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Appraisals are direct, immediate, intuitive, and unwitting . . . and some are reflective . . .

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In 1960, Magda Arnold defined the appraisal construct as being causal to emotion. Appraisal, according to her, refers to a direct, immediate, and intuitive process that does not initially require recognition of the object that is being appraised. It is based on phylogenetically ancient subcortical brain structures. In addition, Arnold proposed the existence of a related conscious process, also referred to as appraisal, that interacts with the direct appraisal and is responsible for a differentiation of emotional states. This theory was revolutionary and is still to be considered modern because it already comprised much of what is currently hypothesised to be causal for emotion. However, Lazarus, who initially believed that conscious aspects of appraisal are more important than implicit and unaware appraisals, coined the term *cognitive appraisals* and popularised this notion widely. In opposition to what he perceived as a prevailing emphasis on higher cognitive processes in emotion theory, Zajonc (1980) argued that emotion elicitation does not depend on conscious cognition. I argue that Arnold's theory is in fact completely consistent with Zajonc's view and data. The concept of appraisal should be discussed in relation to Arnold's original intention, because it provides not only the basis of an integrated view of multiple levels of emotional processing, encompassing views espoused by Zajonc and by Lazarus, but may guide current and future research on multiple levels of processing in the elicitation of emotions.

The history of the scientific study of emotions can be characterised in many ways—however, *linear* is not a term that would come immediately to anyone's mind when attempting such a characterisation. As in other areas of scientific development, there have been particular pivotal moments, usually linked to key publications, that caused a shift in thinking about emotion, or at least regarding an important aspect of emotional processes. For example, Cannon's attacks (e.g., 1927) targeted at the James–Lange theory of emotion

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played a crucial role in radically altering the then dominant view (see also Cornelius, 1996). Of course, in this case, as is typical for paradigm shifts, there was a confluence of factors. Certainly the concurrent radical move of the psychological *Zeitgeist* away from mentalist constructs (see Bargh & Ferguson, 2000) aided the demise of James–Lange. Yet, the rumours of the death of influential theories have often been greatly exaggerated and the theories have a tendency to reappear in a different guise. Thus, it is perhaps not surprising that today, a century later, James’ theory has been reanimated again, for example in the shape of Damasio’s somatic marker theory (e.g., 1994, but see Frijda, 2005; Dunn, Dalgleish, & Lawrence, 2006) or the Facial Feedback Hypothesis (see McIntosh, 1996; Smith, McHugo, & Kappas, 1996). Regardless of the ultimate validity of Cannon’s criticisms of the James–Lange theory,¹ they have been extremely valuable for virtually any subsequent effort to understand emotional processes.

Another key publication for the science of emotion is an article by Robert Zajonc, published in the *American Psychologist* in 1980.² “Feeling and thinking: Preferences need no inferences” was the igniting spark in what came to be known as the Zajonc–Lazarus (or Lazarus–Zajonc) debate. One of Zajonc’s main claims was that in contrast to what he perceived to be the then-prevailing view, emotion is *not* post-cognitive, but instead, “precede[s] in time, the sorts of perceptual and cognitive operations commonly assumed to be the basis of these affective judgements” (Zajonc, 1980, p. 151). While a seminal series of publications concerning the causal role of information processing (“appraisals”) was yet to appear in the 1980s (e.g., Frijda, 1986; Roseman, 1984; Scherer, 1984, 1986, 1988; Smith, 1989; Smith & Ellsworth, 1985, 1987), Zajonc’s article seems to have had a lasting inoculatory effect on many readers and lead them, I argue, to misinterpret what appraisals are all about.

While appraisal theory is “alive and kicking” in specialised journals, such as *Cognition and Emotion*, or the new APA journal *Emotion*, I frequently have the impression, when talking with those who do not work directly on emotions, that Zajonc’s arguments have been internalised to create a critical,

¹ I am referring to the fact that the five arguments Cannon outlined are now either considered irrelevant or as not consistent with current data (see summary in Cornelius, 1996). Thus, the intended discrediting of James–Lange was thwarted. For example, Cannon claimed that arousal was not emotion-specific, but instead unspecific. Hence, he argued that arousal could not serve as the source for a differentiated subjective state. Since then, the notion of unspecific arousal, still popular in social psychology as a central construct of classical theories, has been shown not to be tenable (e.g., Cacioppo, Berntson, & Crites, 1996). Interestingly, Arnold’s early research (e.g., 1945) was targeted at demonstrating that Cannon was wrong in postulating that different emotional states were accompanied only by unspecific arousal.

² As of June 2005 there were over 1700 citations for Zajonc (1980) in the ISI Web of Science database!

if not hostile, stance towards appraisal theory. Thus, it has been a recurring experience for me when presenting aspects of appraisal theory that members of an audience raise a deeply held concern that appraisals would be unlikely candidates for the generation of emotion, given that Zajonc *showed* that emotions are pre-cognitive.

In the present contribution I suggest that, in contrast to such interpretations, Zajonc's arguments and findings are consistent with the original appraisal concept as put forward by Magda B. Arnold and by modern appraisal theorists (see also Cornelius, 1996). I will be explicit in comparing Zajonc's position to that of Arnold, as confusion regarding the appraisal concept appears even present in the emotion literature,³ as testified by considerable variance with regard to the use of the concept (see Kappas, 2001). In fact, as I will show, there are published accounts of emotion-relevant processes that appear to ignore the clarifying aftermath of the debate and that might regrettably even contribute to confuse readers at large as to the actual state of affairs in emotion theory today.

