

Types of Emotions and Types of Goals

Isabella Poggi

Dipartimento di Scienze dell'Educazione

Università Roma Tre

Via del Castro Pretorio 20 – 00185 Roma - Italy

+39064743662

poggi@uniroma3.it

ABSTRACT

The paper proposes a typology of emotions based on a typology of goals that govern human behavior. It argues that all humans have a set of permanent goals and that according to the type of goal achieved or thwarted a particular type of emotion is triggered.

Categories and Subject Descriptors

J.4. [Social and Behavioral Sciences]: Psychology

General Terms

Theory, Human Factors.

Keywords

Emotions, Goals, Typology.

1. INTRODUCTION

A relevant issue in the theoretical study of emotions is how to distinguish different types of them. A widely adopted distinction is one between primary emotions, those expressed from early infancy, universally shared, and with a neurologically programmed expressive pattern (happiness and sadness, anger and fear, disgust and surprise) and self-conscious emotions [4], [8] like pride, shame, humiliation, sense of guilt, that can be felt only when the child has achieved a sense of self. But it is not only primary or self-conscious emotions that we feel in our everyday life: we feel envy and bitterness, curiosity and enthusiasm, disappointment, jealousy, regret, gloating... In this work I propose a typology of emotions based on a corresponding typology of goals.

2. GOALS AND EMOTIONS

According to a model of mind and social interaction in terms of goals and beliefs [3], an emotion is a complex subjective state encompassing subjective feelings, physiological states, goals, expressive features and behaviours, that has the function of monitoring the state of achievement or thwarting of adaptively important goals [4], [6], [2], [5]. This complex subjective state is triggered any time a (real or imagined) event causes, or is highly likely to cause, the achievement or thwarting of some goal that is very important for the survival or well-being of the Agent.

But if the very reason for the existence of emotions is the monitoring of a human's adaptive goals, emotions will differ in terms of the class of goals they monitor. Thus, as we can distinguish classes of the human's adaptive goals, we can correspondingly distinguish the emotions that monitor them.

Literature about motivation contains several taxonomies of the goals ruling human behaviour [10], [1], [7]. Here I present a taxonomy of goals based on the goal and belief model I adopt [3].

According to this view, action has a hierarchic structure: any action has a goal, and beyond this, possibly a further superordinate goal, a supergoal. The first goal is a means for the second one, which in turn may be a means for a third one, and so on. Thus we can distinguish instrumental versus terminal goals. [2], [3]. A terminal goal is an end in itself, one that is not a means for further goals. The terminal goal for biological beings is genetic survival and reproduction (not necessarily an aware goal), and all the goals an individual pursues during its life are means to it. All the general goals that we pursue in our everyday life are sub-goals of genetic survival. They govern all our behaviours, and they are "permanent goals" in that they all impinge on us in every moment of our life, even if we sometimes are not aware of them, but we only realize they are there when they risk being thwarted.

For example, if I am working in my office, performing my current task is the goal I am actively pursuing; but suppose my boss comes in and judges my results in an insulting way: I feel offended, because my goal of image is always at stake.

In this work I argue how the permanent goals are linked to each other, how they are means for the goals of genetic survival and reproduction, and how they are each the source for a class of emotions (Fig. 1).

The immediate subgoals of gene survival are the goals for the individual to survive (Goal n.4), to mate (G5), to have, feed and protect one's offspring (G3). In order to survive, a human needs internal and external resources: on the one hand he has the need to acquire beliefs and action capacities, which give him autonomy (G6), that is the capabilities for pursuing his goals by himself. Thus he has a vital need for learning (G7) which gives rise to a set of epistemic goals: the goals of acquiring, processing and connecting beliefs. On the other hand he also needs to achieve, maintain and enhance his own power over external resources, (G12, G13), that is, the world conditions and material resources contained and determined by the environment he lives in: his territory (G11), that he needs to re-integrate his biological resources – to feed, sleep, be clean – (G9) and to protect himself and offspring from danger (G10). In some cases the Agent can do so simply by his internal resources, that is, by fostering his knowledge and capacities, as well as by planning and performing plans to acquire and reproduce resources and to change world conditions. In many cases, though, the world conditions are determined, or the resources are controlled, by other Agents. In these cases, to acquire and maintain resources he can interact with them in either an adoptive or an aggressive way. An interaction is "adoptive" when an agent adopts the other's goals (he puts his own resources to the service of the other), or has his goals adopted by the other. To achieve a goal for which he does not have all the necessary resources, A may ask B to help him achieve it, that is,

