



Components of Emotional Meaning: A sourcebook

Johnny J. R. Fontaine (ed.) et al.

<https://doi.org/10.1093/acprof:oso/9780199592746.001.0001>

Published: 15 August 2013

Online ISBN: 9780191762765

Print ISBN: 9780199592746

Search in this book

CHAPTER

45 Promises delivered, future opportunities, and challenges for the GRID paradigm

Johnny J. R. Fontaine (ed.), Klaus R. Scherer (ed.), Cristina Soriano (ed.)

<https://doi.org/10.1093/acprof:oso/9780199592746.003.0046> Pages 542–560

Published: August 2013

Abstract

This chapter discusses to what extent the GRID instrument allows the study of the meaning of emotion terms from multidisciplinary perspectives and multiple theoretical approaches. First the GRID instrument is evaluated as an assessment tool in terms of reliability and validity. Then the consequences of the findings for the componential, the dimensional, and the basic emotion approaches in psychology are considered. Subsequently we examine how the overall structural similarities across cultural and linguistic groups can function as a *tertium comparationis* to study differences in specific emotion terms and features. Furthermore we show how the GRID instrument can be used for both semasiological and onomasiological studies in linguistics. We also discuss the further development of the GRID instrument to facilitate the study of specific hypotheses and issues emerging from each of these perspectives and approaches. We end with a discussion of the implications of the results presented in this book for the lexical sedimentation hypothesis.

Keywords: [componential emotion approach](#), [dimensional emotion approach](#), [basic emotion approach](#), [tertium comparationis](#), [semasiological approach](#), [onomasiological approach](#), [lexical sedimentation](#)

Subject: [Developmental Psychology](#), [Social Psychology](#)

Collection: [Oxford Scholarship Online](#)

The GRID instrument was developed to study the meaning of emotion terms from a theoretical vantage point whereby emotions are considered as processes that synchronize different components—event appraisal and the consequent action tendencies, bodily changes, motor expressions, and subjective experiences reflecting the component changes. Postulating a domain-specific approach to semantics, we proposed to measure the meaning of emotion terms in natural language through probability estimates of profiles of component features that characterize major emotion categories and for which translation-equivalent words exist in many different languages. This approach allows assessment of the meaning of emotion words in a way that is relevant for many theoretical approaches to emotion and that accommodates the perspectives taken by the three main

disciplines involved in the study of emotion words: psychology, cultural comparative studies (specifically cultural anthropology and cross-cultural psychology), and linguistics. In this concluding chapter, we discuss, on the basis of the massive data set reported in this volume, the extent to which the GRID instrument is capable of delivering on its promise. In addition, we reflect on the future opportunities afforded by the GRID, its limitations, and its foreseeable challenges. We start by discussing the validity of the GRID as an assessment instrument for meaning. We then examine the implications of the findings for a psychological perspective on emotions, first for the componential approach to emotion (specifically the Component Process Model; Scherer, 2009c; see Chapter 1), which constitutes the theoretical basis of the GRID paradigm, and then for basic emotion and dimensional approaches. We continue by discussing the relevance of the GRID paradigm for the cultural-comparative and linguistic perspectives in the study of emotion categories. We conclude with a discussion of the lexical sedimentation hypothesis in the emotion domain.

45.1 The GRID instrument as an assessment tool

Promises delivered

The GRID instrument was developed to assess the meaning of emotion words in a quantified and standardized way. In the domain of psychological assessment, an extensive formal framework has been developed to evaluate the quality of assessment instruments (e.g., Messick, 1989). Three major criteria particularly apply in evaluating the quality of the GRID instrument: reliability, construct validity, and generalizability.

The first quality criterion of an assessment instrument is reliability. The question is whether the assessment is reproducible. In the GRID study, we have looked at one form of reliability, namely interrater reliability. We have assessed whether and to what extent reliable componential emotion profiles could be obtained across judges who evaluate the same emotion term (see Chapter 6). For most emotion terms, it was observed that with 20 to 25 judges, it was possible to identify reliable meaning profiles, with Cronbach's alpha exceeding 0.80 and in many cases 0.90. However, this overall observation has to be qualified in two ways. First, the judgments by students were more reliable than the judgments by non-student adults. Second, reliability tended to be higher in Western than in non-Western samples (e.g., see Chapters 6, 31, and 32). Both effects are likely to be method artifacts. As the GRID instrument is web-based, it requires familiarity with a computerized testing environment. Western students are probably more familiar with such a testing environment than are adults and non-Western samples, leading to more reliable responding.