There is a consensus among commentators of the Zajonc–Lazarus debate that it was to a large extent due to semantic/definitional disagreements regarding the meaning of the terms “emotion” and “cognition”, and that, once these issues are cleared up, the views expressed by Lazarus and Zajonc as regards the process of emotion generation are perhaps not that far apart (Cornelius, 1996; Kappas, 2001; Leventhal & Scherer, 1987). Yet, first impressions stick, and it appears that a superficial version of Zajonc's message has stuck with many of its readers and continues to impact the interpretation and acceptance of modern appraisal approaches.⁴

In fact, there are other ways to characterise Zajonc's (1980) contribution. For example, Reisenzein and Schönplflug (1992) assert that *cognitive emotion theories* were misrepresented in that article. I will similarly argue here that Zajonc has misrepresented *appraisal theories*—even if he did not refer to them by name. Furthermore, I believe that the label “cognitive theories of emotion” that is still frequently used is currently doing more harm than

³ Unfortunately, this might sound rather like discussing a group of conspirators, but it is important, at times, to differentiate between research programs that are aimed at elucidating basic emotional processes and those that are more applied and use a particular theoretical framework to answer questions in areas such as clinical psychology or development (see also Kappas, 2002).

⁴ There is no systematic/empirical study of the effect of Zajonc's (1980) publication or the Zajonc–Lazarus debate on beliefs regarding modern appraisal theory. Schorr (2001) argued that the debate, “had a strong consciousness-raising effect as to the role of cognition in emotion and thus indirectly prepared a more favorable climate toward appraisal theories” (p. 27). However, it appears to me that the effect has rather been polarising in that it stimulated appraisal theorists to be more specific and perhaps more procedural in their definitions—which is good, but led to scepticism towards appraisal theory outside of that community—which is undeserved.

good because of the aftermath of the debate (see also Ellsworth & Scherer, 2003).

Thus, I will sketch an alternative narrative of the evolution of modern appraisal theory that allows resolution of lingering effects of the “preferences need no inferences” debate. I start with the groundbreaking writings of the “founding mother of appraisal theory” (Roseman & Smith, 2001, p. 9), Magda Arnold, showing the clear continuity of the concept of hierarchical multilevel emotion generation via information processing up to modern appraisal theories (see also Cornelius, this issue). Most importantly, I show how the notion of such a multilevel appraisal concept that encompasses automatic and controlled processes is not contradicted but instead is strongly supported by the empirical evidence that is levied against it (e.g., Öhman & Wiens, 2004; Zajonc, 1980). Lastly, as theories of emotions become increasingly informed by knowledge of brain functioning, Arnold’s views regarding a hierarchical processing of individual relevance become ever more relevant. Her systematic analysis of the interaction of cortical and subcortical processes as they contribute to the elicitation and the regulation of affective processes can serve as a guide to avoid being centred on cortical contributions to emotions (see also Panksepp, 1998).

MAGDA ARNOLD—THE MOTHER OF APPRAISAL THEORY

Magda Arnold’s early emotion research was focused on the issue of the specificity of physiological reactions associated with emotional states (Arnold, 1945), the brain circuits underlying emotions (Arnold, 1950), and the crucial relationship between action tendencies and emotions (Arnold & Gasson, 1954). Arguably, one of Arnold’s most important contributions to emotion psychology is the development of an appraisal theory of emotion elicitation. The definitive statement of her emotion theory is presented in the ambitious two volume *Emotion and Personality* (1960a, 1960b); precursors in Arnold, 1950; Arnold & Gasson, 1954; see also Cornelius, this issue). In the following paragraphs, I will outline in more detail how Arnold conceived of appraisal as a *cause* of emotions.

Emotions, according to Arnold (1960a), are similar to “sense perceptions” in that they have an object, in other words that they are characterised by intentionality (see also Frijda, 2005; Reisenzein & Schönplflug, 1992; Reisenzein, this issue). What makes emotions different is that their object has been appraised with regard to how it relates to me. The meaning of an object derives from values, concerns, and wishes. Objects that elicit emotions do so because they appear to have a personal implication (Cornelius, this issue; Reisenzein, this issue). This distinction between sense perceptions and emotions is already present in Arnold and Gasson (1954) but made more

explicit in Arnold (1960a, 1960b)—and it is here too, where the term *appraisal* is introduced and it takes on a particular domain-specific meaning that transcends its use in everyday language, other sciences, or other domains of psychology.

According to Arnold, the meaning of an object, in the sense of it being appraised as good or bad, motivates an individual to either approach it or to avoid it. In other words—an action tendency results from this meaning *for me*. Arnold makes it very clear that the action tendency is not the same as liking something. For example, it is possible to like a particular type of food, but not to be drawn to it or even repulsed by it because of one's current motivational state, for example if one is not hungry. That is, liking does not equal wanting (e.g., Berridge, 2004). The action tendency is, “*felt as emotion*, expressed in various bodily changes, and that eventually may lead to overt action” (1960a, p. 177).

But what is appraisal? According to one of Arnold's most famous statements, appraisal is “direct, immediate, intuitive” (1960a, p. 172). Consider a longer quote from the same section in Arnold (1960a) to further illustrate the nature of appraisal in her theory:

The appraisal that arouses an emotion is not abstract; it is not the result of reflection. It is immediate and indeliberate. If we see somebody stab at our eye with his finger, we avoid the threat instantly, even though we may know that he does not intend to hurt, or even to touch us. Before we can make such an instant response, we must have estimated somehow that the stabbing finger could hurt. Since the movement is immediate, unwitting, or even contrary to our better knowledge, this appraisal of possible harm must be similarly immediate. (p. 172)

Let me stress again that Arnold conceives of the appraisal that arouses an emotion as nonreflective. This concept of *intuitive appraisals* is in fact already apparent in Arnold and Gasson (1954),⁵ who stated that:

Emotions . . . are aroused as the result of a value judgment, made primarily on the basis of sensory appeal or repulsion. But what is good for the human being cannot be judged solely on such a basis. It must be judged also on the basis of a rational evaluation. (p. 305)

Arnold clarifies this in *Emotion and Personality* (1960a) by stating that:

. . . in the human adult and the older child the estimate of weal or woe is both intuitive and reflective. But the intuitive judgment is immediate; the reflective judgment follows. This is shown by the fact that the intuitive appraisal is often supplemented or corrected by later reflection. When this happens, the emotion

⁵ Lazarus discusses possibly the first use of the term “appraisal” in the context of emotion elicitation in a publication by Grinker and Spiegel (1945; in Lazarus, 2001, pp. 38–39).

changes with the new intuitive estimate which follows the corrective judgment. (p. 175).