may aim at receiving adoption (G14). The interaction is aggressive, instead, when A has the goal of thwarting a goal of B (G15), either by subtracting resources from him or by changing the world conditions to prevent B from achieving his goal. Of course, aggression may be aimed at defending A from B's aggression (G16).

However, both adoptive and aggressive relations in the long run could result in the extinction of Agents, were they not balanced from a device of reciprocity. On the one hand, should an Agent always put his resources to the service of others' goals, in the end there would be no more Agents offering adoption [9]; on the other hand, should an Agent always subtract resources from others finally he would have no more others to rob. Thus, the goals of adoption and aggression are accompanied by a goal of reciprocity (G18): do to others what you would like them to do to you; don't do to others what you would not want done to yourself. This gives rise to a goal of equity: to maintain a balance between the fortunes of different Agents, so it is not the case that some have all of their goals achieved and others have all their goals thwarted. Due to this goal of reciprocity, people not only have the goal of receiving adoption (having their goals adopted by others, G14) but also one of adopting the others' goals (G19). In some cases one helps others to achieve their goals out of a goal of cooperation or social exchange – you may collaborate with your team to win the game, or employ a worker and give him a salary – and in these cases one acts deliberately in order to reciprocation or participation. But sometimes we do something for others simply out of affect or altruism – you may help an old lady to cross the street either because she is your grandma, or simply because you want to help others, without aiming at a reward.

Symmetrically to the reciprocation of adoption, a goal of retaliation may hold to counterbalance the goal of aggression: knowing one will be aggressed in return, one may refrain from attack. From this goal of retaliation (G20), goals like revenge, expiation, punishment, justice stem: all of these can be considered different ways to implement a goal of equity, at different stages of evolution in human history. In general, the norm of reciprocity becomes a primary goal that links the life of an Agent and its genes to the life of other Agents: this goal of equity aims at preventing too broad a disparity between the fates of different agents: it aims to a balance between the resources one engages and the goals he achieves, and to a balance, for each Agent, in the amount and value of achieved and thwarted goals.

Also important in social interaction is the goal of influencing others (G21), that is, to have them pursue goals they did not have, or to give up goals they had. Influence may be a sub-goal for both selfish and altruistic goals. In an educational relationship, your teacher, your mother or your doctor induce you to do something that is good for you, thus working on behalf of your goals (G19). In a competitive or aggressive relation, influencing the other may be a way for preventing aggression and thus for defence (G16).

Another goal is then important: the goal of stating who has more power between A and B (G17). It is a sub-goal to the goals of adoption (G14), aggression (G15) and defence (G16), and through them to goal G11 of acquiring and maintaining resources and territory. Knowing who has more and who has less power as to various goals (the goals of being good, beautiful, nice, strong, smart) is of use to decide whose goals to adopt, whom to aggress, who to defend oneself from; but also to know whom to choose to obtain protection and to cooperate with, who can be a leader to follow, or one you can learn from, or one you should escape from.

