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Arnold's theory of emotion in historical perspective

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Magda B. Arnold's theory of emotion is examined from three historical viewpoints. First, I look backward from Arnold to precursors of her theory of emotion in 19th century introspectionist psychology and in classical evolutionary psychology. I try to show that Arnold can be regarded as belonging intellectually to the cognitive tradition of emotion theorising that originated in Brentano and his students, and that she was also significantly influenced by McDougall's evolutionary view of emotion. Second, I look forward from Arnold to the influence she had on Richard S. Lazarus, the theorist who deserves the most credit for popularising the appraisal approach to emotion. Here, I try to document that Lazarus' theory of the stress emotions preserved most assumptions of Arnold's theory. Finally, I look back at Arnold from today's perspective and address points of success of the appraisal paradigm in emotion psychology, as well as some remaining problems.

Although Magda B. Arnold is widely recognised as the pioneer of cognitive emotion theory in modern (i.e., post-behaviourist) psychology, the range and complexity of Arnold's theorising, as well as her direct and indirect influence on subsequent theorists, is in my opinion greatly underestimated. With few exceptions, references to Arnold's theory in the contemporary literature are little more than a note to the effect that Arnold pioneered the idea that "emotions are generated by an appraisal process". However, Arnold's (1960a, 1960b) theory of emotion is much more developed than such references suggest. In fact, because she perceived a major shortcoming of previous theories to be their narrow focus on only one or a few aspects of the phenomenon, she aimed at no less than a "complete" theory of emotion (see also Shields, this issue). In Arnold's view, a complete theory of emotion must not only deal with emotional experience, but also with emotional action and emotional expression. And it must not only address the question of how

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emotions are elicited, but also speak to the consequences of emotions or better, to their functional role in the architecture of the mind; including "the significance of emotion for personality integration" (Arnold, 1960a, p. 165; see Cornelius, this issue). In addition, a complete theory of emotion must address the evolutionary and learning origins of emotions, as well as "the neurophysiological mechanism that mediates the experience and expression of emotion" (Arnold, 1960a, p. 165).

To my knowledge, there is so far no systematic attempt to reconstruct Arnold's theory of emotion. Nor is there a systematic study of the historical influences on Arnold or of the influence that she, in turn, had on subsequent theorists. The present article is primarily a contribution to the second project. I will examine Arnold's theory of emotion from three historical viewpoints. First, I look backward from Arnold at two theoretical traditions of emotion psychology—the phenomenological and the evolutionary tradition—that coalesced in her thinking. Second, I look forward from Arnold to the influence she had on Richard S. Lazarus, the theorist who deserves the most credit for popularising the appraisal approach to emotion. Finally, I look back at Arnold from today's perspective and address points of success of the appraisal paradigm in emotion psychology, as well as some remaining problems.

LOOKING BACKWARD FROM ARNOLD: THE PHENOMENOLOGICAL TRADITION

Magda Arnold is generally, and rightfully, regarded as the pioneer of cognitive emotion theory in modern (i.e., post-behaviourist) psychology. As Lyons (1980, p. 44) notes, "it has really been left to Magda Arnold, almost single-handedly, to revive the cognitive theory of emotions in psychology" that dates back to Aristotle (see also, Roseman & Smith, 2001). However, as pointed out before (e.g., Reisenzein & Schönpflug, 1992), it would be wrong to conclude from this that prior to Arnold, cognitive theories of emotion were entirely missing from academic psychology. Rather, such theories have been with academic psychology right from its start as an independent discipline in the 19th century. A cognitive view of emotions predominated, in particular, within the "intentionalist" school of the psychology of consciousness founded by the Austrian philosopher–psychologist Franz Brentano (1838–1917; see Smith, 1994, for a philosopher's perspective on Brentano and his school). At about the time when Arnold was born in Moravia, which was then part of the Austro-Hungarian monarchy, not too far away cognitive emotion theories were being developed by Brentano's students Alexius Meinong (e.g., 1894, 1906), in Graz, and Carl Stumpf (e.g., 1899, 1907), in Berlin, along the guidelines laid out by Brentano in his

Psychology from the Empirical Standpoint (1874/1973). Although, for all that I know, Arnold was not directly influenced by Brentano, Meinong or Stumpf, I believe that she can nonetheless be counted as an intellectual member of this tradition of emotion theorising. There are two reasons for this. First, Arnold was influenced by similar cognitive analyses of emotions developed within the so-called *phenomenological movement* in philosophy and psychology that originated in Brentano's student Edmund Husserl (1859–1938; see Moran, 2000). Second, Brentano, and through him his students, were significantly influenced by the same classic authors as Arnold, namely by Aristotle and his medieval interpreter, Thomas Aquinas. In fact, Brentano was one of the most eminent scholars of Aristotle and the medieval scholastic philosophers of his time.

In the following paragraphs, I first briefly review the basic assumptions of Brentano's psychology and then describe parts of a cognitive theory of emotion developed within this framework by his student Alexius Meinong. As will become apparent later, both with regard to method and outcome, Meinong's analysis of emotions bears a strong similarity to Arnold's, although there are also some instructive differences.

Brentano's psychology

In agreement with other forms of introspectionist psychology, Brentano (1874/1973) regarded psychology as the science of conscious mental states and introspection as its primary (although by no means its only) method. What distinguishes Brentano's psychology from other schools of the psychology of consciousness is primarily a particular theory of the nature of mental states, and a particular approach to their investigation that derives from, and is guided by, this theory. According to Brentano, the distinctive mark of mental states is that they are object-directed (the technical term is *intentional*). For example, if one perceives, one always perceives *something*; if one believes, one always believes *something*; if one desires, one always desires *something*; and so on. This *something* (which need not necessarily exist) is the object of the respective mental state. Intentional mental states are thus mental states that are concerned with, or seek to apprehend an object (see also Searle, 1983). In present-day terms, they are mental states that represent objects, they are by their very nature *representational*. Accordingly, Brentano claimed that psychology can be more precisely defined as the *science of intentional (i.e., representational) states*: Its aim is to clarify the nature and function of mental representations. Brentano's psychology of consciousness can therefore be regarded as a precursor of modern cognitive psychology (e.g., Barsalou, 1992; Fodor, 1987). For modern cognitive psychology, too, is centrally concerned with the nature and function of mental representations.

Meinong's theory of the judgment-based emotions[1]

Meinong's theory of emotion is the result of his attempt to systematically work out—using a mixture of introspection, thought-experiments and argumentation—the implications of Brentano's psychology for the field of emotions. In line with the basic tenet of Brentano's psychology, Meinong (1894, 1906) begins his analysis of emotions by reasserting that emotions are object-directed. According to Meinong (and Brentano), this holds good for all emotional states without exception: If one is happy, one is always happy about something (e.g., that a friend came to visit); if one is afraid, one is always afraid of something (e.g., that the friend might have had an accident) and so on. This introspectively ascertained fact, Meinong argues, has a straightforward but far-reaching implication: It entails that emotions presuppose cognitions. More precisely, any (object-directed) emotion presupposes, for its existence, a *cognitive representation of its object*:

> One cannot feel joy without feeling joy about something. Hence, one also cannot feel joy without apprehending such a "something", an object; and it stands to reason that this apprehending is an essentially cognitive achievement (Meinong, 1906, p. 25).[2]

Furthermore, Meinong claims that emotions differ from each other primarily (i.e., beyond the basic distinction between positive and negative feelings) in terms of the cognitions on which they are based. Therefore, to understand the nature and causal generation of emotions, it is primarily necessary to clarify their cognitive preconditions.

Meinong presented this clarification in the form of a systematic "classification of emotions" according to their cognitive preconditions; but it is more accurate to call this classification a *theory of the cognitive structure of emotions* (Ortony, Clore, & Collins, 1988). Meinong elaborated this theory in greatest detail for a subset of the emotions within his overall taxonomy of affective states, called the *judgment-based emotions* (*Urteilsgefühle*) because their cognitive preconditions are judgments (i.e., beliefs). The judgment-based emotions include most of the emotions distinguished by

[1] Alexius Meinong (1853–1920) was professor of philosophy in Graz, Austria from 1889 to 1920. He became famous in philosophy for his theory of objects, an early form of logical semantics (cf. Simons, 1986; Smith, 1994). Meinong's achievements in psychology include the founding of the first experimental psychology laboratory of Austria-Hungary (1895) and the establishment of the "Graz" school of Gestalt psychology. His students include the Gestalt psychologist Christian von Ehrenfels and Fritz Heider, the founder of attribution theory. Heider (1983) refers to Meinong as the teacher who influenced him most. An excellent biography of Meinong was written by Dölling (1999).