Thus we can state the following assumptions Arnold had regarding appraisals:

1. Appraisals are typically automatic evaluative processes: they are direct, immediate, intuitive.
2. These immediate appraisals can be sufficient to elicit action tendencies/ behaviours/emotions.
3. Appraisals can also be reflective; reflective appraisals can modify ongoing emotions indirectly by changing the intuitive estimate (see also Reisenzein, this volume).

In other words, there are two kinds of appraisal, intuitive and reflective. The reflective appraisal is not necessary for an emotion to occur; it has typically, but not exclusively, more of a modulatory role. In contrast, intuitive appraisal may be necessary for emotion. I have used the term *automatic* to describe intuitive appraisal, a term that Arnold does not use, but that seems to reflect well what she is describing. She states that, “the process by which we estimate whether a thing is harmful or good for us is . . . direct and intuitive, hidden from inspection” (p. 177). That is, appraisal usually does not require attention and effort and is unconscious (see also Kappas, 2004; Winkielman & Berridge, 2004). The affective quality is integrated via the felt action tendency and does not subjectively appear to be a process separate from (e.g., visual) perception. As Frijda (1986), p. 325 puts it, “[a] steep cliff is as dangerous as it is steep”. (See also Kappas, 2001, p. 161, on the holistic quality of affective perception.)

Furthermore, Arnold makes clear that the intuitive appraisal process must not be interpreted as leading to action in a reflex-like fashion. On the contrary, appraisal causes action impulses or tendencies, which Arnold in fact identifies with emotion (see also Gasper & Bramesfeld, this issue). Action is, as Scherer would put it, much later (e.g., 1994), decoupled from a stimulus because of *emotion*. In fact, Scherer believes that the decoupling from rigid stimulus–response connections is one of the main adaptational functions of emotions (consider also Damasio, 1994). In Arnold’s theory, as previously said, the link between appraisal and (re-)action, is an *action tendency*. Borrowing a concept from Kurt Lewin, one could say that an object acquires a demand character through appraisal (see Arnold, 1960a, p. 178), which then creates the tendency to approach or to avoid, to take or to drop, to run or to stay. According to Arnold, perceived action tendencies are the central element of the subjective experience of emotion. Although the focus on the approach–avoidance action tendency is likely too restrictive to

map all affectively relevant states (see Frijda, 1986), it is notable that the approach–avoidance dimension, well-studied in the context of motivation, has come to be one of the prominent features of some current and prominent accounts of transient emotional states (e.g., Bradley, Cuthbert, & Lang, 1999; Lang, Bradley, & Cuthbert, 1990) and long-term affective individual differences (e.g., Sutton & Davidson, 1997). Measures intended to assess peripheral or central correlates of approach–avoidance tendencies, such as the startle probe (see Dawson, Schell, & Böhmelt, 1999) or frontal EEG asymmetry (see Davidson, 1999) would therefore seem to be particularly relevant to test certain predictions deriving from appraisal theory *sensu* Arnold.

It is difficult to overstate the importance of Arnold's insights. Much of the debate in the post-Darwinian history of emotion research has dealt with the question of the sequence of steps involved in the generation of emotion/subjective experience of emotion, but has left out the most critical step. For example, in the classical Jamesian example, when we see the bear, our heart pounds and we run away and *then* we are afraid because of some sort of bodily feedback. But why do we run in the first place? Why is our heart racing at all? James proposed that there is a direct connection from perception to action and physiology, but he was not very specific regarding this connection (NB, James uses the word *emotion*, like Arnold, in the sense of *subjective experience of discrete states*). In the *Principles of Psychology* (1890) he asserts that, “[t]o begin with, no reader of the last two chapters will be inclined to doubt the fact that *objects do excite bodily changes* by a preorganized mechanism” (p. 450). Indeed, his two preceding chapters, 23 and 24, deal with “the production of movement” and “instinct”, respectively, a not-so-subtle indicator that James conceived these purported perception–action links as being rather rigid. For example, in his chapter on *instinct* James asserts that, “[c]ertain perceptions *must* immediately, and without the intervention of inferences and ideas, have prompted emotions and motor discharges” (p. 412).

Similar fuzziness concerning the question of emotion elicitation pervades the emotion literature up to and including Schachter (e.g., Schachter & Singer, 1962) who, in his neo-Jamesian two-factor theory, likewise does not satisfactorily address where the postulated unspecific arousal—one of the two components of emotion in his theory—comes from in the first place, other than that, “cognitive or situational factors trigger physiological processes” (Nisbett & Schachter, 1966, p. 228).⁶ In Schachter's theory, cognitions play a role in the process of emotion generation in the form of

⁶ Thanks to Rainer Reisenzein for pointing out this quote—“In nature, of course, cognitive or situational factors trigger physiological processes, and the triggering stimulus usually imposes the label we attach to our feelings” (Nisbett & Schachter, 1966, p. 228).

attributions regarding the cause of the perceived arousal, but not in the causation of the arousal itself (see also Cornelius, 1996; Frijda, 1986; Reisenzein, 1983). In contrast to James and Schachter, Arnold details the processes that generate arousal and subjective experience. And she realised that appraisals must deal with both innate and learned stimuli, including conditioned stimuli; simple sensory information can be appraised directly just as complex stimuli might be appraised via reflection—these distinctions resonate with the core of Leventhal and Scherer's (1987) multilevel theory proposed almost thirty years after Arnold. I will consider this theory further below.