It is the goal of power comparison, that leads people to state hierarchies of power. A hierarchy is a mental representation of who has the skills to achieve some goals more than others, and thus can influence others and decide what goals to pursue and how. Thus attributing one some skills implies crediting him with more power to influence others (G21). This is why the goal of image (G22) becomes central to a person's life. Our image is the set of beliefs that people have about us, including their evaluative beliefs, that is, beliefs stating how much power we have with respect to various goals. It is on the basis of our image that people decide which kinds of relations to entertain with us – whether or not they adopt our goals (G14), fear our aggression (G16), ask for defence or cooperation – and hence they are subject to our influence (G21) or not. So we want to project a given image of ourselves, to induce others to judge us as such and such. At the same time, though, we also have a goal of self-image (G8): the goal of having beliefs about ourselves, both evaluative (self-esteem) and non-evaluative beliefs (identity). Actually, we both have a goal of objective self-image, which is functional to a goal of self-knowledge – to know our real worth – and a goal of good self-image (self-esteem): knowing that we are worthy helps us raise our aspiration level, to dare more and then to learn more, to enhance our qualities: a sub-goal, then, of learning (G7) and the acquisition of autonomy (G6). The goals of image and self-image are means to each other: knowing that others have a good opinion of us (goal of image fulfilled) may enhance or confirm our good image of ourselves, while if we have a high self-esteem we may project an image of self-confidence that may influence the others' opinion. Finally we have the goal of making up an image of others (G23). Depending on how we evaluate the other, we can decide to imitate him – and in this case this is functional to a goal of learning (G7) – and how to relate to him, whether through competitive, aggressive or adoptive relations.

Perhaps, also, from these three goals, image (G22), self-image (G8) and other's image (G23), aesthetical goals stem: the goal of beauty, of offering others, and enjoying ourselves, perceptions that are a source of pleasure. This is at the outset functional to the biological goals of mating (G5), but then these pleasant perceptions spread out over other objects (we start considering beautiful not only a body or a face, but even a landscape) and over other perceptual modalities (finally also a painting or a music can be beautiful).

My hypothesis is that all humans have all of these goals: they have survival goals, epistemic goals, image, self image and other's image goals; they have the goal of having one's goals adopted by others, but also the goal of adopting another's goals; the goals of defence from aggression and of having power. These goals are innate and universal, although different cultures and personalities attribute them different weights: individualistic cultures credit a higher value to the goal of self-empowerment and autonomy, while collectivistic cultures value adopting one's group's goals more; a narcissistic person values his goal of image most, while for an anti-conformist one his self-image is more important.

Of course, sometimes these goals may conflict with each other: for example, if my son has killed his brother I can be in conflict between the goal of justice and the goal of saving the ones I love, and I will finally choose to pursue one of the two; but this does not imply that both goals do not coexist at the same time in the same person. This perspective contrasts with Maslow's [10] view that human needs seek satisfaction according to a hierarchy: that, as Woody Allen would put it, as a man is no more worrying for

food, he starts worrying for having no mistress. It does not look plausible, also in the history of mankind, that only after material needs are fulfilled do peoples start minding the values of freedom, honour or human dignity.

3. TYPES OF GOALS AND TYPES OF EMOTIONS

If these are the adaptive goals of our life, and adaptive goals are monitored by emotions, we can distinguish types of emotions according to the types of goals they monitor (see Table 1, with positive emotions in round and negative ones in italics).

Table 1. Types of goals and types of emotions

| Type of goal | Type of emotion | Emotions |
|------------------|-----------------|--|
| Re-integration | Meta-regulation | Pleasure, joy, enthusiasm; <i>displeasure, pain, frustration, sadness</i> |
| Harm prevention | Prevention | <i>Fear, anxiety, worry, disgust;</i> Relief |
| Learning | Epistemic | Surprise, curiosity, amusement; <i>boredom, perplexity</i> |
| Adoption | Attachment | Tenderness, love, feeling of belonging; <i>sadness, loneliness, feeling of exclusion</i> |
| Aggression | Aggressiveness | Gloating; <i>anger, envy, jealousy</i> |
| Power comparison | Power | Feeling of power, triumph; <i>envy, humiliation, impotence, inadequacy</i> |
| Others' adoption | Altruism | Sympathy; <i>sense of guilt, compassion</i> |
| Reciprocity | Equity | Gratitude; <i>anger, revenge</i> |
| Image | Image | Gratification, feeling useful; <i>shame, humiliation, embarrassment</i> |
| Other's image | Other's image | Trust, admiration; <i>contempt</i> |
| Self-image | Self-image | Pride, feeling useful, satisfaction; <i>shame, inadequacy</i> |

