Chapter 2

Positive–Negative Asymmetry in Evaluations: The Distinction Between Affective and Informational Negativity Effects

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INTRODUCTION

For over 20 years we have been witnessing a growing interest in biases, errors and asymmetries in human functioning. Markus and Zajonc's chapter on social cognition in the last edition of the *Handbook of Social Psychology* is to a large extent devoted to a listing and description of cognitive–affective biases and reasoning heuristics (Markus and Zajonc, 1985). The present chapter focuses primarily on only one of those biases, which was first extensively dealt with by Kanouse and Hanson (1971) and is currently referred to as the *negativity effect*.

The negativity effect can be roughly defined as a greater impact of evaluatively negative than of equally intense positive stimuli on a subject. Most of the evidence reviewed by Kanouse and Hanson (1971) related to two manifestations of the phenomenon: (1) potential costs are more heavily weighted than potential

gains in making decisions under risk, and (2) evaluatively negative information is weighted more heavily than evaluatively positive information in the formation of overall evaluations. Meanwhile the amount of supportive evidence, reviewed by Czapinski (1988a), has increased considerably. The greater weight accorded to costs than to gains became a cornerstone of the influential *prospect theory* of decision-making (Kahneman and Tversky, 1979). The greater weight accorded to negative information than to positive information was repeatedly observed in studies conducted in the context of Anderson's (1981) *information-integration paradigm*. For instance, a person presented as *sincere* and *heartless* is evaluated more negatively than the average evaluation of a *sincere person* and a *heartless person*. In addition, Czapinski (1988a) has reviewed evidence showing negativity effects in reactions to situational changes. More specifically, studies on animal conditioning have shown that administering a low reward after a high reward results in a *negative contrast effect*. This means that performance is decreased to a lower level than obtained in a control condition where the low reward is administered from the beginning. Analogous *positive contrast effects* of reward increase on the increase of performance have been found to be less pronounced, less reliable and less replicable (Amsel and Stanton, 1980; Black, 1968; Dunham, 1968; Spence, 1956). Reanalyzing data from Taylor (1982), Czapinski (in press) found the same asymmetry in the effects of changes in financial income upon life satisfaction.

A crucial element of the definition of the negativity effect is the condition of 'equal intensity'. If the greater impact of a negative stimulus is due to the greater intensity of that stimulus, we do not have a genuine negativity effect but simply a trivial intensity effect. There are in fact two ways in which intensities of positive and negative stimuli have been compared and controlled. The first has been used mainly in social-perceptual studies and may be called *intercategorical*. It implies that intensities of positive and negative stimuli are defined relative to two separate distinct scales defined by different labels. This is, for instance, the case when evaluative ratings are made on a good/bad scale with a neutral point in the middle. The intercategorical comparison then is between the degrees of polarization of the good and bad ratings. The second has been used predominantly in studies on tasks such as decision-making. It may be called '*intracategorical*' because intensities of positive and negative evaluations are defined relative to the same parameter, for instance physical distance, amount of money, etc. In this way, gaining and losing one dollar constitutes respectively a positive and a negative stimulus with the same objective intensity of one dollar. In order to draw any conclusion concerning the occurrence of a negativity effect, it is necessary to control either the intra- or intercategorical intensity of positive and negative stimuli. In the majority of the studies reported in this chapter this requirement has been met.

In the following section we shall demonstrate that the negativity effect is not an isolated phenomenon but only one part of a more encompassing *positive-*

negative asymmetry (Peeters, 1971, 1986) which will be shown not to be an anomaly but a manifestation of normal adaptive functioning.

THE NEGATIVITY EFFECT AND POSITIVE-NEGATIVE ASYMMETRY

In the sixties cognitive social psychology was dominated by cognitive consistency theories. They claimed that cognitive organization was directed to an optimal state of structural economy or simplicity most commonly referred to as *cognitive consistency*. However, empirical research soon revealed other cognitive-organizational forces that seemed to interfere with the forces directed towards consistency. Among them was a *positivity bias*: cognitive organization seemed directed towards having as much favorable or positive content as possible rather than towards consistency. For instance, an inconsistent representation of the type 'My friend's enemy is my friend' was preferred to a consistent one of the type 'My friend's enemy is my enemy' in that the former implied more friends. The concept of *positive-negative asymmetry* has resulted from an attempt to integrate the positivity bias in the general framework of social-cognitive theories which include the concept of cognitive consistency (Peeters, 1971). This attempt involved the application of three perspectives or viewpoints from which cognitive and affective representational phenomena could be approached and that were in a subsequent paper (Peeters, 1988a) defined as psychological equivalents of the *syntactic*, *semantic* and *pragmatic* perspectives in semiotics. In the following paragraphs the 1971 theory is briefly recapitulated and completed with some references to more recent supportive research.

The Syntactic Perspective: From Positivity Bias to Positive-Negative Asymmetry

Applying the syntactic perspective, cognitive organization was approached as an intrasubjective representational process driven by forces that were conceived of as purely cognitive dynamics such as the tendency towards consistency or simplicity mentioned above. The attempt to integrate the positivity bias in this perspective resulted in the concept of positive-negative asymmetry. Consistent with the tendency towards simplicity, positivity bias was associated with the idea that evaluatively positive cognitions are structurally more simple than evaluatively negative ones. This difference in complexity constituted an asymmetric relationship between positive and negative cognitions that was compared with the relationship between figure and ground in perception, negative cognitions being associated with the figure and positive ones with the ground (Peeters, 1971).

The figure-ground model was supported by research reviewed and discussed

by Adams-Webber (1979) and Benjafield (1985). This research shows that when subjects have to assign evaluatively loaded adjectives to a target, they assign the adjectives according to the *golden section ratio* of approximately 38% negatives against 62% positives. The above-mentioned authors explained this result by arguing that the golden section ratio approximates an optimal figure-ground relationship between negatives and positives. Consistent with this interpretation, Tuohy and Stradling (1987) even observed that the empirically obtained ratio deviates slightly from the golden section ratio in such a way as to be a still better approximation of the maximal figure-ground contrast possible than the golden section ratio.