It should be remarked that similar ideas had evolved (and faded) much earlier and independently, such as Stumpf's and Meinong's cognitive emotion theories proposed at the turn of the 19th century (Reisenzein & Schönplugg, 1992; Reisenzein, this issue) or even Spinoza's theory (see Frijda, 1986, 2000). However, possibly because of Arnold's early interest in the physiological specificity of emotions and in emotional brain processes (e.g., Arnold, 1945, 1950), the connections that she draws from appraisals to action-tendencies and peripheral and central nervous system activity provide for a richer tapestry than the earlier, more philosophically-oriented cognitive emotion theories. In addition, Arnold's theory arguably also fits better into current neuroscientific thinking (on the neuroscience of appraisals see Cacioppo & Gardner, 1999; Pecchinenda, 2001). In any case, my aim in this paper is not to weigh the relative merits of approaches to "Emotion from A[ristotle] to Z[ajonc]", but to demonstrate (a) that the Zajonc–Lazarus "cognition-emotion" debate was flawed from the beginning, given Arnold's views of appraisal; and (b) that there is a certain continuity from Arnold to the most recent approaches to emotion.

THE ZAJONC CHALLENGE: PREFERENCES NEED NO INFERENCES

It is easy to check whether Zajonc (1980) presents Arnold's views correctly as he does not cite her at all. This is not a matter of concern, just of surprise. But in fact, "Preferences" is curiously vague as to what or who exactly is being criticised. Richard Lazarus is also not cited and yet he felt the need to respond (1982, 1984) to this "no-holds-barred challenge to the cognitive perspective" (Cornelius, 1996, p. 128; see also Lazarus, 1999). Zajonc's (1980) manifesto presents eight tenets or hypotheses regarding the nature of affective processes:

1. Affective reactions are primary.
2. Affect is basic.

3. Affective reactions are inescapable.
4. Affective reactions tend to be irrevocable.
5. Affective judgments implicate the self.
6. Affective reactions are difficult to verbalize.
7. Affective reactions need not depend on cognition.
8. Affective reactions may become separated from content.

Zajonc's discussion of these hypotheses varies considerably with regard to the detail in which they are presented or explained and not all of these are supported by data or extensive analysis. For example, the assertion that affective reactions are inescapable is supported only by everyday observations (such as that we might remember a person as pleasant even if we cannot remember her hair colour; see p. 156) and ends in the somewhat circular summary that:

Because affective judgments are inescapable, they cannot be focused as easily as perceptual and cognitive processes. They are much more influenced by the context of the surround, and they are generally holistic. Affective reactions are thus less subject to control by attentive processes. (p. 156)

In the present context I cannot and do not want to discuss every aspect of Zajonc's paper, but instead I shall focus on those of his claims that seem to be particularly relevant to the notion of appraisal and appraisal theory.

Affective reactions are primary, affective reactions are basic

Zajonc's claim that *affective reactions are primary* in part relates to the hypothesis that "feelings come first" (p. 154). Specifically, Zajonc cites Wundt (1907) and also Ittelson (1973) who stated that, "the first level of response to the environment is affective" (Zajonc, 1980, p. 155). Furthermore, Zajonc refers in this context to Osgood's observation that the three recurring and seemingly basic dimensions of *evaluation*, *potency*, and *activity* have an affective and a response-like character. Hence, Zajonc argues, this constitutes evidence of primacy, though not in the temporal sense.

In the first and in the second tenet "Affect is basic" (p. 156), there appears to be a slight confusion of the two issues of temporal sequence and of fundamental properties of perception/attitudes. "Fundamental" or "basic" can furthermore also refer to affect being first in phylogenetic or ontogenetic terms (see also Izard, 1993). Therefore, I shall discuss Arnold's views regarding these issues not under the headings of *primacy* and *basicness*, but with a view to the more clearly distinguishable issues of *temporal sequence* and *fundamental property of information processing*.

Temporal sequence of cognition and affect

Arnold was clearly aware of the sequence issue and stated that:

[e]ven before we can identify something we may like it or dislike it There seems to be an appraisal of the sensation itself, its quality and intensity, before the object is identified and appraised. The first fruit of perception, the first affective experience, seems to be a feeling rather than an emotion, following the appraisal of how this aspect of an object, perceived via a particular sensory avenue, affects me. All sense impressions are assessed first as to their effect on the sensory system. This preliminary appraisal seems to occur as neural impulses are relayed from the sensory receptors to the midline and intralaminar thalamic nuclei; it becomes the evaluation of something specific when these relays reach the limbic cortical region. (1960b, pp. 36–37)

Hence, with respect to the affective reactions elicited by sensory aspects of stimuli, Arnold clearly argued that preferences come first—that is before the object is identified or recognised. Simple “feeling” reactions (by which Arnold means liking or disliking) thus do not require the recognition or identification of objects. However, Arnold also emphasised that appraisal continues as objects are identified and the ensuing, new affective reactions can quickly override the initial liking or disliking that was based on rather unprocessed or raw sensory information. We have to consider this an explicit dual-level model of appraisal.⁷

Are affective reactions a fundamental property of information processing?

So we know that Arnold would agree with Zajonc’s assertion that affective reactions (at least sensory feelings of liking and disliking) can be first in a temporal sense, but does Arnold also conceive of affective reactions as being basic in the sense of being a fundamental property of information processing? Indeed she does. For example, Arnold discusses affective reactions in newborns that do not require memory (and hence recognition), but that are still not “mechanical reflexes”. She affirms that, “[t]here is always liking or disliking as a reaction to sensory impressions, which leads to an impulse to a definite action” (1960b, p. 55). Initial appraisals are innate—later experience and memory allow for further appraisal. However, I want to emphasise that Arnold does *not* equate emotion with “liking” or preference.

⁷ Interestingly, Arnold clearly anticipated the currently popular distinction between a “high road” vs. “low road” to emotions made popular by LeDoux (1996; see Arnold 1960b, Chapter 2). Thanks to Rainer Reisenzein for pointing out that Cannon and Bard entertained such notions already and most likely inspired Arnold who dealt extensively with Cannon in her dissertation.