First a set of “meta-regulation emotions” exist: positive like pleasure or joy, negative like pain or frustration. They generically monitor all important goals, not a specific type of them, by warning when they are achieved or thwarted: they correspond to a meta-goal of maintaining monitoring of our goals in general. Further we have those we may call “prevention emotions”, like fear, anxiety, worry, but also disgust, functional to preventing physical and moral harm to oneself and others one cares, whose corresponding positive emotion is relief, that one feels as a feared harm is avoided. “Epistemic emotions” like surprise, curiosity,

amusement, flow, suspense, boredom, are felt when the goal of knowledge acquisition and processing is at stake, hence they are functional to learning. Then we have “social emotions” that concern the relation, either adoptive or aggressive, that we want to entertain with another person: “attachment emotions” – love, tenderness, feeling of belonging, loneliness and feeling of exclusion, but also sadness, a negative emotion typically caused by some affective loss – monitor the goal of obtaining adoption; while “aggressive emotions”, like gloating, ill-will, anger, hate, are felt as we wish harm for the other. The “emotions of power” monitor the goal of having more power or no less power than others: sense of power, triumph, and the negative ones of impotence, envy, humiliation. “Altruism emotions” are linked to the goal of adopting other people’s goals: sympathy, compassion, sense of guilt. “Equity” ones, monitoring reciprocity, are felt when one feels an imbalance between one’s and others’ fortunes: among the positive, gratitude, among the negative, anger and revenge as we feel the victim of injustice, compassion and sense of guilt when the other is the victim. Further there are the “image emotions” like gratification, pride, embarrassment, humiliation; “self-image emotions” like satisfaction, pride and shame, and finally the “emotions of the other’s image” – like admiration, contempt, compassion, that through a positive or negative evaluation of the other lead to a positive or negative relation with him/her: esteem and admiration stem from a positive evaluation of the other, and induce us the desire of interacting with him, possibly learning from him, while contempt stems from a negative evaluation and leads us to escape or avoid interaction with him.

Of course, the listed types of emotions are not all mutually exclusive, since some may be viewed as belonging to different types. For example, enthusiasm can be included both among cognitive emotions and self-regulation emotions. Fear, anxiety and worry are functional to harm prevention, but they encompass a relevant cognitive aspect: they all include a cognitive element of uncertainty [11]. Again, envy can be viewed as an emotion of power, but also as an emotion of image because it implies an aspect of powerlessness, and one of aggressiveness, because it entails ill-will [12]. Compassion is an emotion of the other’s image, due to its implying an evaluation of the other’s powerlessness, but, different from contempt, is also an emotion of altruism, since it induces the goal of helping, as well as an emotion of equity, since it contributes to set a new balance between people’s fortunes.

In fact, this is due to the multidimensional nature of emotions. But so a question arises: how can you tell an emotion is specifically linked to some goal? An answer to this are the “mental ingredients” of emotions.

4. MENTAL INGREDIENTS AND TYPES OF EMOTIONS

As argued by [2] and [14], every emotion can be defined in terms of a set of mental ingredients: the beliefs and goals that are represented in the mind of an agent when s/he feels that emotion, concerning 1. the current event and its relationship to the Agent’s goals, 2. the goals monitored by the emotion, and 3. the goals activated by it. For example, as A feels guilty (at least in the most prototypical cases of guilt feelings), the beliefs represented in A’s mind are that 1. A has done some action X; 2. A is responsible for action X (he could have refrained from doing it); 3. this causes harm to B, in that a goal of B is thwarted; but 4. B did not deserve such a harm, since this was not, for instance, a just punishment for

B's misdeeds; 5. all of this causes an imbalance between the fortunes of A and B. But the very fact that the sense of guilt is an unpleasant emotion is a cue that a goal of A's is thwarted. And this goal is the goal of equity: the goal of preventing imbalance between A's and B's fortunes, not only to the disadvantage of A but also to the disadvantage of B. This is why we can say that the goal monitored by the sense of guilt is the goal of equity.