Another syntactic aspect of the positive-negative asymmetry discussed by Peeters (1971) was that relatively simple positive categories seemed to underlie the more complex negative categories. Accordingly, Matlin and Stang (1978) reviewed ample evidence from the research literature on *linguistic marking*. Evaluatively negative terms are marked relative to their positive opposites. For instance, negative terms are often composed of a positive root transformed into a negative by a prefix (e.g. un-favorable). The reverse construction (e.g. un-selfish) is rather exceptional. Matlin and Stang showed further that in dictionaries negative terms are currently defined by the negation of the positive opposite (e.g. 'bad' defined as 'not good'), while the reverse ('good' defined as 'not bad') is exceptional. An analogous result was reported by Peeters (1974), who asked high-school pupils and university students to rate similarities between meanings of terms. More similarity was assigned to negative terms and the negations of their positive opposites (e.g. 'grim' and 'not friendly') than to positive terms and the negations of their negative opposites (e.g. 'friendly' and 'not grim'). An important implication of this study was that the marked character of the negative did not depend on the presence of negative prefixes and thus was not simply a matter of linguistic structure but extended to the underlying cognitive level.

The Semantic Perspective: Positivity Bias as a Hypothesis about Reality

Relating positivity bias to a more encompassing positive-negative asymmetry was not yet sufficient to explain it. In particular, it was not clear why the negative should be the more complex figure-like category and the positive the more simple ground-like category and not the other way round. In the search for an answer, the syntactic perspective gave way to a semantic perspective which focused on the agreement between the 'subjective' cognitive representations and the 'objective' reality they represented. Applying this perspective to the evidence available in the literature, Peeters (1971) argued that the primacy of the positive reflected a subjective tendency to form positive hypotheses which would be functional to establish accurate representations about reality.

The idea that positivity bias functioned like an *a priori* hypothesis about

reality seemed valid; in fact, Markus and Zajonc (1985) arrived at the same conclusion on the basis of a more recent review of the literature. However, the epistemological function of this hypothesis was immediately rejected. Indeed, referring to Wason's (1960) early research on problem-solving, Peeters (1971) observed that the hypotheses subjects form about reality are primarily not attuned to achieve accuracy but to guide the subjects' behavior towards positive outcomes. Hence it was suggested that the positive-negative asymmetry should be approached as a behavioral-adaptive phenomenon. This meant, however, that the semantic perspective in turn gave way to a pragmatic perspective.

The Pragmatic or 'Behavioral-Adaptive' Perspective

Applying the pragmatic perspective, the positive-negative asymmetry was related to the simple biological facts that (a) any living organism subsists through interaction with the environment (e.g. intake of food) and (b) the environment has a greater potential for detrimental than for beneficial interaction outcomes—as if the organism were a fungus-eater living in a world with few mushrooms but many toadstools. Positivity bias, or the tendency to form positive hypotheses about reality, was interpreted as the manifestation of a behavioral approach bias or tendency to enter into interaction with the environment. Thereby a distinction was made between a *restricted* and a *generalized* positivity or approach bias. The restricted bias referred to the well-established approach acts executed in a safe environment familiar to the actor (e.g. ordering mushrooms in a restaurant) and it was interpreted as an adaptive function attuned to mere survival. The generalized bias concerned a tendency to approach novel objects and situations which is functional to expand the range of beneficial dealings with the environment (e.g. new varieties of mushrooms are discovered by approaching unfamiliar fungi as potential mushrooms rather than rejecting them *a priori* as toadstools). This tendency was associated with self-actualization rather than with mere survival. It corresponds to Czapinski's (1985a) notion of 'positivity bias' as the 'unconditional optimism' that underlies approach acts that are not directed to the realization of positive states from the potential yet available but to the expansion of this potential by the creation of novel positive states.

As uncontrolled approach behavior would soon end up in detrimental interactions (such as the consumption of toadstools), the tendency to expect the positive is allied with a strongly marked sensitivity for aversive stimuli resulting in a subjective overemphasis of the negative (Peeters, 1971) that could be matched with the negativity effect described and discussed by Kanouse and Hanson (1971). The greater complexity of negative cognitions revealed by the syntactic perspective was thereby interpreted as the result of a subjective tendency to have the aversive areas within one's lifespace clearly circumscribed. This tendency was not only considered functional to avoid negative states but

also to prevent the avoidance reactions from interfering unnecessarily with the approach behavior.

Summary

It clearly makes sense to deal with the negativity effect as part of a more encompassing positive-negative asymmetry which in turn reflects a behavioral-adaptive mechanism. On one side there is a positivity bias reflecting an approach bias which is functional to achieve at least some of the scarce positive life outcomes possible in a world with a much larger potential for negative outcomes. The risk involved in this bias is compensated for by a subjective overemphasis of the negative or *negativity effect* which is functional to avoid accurately the negative outcomes. In the following section we shall discuss some implications of this behavioral-adaptive theory in greater detail.

SOME IMPLICATIONS OF THE BEHAVIORAL-ADAPTIVE THEORY AND PROBLEMS CONNECTED WITH THEM

The topics dealt with in this section were selected partly because they shed some light on how the present positive-negative asymmetry concept relates to similar issues and theories regarding affect and cognition. The main reason for their selection, however, was that they seem to challenge the unitary character of the positive-negative asymmetry and especially of the negativity effect.

Positive-Negative Asymmetry and the Perspective of the Actor

In the behavioral-adaptive theory the subject takes the role of an actor engaged in behavioral interaction. Hence an important empirical support for the theory was found in a study by Adelman (1969) on cognitive consistency and positivity bias in subjective evaluations of hypothetical social situations. Adelman observed that the interference of the positive-negative asymmetry with the tendency towards cognitive consistency was dramatically reduced when subjects were instructed to evaluate a situation from the perspective of an actor who would have no future contact with the other characters involved in the situations. When this instruction was not given, the tendency towards consistency was overwhelmed by a strong positive-negative asymmetry irrespective of whether the subjects were further instructed to anticipate future contact or not. To put it simply, subjects preferred consistent situations of the type 'My friend's enemy is my enemy' to inconsistent ones of the type 'My friend's enemy is my friend' if and only if they were instructed to assume that they would not have any contact in the future with the involved 'friends' and 'enemies'. These results not

only showed the connection of the positive–negative asymmetry with taking the perspective of an involved actor, but also that subjects are inclined to adopt this perspective spontaneously even if they deal with situations that are not real but merely hypothetical.