[2] All translations from German are mine. Meinong's term for "cognitive" in this quotation is "intellectual" ("intellektuelle Leistung").

name in ordinary language, such as joy, sorrow, pity and joy for another person, hope and fear, anger, guilt, and shame. Because these emotions are also Arnold's main concern, I restrict myself to a summary of Meinong's theory of the judgment-based emotions.

According to Meinong, the judgment-based emotions are characterised and distinguished from other emotions by two main features: (1) they have propositions, or states of affairs, as objects; and (2) they presuppose, for their existence, beliefs or judgments about their objects. For example, joy about a state of affairs *S* (e.g., that Schmidt was elected for president) presupposes the belief that *S* obtains. Furthermore, in the case of joy, this belief must be held with certainty: If one does not firmly believe that *S* obtains but regards *S* only as possible or likely, one does not feel joy about *S*, although one may hope for *S* (Meinong, 1894).

Everyday experience indicates, however, that not every belief engenders an emotion and that the same belief—that a particular state of affairs obtains—can cause joy in some people and sorrow in others. Meinong recognised that, to explain these facts, a further mental precondition of emotions needs to be postulated. Although he did not discuss this question in depth, it appears that he thought that at least in many cases, this additional precondition of emotions is a *motivational state*, a desire for (wanting) or aversion against (diswanting) the state of affairs in question (Meinong 1906, 1917; see also, Höfler, 1897). I will assume here that this represents Meinong's general position on the issue. Thus, joy about a state of affairs *S* is experienced if one believes *S* and desires *S*; sorrow about *S* is experienced if one believes *S* and diswants *S* (is aversive against *S*).

With respect to the process of emotion generation, Meinong seems to assume that, in the typical case, joy and sorrow arise as follows (see Figure 1): First, one comes to desire or to diswant a state of affairs *S*

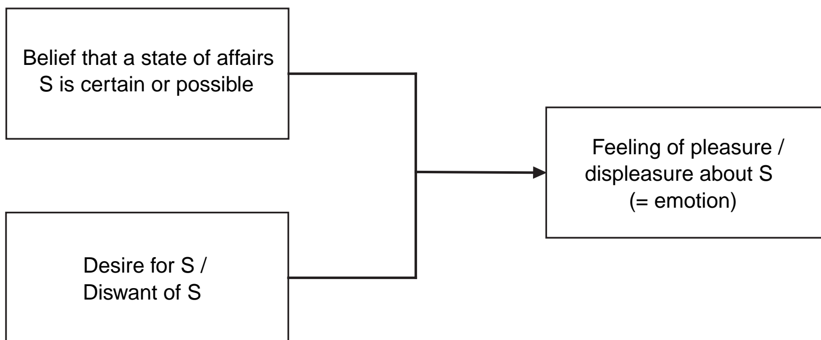

Figure 1. The process of emotion generation according to Meinong.

(e.g., that Schmidt is elected for president). Subsequently, through perception or inference, one acquires the belief that *S* obtains. Together, the desire or diswant and the belief then cause a *feeling of pleasure or displeasure* directed at the same object, *S*. According to Meinong, this object-directed feeling of pleasure or displeasure *is* the emotion of joy or sorrow or at least constitutes the core of the respective emotional experiences (Meinong, 1906).

In Meinong's view, pleasure and displeasure about a state of affairs are the two basic forms of the judgment-based emotions. That is, all other judgment-based emotions are subtypes or variants of these basic emotions. Common to all judgment-based emotions is that they are feelings of pleasure or displeasure directed at a state of affairs, and are caused by a belief plus a desire or diswant directed at the same state of affairs. Differences between the judgment-based emotions are mainly due to differences in their cognitive preconditions.

Specifically, Meinong proposes that belief strength (degree of certainty) distinguishes hope and fear from joy and sorrow: If one is uncertain whether a desired state of affairs obtains, one feels hope rather than joy; if one is uncertain whether an undesired state of affairs obtains, one feels fear rather than sorrow. According to Meinong, the certain–uncertain distinction reflects a difference in the *mode* of the mental state, a difference in the manner of believing (believing firmly vs. less than firmly). Most of the differences between judgment-based emotions however are due to differences in the *propositional contents* of the beliefs (and desires) underlying the emotions. For example, if a cognised state of affairs *S* concerns one's own wellbeing, one feels joy or sorrow; whereas if *S* concerns the wellbeing of another person—more precisely, according to Meinong, if *S* concerns another person's emotional experience—then emotions of "sympathy or antipathy" are felt. Specifically, if one believes that another person experiences a positive feeling ($=S$) and desires this perceived fact, then one feels joy for the other; whereas if one believes that another person experiences a negative feeling and diswants this state of affairs, then one feels pity for the other. These are the "emotions of sympathy". The "emotions of antipathy" are *envy/resentment* and *Schadenfreude* (joy in another's misfortune). Envy or resentment is felt if one believes that another person experiences a positive feeling and diswants this perceived fact; Schadenfreude is felt if one believes that another person experiences a negative feeling and desires this state of affairs. For analyses of some other judgment-based emotions, see Meinong (1894) and Witasek (1907).

Arnold's cognitive theory of emotion: A comparison with Meinong

Arnold's "phenomenological analysis" of emotion

When Arnold began writing her magnum opus (two volumes, 700 pages!) *Emotion and Personality* in the 1950s, the classical mentalistic and cognitive tradition of emotion theorising had, at least within Anglo-American psychology, become largely buried under the "behavioristic avalanche". However, Arnold was convinced that, in psychology in general and particularly in the psychology of emotion, behaviourism was a blind alley; mainly because it ignored the experiential aspect of emotions and the commonsense knowledge about affective states (see also, Shields & Fields, 2003; Shields, 2006). As a consequence of this neglect, Arnold (1960a, p. 11) asserted, "the theory of emotion has come to a standstill". To overcome this standstill, Arnold proposed to "return to the common human experience of emotion that is as accessible to the psychologist as it is to the layman and is described by both in the same terms in their daily lives" (1960a, p. 11). She continued:

> Throughout this discussion I am going to talk about emotion as a human experience, a human activity, and shall not apologise for taking as fact what you, the reader, and I, the writer, experience first hand and can identify without scientific terminology. This does not mean, of course, that we can do without such evidence as professional workers have collected, but it does mean that we cannot let them dictate to us their particular definition of emotion or their particular explanation, without any regard to our experience . . . the subjective experience must be acknowledged as primary. (Arnold, 1960a, pp. 12–13)

Hence Arnold's theory of emotion, like Meinong's, rests, at least in significant part, on introspection and on the reflection of commonsense psychological knowledge; or on what Arnold—referring to the phenomenological movement in philosophy and psychology (specifically to Sartre, 1948)—calls "phenomenological analysis" (e.g., Arnold, 1960a, p. 170).[3]

[3] Within this movement, "phenomenological analysis" originally referred to a special philosophical method devised by Husserl, the intuition of essences (eidetic seeing, *Wesensschau*). Husserl sharply distinguished this method from introspection, and it is in fact closer to conceptual analysis (Künne, 1983). However, Husserl's special views of the nature and reach of phenomenological analysis are controversial and were not shared by all subsequent phenomenologists. To what degree Arnold endorsed Husserl's conception of phenomenological analysis remains unclear to me, as she did not comment on the issue. In any case, the present description of Arnold's method—a combination of introspection and analysis of commonsense psychology (which is often referred to as a conceptual analysis of the mentalistic terms of ordinary language; cf. Heider, 1958)—seems to capture well what she actually did.

However, because Arnold's goals were much more ambitious than Meinong's, she could not and did not constrain herself to phenomenological analysis, but combined phenomenological insights with evolutionary and neurophysiological considerations. Nonetheless, Arnold was clear about one thing, namely that phenomenological analysis is *epistemologically primary.* This attitude is most clearly revealed in her views about the relation between phenomenological analysis and neurophysiological research (e.g., Arnold, 1960b, p. vi; see also Arnold, 1970, pp. 178–179). In Arnold's opinion, one cannot hope to develop an accurate psychological theory of emotion solely on the basis of neurophysiological data, just as one cannot hope to build such a theory solely on the basis of behavioural data. Such data are useful to test and further refine an already existing, broadly accurate emotion theory. But the only promising method to develop such a theory in the first place—"the 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" (Arnold, 1960a, p. 170; see also Arnold, 1960a, pp. 13–14).

