants, and the first results look very promising. ■

INTERVIEW

Emotion language in international crises



Out of 63 proposals, the Swiss Network for International Studies accepted 8 research projects “that make important contributions to the analysis of international problems and their resolution.” Anna Ogarkova and Cristina Soriano are among the laureates. They speak with one voice.

PA: Your project is entitled “The Impact of Emotion Language on International Negotiation” (ELIN), this is a very ambitious subject. How will you tackle it?

CS: We put together three research lines. The first one is a continuation of the former GRID project, where differences in the semantics of 24 emotion terms were investigated for a variety of languages. Now we will deepen our research on four of those emotion concepts: anger, shame, pride and guilt, in 8 languages. Using a questionnaire, we want to look at the meaning of the various terms available in each language for those emotions.

AO: The semantic structure of the emotion categories can vary a lot from language to language. For example, several studies report over 300 words in Chinese to denote shame, with only a dozen in English!

CS: The second subproject will analyze the way we talk about emotions through metaphors.

AO: Corpus-based distribution statistics will let us see which metaphors are central in the languages we study. For instance, we may find out that an association between anger and fire is central in English, or that the metaphor ANGER-IS-A-DANGEROUS ANIMAL is crucial for verbalizing anger in Arabic. If so, what can be the implications of this for culture-specific modes of action and behavior?

In the third subproject, we will analyze conflict and negotiation discourses, like UN debates, to elucidate conventions for expressing emotions. For instance, in

a collectivist culture, exclusion is one of the worst punishments: a mother angry at a kid will not shout, she will simply stop talking to him or her. It is important to understand what the different cultural norms are, and particularly the norms used to get out of conflicts.

PA: The School of Translation and Interpretation is involved in the project. Is it important for you?

CS: It’s crucial. Prof. Hannelore Lee-Jahnke and Caroline Lehr have been involved since the very first day. The whole project has an important applied nature and they have been instrumental in putting together a multidisciplinary research team. We will be working with both translators and translation scholars, who come as collaborators and end-users of the research: they will share their experience, but can also use the results to improve their skills.

PA: It sounds like a very interdisciplinary project...

CS: That was the idea. Both of us are linguists, but being here at CISA we work with colleagues from other disciplines, like psychology. This is very exciting and completely within the philosophy of the NCCR. It was probably also a key point to get funded.

AO: And we do know what conflict is because having people from different disciplines work together often triggers conflicts! (laughs)

PA: Can you save the world from conflicts?

CS: I don’t think so! (laughs) But if we could help in preventing and managing some of them, that would be great already.

AO: Conflicts are inevitable. But we can try to resolve a conflict as a win-win situation, so that both parties benefit from it.

CS: There are many reasons why people get into conflict, even within the same language and culture. It is illusory to believe that we can get rid of conflicts. That said, reducing cross cultural misunderstanding can help.

AO: In both verbal and non verbal communication.

PA: So, do you have any contact with persons involved in conflict management?

AO: Yes! In addition to the ETI and the UNOG translators and interpreters, we will work with specialists in economics, law and political science. We are also now negotiating with the German delegation at NATO on the prospect of their joining our project.

PA: Talking about emotions, are you happy about getting this grant?

CS: Oh sure! This is incredibly exciting! Besides, it’s quite a treat to get funded to do what you enjoy!

AO: I learnt the good news the day before my birthday... Most definitely, that’s one of the best birthday presents I’ve ever received in my life! ■

NEWS

Events

On July 5-6, 2008, for the second time, our NCCR participated in the Geneva popular-science event “La Nuit de la Science”, our theme being “le temps d’une émotion”. The way in which people perceive time is highly influenced by culture and language, as our researchers showed at their stand. The visiting public could take part interactively in an experiment on control of facial expressions of emotion over time, which provided lots of fun. Our historians showed the visitors how ancient civilisations dealt with emotions. Our linguists pointed out how the way we talk about time affect the way we feel about it. Finally, the contemporary phenomenon of violence and its emotional after-effects was illustrated from a legal, social and psychological point of view.

On July 21, 2008, the NCCR Affective Sciences, in collaboration with the Languages of Emotion Cluster (Freie Universität Berlin) and the Interdisciplinary Wolfgang Köhler Center for the Study of Conflicts in Intelligent Systems (Humboldt-Universität Berlin), organized a social event at the XXIX International Congress of Psychology in Berlin during which the range of our research activities was presented. More than 150 guests took part.