Further support for this conclusion can be found in a study by Wyer and Hinckle (1976). In one condition subjects were asked to estimate how much they would (dis)like a target person on the basis of a description consisting of positive and negative adjectives provided by the experimenter. The results showed the typical negativity effect, negative adjectives being weighted more than positive ones. However, this negativity effect was not obtained in a condition where subjects were asked to estimate how much another person would (dis)like the target rather than how much *they* would (dis)like it. Apparently the estimation of own attitude is made from the perspective of an actor who anticipates interaction with the target and thus involves a negativity effect. This perspective, however, is not adopted when subjects estimate an other's attitude, in which case no negativity effect occurs.

It should be noted that, in seeming contrast with Wyer and Hinckle (1976), Czapinski (1988a,b) observed a negativity effect in the estimations made of attitudes of others. However, this negativity effect did not concern the valence of the attitudes but the time and amount of information subjects needed to make their estimations. Apparently, evaluatively negative cues were weighted more than positive ones so that subjects needed less time and fewer cues for inferring negative attitudes from negative cues than for inferring positive attitudes from positive cues.

The latter result may detract from the unitary character of the positive–negative asymmetry. Certain manifestations of the negativity effect seem not in accordance with each other. Negativity effects regarding the valence of evaluations are directly in line with the implications of the behavioral-adaptive theory, while this seems not to be so for negativity effects regarding evaluatively neutral parameters involved in the evaluative decision such as time and amount of information.

Dimensional Restrictions Regarding the Positive–Negative Asymmetry

According to the behavioral-adaptive theory of positive–negative asymmetry, the positive and negative evaluative meanings of attributes reflect the attributes' incentive values for approach and avoidance. For instance, an honest person is to be approached, while a dishonest one is to be avoided.

Another behavioral-adaptive definition of evaluative meaning may be in terms of adaptive value. For instance, the positive and negative evaluative meanings of *clever* and *stupid* may reflect the positive and negative adaptive values of those attributes.

A problem is that both definitions do not always converge. For instance,

an honest person who is *clever* seems more approachable than an honest person who is *stupid*, but a dishonest person who is *clever* does not seem more approachable—nor to be avoided less—than a dishonest person who is *stupid*. The reason is that the adaptive value of an attribute can be defined from two perspectives, being (a) the perspective of the *self* and (b) the perspective of the *other*. The adaptive value of 'clever' is only unconditionally positive for the *self*, which means for the clever person herself. However, in order to make a person more approachable, 'clever' should have positive adaptive value for the *other* who has to deal with the person, and, as the above example shows, this is not always the case. Nevertheless, there may also exist attributes that are unconditionally positive or negative for the other. A case in point may be 'honest', which seems associated with positive consequences for the others who are dealing with the honest person, rather than for the honest person himself.

Consistent with the present rationale, Peeters (1983) defined two evaluative dimensions: *self-profitability*, which was related to the perceived adaptive value of attributes for the self, and *other-profitability*, which was related to the perceived adaptive value of attributes for the other. Various operationalizations of those dimensions were found to converge (Peeters, 1983). Hence, we shall not dwell on them but mention, by way of illustration, one operationalization in which traits were defined as: (1) *positively other-profitable* if they were selectively attributed to stimulus persons who acted in such a way as to maximize positive outcomes for an other; (2) *negatively other-profitable* if they were selectively assigned to stimulus persons acting in such a way as to minimize positive outcomes for an other; (3) *positively self-profitable* if they were selectively assigned to stimulus persons acting in such a way as to maximize positive outcomes for the self; and (4) *negatively self-profitable* if they were selectively assigned to stimulus persons acting in such a way as to minimize positive outcomes for the self. Some representative self- and other-profitable trait opposites are presented in Table 2.1.

Table 2.1 Representative self- and other-profitable traits (translated from Dutch)

Self-profitable		Other-profitable	
Positive	Negative	Positive	Negative
Powerful	Weak	Tolerant	Intolerant
Ambitious	Unambitious	Generous	Selfish
Self-confident	Shy	Sensitive	Impassive
Practical	Clumsy	Trustworthy	Untrustworthy
Quick	Slow	Trusting	Suspicious

In that only the valences of the other-profitable dimension seem unequivocally associated with approach and avoidance, one could expect that positive-negative asymmetry phenomena would involve primarily this dimension rather

than the self-profitable dimension. Peeters (1989) has provided evidence by asking subjects to generate by free association compound terms composed of an adjective and a noun (e.g. 'ambitious teacher'). The adjectives were provided by the experimenter and included the 20 self- and other-profitable adjectives presented in Table 2.1. The nouns added by the subjects were afterwards rated by judges for self- and other-profitability. Consistent with the positive-negative asymmetry, which implies primacy of the positive, the subjects were found to have generated more compound terms composed of a positive noun modified by a negative adjective (dishonest friend) than compounds composed of a negative noun modified by a positive adjective (honest enemy). However, consistent with the behavioral-adaptive theory, this asymmetry was significant only to the extent that adjectives and nouns belonged to the other-profitable dimension. Thus, as expected, the asymmetry did not extend to the self-profitable dimension, where compound terms of the type 'unambitious athlete' did not stand out in comparison with terms of the type 'ambitious child'.

Further evidence can be found in studies on negativity effects in impression formation. The reviews by Kanouse and Hanson (1971) and Czapinski (1988a) show that most of those negativity effects were obtained using one of the following two paradigms:

1. Subjects were asked to make an overall evaluation of a person on the basis of a list of positive and negative traits (Birnbaum, 1974; Fiske, 1980; Hodges, 1974; Ronis and Lipinski, 1985; Schmidt and Levin, 1972; Wyer, 1973).
2. Subjects were asked to rate the morality of a person on the basis of a sample of his actions among which were both moral and immoral acts (Birnbaum, 1972; Leon, Oden and Anderson, 1973; Reeder and Spores, 1983; Richey *et al.*, 1975).

Both paradigms seemed to involve an other-profitable dimension. Indeed, the evaluative dimension involved in the first paradigm was usually operationalized in terms of likeableness, which, like the morality of the second paradigm, seems associated with the approachability of a person for others. However, no negativity effect was obtained in studies in which the stimulus information as well as the subsequent evaluation of the stimulus person concerned the latter's ability rather than his morality or likeableness (Richey *et al.*, 1982; Takahashi, 1977). Considering that 'ability' may be associated with self-profitability, the whole set of studies seems to suggest that negativity effects are restricted to the other-profitable dimension, which supports the behavioral-adaptive theory.