For Arnold, emotions are action tendencies, and emotions proper require a certain minimal amount of processing. Therefore, Arnold would not have agreed with Zajonc that *emotions* are basic in the described senses (temporally prior, or fundamental to information processes). But in this respect, one can simply argue that Zajonc confounded emotions with “preference” (see Cornelius, 1996, pp. 130–131; Kappas, 2001). Arnold, in contrast, makes a clear distinction between liking/disliking of an object or event and the resulting emotion (liking is not the emotion, rather a first evaluation step similar to Scherer’s *intrinsic pleasantness check*; e.g., 1984, 1986; see also Ellsworth & Scherer, 2003).

Affective judgments implicate the self

In asserting that affective judgments implicate the self, Zajonc (1980) reiterated one of the basic assumptions of virtually all variations of appraisal theory written before or after the publication of “Preferences”. The assumption that the difference between a “mere” perception or cognition and an “emotion-relevant” perception (or cognition) is that the latter implicates the self, or in other words that there is something *at stake* (e.g., Smith & Lazarus, 1990) is very simply at the heart of the appraisal notion.

The short paragraph that Zajonc devotes to the discussion of this claim is essentially an argument that affective judgments are not only about objects, but also about the relationship of the object to the person making the judgment. Here is the complete passage:

When we evaluate an object or an event, we are describing not so much what is in the object or in the event, but something that is in ourselves. Cognitive judgments deal with qualities that reside in the stimulus: “This cat is black,” “Camembert and Brie are soft-ripened cheeses.” These judgments are made on I-scales that are orders of stimuli (Coombs, 1964). Affective judgments, however, are made on J-scales, that is, scales on which are located jointly the various stimuli as well as the ideal preference point of the person. “I dislike this black cat” or “I prefer Camembert to Brie” are judgments on J-scales. Thus, affective judgments are always about the self. *They identify the state of the judge in relation to the object of judgment.* (Zajonc, 1980, p. 157, emphasis added)

Now consider the following passage in the first volume of Arnold’s *Emotion and Personality*:

Both perception and emotion have an object; but in emotion the object is known in a particular way. To perceive or apprehend something means that I know what it is like as a thing, apart from any effect on me. To like or dislike it means that I know it not only objectively, as it is apart from me, but also that I estimate its relation to me, that I appraise it as desirable or undesirable, valuable or harmful to me, so that I am drawn toward it or repelled by it.

... If I see an apple, I know that it is an apple of a particular kind and taste. This knowledge need not touch me personally in any way. But if the apple is of my favorite kind and I am in a part of the world where it does not grow and cannot be bought, I may want it with a real emotional craving. (Arnold, 1960a, p. 171; see also p. 21)

Apart from the fact that Zajonc is talking of cheeses and Arnold of apples, it becomes apparent that the two authors are presenting exactly the same notion. It is in fact surprising that Zajonc makes reference to Coombs' arcane unfolding model, but not to the directly relevant discussion of the appraisal concept presented by Arnold.

Affective reactions need not depend on cognition

The claim that affective reactions "need not depend on cognition" (i.e., that cognitions are not necessary for emotions) is central to Zajonc's (1980) argument, as already indicated by the title of the paper "Feeling and Thinking: Preferences Need No Inferences". As outlined above, when discussing the temporal sequence argument, it is obvious that Arnold did not think that higher-level cognition is necessary for appraisal to occur. She even stated explicitly that for early evaluations of sensory information not even object recognition was required. In addition, even if recognition/identification of an object might have occurred, the resulting appraisal of the object would be direct and intuitive. To repeat, appraisal is not, or at least need not be, "the result of reflection" (Arnold, 1960a, p. 172). Arnold suggested conscious and reflective processes normally follow the emotions elicited by the intuitive appraisals and could then modulate or change these emotions, but Zajonc (1980) does not argue with that. His whole argument is focused on early liking/disliking processes that are not full-blown emotions (e.g., of joy, fear, anger).

To summarise: With regard to early reactions of liking and disliking—the "affective reactions" on which basically all of Zajonc's arguments are focused—Arnold held basically the same views as Zajonc did. Similar views are expressed about when and how such affective reactions occur; similar examples are presented by both authors; similar arguments are being brought forth. So why is it that many current researchers perceive a contradiction between Zajonc's arguments and appraisal theory? Why is it that, for example, the empirical evidence for automatic preference judgments in a wide array of situations and regarding very different social and nonsocial objects that has accumulated over the past years (e.g., Bargh & Ferguson, 2000) is often regarded as supportive of Zajonc's views and as a problem of appraisal theory, when it is in fact, consistent with the appraisal theory as originally presented by Arnold in 1960?

THE AFTERMATH OF THE ZAJONC–LAZARUS DEBATE

In the years following Arnold's original statement, appraisal theory was at first extended and popularised primarily by Richard Lazarus (see Schorr, 2001). Compared to Arnold, there is a shift in Lazarus's characterisation of appraisal towards the reflective level. However, the automatic level is never denied. In fact, in one of his last publications, Lazarus states:

When Arnold wrote her monograph, psychology was just beginning to think in terms of stepwise information processing. This is one reason why my own treatment of appraising was considerably more abstract than Arnold's and more conscious and deliberate. Despite the redundancy of the expression, I used the term *cognitive appraisal* to emphasise the complex, judgmental, and conscious process that must often be involved in appraising. (Lazarus, 2001, p. 51)

Lazarus stated further that he felt that, "Arnold had underemphasized the complexity of evaluative judgments" (p. 51) but that he was, "now more impressed with the instantaneity of the process of appraising even in complex and abstract instances" (p. 51). Nonetheless, it may well have been Lazarus's shift or spin given to the appraisal concept (toward the conscious, conceptual level) that provoked Zajonc's (1980) manifesto.⁸ Of course, as mentioned, Zajonc made neither a direct reference to Arnold, nor to Lazarus. Clearly, had Zajonc stated that he essentially wanted to present some data reinforcing Arnold's views, the impact of the 1980 publication might have been quite different.

Lazarus's ideas regarding the importance of conscious thought for the elicitation and regulation of emotion were paralleled by the prominent role cognitions gained in clinical psychology at the same time, for example as championed by Aaron Beck (see Roseman & Kaiser, 2001). Here, the role of conscious processes became more important as these were considered entry points to the modification of erroneous cognitions that would cause psychological dysfunction.

