EXTENSIONALIST SEMANTICS, COGNITIVE LINGUISTICS AND EMOTION EXPRESSIONS

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1 Semantics and the Semantic Description of Emotive Expressions

In theory, the semantic description of language should take into account the four-fold relationship between reality, signs, language and culture. More particularly, the job of semantic models is to explain the relationship between (1) extension, (2) intension, (3) motivation, and (4) expression. For any semantic domain, meaning works because there is an extensional interface between language and reality; an intensionalist relationship between denotative signs and concepts that produce denotation and sense, not just reference; a motivational basis, i.e. a cognitive-experiential grounding for creating signs and sense; and an expressive basis, that is, a formal-functional system serving as formal signs for the concepts.

In this paper I intend to borrow ideas from two semantic approaches, namely procedural semantics and cognitive linguistics to describe semantically so-called emotion expressions. The semantic approach which Miller and Johnson-Laird introduced in their monumental work *Language and Perception* (1976) is interesting because it is an attempt to map semantic-conceptual structures directly onto reality. Theirs is a thoroughly naturalistic semantics, with a strong extensional orientation: language is intended "to pick out" the world (cf. Abbot, 1997). However, we know, from the work of cognitive linguists, that this "picking out" is not entirely unmediated. Rather, the way language represents reality is mediated by the way the mind works. This includes what G. Fauconnier's calls *'backstage cognition'*, plus other types of general and special cognitive processes such as those studied by Langacker (1991): construal, perspective, saliency, elaboration, framing, and cohering. Another important function of the mind is to create mental models (cf. Johnson-Laird, 1981; Johnson-Laird and Oatley, 1989) as well as analogical, projective, idealized cognitive models to make sense of experience (Kövecses, 1990). Again, cognitive anthropologists remind us that these mental or cognitive models may go through a filter, namely the cultural models of language and thought in a given linguo-culture (Holland and Quinn, 1987; Shweder, 1993; Martín Morillas y Pérez Rull, 1998).

As regards emotion expressions, it is useful to distinguish two main types. On the one hand, some emotive expressions are straightforwardly 'extensionalist', that is, they can be represented linguistically by models that "read out" the semantic representation directly from the naturalistic experience, with minimal "projective elaboration" or "amplification" --just the necessary to do the work of interfacing language and cognition, for example, by filtering, highlighting or emphasising the salience of one aspect of the emotion episode at the expense of another. For instance, extensionalist expressions would be: "*I was frightened / He looked scared / She was shaking with fear....*" and the like, all of which convey in various different ways *intensional* concepts of FEAR.

On the other hand, some models of emotive expressions rely on analogical, projective cognitive models (e.g. metaphoric and metonymic models), which may be conventionally entrenched, or be the unconventional result of idiosyncratic meaning-construction strategies. For instance, analogical-projective instance might be: *"I was filled with terror / He was seized by unspeakable terror / She was white with fright...",* and the like, which convey the experience of FEAR by means of experiential gestalts of CONTAINER, FORCE, and other analogical models.

It can be argued that in representing semantically emotive expressions we need both an extensionalist-intensionalist type of semantic representation format for the denotative concepts, and an intensional-motivational one for the analogical, projective ones.

2 Extensionalist Representations

In keeping with the above, for the extensionalist description of emotive expressions, we may start with a naturalistic model of motions. Here we rely on the account that psycho-biologists have to offer on the nature and function of emotion experience. Following Buck's (1986) well-known psycho-biological model, we can describe the emotive experience as follows. Emotions are causal natural events: the impact of a particular external stimulus produces an affective internal stimulus, which is filtered by the relevant prime arousal system and the person's previous experiences with the stimulus. This affective stimulus is registered at two levels, a physiological level and a cognitive level. Physiologically, the registering is accompanied with the onset of homeostatic mechanisms (Emotion I) which, in turn, trigger spontaneous expressive tendencies (Emotion II), as well as a subjective awareness (Emotion III). All three types of registering are intertwined by a complex feedback mechanism linking bodily manifestations, hormonal, endocrinal, etc mechanisms, and subjective experience. Now on the cognitive level, and in order to cope with this stimulus, the individual appraises or labels this complex feedback on the basis of past experience, of the import of the present situation, of more or less unconscious motives, etc. Once this interpretation has taken place, the individual can make a goal-directed response. This response may follow some learned display rules or expressive tendencies (for example, about what kind of response is appropriate in a given situation). The following diagram sketches this psycho-biological model of emotions:
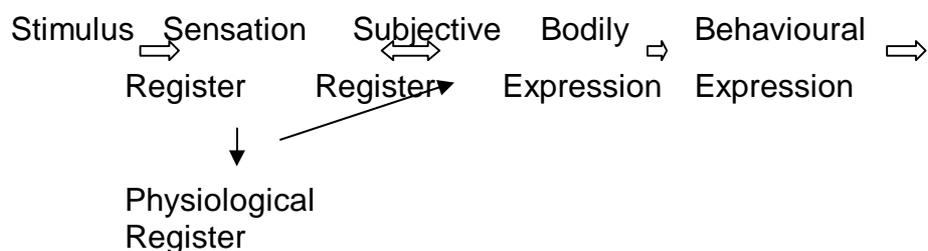
Stimulus ⟹ Sensation ⟺ Subjective Bodily ⇨ Behavioural ⟹
Register Register▾ Expression Expression