However, in pursuing her project of a phenomenological analysis of emotion, Arnold did not start from scratch. Rather, she returned to the classic, mentalistic and cognitive tradition of emotion psychology, in particular to the writings of Aristotle and his medieval interpreter, Thomas Aquinas (to which she was introduced by John Gasson; see Shields, this issue; Cornelius, this issue). Arnold explicitly acknowledged this historical influence. For example, she wrote of her appraisal analysis of specific emotions, "in substance, this analysis goes back to Aristotle and Thomas Aquinas" (Arnold, 1960a, p. 193; see also Arnold & Gasson, 1954). Indirectly, however, Arnold was also influenced by the more recent tradition of cognitive emotion theorising that originated in Brentano's "intentionalist" psychology. Although she probably never read Brentano in the original and was almost certainly unfamiliar with the writings of Meinong and Stumpf, she was certainly familiar with, and partly influenced by, related views of emotion developed (e.g., by Buytendijk, Sartre, Scheler, and Strasser) within the movement of phenomenological philosophy and psychology that originated in Brentano's student Edmund Husserl. For example, Arnold (1960a) discusses Sartre's (1948) theory of emotion and, while disagreeing with some of its assumptions, finds much of merit in the theory and in the method of phenomenological analysis by which Sartre arrived at it. And Arnold (1960b) mentions, largely approvingly, aspects of Scheler's (1913) and Buytendijk's (1950) phenomenological analysis of shame, of Scheler's (1923) analysis of sympathy, and of Strasser's (1956) analysis of happiness. Also referenced, in the context of a discussion of emotion recognition (Arnold, 1960a), is Meinong's student Fritz Heider (cf. Footnote 1), who incorporated—albeit in simplified form, and under the

disguise of an "analysis of folk psychology"—parts of Meinong's (1894) theory of emotion into his book *The Psychology of Interpersonal Relations* (Heider, 1958).

However, the best evidence that Arnold belongs, intellectually, to the Brentano–Meinong tradition of theorising about emotions, is provided by a comparison of her analysis of emotion with that of Meinong.

Arnold's theory of emotion compared to Meinong's

Emotions are object-directed. In agreement with Brentano and Meinong and with the later phenomenological investigations of emotion, Arnold begins her analysis of emotions[4] with the assertion that emotions are object-directed: "We are afraid of something, we rejoice over something, we love someone, we are angry at something or someone. Emotion seems to have an object just as sense perception does" (Arnold, 1960a, p. 170). The objects of emotions can be individual things, like a person that one feels attracted to or an apple that one craves, but also more or less complex states of affairs, such as the reunion of lovers after a long absence (cf. Arnold, 1960a, p. 171). In fact, most of the emotions considered by Arnold in her structural appraisal theory (e.g., joy, sadness, hope, fear, or anger; see below for more detail) have states of affairs as objects. Therefore, I will restrict my discussion to these cases.

Emotions presuppose cognitions. Similar to Meinong, Arnold infers from the fact (ascertained through "phenomenological analysis") that emotions are object-directed, that emotions presuppose cognitions of their objects:

> To have an emotion, it is necessary to perceive or know the object in some way, though it is not necessary to know it accurately or correctly . . . To perceive or apprehend something means that I know what it is like as a thing, apart from any effect on me. (Arnold, 1960a, p. 171)

In other words, to experience an object-directed emotion such as joy about a state of affairs, one must first acquire *factual beliefs* about the object. In the minimal case, this is the factual belief that the state of affairs in question

[4] Similar to Stumpf (1907), Arnold draws a sharp distinction between emotions on the one hand and what she calls "feelings" on the other hand. Whereas emotions are "reactions to objects or situations", feelings are "reactions to a subjective experience" (Arnold, 1960a, p. 81). Paradigmatic examples of feelings are *sensory feelings*, the experiences of pleasure and displeasure caused by simple sensations, such as the pleasant feeling caused by the smell of a rose or the unpleasant feeling elicited by a bitter taste. Although Arnold believed that feelings, like emotions, are mediated by a process of appraisal (evaluation), she admitted that in the case of feelings, this claim was not based on phenomenological evidence. Rather, in the case of feelings, appraisal is postulated "as a hypothetical construct . . . to account for the facts" (Arnold, 1960a, p. 73). The present review is restricted to Arnold's theory of proper emotions. For further discussion of Arnold's theory of sensory feelings, see Kappas (this issue).

obtains (or, as Arnold, 1960a, p. 193, says, "is present") or is at least possible ("is absent"; more on this point below). For example, to feel happy that Schmidt was elected for president, one must believe that, as a matter of fact, Schmidt was elected for president. However, factual beliefs are not sufficient to arouse an emotion. Rather:

> To arouse an emotion, the object must [also] be appraised as affecting me in some way, affecting me personally as an individual with my particular experience and my particular aims ... [This] 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 for me. (Arnold, 1960a, p. 171)

Hence, for example, to experience joy about Schmidt's election for president, one must not only believe that Schmidt was elected; one must also evaluate this state of affairs as good or desirable for oneself.

At first sight, it may seem as if Meinong's and Arnold's intuitions have parted at this point. Although the two theorists agree that factual beliefs are insufficient for emotions and that an additional (partial) cause is needed, Meinong suggests that this additional cause is *motivational* in nature, a desire for or an aversion against (diswanting of) the object. By contrast, Arnold proposes that the additional factor is another kind of *cognition* (as she puts it, the object must be "known in a particular way"; Arnold, 1960a, p. 171): namely an evaluative belief about the object, a "value judgment" (e.g., Arnold, 1960b, p. 310; Arnold & Gasson, 1954). This evaluation of the object—the *appraisal* in the narrow sense of the term[5]—appears to differ from the factual belief about the object only in that it has a different and special content. Whereas the content of the factual belief is, in the simplest case, *that S obtains*, the content of the evaluative belief is *that S is good or bad for oneself*. This difference between Meinong and Arnold is significant because in Meinong's view—but also in Arnold's—desires are a species of intentional mental states fundamentally different from beliefs. Whereas beliefs, including evaluative beliefs, belong to the class of the cognitive mental states, desires belong to the class of the motivational or conative propositional attitudes (cf. Meinong, 1894, 1910; and see Arnold, 1960a,

[5] In Arnold and Gasson (1954), where Arnold's appraisal theory was first described, the term "appraisal" does not in fact yet appear. There, appraisals are still called "value judgments" (e.g., p. 305) or "evaluations" (e.g., p. 295). The introduction of the technical term "appraisal" by Arnold (1960a, 1960b) seems to have been motivated by two considerations: (1) to have available a broader term that covers the factual beliefs underlying emotions as well as the evaluations; and (2) to be able to refer to (presumably existing) forms of evaluation that do not comfortably fit the concept of an evaluative belief. These include the evaluations that, in Arnold's view, underlie sensory pleasures and displeasures (see Footnote 4), but possibly also the "intuitive" (as opposed to "reflective") evaluations that underlie emotions (see the last part of this article).

pp. 235–236). To mention but one difference between the two: Beliefs, but not desires, can be true or false; desires, but not beliefs, can be satisfied or frustrated (cf. Green, 1992; Searle, 1983). Thus, at first sight it may seem that Meinong's and Arnold's theories of emotion represent two fundamentally different variants of cognitive emotion theory (see also Green, 1992): Meinong's is a *cognitive-motivational theory* of emotion, whereas Arnold's is a *cognitive-evaluative theory.*

Ultimately, emotions also presuppose desires. With further consideration, it appears that Arnold's theory of emotion is closer to Meinong's than this difference of opinion may suggest: A close reading of Arnold suggests that desires are also important for emotion generation in her theory, albeit only indirectly. As Arnold (1960a, p. 171) notes, to appraise an object as good or bad for oneself means to judge that the object is "affecting me personally as an individual with . . . *my particular aims*" (emphasis added). Hence—provided that one agrees that *aims*, broadly understood, are the contents of desires (i.e., what one desires)—to evaluate an object means to compare it with what one desires. And the outcome of this process, the belief that the object is good or bad for oneself, is then really a belief about whether the object is consistent or inconsistent with one's desires (i.e., whether it is suited to fulfil or frustrate them). Thus, to appraise an object as good versus bad for oneself means to (come to) believe that the object is consistent versus inconsistent with one's desires. Ultimately, therefore, emotions are still based on beliefs and desires, as Meinong suggests; even though, according to Arnold, the causal path from desire to emotion passes through an evaluative belief (or several such beliefs). Viewed in this way, Arnold's appraisal theory can be regarded as a (or one possible) refinement of Meinong's theory of emotion; a refinement that makes explicit part of the mental processes that mediate the link between beliefs and desires on the one hand, and emotions on the other hand.[6] Whether this refinement is factually accurate, is, of