NEGATIVE CONSEQUENCES OF NEGLECTING ARNOLD'S VIEW

As mentioned in the introduction, to a wider audience, Zajonc's (1980) article has led to a misunderstanding of what Arnold and her heirs think

⁸ Ellsworth and Scherer (2003) wonder whether the emphasis on appraisal theories as "cognitive" goes back to the 1980s as a response to the Zajonc article on the one hand, and on the other, as a way to differentiate appraisal theories from Jamesian bodily/facial feedback theories. However, the move towards the "c-word" clearly can be traced back to Lazarus himself, as he also acknowledges in this quote.

about the processes that elicit emotion. To illustrate, consider how Zajonc's article and Lazarus's replies were interpreted by a political scientist. Marcus (2000) writes that:

[a]ffective processing became more prominent in psychology beginning with the seminal work of Zajonc (1980, 1982), a psychologist. The idea that emotional processes occur outside of conscious awareness, which was initially treated with scepticism (Lazarus 1982, 1984), is no longer disputed. (p. 231)

Curious indeed. But how clear is Arnold's view and germinal role in appraisal theory for researchers interested in emotions? And what is the importance of appraisal in emotion theory in general at the beginning of the third millennium? A good place to start evaluating the role of appraisal in current emotion theories is the recently published volume of proceedings of the Amsterdam Symposium: *Feelings and Emotions* (Manstead, Frijda, & Fischer, 2004). The Amsterdam Symposium was, like its three predecessors (the Loyola Symposium in 1969, the Mooseheart Symposium in 1948, and the Wittenberg Symposium in 1927), intended to provide a state-of-the-art forum for current thinking about emotions (see Shields, this volume). For example Damasio, arguably one of the more popular thinkers on emotions in the last decade states:

Does the notion that emotions can be triggered nonconsciously and automatically deny the classical notion of an "appraisal" phase preceding emotions? Not at all. The process by which, at a given moment, an object or situation *becomes* an emotionally competent stimulus often includes a conscious, cognitive appraising of the circumstances. Besides, even when the process is nonconscious, the current context may play a role and enhance or reduce the competence of the stimulus. (Damasio, 2004, p. 51)

It is not clear what "classical notion of appraisal" Damasio is referring to here, but surely, if anything, the term "classical notion of appraisal" should be reserved for the view espoused by Arnold, who originated the appraisal concept. Arnold would certainly have been in favour of Damasio's procedural description of emotion elicitation. However, the *nonconscious and automatic process* described by Damasio, and contrasted by him to conscious, cognitive appraisal, is *appraisal* in her usage. Using the word *appraisal* to refer to both processes, she described the same processing sequence as Damasio.

Arnold is not referred to in Damasio's (2004) symposium chapter. The only place she is listed in the index of the Amsterdam Symposium volume is as the (organiser and) editor of the preceding Loyola Symposium (Arnold, 1970)!⁹ Similarly, Paul Ekman (2004), one of the most influential emotion

⁹ At least Scherer (2004) mentions Arnold, together with Lazarus, as having pioneered appraisal theory.

researchers in recent decades, presents a view of the elicitation of emotions that is very similar to Arnold's, alas, again without reference to her theory:

In the first instant, the decision or evaluation that brings forth the emotion is extraordinarily fast and outside of awareness. We must have automatic appraising mechanisms that are continually scanning the world around us, detecting when something important to our welfare, to our survival, is happening . . . from now on I will use the plural form when referring to automatic appraising mechanisms, which I will abbreviate as "autoappraisers". (Ekman, 2004, p. 121)

The pervasive neglect of the views of Arnold—who, after all, coined the term appraisal for automatic and reflective emotion-antecedent processes—in the recent literature is surprising, but, one may ask, does it really matter? One could argue that what ultimately matters is a solid understanding of the mechanisms and processes involved in emotions, regardless of by whom and when they were proposed. However, this matter goes beyond issues of accurate historical description, scholarly style, and giving credit where credit is due. What is frustrating is that knowledge and recognition of Arnold's views would have pre-emptively prevented the criticisms of the "cognitive appraisal view" that are based on the interpretation of appraisal theory as *that theory where people have to consciously think before they feel*. The automatic nature of emotion elicitation is by no means a small element of Arnold's theory as stated in 1960, but a central and critical claim of this theory. However, Lazarus's subsequent use of the term *cognitive appraisal* seems to have triggered an opposition to the term appraisal itself. As a consequence of this opposition, even modern appraisal theories that clearly emphasise the multiple-level nature of appraisal processes, as Arnold did originally, are being rejected or ignored by some because of a misunderstanding of what they are about.

If behaviourism was a "protest movement against the mentalism of Wundt and Titchener" (Bargh & Ferguson, 2000, p. 926), then we are now confronted with a protest movement against cognitivism. Whether this protest is justified or not, the problem is false categorisation of Arnold (and most of appraisal theory) as "cognitivist" or "purely mentalistic" to begin with. The semantic confusion regarding the terms "emotion" and "cognition", arguably at the heart of the Zajonc–Lazarus debate (e.g., Leventhal & Scherer, 1987), continues. This time we should add the term "appraisal" to the list of frequently misinterpreted concepts!