On September 1-3, 2008, a dozen of Affective scientists participated in the joint Summer Institute organized by the NCCR IM2 in Riederalp (VS). At almost 2000 meters above sea level, the debates were very fruitful between psychologists and engineers and several scientific collaborations are starting between the two teams.

On September 18-19, 2008, the NCCR research focus Language and Culture team organized a 2-day interdisciplinary workshop “Metaphor and Emotion: Theory, Practice and Experiment”. The event addressed the role of metaphor in cognizing and verbalizing emotion across several languages and culture groups, and exemplified an assortment of methodologies currently elaborated

within several disciplines to achieve this goal.

On October 30, 2008, the Professional Training Service of the University of Geneva will organize a conference entitled “Prise de décision: rationnelle ou émotionnelle?” with D. Sander, B. Bediou, T.

Wranick and K. Scherer from our NCCR. The following round table will also host Ms C. Miller, Head of Global Public Relations & Client Events at Lloyds TSB International Private Banking and Ms B. Sambeth-Glasner, lawyer and mediator associated to the Altenburger office. ■

Achievements

In May 2008, Meinrad Perrez was elected **vice-president of the Swiss National Science Foundation (SNSF)** and became the first person in charge of this newly created function. Prof. Perrez has been chairing the Humanities and Social Sciences Division of the SNSF Research Council since 2004.

The SNSF is granting the **Brain and Behavior Laboratory (BBL)** with 983'333 CHF, the highest grant ever funded in the R'Equip (Research Equipment) framework. The BBL will open in 2009 and will be the first laboratory of Switzerland to integrate behavioral techniques with human brain imagery.

A new European Research Network called “**Representation of the divine in the Greek and Roman worlds (FIGVRA)**” has been created for the next four years. It will foster collaboration between French, German, Swiss, Belgian and Greek universities and our NCCR will be represented by Philippe Borgeaud and his team.

The European Research Council, the new European funding body set up to support investigator-driven frontier research, awarded Klaus Scherer one of its first “**Advanced Grants**”. With 2'371'331 euros, the “Production and Perception of Emotion” project will last 5 years and give a new boost to Affective Sciences research.

The SNSF has approved and funded with 374'035 CHF a project entitled “**Emotional competencies: emotion regulation and recognition of expression**” in order to extend the current GEMEP project. This two-year long project will start on January 1st, 2009 and will investigate individual differences in emotion expression, recognition and regulation.

The SNSF also funded with 329'566 CHF the first part of a three-year long project entitled “**Primed affect and effort-related cardiovascular response**”, led by Guido Gendolla. Starting in January 2009, researchers will investigate how subliminally activated affective reactions influence the mobilization resources for cognitive tasks.

The new SNSF funding program **Ambizione** promotes young researchers who would like to lead an independently planned project. Tatjana Aue is among the first laureates. She will pursue research in Geneva on cognitive evaluations, motivational aspects, and (neuro)physiological responses in the context of emotional experiences. ■

NEWS

Staff changes

On July 1, 2008, Leonie Koban started a PhD on Project 3 entitled "Brain correlates of intra- vs. interpersonal conflict appraisal" under the supervision of Patrik Vuilleumier. Tobias Brosch defended his PhD thesis "Attention and relevance: An appraisal theory perspective on emotional attention" and became the first NCCR-funded doctor.

Since July 1, 2008, Terence MacNamee is working as a freelance writer and translator.

On July 31, 2008, our IT collaborator, Natascha Michel left.

On August 1, 2008, our new executive scientific officer, Pablo Achard, joined us. He is in charge of the scientific coordination, the communication and the education and training program.

On August 31, 2008, Claire-Françoise de

Roguin left Project 12, led by Philippe Borgeaud.

On September 1, 2008, Karl Buehler joined us as a scientific collaborator on Project 5, "Individual and social regulation of emotions in the family".

On September 30, 2008, Martijn Goudbeek will move to Tilburg (NL) to start a new postdoctoral fellowship.

On October 1, 2008, Project 3, led by Patrik Vuilleumier, will be reinforced by a new postdoctoral fellow, Virginie Sterpenich. In the same group, Johanna Wiebke Trost, who started last year a PhD entitled "Dimensions of emotions induced by music and their neural correlates", will be hired on NCCR funds.