It should be noted that Reeder (1985) has offered an alternative explanation in terms of purely cognitive implicational schemata without reference to behavioral-adaptive processes. Morality and ability would be dispositional properties that are inferred from acts on the basis of implicational schemata or implicit theories held by the subject regarding the relationship between certain acts and certain dispositions. According to those schemata, 'immorality of the

actor' would be perceived as a necessary condition underlying 'immoral acts' but 'high morality of the actor' would not be perceived as a necessary condition underlying moral acts because immoral actors may not only perform immoral acts but moral acts as well, for instance because of social desirability. By analogy, high ability would be perceived as a necessary condition for clever acts, but low ability would not be perceived as a necessary condition for stupid acts because highly able actors would be able to perform both clever and stupid acts. In this way, immoral acts would be more diagnostic for morality than moral acts but stupid acts less diagnostic for ability than clever acts.

Reeder's cognitive theory does not contradict the behavioral-adaptive theory. Both theories focus on different processes that can simultaneously underlie the same phenomena. Nevertheless, some of these phenomena seem to fit the behavioral-adaptive theory better than the cognitive theory. Indeed, Reeder's implicational schemata may account fairly well for negativity effects in inferences from acts to dispositions. However, they may not account for the current negativity effects in overall evaluations based on lists of stimulus traits. Rather than referring to a disposition in the evaluated object, the overall evaluation refers to the way the perceiver feels with respect to the object. In this way, evaluating a meal as 'good', the perceiver does not point to a causal nucleus that accounts for the qualities displayed by the various dishes, but just expresses that she likes the meal, which means that she is disposed to approach (consume) it.

Altogether, the research reviewed seems to confirm that positive-negative asymmetry phenomena, and especially negativity effects, involve an approach-avoidance related evaluative dimension such as the present *other-profitability* and do not extend to the dimension of *self-profitability* that is related to approach and avoidance in a more ambiguous way. Nevertheless, certain manifestations of the positive-negative asymmetry have been observed for the self-profitable dimension as well. For instance, negative self-profitable adjectives have been found to be marked relative to positive ones in the same way as were negative other-profitable adjectives. More especially, the tendency to associate bad terms with the negation of good terms rather than good terms with the negation of bad terms was clearly not restricted to other-profitable terms such as tolerant and intolerant but extended to self-profitable ones such as powerful and weak (Peeters, 1974). This result challenges once more the unitary character of the positive-negative asymmetry and the straightforward application of the behavioral-adaptive theory.

The Negativity Effect and Stimulus Intensity

Following on from the behavioral-adaptive function of the negativity effect, Czapinski (1982) hypothesized that the magnitude of the negativity effect would be proportional to the intensity of the eliciting stimulus. This means that the

weights accorded to negative stimuli should exceed those accorded to equally intense positive stimuli as the stimuli are more intense. Indeed, the more intense negative stimuli are, the more they may be associated with irreversible negative outcomes such as lasting damage and even the death of the subject. However, as Kanouse and Hanson (1971) noted, the positive side of the stimulus continuum is not associated with comparable irreversible positive outcomes such as eternal youth. Czapinski suggested further that if positive and negative stimuli are weak, the negativity effect might even turn into a positivity effect, positive stimuli receiving more weight than negative ones. Indeed, a subject may neglect weakly negative stimuli in that the negative outcomes associated with them are not irreversible and easy to cope with. However, given the scarce potential of positive opportunities available, it may be highly adaptive for the subject not to neglect the modest positive outcomes associated with weakly positive stimuli.

Empirical evidence was obtained by asking 35 students to rate 36 hypothetical stimulus persons using an evaluative rating scale ranging from -3 (dislike very much) to $+3$ (like very much). Each stimulus person was characterized by one positive and one negative trait which were both either extremely polarized ($+++$, $---$), moderately polarized ($++$, $--$), or slightly polarized ($+$, $-$), polarization being an operationalization of evaluative stimulus intensity.

As shown in Figure 2.1, liking was inversely related to intensity. Consistent with expectations, a relatively strong negativity effect was observed for the most extreme trait pairs ($+++$, $---$) which, however, decreased as stimulus intensity decreased and even reversed into the predicted positivity effect for the least intense trait pairs ($+$, $-$).

The same pattern of results was replicated in subsequent studies (Czapinski, 1988a) irrespective of whether or not the evaluative rating scale included a neutral middle category and irrespective of whether three or five levels of stimulus intensity were used. In the latter case, the reversal of the negativity effect into a positivity effect continued to be restricted to the stimulus pair with the weakest degree of intensity.

A completely different data pattern, however, was obtained relative to the non-evaluative informational value or 'diagnosticity' of positive and negative stimuli. Czapinski (1986) asked subjects to write down characteristic features of three peers and to rate each feature on a six-point 'like-dislike' scale. Other peers were subsequently asked to indicate to which peers the features were ascribed. For each feature a diagnostic score was derived indicating the number of correct matches. Not surprisingly, more intense positive features were manifestly more diagnostic than less intense ones. However, on the negative side, diagnosticity was hardly related to intensity and even showed a reversed trend, the most intense negative features being the least diagnostic ones. Subtracting the diagnostic scores of negative features from those of equally intense positive features, we obtain the pattern represented in Figure 2.2. If we define greater diagnosticity of negative than of positive stimuli as a form of negativity effect,

then we observe that the strongest negativity effect is obtained for weak stimuli (+, -), while no negativity effect at all is obtained for the most intense stimuli (+++, - - -).

Once more the unitary character of the negativity effect is challenged. In the

Figure 2.1 Relative impact of combined positive and negative stimulus traits on the overall evaluative judgment (based on data from Czapinski, 1982)

Figure 2.2 Relative diagnostic value of positive and negative traits (positive minus negative) (based on data from Czapinski, 1986)

formation of overall evaluations, the greater weight accorded to negative than to positive stimuli is proportional to stimulus intensity and for the least intense stimuli the negativity effect even turns into a positivity effect. However, the least intense stimuli show the strongest negativity effect in the greater diagnostic value of negative than of positive stimuli.

Summary

Tracing implications of the behavioral-adaptive theory, we expected that (a) positive-negative asymmetry phenomena in general, and negativity effects in particular, are connected with taking the perspective of an involved actor, (b) they are restricted to a specific approach-avoidance related evaluative dimension referred to as other-profitability, and (c) the negativity effects are proportional to the intensity of the eliciting stimuli. These expectations were in general confirmed by the reviewed research. However, there were exceptions, which concerned the informational or diagnostic value of the negative stimulus and its complex 'marked' character. In that these exceptions relate to informational rather than evaluative or affective aspects of the positive-negative asymmetry, they can be defined as members of a more widely encompassing class of *informational negativity effects* (Czapinski, 1988b) that are dealt with in the following section.