[6] Nonetheless, it should be acknowledged that Arnold's reference to desires or motives as (partial) causes of emotion is much less explicit than Lazarus' (e.g., 1966, 1991). One reason for this is probably that Arnold: (a) did not make a sharp distinction between desires to act (action tendencies) and desires that something be the case (colloquially, wishes; these are more typically the desires that underlie emotions), and (b) identified emotions with desires to act. As a consequence, the claim that joy about *S* presupposes the *desire* for *S* translates, for Arnold, into the claim that joy about *S* presupposes (another) *emotion* directed at *S*, which may seem threateningly close to circular. Interestingly, however, Arnold did make a parallel claim for negative emotions—she asserted that they presuppose positive emotions (to which she counts liking and wanting): "We must like something, must want or possess it before our aim can be frustrated or our possession disturbed so that we feel anger or fear" (Arnold, 1960a, p. 194). But if negative emotions presuppose desires, how can positive emotions make do without them?

course, another question (see the last section of this article; and Reisenzein et al., 2003).

In any case, Arnold claims that the *immediate* causes of an emotion directed at a state of affairs *S* are two kinds of belief about *S*, namely factual and evaluative judgments. Hence for example, to experience joy about a state of affairs *S*, one must (at minimum): (a) believe that *S* obtains, and (b) evaluate *S* as good or bad, desirable or undesirable for oneself. Analogously, to experience sorrow about *S*, one must believe that *S* obtains and evaluate *S* negatively. Furthermore, Arnold assumes that, at least in the typical case, the person first acquires the factual belief (the belief that *S* obtains), for example through perception or inference. The acquisition of this belief then occasions the evaluation of *S* as positive or negative. Arnold (1960a, p. 172) emphasises that this evaluation process is typically "direct, immediate, intuitive"—at least in part, it seems, because it frequently consists only of the retrieval of previously made evaluations from memory (e.g., Arnold, 1970). Together, the factual and evaluative belief then cause an emotion directed at the same object (see Figure 2).[7]

Cognitive foundations of specific emotions. Analogously to Meinong, Arnold believes that the analysis of emotions illustrated above for joy and sorrow applies, in principle, to all emotions. Common to all emotions is that they all presuppose factual and evaluative beliefs about their objects. Differences between emotions rest on differences in the factual or evaluative beliefs on which they are based.

To support this claim, Arnold (1960a; see also, Arnold & Gasson, 1954) specified the factual and evaluative beliefs for a set of common emotions including love/liking, hate/dislike, delight/joy, sorrow/sadness, hope, hopelessness/despair, daring/courage, fear, anger, and dejection. Curiously, this "classification of emotions" (Arnold, 1960a, p. 193) according to their cognitive preconditions—Arnold's structural appraisal theory—seems to

[7] Therefore, the factual and the evaluative belief about *S* are both partial, *direct* causes of the emotion directed at *S*. This point has been occasionally overlooked in the subsequent appraisal literature, where the factual belief is sometimes depicted as being only an indirect cause of the emotion (factual belief → evaluation → emotion). To be sure, this causal model is not entirely wrong: The factual belief is typically *also* an indirect cause of the emotion, in that it instigates the *process* of evaluation (cf. Figure 2). Nonetheless, it needs to be stressed that evaluative beliefs are alone just as insufficient for an emotion as are factual beliefs alone and that the quality of the experienced emotion depends on both. For example, to experience joy about having won in the lottery, it is not sufficient that one evaluates winning positively; one must also believe that one has won. Furthermore, one must believe this firmly: If one is uncertain whether or not one has won (in Arnold's words, as long as the object is still "absent", rather than "present" and "resting in possession"), one will not experience joy, but hope, even though the evaluative belief is unchanged (Arnold, 1960a; chapter 11).

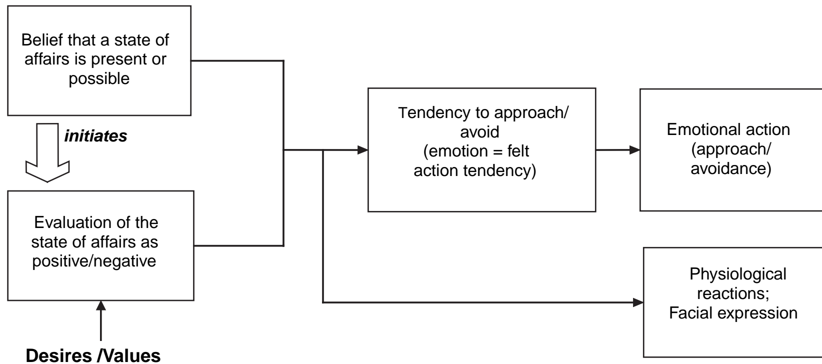

Figure 2. The process of emotion generation according to Arnold.

have been missed by most subsequent appraisal theorists (the exceptions are Lazarus, 1966, and Roseman, Spindel, & Jose, 1990). Arnold proposes that the cognitive and evaluative preconditions of emotions vary on (at least) three dimensions of appraisal that represent "basic conditions . . . under which any given object can affect us" (Arnold, 1960a, p. 193): *evaluation of the object* as good or bad for oneself (i.e., appraisal in the narrow meaning of the word); *presence–absence of the object*, and *the ease or difficulty to attain or avoid the object* or, as I will say, *coping potential*. Note that, of these three dimensions of appraisals, only the first is evaluative in nature (an evaluative belief); the remaining two represent factual beliefs. Judged by the way Arnold uses the term, *presence–absence* appears to refer simultaneously to the *subjective temporal location* of a state of affairs and to the *subjective certainty* that it obtains (the belief strength); it contrasts present (subjectively present or past, and subjectively certain) states of affairs with absent (subjectively future and still uncertain) states of affairs. *Coping potential* concerns the belief that the state of affairs in question (a) if still absent, is easy, difficult or impossible to attain or avoid or (b) if already present, is easy, difficult or impossible to keep (positive state), or to undo or adapt to (negative state).

Arnold then proceeds to specify the emotions connected with different combinations of the values of these appraisal dimensions, that is, with different appraisal patterns. Hence, although she does not use the *terms* "appraisal dimension" and "appraisal pattern", Arnold seems to have been the first to present an appraisal analysis of emotions in this structural format (see the table and the accompanying text in Arnold, 1960a, p. 196). For example, according to Arnold, joy is experienced if one believes that an object (a state of affairs) is present, is positive, and "rests in possession" (i.e., can be easily maintained). Sorrow or sadness occurs when a negative state is

present but "conditions are favorable", that is, one believes one can cope with the negative state. Fear occurs if one believes that a negative event is absent (not yet present, but a future possibility) and is "too difficult to cope with" (Arnold, 1960a, p. 194). Hope occurs if one believes that a positive future state can be attained.

Several further emotions, including pity, guilt, remorse, shame, embarrassment and admiration, are analysed from an appraisal perspective in Part III of Arnold (1960b). For example, according to Arnold (1960b, p. 318), pity is felt "whenever another's suffering is realized and appraised as bad". Guilt is experienced when one believes one has culpably broken a moral rule (Arnold, 1960b, pp. 291–292). Shame and embarrassment are caused by the appraisal that one is not conforming to internalised ideal or social norms of appropriateness of conduct or appearance (see Arnold, 1960b, p. 299f.). Characteristic for guilt, shame and embarrassment is thus that the standard of comparison that underlies the evaluation is an internalised social or moral norm (cf. Lazarus, 1991; Ortony et al., 1988).