Consider Öhman and Wiens' (2004) presentation of cognitive appraisal in the context of a discussion of Öhman's evolved fear module:

Premised on the ancient doctrine that we are not disturbed by the things themselves but by what we make of them, these approaches have a close affinity to appraisal theories of emotion (see Roseman & Smith, 2001; Scherer, 1999). Thus, they

emphasise the person's interpretation of the situation in the generation of emotions such as anxiety (e.g., Beck et al., 1985). An important implication of this statement is that anxiety is determined by mental activity, or put more bluntly, by thoughts. (pp. 70–71)

Similarly, in an account of the Zajonc debate Öhman and Wiens (2004) state that they are:

inclined to side with Zajonc (1980, 1984) rather than with the appraisal theorists (Lazarus, 1984; Leventhal & Scherer, 1987) in this debate. Thus, we concur with Zajonc's (1984) argument that the term "cognitive" should be reserved for postperceptual processes, and that it is important to distinguish such processes from the sensory and perceptual processes preceding object recognition. (p. 74)

In fact, however, Leventhal and Scherer (1987) presented a multiple-level process model that included sensory-motor processes of which the automatic processes Öhman described would be a subset. Furthermore, the interesting results Öhman and Wiens (2004) present concerning the acquisition of emotional responses to masked stimuli refer to processes that Leventhal and Scherer specifically talk about in the presentation of their schematic level of processing (see also "associative processing" in Smith & Kirby, 2001), and that Arnold had described before (1960b). She clearly and repeatedly discussed the role of subcortical processes in detecting what is good and bad for the organism. According to Arnold, these processes do not require naming, conscious recognition or any of the other processes that Öhman and other critics associate with the appraisal view for initial processing.¹⁰

SPECIFIC NEGATIVE INFLUENCES OF THE NEGLECT OF ARNOLD'S VIEW ON MODERN APPRAISAL RESEARCH

While a dual-level model of emotion elicitation, encompassing intuitive and reflective processing is essentially acknowledged by most modern versions of appraisal theory (e.g., Frijda, 1986; Leventhal & Scherer, 1987; Reisenzein, 2001; Smith & Kirby, 2001), there is still a dearth of systematic empirical studies of these appraisal processes and their interrelation. Lazarus's cognitive spin on appraisal theory has perhaps (mis)led many investigators to concentrate on self-reports of appraisals using questionnaire-type measures (see also Ellsworth & Scherer, 2003; Kappas, 2001). However, when combined with the dual- (or multi-) level model of appraisal, this methodological approach makes for a problem. Given that Arnold assumed that, "[t]he process by which we estimate whether a thing is harmful or good

¹⁰ Her version of a "fear module" (Arnold, 1960b; see p. 188) requires the involvement of subcortical structures, such as the hippocampus.

for us is similarly direct and intuitive, hidden from inspection" (1960a, p. 177), how can we ask participants to recall appraisals that they did not have conscious access to in the first place? If we accept her premise, then self-report measures are bound to produce at best a mix of recalled reflective appraisals and reconstructed appraisals that have little to do with what happened in the participants' brains during the recalled event (see also Nisbett & Wilson, 1977; Shields & Steinke, 2003). Similarly, Ekman (2004) doubts whether, "the findings of Scherer, Roseman, or Ellsworth... tell us what actually happens, as [their conclusions are] based on what people tell them, and none of us is aware of what our mind is doing at the moment it is doing it in the automatic appraisal process" (p. 122). Thus, it is not surprising that some authors have concluded that, "current available data do not support an exclusive relationship between appraisal components and emotions" (Parkinson, 2001, p. 179). Ellsworth and Scherer (2003) counter that these arguments, "may reflect a fundamental confusion between the theory itself and the methods used to test it" (p. 586). Space does not permit me to deal with this issue in the present context, but there should be no disagreement that it is not sufficient for appraisal theorists to point out that misinterpretations of the appraisal concept are prevalent outside of appraisal theory and at the same time focus exclusively on self-report measures of appraisal. Instead, the experimental paradigms and dependent variables in modern appraisal research need to reflect the multilevel nature of affective processing that appraisal theorists are arguing for. Note that these methodological requirements are not different in principle to those in many other areas of social processes in which multilevel processes have been established (Chaiken & Trope, 1999).

There are already many attempts to investigate appraisals using measures that are sensitive to different levels of processing. One of the basic tenets of appraisal theory is that appraisals have a direct impact on peripheral nervous system activation (Arnold, 1960b; see also Scherer, 1984). Hence, while self-report has often been the primary dependent variable, peripheral psychophysiological measures have been playing an important role in appraisal research for a long time (see also Ellsworth & Scherer, 2003). For example Lazarus and colleagues measured electrodermal and cardiovascular activity as early as four decades ago (e.g., Lazarus & Alfert, 1964). More recently, in addition to changes in electrodermal activity (e.g., Pecchinenda, 2001; Pecchinenda & Smith, 1996), measures as varied as skin temperature (e.g., Smith, 1992), cardiovascular activity (e.g., Tomaka, Blascovich, Kelsey, & Leitten, 1993), facial muscle activity (e.g., Kappas 1995; see also Kaiser & Wehrle, 2001) or vocal activity (Kappas 1997, see also Johnstone, van Reekum, & Scherer, 2001) have been employed. However, there is a need for studies that also employ measures of central nervous system activity (Pecchinenda, 2001).

Although the use of physiological measures is important in clarifying the role of appraisals, conscious as well as unconscious ones, important steps have to be taken not only on the measurement end, but also with respect to the eliciting situation. I have argued previously (e.g., Kappas, 2001; Kappas & Pecchinenda, 1999) that experimental manipulations in systematic research on appraisals *must* involve the systematic manipulation or measurement of appraisals at different levels, as well as dependent variables that include not only self-reports but also behavioural measures, and measures of peripheral and central nervous system activity changes (see Kappas & Pecchinenda, 1999).¹¹ But note that this knife cuts both ways; ignoring or even rejecting self-reports of appraisals as dependent variables likewise does not reflect the realities of affective processing. The central issue here is to reflect on what self-reports (of appraisals) are and what they are not (see Frijda, 2005). In brief, with the exception of very simple dimensions of appraisal, such as *good* or *bad*, I do not consider self-reports of appraisals to be readouts of some register sensu Smith and Kirby (2001) or of similar mechanisms that would give direct access to the appraisal outcome (Kappas, 2001). Instead, when asked for, complex appraisal dimensions, such as compatibility with norms and self-image are probably constructed in a reflective process based on situation-specific and identity-related beliefs (Robinson & Clore, 2002), although they may not always parallel co-occurring intuitive appraisals that we can infer from visible bodily changes, such as sweating, or blushing. These subjective experience are instead the integrated consequence of appraisals that are not directly accessible (Frijda, 2005). While a detailed discussion of these issues would lead too far here, I wish to emphasise that just because self-reports are “messy”, we should avoid falling into a neobehaviourist trap and disregard subjective experience and subjective reports altogether (see Dennett, 1991; Robinson & Clore, 2002). A reconsideration of Arnold’s views on this issue appears particularly relevant. On the one hand, Arnold claims that, “[t]he only approach that promises a solution of the problem of how perception arouses emotion is a careful phenomenological analysis of the whole sequence from perception to emotion and action” (1960a, p. 170; see also Reisenzein, this issue). On the other hand, one of the two volumes of *Emotion and Personality* was almost entirely devoted to the neural underpinnings of appraisals and emotions. In my mind, there is no doubt, that Arnold’s approach is essentially consistent with the multilevel analysis that the current notion of social neuroscience (e.g., Cacioppo, Berntson, & Crites, 1996) suggests (see also Kappas, 2002). There can be little doubt that truly integrating an analysis of emotion