THE INFORMATIONAL NEGATIVITY EFFECT

The negativity effect was defined above as a greater impact of negative than of positive stimuli. For the current negativity effects reported in the research literature, including those presented in the introductory section, this impact was affective in character. All of the effects concerned evaluative responses along a *like-dislike* continuum that could be conceived as a dispositional approach-avoidance continuum. In addition to this *affective negativity effect*, Czapinski (1988a) has reviewed evidence that the greater impact of the negative stimulus extends to non-evaluative aspects of the subject's information-processing activity. In the following paragraphs we shall first review some evidence for this '*informational negativity effect*' and then try to integrate it into the behavioral-adaptive theory.

Evidence for the Informational Negativity Effect

At the core of the notion of an informational negativity effect is the idea that negative stimuli have greater informational value than positive ones. Hence one can expect that (a) they elicit more cognitive work, and (b) they lead to more complex cognitive representations.

Negative Stimuli Elicit More Cognitive Work

Subjects spend more time looking at negative than at positive stimuli (Fiske, 1980; Graziano, Brother and Berscheid, 1980), which suggests that the negative stimuli attract more attention and thus elicit more cognitive work. Other evidence has been provided by studies showing that negatively valued states of affairs tend to elicit more 'why' questions (Abele, 1985; Holtzworth-Munroe and Jacobson, 1985; Weiner, 1985). The compelling character of this tendency was clearly demonstrated by the following experiment (Czapinski, 1988a).

Subjects were invited to write down four characteristics of a hypothetical stimulus person who was specified either as 'an average tutor' or 'an average Pole'. Then the subjects were given the opportunity to add justifications to each of the statements they had made before these were communicated to peers. The descriptions were found to reflect the current stereotypes about Poles and tutors, which consist of mixtures of positive and negative traits though with a majority of positive traits being ascribed to the 'Pole' and a majority of negative traits to the 'tutor'. Contrary to expectations, no more justificatory comments were added to the negative than to the positive traits, on the average. However, the negative traits were more specific than the positive ones and often referred to concrete behaviors requiring no further justification. Moreover, when afterwards the descriptions with the justificatory comments were actually given to other subjects with the request to mark the traits about which they wanted more justification, a strong negativity effect was obtained. Requests for justification concerned predominantly negative traits, irrespective of whether the stimulus person was rather positive (Pole) or rather negative (tutor), and irrespective of whether or not the author of the description had already added justificatory comments.

Negative Stimuli Lead to More Complex Cognitive Representations

We have already mentioned the marked character of negative categories relative to positive ones as a manifestation of their greater complexity. More direct evidence can be found in studies showing that negative stimuli are perceived as more complex than positive ones, and this irrespective of whether the stimuli concern persons (Irwin, Tripodi and Bieri, 1967) or nonsense shapes (Ducette and Soucar, 1974). Finally, Czapinski (1985b) has reviewed evidence (including the results of his own study based on a content analysis of over 17,000 psychological articles and books published in Poland) suggesting that publications on socially negative phenomena, such as criminality, outnumber by far those on positive phenomena, such as happiness, and involve a richer and more elaborate terminology.

It should be noted that the high complexity of a negative representation does not necessarily reflect an informational negativity effect but may just result

from the affective negativity effect combined with a positivity bias. Similar *pseudo-informational* negativity effects may be found in studies by Alimaras (1967) and Czapinski and Lewicka (1979), where it was observed that negatively valued stimulus persons were described by a mixture of positive and negative terms, while descriptions of positively valued persons were uniformly positive. The occurrence of the positivity bias is not inconsistent with the negativity effect but shows, in a way, the reverse side of it. Indeed, because of the negativity effect, a single negative attribute may suffice to make the stimulus person negative. Hence, the subject needs in principle to assign only one negative trait in order to be in agreement with his negative affective reaction to the stimulus, while the remaining traits can be positive. However, the assigned negative trait(s) can be expected to be strongly avoidance-related, which means negatively other-profitable (see previous section). The negative traits that were most frequently assigned to the disliked person in Alimaras' (1967) study were: *unfair*, *conceited*, *unpleasant*, *dissonant*, and *false*. When we compare them with the traits in Table 2.1, they clearly have a negative other-profitable flavor. Positive traits that were assigned in outstanding degrees to both the liked and the disliked person (clean, handsome, healthy, successful) did not have this other-profitable flavor but looked rather self-profitable.

An analogous pattern was obtained by Peeters (1976, 1983) when he asked subjects to describe on bipolar trait scales two hypothetical people about whom no information was provided other than that they disliked each other. The subjects tended to assign negative other-profitable or 'dislikeable' traits to both stimulus persons; this tendency was attenuated by a positivity bias, resulting in a mixture of positive and negative traits. However, in addition to this pseudo-informational negativity effect, a genuine informational negativity effect was also observed. Indeed, the information that two people disliked each other was found to induce more non-evaluative complexity in the cognitive representations than the information that they liked each other. In particular, the people who disliked each other were more differentiated from each other and this differentiation seemed to be superimposed upon the affective inference pattern—with the pseudo-informational negativity effect—without having any systematic relationship with it.

Negative Stimuli Are Really More Informative

The great amount of cognitive work and the high complexity of the resulting cognitive representations could be regarded as indirect manifestations of the great informational value of the eliciting negative stimuli. In addition, there is more direct evidence that negative stimuli are more informative. Having observed that punishments or disconfirming feedbacks ('wrong!') are more effective in discrimination learning than rewards or confirmatory feedbacks ('right!'), Meyer and Offenbach (1962) suggested that punishment might have greater in-

formational value. Indeed, punishment implies unequivocally that a particular mode of responding is incorrect. However, reward does not unequivocally imply that the rewarded mode of responding is right, because the subject may have attended to an irrelevant cue that coincided accidentally with the relevant cue. Consistent with this interpretation, Meyer and Offenbach found that the superiority of disconfirming feedback was directly related to the number of irrelevant dimensions involved in the discrimination problems they presented to subjects. By the same rationale, the high informational value of evaluatively negative information may be related to the fact that it disconfirms the positive *a priori* hypotheses which, as explained earlier, subjects tend to form about reality.