As is true for Arnold's general analysis of the cognitive foundations of emotions, her analysis of specific emotions bears a substantial similarity to that of Meinong (1894). But again, there are several noteworthy differences. First, as a consequence of the two theorists' divergent assumptions about the immediate causes of emotions, Arnold's structural theory is formulated in terms of factual and evaluative beliefs, whereas Meinong's is framed in terms of factual beliefs and desires. Second, in contrast to Arnold, Meinong does not regard coping beliefs as necessary for the qualitative distinction of emotions. Third, Meinong reduces the presence–absence dimension featured by Arnold to subjective certainty (belief strength). Although Meinong (1894) also considered subjective temporal location (present/past versus future) as a candidate appraisal dimension, he argued, by means of examples, that only subjective certainty is important for the distinction between joy and sorrow on the one hand, and hope and fear on the other hand (for an analogous argument, see Roseman, 1979).

The nature and function of emotions. More fundamental are the differences in opinion between Meinong and Arnold concerning the *nature and function* of emotions. According to Meinong, emotions are feelings of pleasure and displeasure whose main function is *informational*; that is, they inform the experiencer about the value of objects and events (Meinong, 1894; Urban, 1907). By contrast, Arnold suggests that emotions are felt tendencies to approach or withdraw from objects appraised as good versus bad and that their function is, correspondingly, primarily *motivational*. As detailed in the next section, I believe that Arnold's conative view of emotions reflects not only the historical influence of Thomas Aquinas (cf. Cornelius,

this issue; Lyons, 1980), but at least to an equal degree that of evolutionary psychologist William McDougall (1908/1960).

LOOKING BACKWARD FROM ARNOLD: THE EVOLUTIONARY TRADITION

As mentioned, Arnold combined her phenomenological analysis of emotion with evolutionary-psychological considerations. These considerations were, I believe, strongly influenced by the evolutionary emotion theory of William McDougall (1908/1960), of whom Arnold writes:

> McDougall's view that impulse and emotion are aroused together by the object looks like a return to common sense. If he had followed through his suggestion that both are aroused by a rudimentary instinctive perception, this would be the most satisfactory explanation achieved up to that time (Arnold, 1960a, p. 169).[8]

Indeed, apart from the (of course, all-important) postulate that emotions are generated by an appraisal process,[9] Arnold's own theory of emotion bears a remarkable similarity to that of McDougall, at least with respect to the general approach. To put this differently: Arnold's theory of emotion is more or less what one may expect to get if one tries to combine her appraisal theory of *emotion elicitation* with McDougall views of the *nature* and *function* of emotion.

[8] Alternatively, or in addition, Arnold may have been influenced by the evolutionary emotion theory proposed by Shand (1914), who was himself significantly influenced by McDougall and in turn influenced him. Shand's emotion theory is actually more congenial to Arnold's than is McDougall's, because it is more "cognitive". Although Arnold's references to Shand's theory of emotion are sparse, the following comment suggests that she found herself in essential agreement with this theory: "Shand (1914) and others [assumed] that there are inherent systems in the mind that are connected with bodily systems . . . In this way, the importance of physical changes in emotion was preserved while the mental part of the system took care of the fact that the situation has to be interpreted by the individual before an emotion can be aroused" (Arnold, 1970, p. 170).

[9] Actually, appraisal plays a larger role in McDougall's theory than Arnold suggests (cf. Meyer, Schützwohl, & Reisenzein, 1999). This is true at least if one takes into account McDougall's later theory of the "derived emotions" (which include joy, sorrow, hope, disappointment, and despair; see supplementary chapter 3 in McDougall, 1960; and McDougall, 1928). According to McDougall (who was in this case influenced by Shand, 1914), these emotions are forms of pleasure or displeasure, or mixtures of both, that occur when one cognises an actual or possible fulfilment or frustration of an instinctive action impulse. Hence, McDougall's theory of the derived emotions is close to Meinong's theory of the judgment-based emotions. Furthermore, a close look at the "natural" eliciting conditions of McDougall's basic emotions suggests that even some of these comprise appraisals or something very much like them. For example, anger is elicited by the perceived obstruction or blocking of other instinctive actions; and the instincts of dominance and submission are elicited by the presence of other people to whom one perceives oneself to be, respectively, superior or inferior.

Précis of McDougall's theory of emotion

When stripped of its somewhat "archaic" terminology (Cosmides & Tooby, 1994), McDougall's (1908/1960) evolutionary theory of emotions turns out to be a surprisingly detailed precursor of today's "discrete emotions" or "affect program" theories (e.g., Ackerman, Abe, & Izard, 1998; Ekman, 1992; see Meyer, Schützwohl, & Reisenzein, 1999). According to McDougall, the biological core of the human emotion system consists of a small set of inherited "emotion modules"—the *instincts*, as McDougall called them—that developed during evolution because each solved a specific, recurrent adaptive problem. McDougall initially proposed seven basic emotion modules, for example the fear module (or flight instinct), the disgust module (or instinct of repulsion), and the anger module (or instinct of pugnacity).

Again formulated in modern terminology, each basic emotion module consists of a *detector* that surveys incoming sensory information, and a *reaction program*. When the detector receives "appropriate" input—namely, information that indicates the presence of the adaptive problem that the module was "designed" to solve—the associated reaction program is triggered, which elicits a co-ordinated pattern of mental and bodily responses. This emotional reaction pattern comprises, in particular, an emotion-specific action impulse, a specific pattern of peripheral-physiological reactions, and a specific kind of emotional experience (which according to McDougall's later views, 1928, consists of the awareness of the action impulse and the associated physiological activation pattern). McDougall claims that, of these various outputs of the emotion module, the one of central importance for the understanding of the emotions is the action impulse (e.g., the impulse to flee in the case of fear or to reject offensive substances in the case of disgust). This claim reflects McDougall's conviction that the central biological function of the emotion modules is *motivational*, that is, they serve to motivate adaptive actions—actions that regularly solved the pertinent adaptational problem in the ancestral environment (e.g., avoidance of bodily injury in the case of fear, or protection against poisoning in the case of disgust). The remaining outputs of the emotion modules only serve to support, in one way or other, this main biological function. For example, the physiological activation pattern characteristic for fear serves to prepare the organism in an optimal way for rapid flight.

According to McDougall, the internal configuration of the emotion modules—the connection between the detector and the reaction program—cannot be modified through experience and learning. Nonetheless, the emotional system of humans is greatly elaborated and modified through experience. Only very few of the elicitors of the emotion modules are innate, most are acquired (according to McDougall, through classical

conditioning). Likewise, although the basic action impulses are innate, the concrete actions to which they lead, and whether or not they lead to action at all, depends largely on learning.

McDougall further proposes that the biologically basic emotions are also *psychologically* basic; that is, they cannot be reduced to other, simpler emotions but form the basis of all other emotions. Finally, he claims that *all* actions are ultimately motivated by the emotional action impulses, which are therefore the basic motives of humans. Because of this pluralistic theory of basic motives, McDougall rejects hedonism (the doctrine that the sole basic motive of humans is the desire for pleasure and the avoidance of pain). Although, as far as I can see, McDougall does not deny the existence of a hedonistic motive as one basic motive among others, he argues that pleasure and displeasure play only a subordinate role in human motivation (cf. McDougall, 1960, supplementary chapter 7).

Arnold's theory of emotion compared to McDougall's

Although Arnold disagrees with McDougall on the process of emotion elicitation (which for Arnold, in contrast to McDougall, always involves appraisal), she largely shares McDougall's views of the nature and function of emotions, as well as his views of the origins of the mental mechanisms that underlie and enable emotional reactions.

The nature of emotions

Like McDougall, Arnold believes that "emotion and conation cannot be separated" (Arnold, 1960b, p. 204). First, in accord with McDougall, she assumes that emotional stimuli elicit a reaction pattern whose core is an emotion-specific action impulse, which is coupled, at least for a set of "basic emotions", with patterned physiological reactions and emotion-specific feelings (and for some emotions, with emotion-specific expressive reactions; Arnold, 1960a, p. 205):

> We can now define emotion as the *felt tendency toward anything intuitively appraised as good (beneficial), or away from anything intuitively appraised as bad (harmful). This attraction or aversion is accompanied by a pattern of physiological changes organized toward approach or withdrawal. The patterns differ for different emotions.* (Arnold, 1960a, p. 182; emphasis in original)

Second, in accord with McDougall's later views (McDougall, 1928), Arnold assumes that the felt action impulse is essential for emotional experience; in fact, as the quotation shows, she identifies the emotional *quale* with the felt action impulse. McDougall (1928), as mentioned, is less radical: He believes

that emotional experience also comprises physiological feedback as an essential element.