Again, the ingredients of envy are that: 1. A has a goal G; 2. A has not achieved G; 3. B has achieved the G; this induces A to believe that 4. A is inferior to B [12]. This belief is what primarily makes the feeling of envy painful, since a goal of not being inferior to others is at stake. So we can say that envy monitors a goal of power comparison.

As these examples show, the analysis of the mental ingredients of a whole set of emotions can give us a hint as to how to group them and to what are the goals they monitor.

5. CONCLUSION

I presented a typology of emotions based on the types of goals they monitor. A such typology may have applications both in everyday life and in affective computing.

On the one side, emotions may work as a symptom of goals: if you find that some emotions are felt particularly often in some situation, you can deduce what goals are at stake. For example, as shown by [13], if at work one often feels humiliation, this could mean that his goal of image is often thwarted there, while if he often feels bored his need for new knowledge, cognitive activity and his permanent goal of learning is not fulfilled. And this could be of use to re-direct work organization.

Again, since people with different personalities differ in the weight they attribute to different goals, they have different thresholds for the corresponding emotions; and how sensitive they are to each emotion may tell us which goals they care most. So for example a touchy person, who has a very low threshold for feeling offended, must care the goal of image very much.

Another implication of this work is that to achieve a sophisticated and realistic simulation of emotions in an Affective Embodied Agent one should previously implement the corresponding set of goals. Of course, this requires a quite complex system architecture, encompassing a representation of all the permanent goals impinging over humans, and of their interactions and possible conflicts, since emotions in the system are triggered by the computation of how events have an impact over its own goals.

6. REFERENCES

- [1] Bowlby J. 1969. Attachment and Loss. London: Hogarth Press.
- [2] Castelfranchi, C. 2000. Affective appraisal versus cognitive evaluation in social emotions and interactions. In A. Paiva (ed.), *Affective Interactions*. Springer: Berlin.
- [3] Conte, R., & Castelfranchi, C. 1995. Cognitive and social action. London: University College.
- [4] Darwin, C. 1872. *The Expression of the Emotions in Man and Animals*. Appleton and Company, London.
- [5] Fellous, J.M., Arbib, M. (Eds.). 2005. *Who Needs emotions? The Brain Meets the Robot*. Oxford University Press, New York.
- [6] Frijda, N.H. 1986. *The emotions*. Cambridge University Press, Cambridge.
- [7] Higgins, E. T., and Kruglanski, A. W. (Eds.). 2000. *Motivational science: Social and personality perspectives*. Psychology Press, Philadelphia, PA.
- [8] Lewis, M. 1992. *Shame, The Exposed Self*. New York: The Free Press.
- [9] Lorini, M., Marzo, F., Castelfranchi, C. 2005. A cognitive model of altruistic mind. In B. Kokinov (Ed.), *Advances in Cognitive Economics* NBU Press, Sofia, pp. 282-293.
- [10] Maslow, A. 1954. *Motivation and personality*. Harper & Row, New York.
- [11] Miceli, M., Castelfranchi, C. 2005. Anxiety as an "epistemic" emotion: An uncertainty theory of anxiety. *Anxiety, Stress, and Coping*, 18, 291-319.
- [12] Miceli, M., Castelfranchi, C. 2007. The envious mind. *Cognition and emotion* 21, 3, 449-479.
- [13] Poggi, I., Germani, M. 2003. Emotions at work. In *Proceedings of Haamaha2003. 8th International Conference on Human Aspects of Advanced Manufacturing: Agility and Hybrid Automation*. Roma, May 26-30, 2003, pp.461-468.
- [14] Poggi, I., Zuccaro, V. 2008. *Admiration. AFFINE Workshop*, Chania, Greece, 24 October, 2008.

Figure 1. Humans' permanent goals