In that the informational aspect of a stimulus is distinct from the approach–avoidance related evaluative–affective aspect, an informational negativity effect may occur even if the subject is not taking the perspective of an involved actor who has to decide between approach and avoidance. This explains the discrepancy observed between affective and informational negativity effects. However, it does not yet explain the discrepancy between affective and informational negativity effects observed for weakly negative stimuli, nor the marked character of negative self-profitable categories observed.

Behavioral-Adaptive Interpretation of the Informational Negativity Effect

The behavioral-adaptive theory of Peeters (1971) focused on the interactions of the organism with the environment. This interactional theory could account well for the approach–avoidance processes that constitute the affective negativity effect, but needs to be extended in order to account for the informational negativity effect. A similar extension has been provided by Czapinski (1988a) using system theoretical concepts, especially Weinberg's (1975) chain principle.

Positive–negative Asymmetry and the Chain Principle

The solidity of a system can be compared with that of a chain: its strength depends on the weakest link while the strongest link is not important. One single weak link endangers the whole chain, while the strength of the chain is not improved by adding some extra strong links. Analogously, a flaw localized in one element of a system may create a negative state that engulfs the whole system, while the improvement of one element within a well-functioning system may not involve a general improvement of the whole system unless other elements, and perhaps even the entire organization of the system, are also adjusted. In order to remedy negative states one should attend to the local flaws which produce them and the objective conditions underlying these flaws. The negativity effect reflects both the large impact as well as the objective nature of the local evil within the system. Because of this objective anchoring it has been defined

as a manifestation of *realism* rather than of subjective *pessimism* (Czapinski, 1988a). The situation is completely different when exploitation of the positive states offered by a system and the further improvement of a well-functioning system are considered. In these cases, subjective propensities are more important. In the first place there is the basic optimism connected earlier with the positivity bias that underlies the willingness to act. In addition, however, there are subjective factors such as tastes, preferences and creativity which largely determine which specific part of the positive potential available will be realized or in which direction the improvement of the system will take place.

In this chapter we shall not discuss the relationship between the present system-theoretical approach and the interactional approach previously considered. Suffice it to mention that the two are not incompatible if the living organism is dealt with as an *open system* which subsists through interaction with the environment (Peeters, 1988b). The main point of interest regarding the positive-negative asymmetry concerns the *object-anchored* nature of the negativity effect which makes it into a matter of *realism* that contrasts with the *subject-anchored optimism* of the positivity bias. In the following paragraphs some empirical support is reviewed. It stems from studies concerning (a) subjective agreement on positive and negative issues, and (b) human inference processes.

Interpersonal Agreement

If positive evaluations reflect subjective preferences, which may vary according to the subjects' tastes while negative evaluations are more controlled by objective cues, then subjects may be expected to agree more on negative than on positive evaluations. Consistent with this proposition, sociometric studies in 54 Polish secondary and undergraduate schoolclasses confirmed that, although negative choices were outnumbered by positive choices, they were nevertheless made more unanimously than the positive ones (Czapinski, 1980, 1982). Further, teachers' evaluations of pupils have been found to be more reliable and congruent when they pertained to socially unacceptable than to acceptable behavior (Anderson and Anderson, 1954). Finally, Nuttin (1987) observed in no less than 12 European linguistic communities that subjects were more unanimous concerning the letters of the alphabet they felt least attracted to than about the letters they felt most attracted to.

Human Inference Processes

If negative evaluations are anchored to the objective stimulus input rather than to subjective dispositions, then subjects may be expected to attend to objective non-evaluative features of the negative stimuli. Consequently, when asked to infer additional traits from some given traits regarding a stimulus person, sub-

jects may be expected to infer along an evaluative dimension when the stimulus traits are positive but along non-evaluative *descriptive* dimensions when the stimulus traits are negative. Unfortunately, in most studies on inferences from trait to trait, evaluative and descriptive inferences are confounded (e.g. Warr, 1969; Warr and Jackson, 1975). For instance, if 'extravagant' is inferred from 'prodigal', it is not clear whether this is done because both are unfavorable traits or because they share some descriptive content such as 'spending much money'. In order to distinguish between these two possibilities one should check whether subjects associate 'prodigal' with 'stingy' (evaluative inference) or with 'generous' (descriptive inference). A similar procedure for isolating evaluative from descriptive inferences was used by Lewicka (1979). Subjects were asked in one condition to *evaluate* and in another condition to *diagnose* a person on the basis of successive inconsistent trait information. The results showed a strong tendency to make evaluative inferences which were positively biased. However, in the 'diagnosing' condition there was evidence of an informational negativity effect in that negative traits triggered more descriptive inferences than did positive traits.

The objective anchoring of inferential processes regarding evaluatively negative issues has interesting implications for human reasoning. Specifically, subjects should conform more to the objectively oriented prescriptions of normative logical thinking when they deal with negative issues than when they deal with positive ones. As evidence on this matter has been reviewed and thoroughly discussed by Lewicka (1988), we shall not go into it further.

Summary

The objective anchoring of negative information may account for informational negativity effects. Indeed, positive stimulus information may be readily assimilated with preestablished subjective propensities and this at the cost of the epistemological validity of the resulting cognitions. However, because of its objective anchoring, negative stimulus information may resist assimilation and hence require accommodative cognitive work resulting in more complex cognitive representations.

SOME IMPLICATIONS AND COMMENTS

In this section we shall first discuss the implications of the present theory for two problems we were left with. They concern respectively the discrepancy between affective and informational negativity effects for various stimulus intensities and the marked character of negative categories. Subsequently we shall briefly discuss some issues concerning the subjective search for information, backbiting, current thought content, and moods.

The Discrepancy Between Affective and Informational Negativity Effects

One problem was that weakly negative stimuli elicit the strongest informational negativity effects but fail to produce affective negativity effects. Czapinski (1988b) has suggested a behavioral-adaptive explanation relating affective and informational negativity effects respectively to affective and cognitive coping modes. Affective coping involves defense responses, such as fear, that pertain to the direct avoidance of the negative stimulus. Cognitive coping involves orienting responses that seek to gain control over the objective source of the stimulus. The discrepancy between affective and informational negativity effects then would follow from a psychophysiological incompatibility between defense and orienting responses, the former involving heart-rate acceleration and cephalic vasoconstriction and the latter involving heart deceleration and cephalic vasodilation (Hare, 1973). Affective defense responses are likely to be proportional to the intensity of the negative stimulus. The cognitive coping mode may thereby be maximally activated by negative stimuli that are weak, because the interference of affective defense responses is minimal. Furthermore, it may be easier to control the sources of weak rather than strong negative stimuli. When the subject anticipates successful control, the negative affect associated with the stimulus may be reduced further to such an extent as to turn the affective negativity effect into an affective positivity effect. The reduction of the affective negativity effect is highly adaptive in that it decreases the interference of avoidance with approach behavior. For instance, Yelen (1976) has observed that when animals get acquainted with an environment, the avoidance gradients elicited by negative conditioned stimuli become steeper in such a way as to interfere less with the approach gradients elicited by adjacent positive stimuli.