↓
↗

Physiological
Register

EXTERNAL   INTERNAL EMOTIVE   BODILY   BEHAVIOURAL
CAUSE   REGISTER EXPERIENCE RESPONSE   RESPONSE

The causal relationships between these elements can be quite complex. In theory, any event external to the self-experiencer, or any event within the self-experiencer (eg. thoughts, sensations), is liable to cause an emotive event: for instance, a visual or an auditory experience (seeing something, hearing something), a cognitive experience (a thought or a stream of thoughts about something), even another

emotion (emotions may cause chains of emotions, a phenomenon called *'affective amplification'*). Again, the response to en emotive event may be quite complex, depending on a number of factors. Some responses may be just a bodily amplification of the bodily effect (like crying from sorrow, or jumping with laughter), other responses may include acting on the dispositional potential of the emotion (like doing something for/against/to oneself or someone else), or else acting out the emotion by following display rules, which are usually mediated by learned cultural scripts (these of course may be flouted or elaborated upon). Likewise, evidently, not all emotive events are of the same quality and tenor (*qualia*, in the jargon of psychologists), their differences depending on the interplay between perceptual, emotive, cognitive and cultural factors. According to most researchers, emotions can be classified roughly into: (1) sensations; (2) feelings, (3) affects and moods, depending on differences in degree of awareness, expressive tendencies, cognitive involvement and cultural shaping. For instance, being startled by a loud thump is not the same as becoming angry, embarrassed or homesick.

In sum, emotions are to be understood as complex internal events causally connected (distally or proximally) to perceptions, sensations, cognition, dispositions and individual and socio-cultural behaviour. These causal relationships may feed back on themselves. A visual experience may lead to a feeling, the feeling to a thought, the thought to a mood, the mood to a behaviour, the behaviour to more feelings, thoughts, actions, moods, etc. and so on. A behavioural response to an emotive event (e.g. running out of fear) may cause one to feel embarrassment, the embarrassment to feelings of self-rejection, the self-rejection to social avoidance, the social avoidance to depression, and so on. (And from there to the shrink.)

3 A Semantic Model for Representing Emotion Experience

An interesting question arises: How does this psycho-biological system relate to language? There may be perhaps modular (cf. Jackendoff, 1997) connections between this emotive system and the linguistic system and other modular systems in the mind. Under this view, minimally, we can envision the operation of language at two interface levels: at the cognitive label and at the expressive level. Following the modular model, with language as a module of its own, language may be used as an expressive amplification system to convey the emotion (emotional language). In this case, language would be part of the 'readout' expressive system (together with non-verbal communications, gestures, behavioural dispositions, social display rules, etc).

Given that we have (a) emotive experiences (involving body, mind, culture: social behaviour, social norms and rules), and (b) linguistic experiences for emotions, the question we aim to pursue is, How do the latter serve the function of representing, i.e., "reading out", the former?

Our aim here is precisely to propose a model of how emotive expressions are "assembled" and deployed for reading out the emotive experience in question.

It can be argued that the first semantic link between emotive experience and verbal representation develops naturally, that is ontogenetically. Repeated episodes of emotional experience may cause children to internalise what will be referred to as an inductive-deductive *propositional schema*, containing a series of *percept-concepts* standing for the core elements of the naturalistic emotive experience. These percept-concepts can be semantically represented as follows:

S = Cause-stimulus (proximal, remote, internal, external)
W = Self-Experiencer
X = Affective Episode (E-I: Emotion / E-II: Feeling / E-III: Mood)

Y = Bodily Manifestation
Z = Behavioural Expression

To illustrate this, consider the expression:

(1) At the sight of the man, she ran away trembling with fear

Underlying this expression is the following propositional schema:

S	W	X	Y	Z
↓	↓	↓	↓	↓
The sight of the man	she	(feel) fear	tremble	run away
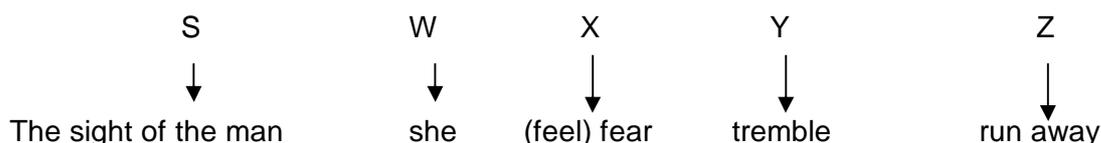
A semantic model of extensional emotive events must explain and describe the move from the underlying level of representation encoded in the emotive propositional schema all the way to the emotive expression itself. We have argued above that there may be two ways in which this is achieved:

a) an extensionalist "read-out" move: here denotative concepts used for denoting the elements of the emotive *emerge* event directly from the percepts-concepts (eg. *"I was pale with fear")*

b) an analogical-projective move: here metaphoric and metonymic concepts and cognitive-cultural models grounded on experiential or cultural gestalts are used for encapsulating the elements of the emotive event (e.g. "*She went white*")

The extensionalist move consists in representing the elements in the propositional schema by means of extensionalist denotative concepts that pick out experiential percepts. The construction of an emotion expression is achieved by deploying percept-concepts mediated by cognitive processes (Langacker, 1991) in charge of constructing the event's construal:

- perspective
- filtering
- saliency

That is, a given emotive event may be construed in propositional schemas by displaying a different types of perspective, filtering, and saliency. For example, in reporting a fear episode, the speaker may highlight the subjective experience of fear only (1), without "reading out" from the event the cause of the fear (2), or the bodily manifestation occurring with the fear (3), or any behavioural response that the fear may have caused (4):

(1) I grew scared
(2) I was scared of the noise
(3) I was shaking with fear at the thought of him coming
(4) I hid under the bed, scared…
     ……

In moving from propositional schema to expression, we can use several levels of semantic representation. To do so, we will adopt a standard pragma-psycholinguistic model distinguishing three stages:

1.   The Conception stage: to convey a message, first, propositional templates and schemas are called out from memory;

2.   The Formulation stage: next, abstract syntactic structures (depending on universal and language-particular rules of the language in question) are called out to encapsulate the propositional concepts;

3.   The Expression stage: finally, surface structures are deployed to convey the concepts in accordance with universal and language-particular pragmatic rules of message and utterance formation.

In accordance with this model, we can posit the following representation formats:

A) At the Conception stage:
    1. A propositional schema reads out the psycho-biological experience and construes, filters, and highlights the percepts of the emotive event.
B) At the Formulation stage:
    2. A predicative schema represents the construed propositional schema by encapsulating the highlighted elements in a pre-syntactic semantic format with denotational percept-concepts.
C) In the Expression stage:
    3. An expression structure represents the predicative schema by expressing it in a well-formed syntactic-pragmatic construction.

To illustrate again, given an emotive episode, such as, for instance, reporting the experience of a woman´s fear and shock cause by witnessing a car accident, we might proceed a follows:

A) Representing the full-fledged propositional schema:
    S = a visual experience (eg. seeing a car accident)
    W = the self-experiencer (woman witness)
    X= feeling fear
    Y = shock
    Z = a behavioural response as a result of the emotion (e.g. leaving the scene…)

B) Representing the predicative format for this schema:
    [P-emot (<feel>) {(x1 i : <witness: woman>) Experiencer (x2: <fear> <shock>) Emotion/Bodily Manifestation
    [(P-visual experience (x1: j:) (x2: <seeing an accident>) Causative Stimulus]] Perceptual Process]]] Emotive Process

C) Representing the expressions. Here a number of possibilities exist, depending on the topic-focus (pragma-syntactic) packaging of the propositional and predicative elements: as:
    - The woman was shocked with fear at the sight of the accident
    - The woman was trembling with shocking fear at the sight of the accident
    - The woman, frightened at the sight of the accident, began to tremble in shock
    - The sight of the accident shocked the woman, who left the scene trembling with fear
        ……..

We will next offer a sample typology of emotion expressions showing various ways in which cognitive processes might be involved in construing, highlighting and filtering elements from the general propositional schema. Likewise, we will show a sample of expressive formulas for encoding these schemas. We will first give examples involving extensionalist models, and next examples involving analogical-projective models.