Origin and function of the emotion mechanisms

Arnold also agrees with McDougall that the disposition to show the described emotion-specific reaction patterns (action impulse, physiological reactions, expression, and experience) in response to suitable eliciting conditions rests on hardwired neurophysiological mechanisms that developed during evolution:

> The emotion that follows the judgment is not learned but naturally determined; positive emotion arises when something is judged suitable, negative emotion when it is judged unsuitable (Arnold, 1954, p. 347).

> Fear itself is not learned; neither is weeping or smiling or being angry. These are all responses that belong to our human heritage, like our ability to see, or feel pain, or to have a sense of repletion after a meal (Arnold, 1954, pp. 343–344).

> Emotional [facial] expression is native rather than acquired and is recognised intuitively (Arnold, 1960a, p. 205).

In sum, Arnold concurs with McDougall that *emotions are, at their core, evolutionary action impulses.* Given this, it is only consequential that she also agrees with McDougall that the basic *biological function* of the emotions is the motivation of adaptive actions: By urging us to particular kinds of action in situations that we appraise in particular ways, emotions "as a rule ... help man or animal in the pursuit of their goals" (Arnold, 1960b, p. 268).[10] Arnold even seems to agree with McDougall that all motives are ultimately derived from the emotional action impulses, and that emotions are therefore the springs of all action. This is at least Arnold's view of animal motivation: "Emotion is the only ... action tendency in an animal's goal-directed action" (Arnold, 1960a, p. 232). And, although Arnold emphasises that humans in contrast to animals are also capable of "rational action", it seems that even rational actions are partly based on the emotion mechanisms: "The act of choice (the will impulse) is an inherent action tendency like any other; it is set in motion by intuitive appraisal, like emotion,

[10] However, Arnold frequently also expresses scepticism about the utility of emotional action impulses in humans, at least in today's society. The motives of "the normal person", she writes, "are rational rather than emotional" (1960a, p. 237). "Clearly, emotion interferes and disturbs if it urges us in a direction different from that indicated by deliberate judgment" (Arnold, 1970, p. 177). Emotional impulses therefore need to be controlled and guided, to be in concert with the dictates of reason.

but requires a deliberate decision before it will lead to action" (Arnold, 1960a, p. 245).

Finally, Arnold shares McDougall's opposition to hedonism:

> For the hedonist, pleasure is the basic motive in all actions. Reflection will show that such a statement makes an exception the general norm ... Though the human being can want pleasure rather than the activity or object that will bring pleasure, he does not normally do so. (Arnold, 1960a, p. 238)

Differences from McDougall

As already mentioned, the main disagreement between Arnold and McDougall concerns their respective views of emotion elicitation. This difference of opinion brings other important disagreements in its wake.

First, although Arnold agrees with McDougall that at least a core set of emotions are biologically based, it is doubtful whether she shares McDougall's assumption that the reaction patterns characteristic for these basic emotions are each produced by a *distinct* evolutionary mechanism (affect program). Although Arnold does not directly address this point, she criticises McDougall for his attempt to "make as complete a list of instincts as is possible" (Arnold, 1960a, p. 130) and avoids presenting such a list of instincts (i.e., *biologically* basic emotions) herself. This reluctance is at least partly a consequence of Arnold's appraisal theory of emotion elicitation, for this theory seems to pull in a direction opposite to McDougall's multi-modular, discrete emotions theory. According to Arnold, the psychologically basic (i.e., the simplest) appraisals are the evaluation of a present or possible state of affairs as good or bad. Since emotions are the products of appraisal, this suggests that the psychologically basic (i.e., simplest) emotions are but two in number, namely emotional reactions to positive versus negative appraisals. As mentioned before, this is indeed what Arnold assumes: The *psychologically* basic emotions (action tendencies) are the tendencies to approach or withdraw; specific emotions are but more specific forms of approach or withdrawal (Arnold, 1960a). However, if one combines this assumption with the further assumption that the inherited emotion mechanisms are exactly those that underlie the psychologically basic emotions, one is led to the conclusion that there are only *two* evolutionary emotion modules, an approach module and a withdrawal module (cf. e.g., Lang, 1995). On the other hand, it is also true that Arnold regarded all of the 10 or so emotions distinguished in her structural cognitive theory (Arnold, 1960a) as *relatively* basic in the psychological sense (in fact, she called them "basic emotions"): (a) they are reactions to "basic [eliciting] conditions" and (b) they constitute "simple experiences of attraction or recoil ... simple felt action tendencies" (Arnold, 1960a, p. 193). It is therefore at least conceivable that Arnold thought that these psychologically

basic emotions are also biologically basic (i.e., rest on separate evolutionary affect programs). And one could argue that this assumption would fit more comfortably with Arnold's postulate that these emotions are associated with distinct physiological patterns and partly also with distinct facial expressions. But then again, the postulate of emotion-specific reaction patterns does not *imply* that these patterns are produced by distinct mechanisms (Ortony & Turner, 1990; see also Reisenzein, 2000).

Second, although Arnold agrees with McDougall that some stimuli are capable of eliciting emotions without prior learning, her belief that all emotions are based on appraisals forces her to reject McDougall's assumption that the emotion mechanisms are "directly" activated by these stimuli. Rather, she has to assume that the appraisals of some objects are inherited: "Even the neonate has some notion of what is good and hence wanted, and what is bad and hence to be avoided" (Arnold, 1960b, p. 54). However, at the latest when this assumption is made, one must also assume that at least the core of the appraisal system is inherited. And since, as mentioned earlier, appraisals (at least those underlying proper emotions) are factual and evaluative beliefs (i.e., propositional representations), this means that at least the core of a cognitive system that enables such representations must be inherited as well.

Third, although Arnold agrees with McDougall that some human emotions (e.g., anger and fear) have analogues in animals, she argues that "since emotions follow upon appraisal, they cannot be identical in men and animals" (Arnold, 1960b, p. 309). The reason is that (a) the appraisals that an organism can make, and the actions to which these appraisals can lead, depend on the organism's cognitive capacities, and (b) the cognitive capacities of animals are much more limited than those of humans. Humans are able to cognise and appraise objects that have no meaning nor interest for animals; they can appraise objects along dimensions that are beyond the grasp of animals (e.g., the agreement with moral norms); and many of the actions to which emotions urge humans are outside the animal's range. For these reasons, Arnold claims that: (a) even the experience of the most basic emotions is "bound to be different in men, though its core, the fact that some attraction or repulsion is experienced, may remain the same" (Arnold, 1960b, p. 309); and (b) there are truly human emotions, such as guilt, admiration, or aesthetic delight.

LOOKING FORWARD FROM ARNOLD: LAZARUS' THEORY OF THE STRESS EMOTIONS

Directly or indirectly, Arnold's theory of emotion has been the starting point of most subsequent cognitive emotion theories in psychology (for a recent

survey of the field see Scherer, Schorr, & Johnstone, 2001). Many of these theories adopted not only Arnold's basic framework, but also several of her more specific assumptions. This is particularly true of the emotion theory proposed by Richard S. Lazarus (1922–2002), the theorist who was mainly responsible for popularising the appraisal concept and—by supporting it in a series of demonstrative empirical studies—making it scientifically respectable in the (still strongly behaviourally tinged) intellectual climate of the 1960s. In fact, it was probably mainly through Lazarus' theory of the stress emotions—the theory that he held in largely unaltered form from the 1960s up to his 1991 volume *Emotion and Adaptation*—that Arnold's theory found its way into the more recent appraisal formulations.

Lazarus is quite explicit in acknowledging his intellectual debt to Arnold. For example, in his influential book, *Psychological Stress and the Coping Process*, Lazarus (1966) wrote:

> The concept of appraisal has been persuasively presented by Arnold (1960) as the cognitive determinant of emotion. While Arnold utilizes this concept for all emotions including the positively toned, the concept of appraisal is highly appropriate to our narrower concern with the negatively toned emotions of psychological stress. (p. 52)

And in a subsequent article that appeared two years later in the *Nebraska Symposium on Motivation*, Lazarus (1968, p. 190) noted that "the [present] view of emotions which emphasises cognitive processes as antecedents and the arousal of coping impulses to deal with appraised danger is an elaboration of that presented by Arnold". As the following comparison of the two theories will show, this description is fair: Lazarus' theory of the stress emotions is essentially an elaboration (including some modifications) of Arnold's theory for a subclass of the emotions considered by her, in particular those that may occur in stressful situations.