The Problem of Marking

Another problem was that the marked character of negative categories is not limited to the approach–avoidance related evaluative dimension of other-profitability but extended to the self-profitable dimension as well. It is not clear as yet how this observation fits into the present theory. One possible avenue may be provided by Lewicka (1986), who showed that *approach* and positive affect relate to the logical function of *affirmation* and stressing the *presence* of something, while *avoidance* and negative affect would relate to the logical function of *negation* and stressing the *absence* of something. The primary approach bias that was argued to underlie the positive–negative asymmetry may imply a cognitive bias to deal with objects as *present* rather than as *absent*. Hence cognitive categories associated with the notion of ‘absence’ may be marked relative to categories associated with the notion of ‘presence’. Positive self-profitability may be psychologically associated with ‘presence’ in that it enhances the consequences of the object present. For instance, one can expect enhanced positive

consequences from a friend being powerful, but also enhanced negative consequences from an enemy being powerful. Similarly, negative self-profitability may be associated with absence, friends or enemies who lack any power being in a way psychologically equivalent to friends and enemies who are absent. Recently Lewicka (1988) has demonstrated that stressing the absence of an object (negation) involves the identification of (absent) necessary conditions for the presence of the object and that this process in turn involves objectively anchored information-processing. Stressing the presence of an object (affirmation), however, would involve the identification of sufficient conditions for the presence of the object, which in turn would involve subjectively anchored information-processing. We cannot go into Lewicka's arguments here. The relevant point, however, is that by her rationale the issue of marking is linked to the other informational negativity effects discussed in this chapter, which all seem to share an objective rather than subjective anchoring of the cognitive processes involved.

The Subjective Search for Information

When subjects are requested to formulate judgments on the basis of information they have to search for, one could expect them to search either for negative information because of its high informational value or for positive information because of the positivity bias described above. In order to clarify this issue, Czapinski (1988b) invited subjects to estimate how much a person called A would be liked by another person B who knew A very well. The subjects were allowed to ask questions concerning the content of a description of A by B until they had sufficient information to make their estimation. The questions were to be taken from a list provided by the experimenter. Half of these questions inquired after positive traits (e.g. 'Is A honest?'), while the other half inquired after negative traits (e.g. 'Is A gloomy?'). It was found that subjects started by inquiring after positive traits and continued that way until they got a disconfirming answer, whereupon they switched to inquiring after negative traits. Consistent with the behavioral-adaptive theory, subjects are primarily set to search for positive information which is functional to monitor approach behavior, but as soon as they are alerted to the presence of something negative they engage in cognitive work and gather further information about negative aspects which is functional to gain control over them. The presence of a negative cue may explain why subjects who are asked whether they want to hear either the good news or the bad news first prefer the bad news (Marshall and Kidd, 1981). Analogously, Lingle, Dukerich and Ostrom (1983) observed that judges who had to search for information in their own memories tended to search for information that was incongruent with (experimentally induced) biases if and only if the judges had been cued about the potential incongruence of the information stored in their memories.

It is worth mentioning that, although subjects tend to ask for positive information first, this does not detract from the greater weight accorded to negative information once it is obtained. In the study by Czapinski (1988b) mentioned earlier, subjects were found to need much less negative information in order to decide about disliking than positive information in order to decide about liking. Analogously, Beach and Strom (in press) observed that when decision-makers have to choose among several options, they proceed by asking for positive rather than negative information about the options available but nevertheless base their decision on the negative rather than on the positive information they obtain.

Backbiting

The informational negativity effect implies that evaluatively negative message contents may be more informative than positive ones. Hence backbiting may not be a manifestation of maliciousness but just an efficient way of communication. Considering, however, that the informational negativity effect seems inversely related to the intensity of the negative stimulus, communication efficiency may excuse only mild forms of backbiting. Moreover, Czapinski (1986) observed that in order to identify target persons on the basis of evaluatively loaded descriptions, extremely positive descriptions were about as informative as extremely negative descriptions. Hence communication efficiency may not put restraints on the expression of positive appreciation.

Current Thought Content

Considering that negative stimuli elicit more cognitive work and more complex cognitive representations than positive stimuli, one could expect subjects to spend more time on thinking about negative than about positive issues. However, this is not necessarily the case, and the impressive evidence regarding the Pollyanna principle in language, memory and thought (Matlin and Stang, 1978) may rather suggest the opposite. Indeed, a good deal of thinking may be determined by the subjective tendency towards the positive. However, positivity bias and negativity effect may involve different kinds of thinking. Being an *a priori* tendency, the positivity bias has a generative subject-anchored character (see previous section). Hence a positive orientation may be prevalent in cognitive activities such as daydreaming and wishful thinking as well as in the planning, prediction and explanation in advance of positive states of affairs that are not yet objectively realized but that are pursued or anticipated. The negativity effect, on the other hand, has an *a posteriori* objectively anchored character. Hence a negative orientation may be prevalent in object-anchored thinking such as the diagnosis, interpretation, *ex post facto* explanation and justification of negative states of affairs that are objectively realized.

Moods and Related Subjective States

Being associated with *optimism*, the human positivity bias may involve positive affective states such as good mood. According to Fiedler (1988), positive affective states involve a specific cognitive style called 'loosening'. It is characterized by simplicity, versatility and creativity, and it would be adaptive in that it leads to an enrichment of the subject's behavioral repertoire. Fiedler's theory is in agreement with certain implications of the positive-negative asymmetry regarding the concept of *generalized approach bias* mentioned earlier. Indeed, according to Peeters (1971), the generalized approach bias facilitates new dealings with the environment and is further connected with the experience of safety, openmindedness and the activation of motivational forces pertaining to self-actualization rather than mere survival.