¹¹ The demand for systematic manipulation of appraisals and multiple types of responses cannot realistically imply that each and every study has to include these features, but that any *research program* considers these demands.

elicitation and modulation at phenomenological and biological levels is a formidable challenge. It is plausible that emotional experience, so central to our understanding of emotions interacts in complex ways with the biological hardware. As Panksepp put it:

Affective consciousness may not be as important in instigating rapid emotional responses as it is in longer-term psychobehavioural strategies. Indeed, in humans the cognitive apparatus can greatly shorten, prolong, or otherwise modify the more “hardwired” emotional tendencies we share with the other animals. (1998, p.34)

It is approaches such as these that circumvent the *emotion vs. cognition* issue to some degree by focusing on the interdependence of parallel systems, having different phylogenetic origin and structural complexity that are continually involved in interacting regulation processes.¹² I am sure that Arnold would have had a great time discussing such matters with current neuroscientists.

WHERE TO GO FROM HERE?

I have argued that Magda Arnold presented a complex and modern theory of emotion that involved appraisal processes that are automatic, outside of our awareness and that can be modified by parallel reflective processes. Thereby, Arnold's theory is the precursor to the modern multilevel process models of appraisal, such as those proposed by Leventhal and Scherer (1987) and Smith and Kirby (2001), and in a broader sense the dual-process models that are currently popular in social psychology and other areas of psychology (see Bargh & Ferguson, 2000; Chaiken & Trope, 1999).

However, the use of the term “*cognitive appraisal*” and the larger emphasis subsequently placed by Lazarus on reflective processes has led to a series of misrepresentations of appraisal theory. In fact, however, Lazarus himself and essentially every other appraisal theorist after him has pointed out that appraisals can be and often are automatic and outside of awareness. Arnold was perhaps even clearer in this regard, because in her view, the intuitive and direct mode of appraisal is the norm, whereas the reflective appraisal process is optional, albeit both processes are involved in many cases in emotion generation.

The “appraisal-bashing” popular with some authors is therefore unjustified as there is, in fact, agreement concerning the process of the elicitation of emotions in all camps. The extreme position that complex emotions, such as fear or jealousy, never involve reflective processes in the

¹² Note however, that Panksepp's (1998) use of appraisal is not identical to Arnold's intention.

adult human is just as unlikely as is the position that non-reflective processes are never involved in the generation of these emotions. The big divide of appraisal theorists on the one hand and proponents of automatic processes of emotion elicitation on the other hand might be yet another myth of the recent history of emotion psychology (see also Kappas, 2002). We need to get beyond artificial differences, which are apparently primed in some researchers by specific word cues, and concentrate on the question of how automatic and conscious processes in emotion elicitation (and regulation) interact (see Bargh & Ferguson, 2000).

For example, we might just agree to use the term appraisal from now on in the technical sense in which it was introduced by Magda Arnold (1960a, 1960b), and avoid the term cognitive appraisal introduced later by Lazarus. Appraisal, in the context of emotion generation, is not just evaluation by a different name; it is something different, but something well described and defined. Whenever we then speak of appraisal processes, we should specify more clearly what we are talking about. Alternatively, we could also distinguish *cognitive* appraisals as indeed being reflective and use a different term for appraisals occurring unaware, unintended and automatic; “implicit appraisal” may be a good term.

The term *autoappraisal* proposed by Ekman (2004) has the disadvantage that it may create the association of “self-evaluation”, which is not the intended meaning. And while we are at it, we might as well consider another terminological revision, namely to abandon the term “cognitive theories of emotion” (see also Ellsworth & Scherer, 2003). While cognition, even in the sense of “thinking” plays an important role for Arnold and every appraisal theorist after her, it is only one level at which emotions can be caused. Arnold would not have had difficulties in acknowledging the possibility that (at least some) affective reactions can be caused, and certainly modulated, by drugs or changes in neurotransmitter levels (e.g., 1960b, pp. 163–168) or direct electrical stimulation (1960b, p. 188; see also Izard, 1993). Hence, to categorise Arnold’s theory as cognitive is at some level just as misplaced as calling Darwin’s, Tomkin’s, or Ekman’s theories *facial*, or LeDoux’s theory *amygdaloid*. These are all cases in which an important aspect of a theory would be misused to characterise the whole theory. In his excellent introductory textbook, *The Science of Emotion*, Cornelius (1996) distinguishes four major traditions in the 20th century. Cornelius describes the Darwinian and the Jamesian perspective, and then the “cognitive perspective”. Perhaps, it should rather be the *Arnoldian perspective*—at least it would then be less surprising that Zajonc represents the Arnoldian perspective! As pointed out in this article, there are many similarities between Arnold’s and Zajonc’s positions. The research Zajonc presents favours Arnold’s theory. Recognising this, we could move forward instead of taking seriously two extreme positions that, on closer inspection, differ little.

Whatever we do, we should get it done soon. Magda Arnold's groundbreaking conceptual work should finally receive the attention and the credit that it deserves. Appraisals are direct, immediate, intuitive, and unwitting... and some are reflective...

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