For vacancies at the NCCR, see our website www.affective-sciences.org/positions ■

E&T

The Education & Training program will evolve this year. In particular, the Thursday seminars will disappear and be replaced by monthly NCCR seminars that will last a full afternoon. These seminars will include: invited speakers, overviews of the NCCR projects and professional skill presentations. The first one will take place in Geneva on November 13, 2008 and our invited speakers will be Christoph Jäger and Anne Bartsch who will talk about meta-emotions.

We are also pleased to announce the first International Summer School in Affective Sciences, which will be held from August 24 to September 3, 2009, in the Grand Hotel Chandolin (VS). Four days will be devoted to methodologies and four days to theory, with a special focus on emotion regulation this year. The speakers will cover a broad range of Affective Sciences disciplines. The number of attendants is limited. ■

Publications

Bach, D., Grandjean, D., Sander, D., Herdener, M., Strik, W.K. & Seifritz, E. (2008). The effect of appraisal level on processing of emotional prosody in meaningless speech. *NeuroImage*, 42, 919-927.

Baumgartner, T., Speck, D., Wetstein, D., Masnari, O., Beeli, G. & Jäncke, L. (2008). Feeling present in arousing virtual reality worlds: prefrontal brain regions differentially orchestrate presence experience in adults and children. *Frontiers in Human Neuroscience*, 2, 1-12.

Billieux, J., Rochat, L. & Van der Linden, M. (2008). Une approche cognitive, affective et motivationnelle de l'impulsivité. In M. Van der Linden and G. Ceschi (Eds.), *Traité de psychopathologie cognitive* (pp. 137-152). Marseille: Solal.

Brosch, T., Grandjean, D., Sander, D. & Scherer, K. R. (2008). Behold

the voice of wrath: Cross-modal modulation of visual attention by anger prosody. *Cognition*, 106, 1497-1503.

Fehr, E., Bernhard, H. & Rockenbach, B. (2008). Egalitarianism in young children. *Nature*, 454 (28), 1079-1084.

Gay, P., d'Acremont, M., Schmidt, R.E. & Van der Linden, M. (2008). Validation of a French version of the Thought Control Ability Questionnaire (TCAQ). *European Journal of Psychological Assessment*, 24, 101-107.

MacNamee, T. (2008). Les langues, objets d'émotions. *Le Panoptique*, 37.

Perrez, M. & Reicherts, M. (2008). COMES COMputerunterstütztes Erfassungs-System. In J. Bergel, M. Wirtz & C. Zwingmann (Hrsg.), *Diagnostische Verfahren in der Rehabilitation* (S. 122-125). Göttingen: Hogrefe.

Perrez, M., Reicherts, M., Hänggi, Y., Horn, A.B., Michel, G., Schoebi, D. & Wilhelm, P. (2008). Assessment of health related issues in individuals', couples', and families' daily life. *Zeitschrift für Gesundheitspsychologie*, 16(3), 146-149.

Righart, R., & de Gelder, B. (2008). Recognition of facial expressions is influenced by emotional scene gist. *Cognitive, Affective & Behavioral Neuroscience*, 8, 264-272.

Schmidt, R.E., Gay, P., d'Acremont, M., & Van der Linden, M. (2008). A German adaptation of the UPPS Impulsive Behavior Scale: Psychometric properties and factor structure. *Swiss Journal of Psychology*, 67, 107-112.

Schmidt, R.E., Gay, P., & Van der Linden, M. (2008). Facets of impulsivity are differentially linked to insomnia: Evidence from an exploratory study. *Behavioral*

Sleep Medicine, 6, 178-192.

Schmidt, R.E., & Gendolla, G.H.E. (2008). Dreaming of white bears: The return of the suppressed at sleep onset. *Consciousness and Cognition*, 17, 714-724.

Vrticka, P., Andersson, F., Grandjean, D., Sander, D. & Vuilleumier, P. (2008). Individual attachment style modulates human amygdala and striatum activation during social appraisal. *PLoS ONE*, 3(8).

Wilhelm, P., & Perrez, M. (2008). Ambulantes Assessment in der Klinischen Psychologie und Psychiatrie. *Zeitschrift für Psychiatrie, Psychologie und Psychotherapie*, 56(3), 169-179.

Zentner, M., Grandjean, D., Scherer, K. R. (2008). Emotions Evoked by the Sound of Music: Differentiation, Classification, and Measurement. *Emotion*, 8(4), 494-521.



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