The implications of the positive-negative asymmetry regarding negative states seem more complex. At first glance, one might be inclined to associate negative moods with pessimism and with the negative side of the positive-negative asymmetry. However, as explained, the negative side of the positive-negative asymmetry is associated with *realism* rather than with *pessimism*. Fiedler (1988) has reviewed evidence that judgments made in a bad mood are indeed more in agreement with objective reality than judgments made in a good mood. Hence Fiedler proceeded to assign to negative moods the same adaptive function as we did relative to the negativity effect, which is to keep behavior in agreement with the objective requirements of reality.

It is surely not unreasonable to assume that negative stimuli which trigger realistic thinking also trigger some negative moods. However, not all negative moods may have the constructive character of those that accompany the negativity effect. For instance, there are the moods that arise when the adaptive mechanism of the negativity effect fails to avert the bad consequences of a negative stimulus or when the subject anticipates this failure. Similar moods may be associated with *pessimism* and *depression* rather than with *realism*. Accordingly, Andersen and Lyon (1987) observed that the anticipation of an aversive event produced depressive affect only if it was expected with absolute certainty. However, consistent with its preventive role, the negativity effect has been found to be unrelated to the probability of the aversive event. Indeed, Kanouse and Hanson (1971) have reviewed evidence showing that, while the probability of gaining influences a subject's decision, the probability of losing does not, a low probability of losing having about the same impact as a high probability of losing.

As to their connection with the positive-negative asymmetry, the *pessimistic* negative moods may relate neither to the negative side, to which the *realistic* negative moods belong, nor to the generalized approach bias on the positive side, to which the *optimistic* positive moods belong, but to the *restricted approach bias*, which also belongs to the positive side. In Peeters (1971) this bias was as-

sociated with finding oneself in a threatening situation, closed-mindedness, and motivational forces pertaining to the conservation of old positive states of affairs (mere survival) rather than to the realization of new ones (self-actualization). Fiedler (1988) also demonstrated that negative affective states involve a conservative and rigid cognitive style which was named 'tightening' and which reminds one of Rokeach's (1960) closed-mindedness.

SUMMARY AND CONCLUSION

The negativity effect was defined as a bias according to which evaluatively negative stimuli would have higher impact upon subjects than equally intense positive stimuli. Apparently, this bias is not an isolated psychological anomaly but part and parcel of a more encompassing positive-negative asymmetry which includes also a positivity bias and has an important behavioral-adaptive function. Indeed, the living organism is a highly vulnerable system which survives by interaction with the environmental world. This world has a much larger potential for bad 'negative' interaction outcomes than for good 'positive' ones. The positivity bias reflects a subjective tendency to deal with this world as if proceeding from the *a priori* hypothesis that this dealing will lead to positive outcomes. The tendency is functional to exploit maximally the relatively scarce positive potential available but requires a compensatory mechanism to avoid irreversible bad outcomes from the much larger negative potential. This mechanism involves the negativity effect.

In spite of its relative scarcity, the positive potential available to a person usually far exceeds his or her consumatory capacity. For instance, when hungry, I can take in only a very restricted quantity of food, and I can choose among a wide range of substitutable alternatives (mushrooms, mussels, etc.). This range is especially large when the creative potential of the person, allowing him or her to produce novel alternatives, is taken into account. Hence, there is room for subjective tastes or preferences. Consequently, positive evaluations are subjectively anchored and the related positivity bias phenomenon reflects a subjectively anchored optimism. However, this interchangeability does not exist relative to the avoidance of detrimental negative outcomes. In order to survive, the person must avoid at any moment potentially lethal interactions. Thus the person cannot decide, according to his or her subjective taste, to avoid only toadstools and not tainted mussels. Consequently, negative evaluations are rather objectively anchored and the related negativity effect reflects realism rather than merely subjective pessimism.

The objective anchoring of negative evaluation accounts for the *a posteriori* character of the negativity effect. Unlike the positivity bias, the negativity effect is not an unconditional subjective propensity but a stimulus-bound reactive phenomenon. Further, it was shown to have two facets: an affective and an informational one.

The affective negativity effect means that in the decision process more weight is accorded to potential losses than to potential gains, and that in the forming of an overall evaluation negative information is weighted more than positive information. This effect is connected with a straightforward avoidance reaction of the evaluating subject and it occurs only when (a) the evaluation is made from the point of view of an actor who has to decide between approach or avoidance, and (b) an evaluative dimension is involved of which the positive and negative poles are unequivocally associated with approach and avoidance.

The latter restrictions do not extend to the informational negativity effect, which does not concern a simple avoidance reaction but an attempt to gain control over the negative agent. This control is achieved by means of accurate knowledge about the agent, which results in extra attention and cognitive work leading to relatively complex cognitive representations.

Finally, affective and informational negativity effects belong respectively to affective and cognitive coping modes which are, at least partly, incompatible. This explains why observed affective and informational effects tend not to coincide. Maximal affective negativity effects have been obtained when the intensity of the eliciting stimuli is high. However, maximal informational negativity effects were obtained with mildly negative stimuli. There are indications that the occurrence of an informational negativity effect tends to reduce the affective negativity effect, even to such an extent that the latter is transformed into an affective positivity effect with more weight being accorded to positive stimuli than to the concomitant negative ones.

The theory was shown to have implications regarding a variety of psychological issues such as the subjective search for information, backbiting, current thought content, and mood. The main implication, however, may be that certain psychological phenomena concerning affect and cognition appear odd and anomalous when considered within the restricted context of mere affect and cognition but become perfectly normal and functional when links of affect and cognition with behavior are taken into account. In this respect, the asymmetries observed in this chapter regarding positivity biases, negativity effects, and discrepancies between affective and cognitive processes are no more anomalous than is the asymmetry displayed by heterosexual individuals in their unilateral preferences for members of the opposite sex.

ACKNOWLEDGMENTS

This study was realized in accordance with the terms of a convention on research cooperation between the Universities of Leuven and Warsaw. The authors wish to thank those universities for hospitality and financial support, the Belgian National Fund for Scientific Research (NFWO) for travelling allowances accorded to Guido Peeters and the Polish Central Fund for Scientific Research (CPBE

08.02) for travelling allowances accorded to Janusz Czapinski. They wish to stress that they assume equal responsibility for the text, and to acknowledge the contribution of Maria Lewicka, to whom they are deeply indebted for long hours of discussion, for detailed comments on earlier drafts and for help with the translation of some parts of the manuscript. The present version is undeniably marked by her thoughts and sound judgment. Finally, Eddy De Greef is gratefully acknowledged for indispensable secretarial help and drawing of the figures.

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