Lazarus' theory of the appraisal process: A comparison with Arnold

At first, Lazarus' theory of the appraisal process seems to differ from Arnold's. In contrast to Arnold, Lazarus posits not three, but only two (and differently named) appraisal processes, primary appraisal and secondary appraisal. In *primary appraisal*, the person assesses the relevance of a situation or event for her desires (Lazarus speaks of *motives*). The possible results of this process, according to Lazarus (1966, 1968; see also Lazarus & Launier, 1978) are the appraisal of the situation as: *irrelevant* for one's motives, *benign-positive*, *harm-loss*, *threat*, or *challenge*. In *secondary*

appraisal, the person assesses her options and resources for dealing with a motive-relevant event (e.g., a threat). The outcome of secondary appraisal is the person's belief that she can cope with the motive-relevant event by one or the other action (e.g., that she can escape danger by fleeing), or that she cannot cope with the event.

However, although Lazarus' theory of the appraisal process seems at first sight to be different from Arnold's, closer inspection reveals that the differences are mostly terminological and that the two theories are essentially in agreement. Secondary appraisal is obviously largely identical to Arnold's third dimension of appraisal, the assessment of *coping potential*. And primary appraisal turns out to be, on closer examination, a combination of Arnold's first two appraisal dimensions, *evaluation* (good versus bad for me) and *presence–absence* (present/certain versus future/uncertain) into a single appraisal process. This is evident from the fact that the possible outcomes of primary appraisal largely correspond to particular combinations of the values of these two appraisal dimensions (see Table 1).

According to Lazarus (1966, 1968; Lazarus & Launier, 1978), a situation is appraised as *benign-positive* if one believes that a positive event (Arnold: *evaluation* = positive): (a) has already occurred (Arnold: "is present"), or (b) is still future but more or less likely ("is absent"). A situation is appraised as a *harm-loss* if one believes that a negative event has already occurred, and as *threatening*, if a negative event is anticipated. Finally, a situation is appraised as a *challenge* if it is viewed primarily as a welcome opportunity to master a difficult demand. The appraisal of challenge can therefore be regarded as a

TABLE 1
Relation between Arnold's appraisal dimensions and the possible outcomes of primary appraisal according to Lazarus

Dimensions of appraisal according to Arnold		*Outcomes of primary appraisal according to Lazarus*
Evaluation	*Presence–absence (subjective temporal location/subjective probability)*	*Primary appraisal of the situation as:*
neutral	future/uncertain or present/certain	irrelevant for one's motives
positive	present/certain	benign-positive (case 1)
positive	future/uncertain	benign-positive (case 2) subtype: challenge
negative	present/certain	harm-loss
negative	future/uncertain	threat

subtype of the benign-positive appraisal of a future event (Table 1): One anticipates a special kind of gain, namely, to demonstrate one's abilities or to grow (cf. Lazarus & Launier, 1978).

Furthermore, Lazarus (1966; see also Lazarus, 1991) agrees with Arnold that the appraisal process, and hence the process of emotion generation, can be either "reflective" (deliberate, conscious) or "intuitive" (automatic, unconscious).

Further similarities between Lazarus and Arnold, and some differences

Lazarus also agrees with Arnold that emotion-relevant appraisals elicit a response syndrome consisting of emotion-specific action impulses, physiological reactions, and feelings; and that at least a set of "basic" emotions have an evolutionary basis (see also, Lazarus, 1991). In addition, he shares Arnold's opposition to hedonism (Lazarus, 1966, 1968).

The differences of opinion between the two theorists are for the greater part differences in emphasis rather than substantive disagreements:

- Lazarus is more explicit than Arnold that emotions have not only cognitive but also motivational antecedents. Already in his 1966 book, he noted that a "key concept . . . related to the evaluation of personal significance is motivation" (Lazarus, 1966, p. 56) and he explicitly defined, for example, the appraisal of threat as the perceived possible "thwarting of a motive, [the] degree of harm depending on the strength of the motive"(p. 57). To emphasise the importance of desires as antecedents of emotions, Lazarus (1991) even named his revised theory a "cognitive-motivational" theory of emotion.
- Lazarus seems to accord more importance to "reflective" than to "intuitive" appraisal processes than does Arnold (Lazarus, 1966; though see Lazarus, 1991).
- There is some disagreement on the appraisal pattern associated with some of the emotions considered by Lazarus (e.g., anger; see Lazarus, 1966).
- Lazarus (1968; Lazarus, Averill, & Opton, 1970) views emotions not just as subjective experiences, but as psychophysiological syndromes that include action impulses, patterned somatic reactions, and even the cognitive appraisal itself. And although Lazarus initially adopted Arnold's theory that the subjective experience of emotion is determined by the action impulse (Lazarus, 1966), he later (from Lazarus et al., 1970 onward) proposed that emotional experience includes in addition

the awareness of bodily feedback and of the cognitive appraisal (see also Lazarus, Kanner, & Folkman, 1980).[11]

LOOKING BACK AGAIN: ARNOLD'S APPRAISAL HERITAGE, AND SOME UNRESOLVED ISSUES

The theoretical paradigm launched by Magda B. Arnold in the 1960s has undoubtedly been a success: At least when it comes to the question of how emotions are generated and differentiated, appraisal theory dominates the field today (see Scherer et al., 2001). Indeed, one would be hard pressed to name a contemporary emotion researcher who disputes that human emotions arise at least often, if not typically, through a process of appraisal. The reason for this consensus is, in my view, not primarily that it was forced by experimental evidence (although such evidence is not lacking). Rather, the main reasons are, I believe: (a) as Arnold argued, appraisal theory accords well with "phenomenology", and (b) it has unmatched explanatory power. As to the second reason, it is simply hard to see *how else* one could explain such indisputable, basic facts of human emotions as the following: (1) human emotions are highly differentiated; (2) different individuals may react with different emotions (e.g., joy versus sorrow) to the same objective event; (3) the same emotion (e.g., joy) can be elicited by events that have objectively nothing in common (e.g., the victory of a football team and the arrival of a friend); and (4) the same concrete emotional reaction (e.g., joy about the arrival of a friend) can be elicited by information acquired in widely different ways, e.g., when seeing the friend approach, when hearing his voice, when being told by others that he has arrived, and so on (see Reisenzein et al., 2003; Roseman & Smith, 2001).

At the same time, the success of appraisal theories of emotion tends to obscure the fact that several important, arguably even foundational, issues are still unresolved. Some of these issues were in fact never subjected to the careful examination they deserve, but seem to have been uncritically adopted by many contemporary appraisal theorists because they belonged to the

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[11] Interestingly, a "syndrome" definition of emotions had also been proposed by McDougall. He (McDougall, 1928) distinguished between two senses of the term "emotion", a narrow sense (emotion = emotional experience) and a wide sense (emotion = the totality of the instinctive mental and bodily processes). According to McDougall, both definitions have their use and justification. Arnold and Gasson (1954) likewise seem to allude to a syndrome definition of emotions when they propose that "an emotion is complete when there is the whole sequence described above, including the practical estimate of the situation, the reaction of wanting or dislike, the somatic expression and organic changes, and the awareness of these changes" (p. 295). If the emotional expression or the organic changes are missing, the emotion is said to be "incomplete" (p. 295) although, because emotion is defined as a felt action tendency, "it is [still] possible in these cases to speak of emotion" (p. 296).

content of the "appraisal parcel" strung together by Arnold and Lazarus. To conclude this article, I would like—in the same spirit as Arnold (1970) in her contribution to the Loyola symposium on feelings and emotions—to list six problems of cognitive emotion theory that in my view "still require solution" (p. 172).

Range of convenience of cognitive emotion theories

Arnold proposed not only that emotions proper (e.g., joy, fear, or anger) are mediated by a process of appraisal; she claimed that this is true of all affective experiences, including sensory pleasures and displeasures (see Footnote 4, and Kappas, this issue). This assumption is shared by some contemporary appraisal theorists. However, it is not self-evident. On the contrary, on the face of it, it seems to be false: The pleasant feeling elicited by the smell of a rose, for example, does not seem to presuppose any particular factual or evaluative beliefs, nor desires (see, e.g., Meinong, 1894). There are at least three ways to deal with this objection. First, one could try to argue that, first impressions notwithstanding, sensory pleasures and displeasures *do* presuppose beliefs and desires. I do not know of a convincing version of this argument. Second, one could propose that sensory pleasures and displeasures are mediated by a *different kind* of appraisal. If this route is taken, one has to indicate how this form of appraisal is to be understood, and to make plausible that it has enough in common with the appraisals underlying proper emotions to be called by the same name. Third, one could conclude that sensory pleasures and displeasures are not mediated by appraisals at all, and are thus beyond the range of convenience of appraisal theory. I tend to favour this solution.