4 Typologies of Models of Emotion Expressions

I) EXTENSIONALIST MODELS

A) Typologies can be set up for the different ways in which the elements of the propositional schema can be construed, filtered, and highlighted. Thus:

1. Ascribing to sb a feeling (E-II)
   "SHE WAS SAD" : (S)→ **W-X**-(Y-Z)
2. Ascribing to sb a sensorial emotion (E-I)
   "SHE FELT DISGUST" : (S)→ **W-X**-(Y-Z)
3. Ascribing to sb a mood (E-III)
   "SHE FELT HOMESICK" : (S)→ **W-X**-(Y-Z)
4. Ascribing to sb a feeling caused by an external stimulus
   "SHE WAS ANNOYED AT HIS WORDS" : **S** → **W-X**-(Y-Z)
5. Ascribing to sb a bodily effect
   "SHE BLUSHED": (S)→ **W**-(X**)**→ **Y**-(Z)
6. Ascribing to sb a bodily effect, caused by a feeling
   "SHE GREW PALE WITH FEAR": (S)→ **W-X**→ **Y**-(Z)
7. Ascribing to sb a behavioural response, caused by a feeling
   "SHE JUMPED WITH JOY": (S)→ **W-X**-(Y**)**→ **Z**
8. Ascribing to sb a behavioural response, caused by an external stimulus
   "SHE LAUGHED AT THE JOKE": **S**→ **W**-(X-Y**)**→ **Z**
9. Ascribing to sb a feeling caused by a cognitive internal event
   THE THOUGHT OF IT SADDENED HER: **S**→ **WS**→ **X**-(Y-Z)

B) An alternative typology can be set up for the different expressive possibilities involving a given schema. Thus:

1. Ascribing to an experiencer an emotion caused by an external/internal event
   1a. Inessive Models:
   a) Stative predicative ascription with oblique complementation:
       He was annoyed at her words
       He was jealous of their success
   b) Inchoative-lexical change of state ascribed to experiencer:
       She saddened at the thought of them going away
   c) Inchoative lexico-grammatic predicative ascription with resultative subject complement:
       She grew / became sad
   1b. Causative Models
   a) Lexical (synthetic)
       Her words annoyed him
       It saddened her ...
   b) Lexico-gramamtic (prepositional)
       She laughed with joy
       She stepped back in fear
   c) Lexico-grammatical (analytic)
   It made her sad ...
   Their success made him jealous

II. ANALOGICAL MODELS: COGNITIVE-CULTURAL MODELS

The ways in which emotive experience can be represented by means of analogical and projective models is open-ended. We find here two main types:
a) implicitly or explicitly entrenched models
b) idiosyncratic models

The first type involves models which are either opaque or transparent, and which are conventionalised. For example, the use of the CONTAINER IMAGE SCHEMA, *She was fearful of him - She was filled with anger*.

The second type involves models which are the result of non-conventional personal, idiosyncratic meaning-construction strategies.

We will offer next some examples of both entrenched and idiosyncratic models.

1) She reined in her anger
    W (SELF) = CONTROLLER; X (ANGER) = WILD ANIMAL;
2) *He felt all the warmth drain out of him*
    W (SELF) = CONTAINER; X-Y = LIQUID;
3) *The thought chilled her*
    W (SELF) = OBJECT; X-Y = EXPERIENCE OF COLDNESS = CHILLING
4) *Like a cancer, the anger had metastasized throughout her system until it now lived in every tissue*
    X = ANALOGICAL MODEL = CANCER GROWTH
5) *She felt her anxiety level rise*
    X = UP = INTENSITY
6) *It left him with no target for the monstrous, smoldering mass of rage writhing within him, but he got over it, got past it, … the rage had gone away*
    W (SELF) = UNCONTROLLABLE AGENT; X (ANGER) = INSIDE CONTAINER (BODY); FEROCIOUS ANIMAL/MONSTER / = FIRE; EMOTIONAL EXPERIENCE = OBJECT IN MOTION (PATH)
7) *He felt the frustration pouring out of him*
    W (SELF) = CONTAINER; X (FRUSTRATION) = LIQUID

5 Conclusions

We have argued for the need to distinguish two types of semantic models for the purpose of describing emotion expressions. On the one hand, we need extensionalist models (Miller and Johnson-Laird, 1976; Abbott, 1997) for expressions that "*read out*" semantic emotive percept-concepts directly from experiential reality; and, on the other, we need analogical, projective models for expressions that are grounded on, and map cognitive-cultural models onto, the percepts that ultimately refer to emotive experiences (Kövecses, 1990; Barcelona Sánchez, 1986). Both models serve different semantic needs: one takes the direct route, the other the indirect. Both show two alternative but complementary ways in which language, concepts and reality may interact.

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