The nature of emotional experience

Today's cognitive emotion theorists may agree on how emotions are *produced*, but there is no consensus even among them about the nature of the "dependent variable", the resultant emotional experience (see Frijda & Zeelenberg, 2001). Although due to extensive research, some theories of emotional experience have become less probable since the 1960s (e.g., that emotions essentially include the awareness of physiological arousal), other theories of emotional experience that continue to be popular in the appraisal camp still await a close examination. These include Arnold's and Lazarus' proposal that emotions are (Arnold), or at least essentially include (Lazarus), the awareness of "instinctive" action impulses. As far as I can see, the only empirical evidence that has ever been presented for this theory is that particular emotions tend to co-occur with particular action tendencies

(e.g., Frijda, Kuipers, & ter Schure, 1989), which is weak evidence indeed. On the other hand, several objections can and have been raised against the conative theory of emotional experience (e.g., Reisenzein, 1996).

Nonhedonic action impulses

Following McDougall's lead, Arnold and Lazarus propose that the actions to which emotions motivate (e.g., to flee in the case of fear) are not necessarily, and not even typically, performed to regulate one's affective state (e.g., to reduce fear). In other words, they claim that emotions influence action at least in part through a nonhedonistic route. I believe that this assumption is true; but is there empirical evidence for it that would convince a hedonistic theorist? In other words, what hard empirical evidence is there for the existence of emotion-instigated, yet nonhedonistic actions? (See also Gasper & Bramesfeld, this issue.)

Appraisal patterns for specific emotions

Today's cognitive emotion theorists may agree on how emotions are produced *in general*, but they certainly do not fully agree on how *specific* emotions are produced. True, on a coarse level of analysis, the more recent structural appraisal models (e.g., Frijda et al., 1989; Lazarus, 1991; Ortony et al., 1988; Roseman, 1979; Scherer, 1984; Smith & Ellsworth, 1985) show much agreement among themselves and with their historical predecessors. However, on a more fine-grained level, many disagreements about the appraisals characteristic for different emotions—even such presumably "basic" emotions as fear or anger—become apparent (for an illustration of the nature of these disagreements, see the earlier comparisons between Arnold, Meinong, and Lazarus). These differences in opinion must ultimately be resolved, for two reasons (see also, Roseman, Antoniou, & Jose, 1996; Roseman et al., 1990). First, to arrive at a unified, consensual structural appraisal theory; and second, to counter the suspicion that the existing disagreements, rather than only signalling the need for additional conceptual and empirical work, indicate a basic problem of the appraisal theory framework (e.g., Berkowitz & Harmon-Jones, 2004).

Cognitive-motivational versus cognitive-evaluative theory of emotion

But do today's cognitive emotions theorists really agree on how emotions are produced *in principle*? Closer examination suggests that even the answer to

this question is not an unqualified yes. Specifically, when comparing Arnold's theory of emotion with that of Meinong, I noted that these two theories, at first sight at least, represent two rather different versions of cognitive emotion theory: cognitive-evaluative theory (Arnold) versus cognitive-motivational theory (Meinong). Both of these versions of cognitive emotion theory also exist in the contemporary literature. According to the cognitive-evaluative theory, emotions are based on factual and evaluative beliefs; whereas according to the cognitive-motivational theory, they are based on factual beliefs and desires. I also discussed a possible compromise between the two theories that, as matter of fact, seems to best represent the views of Arnold and Lazarus. According to this compromise theory, evaluative beliefs—the belief that a state of affairs is good or bad for oneself, or consistent or inconsistent with one's desires—*mediate* the link between factual beliefs and desires on the one hand, and emotions on the other hand (cf. Figure 2). Thus, it seems that even at this fundamental level of analysis, we have a choice between at least three different versions of cognitive emotion theory. Which of these versions, if any, is the correct one? There has been next to no discussion of this question among appraisal theorists; but presumably, most would subscribe either to the original cognitive-evaluative theory or to the compromise theory. This being so, it is important to point out that both of these theories are subject to a number of objections (see also Green, 1992). One particularly important objection is that, even in the presence of the necessary factual beliefs, value judgments (the belief that an object is good or bad for oneself) are *not sufficient* for emotions. This objection can be most easily made by means of counter-examples. For example, one usually values being healthy highly; nonetheless, the thought that one is healthy (factual belief), and that this is good for oneself (evaluative belief), normally does not cause noticeable joy. Arnold accepted the existence of such cases; in fact, she described a similar one herself: "Often enough do we realize that a given person would make a good friend, husband, or wife, that a given association would be both desirable and profitable—yet we feel no attraction and make no move toward closer friendship" (Arnold, 1960a, p. 172). However, if one accepts that such cases exist, then the objection that evaluative (plus factual) beliefs are not sufficient for emotions seems to stand.

Intuitive appraisal

One response to this objection would be, of course, to abandon the idea that emotions are proximately based on appraisals (evaluations) and to assume instead that they are directly based on factual beliefs and desires (cf. Green, 1992; Meinong, 1894). However, this alternative was not open

to Arnold, given the fundamental role that the appraisal concept played in her thinking. Instead, it seems that she attempted to counter the objection—that evaluative (plus factual) beliefs are not sufficient for emotions—by taking recourse to her distinction between "reflective" and "intuitive" appraisal. For, as a close reading of Arnold reveals, she assumed that emotions are ultimately *always* caused by intuitive appraisal; even reflective evaluations elicit emotion only if they, in turn, cause an intuitive evaluation (e.g., Arnold, 1960a, p. 175, 1970, p. 174). Armed with this assumption, Arnold could argue that the evaluations featured in the above-mentioned counterexamples: (a) are reflective evaluations (i.e., ordinary evaluative beliefs) rather than intuitive appraisals, which (b) for some reason fail to cause an intuitive appraisal (see Arnold, 1960a, p. 172).

However, this argument is hardly convincing as long the nature of intuitive appraisal is not further specified. With respect to this issue, Arnold's most concrete suggestion is that intuitive appraisal is simply an automatised form of reflective appraisal (specifically, the retrieval of stored evaluations from memory). For example, Arnold (1970, p. 176) suggested that intuitive appraisal is "really a prejudgment ... dictated by affective memory". But if intuitive appraisals are just ordinary value judgments that are retrieved from memory rather than newly computed, then it is difficult to see: (a) why only intuitive but not reflective appraisals are able to elicit emotions, and (b) why reflective evaluations first need to evoke an intuitive evaluation to cause an emotion. Hence, this particular attempt to explicate the notion of intuitive appraisal is unsuited to meet the objection that evaluative beliefs are not sufficient for emotions.

Nevertheless, I believe Arnold's assumption that emotions are proximately based on an intuitive appraisal process captures a valid idea. This is the idea that the causal link between factual beliefs and desires on the one hand, and emotions on the other hand *is mediated by some cognitive process*, rather than being not further explicable. The difficulties of Arnold's notion of appraisal arise exclusively from her further assumption that the mediating process consists of the formation or retrieval of evaluative beliefs. But if "intuitive appraisals" are not evaluative beliefs, then what are they? I have tried to give an answer to this question in Reisenzein (1998, 1999, 2001). There, I suggested that intuitive appraisals are computed by a hardwired mechanism that preattentively compares newly acquired beliefs (e.g., that Schmidt was elected for president) with pre-existing desires (e.g., that Schmidt should be elected) and generates nonpropositional signals of match or mismatch, that are subjectively experienced as pleasure or displeasure. Because this process compares factual beliefs with desires, it qualifies as an appraisal (evaluation) process. Nonetheless, the *outputs* of this process—the nonpropositional signals of match or mismatch between what one believes to be the case and what one desires—are not evaluative beliefs. If one accepts

this explication of Arnold's concept of intuitive appraisal, her assumptions that emotions are proximately always caused by intuitive appraisal, and that reflective evaluations (evaluative beliefs) cause emotions only if they, in turn, cause an intuitive appraisal, make sense. The only drawback of this interpretation of Arnold's theory of emotion is that the theory becomes, somewhat paradoxically, an appraisal theory without appraisal in the original sense of the word (i.e., evaluative belief). However, I suppose that this is a disadvantage that one can live with.

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