The second quality criterion is construct validity. The question is whether the instrument indeed assesses the intended construct. Three aspects of construct validity are of particular relevance for the GRID instrument: (a) the content aspect of construct validity, (b) the internal structure aspect of construct validity, and (c) trait validity (or replicability across different methods). (a) The content aspect of construct validity deals with the question of whether and to what extent the items and stimuli are representative and relevant for the intended domain of study. Although the GRID instrument does not claim to exhaustively represent the features that can play a role in the meaning of emotion terms, the operationalization of the Component Process Model by different theoretical frameworks for each of the emotion components guarantees the relevance and representativeness of the content of the instrument (see Chapter 5). All components have been operationalized in the questionnaire and, for each component, features were identified that were considered relevant for the emotion domain according to the respective theories. (b) The second aspect relative to construct validity is the internal structure of the instrument. The question is whether the relationships among the stimuli can be represented by a theoretically interpretable internal structure. It was observed that the internal structure of each emotion component separately, as well as the internal structure across all emotion components, could be represented by low-dimensional factor structures, with each of the factors being well interpretable in terms of the respective emotion theories (see Chapters 7–13). (c) The third important aspect of construct validity is trait

validity. The question in this case is whether there is a convergence between the GRID method and alternative methods for the assessment of the meaning of emotion words. Besides conceptual relationships with other linguistic approaches (e.g., Chapter 27), converging empirical results were observed between the GRID instrument and similarity approaches (see Chapter 14), metaphor approaches (see Chapter 28), and corpus approaches to the study of meaning (see Chapters 29 and 30). There is thus converging evidence for the construct validity of the GRID instrument.

The final criterion of quality for assessment instruments is population generalizability. The question in this case is whether and to what extent the instrument can be generalized to other contexts, especially to other cultural groups. Overall there is strong evidence for generalizability in the GRID. In virtually all samples, the instrument was adequately completed and empirical evidence was found for equivalence of the internal structure in the four best represented language groups: Germanic, Romance, Slavic, and what we could call East-Asian (i.e., Chinese and Japanese; see Chapters 7–12). This overall conclusion has to be qualified, though; in a few cultural groups, for instance in two Black African samples (see Chapter 32), the instrument did not work sufficiently well to include the data in the analysis. Future investigations will be required to determine whether this can be attributed to methodological factors biasing the assessment, or whether fundamental cultural differences exist in how the emotion domain is cognitively represented in those cultures.

In general, it can be concluded that the GRID instrument is a reliable and valid assessment instrument. Twenty to twenty-five judges can generate reliable meaning profiles that represent all emotion components, and these profiles give rise to coherent and theoretically interpretable internal structures that are replicated across cultural groups and that relate systematically to other methods for the study of the meaning of emotion words.

Future challenges and opportunities

Three important aspects of the GRID instrument can be further developed in the future, namely the selection of emotion terms and emotion features, the types of analyses performed on the GRID data, and the length of the instrument.

Concerning the first aspect, both the terms and the features were carefully selected to represent the variability in the emotion domain. However, future research can extend the use of the GRID instrument by including additional features and additional emotion terms. Studying additional emotion terms, over and above the 24 employed in this study, is an obvious next step, as the goal of the GRID paradigm is to assess the meaning of emotion terms in general. Adding emotion features can also be interesting, since only one or two dominant theories were used for the operationalization of most components. There are many more theories, the operationalization of which could be valuable in the future. However, it can be reasonably expected that adding emotion terms and emotion features will not (or only marginally) affect the overall structures that were discovered with the current instrument, because both the current emotion terms and the current features can be considered as representative for the emotion domain.

A second aspect where development is expected, concerns the methods used in the statistical analysis of the GRID data so far. As the goal was to use the GRID across theoretical approaches and disciplines, only standard analysis methods that are frequently used in the social sciences have been applied (e.g., principal component analysis, regression analysis, and discriminant analysis). Given that the data are extremely rich and show a multilevel structure, with raters being nested in cultural groups, it would be exciting to apply more sophisticated analysis methods, such as multilevel component analysis (e.g., Timmerman, 2006) or network analysis (e.g., Cramer et al., 2012).

Finally, a very important aspect for further development is the length of the instrument. Judges needed about one hour to rate all the features for only four emotion words at a time. This investment in time and effort makes it difficult to use the GRID instrument in certain contexts where many words have to be judged or where

rapid results are required (as in applied settings). Because we anticipated this problem, we created two alternative versions for the original GRID instrument, the CoreGRID, which contains 68 items, and the MiniGRID, which contains 16 items (see Chapter 44).

The CoreGRID has been constructed according to the same general principles as the full instrument. With less than half of the items, it still represents the factors identified by the full GRID for all emotion components, as well as the four overall dimensions VALENCE, POWER, AROUSAL, and NOVELTY. In Chapter 44, we showed that the CoreGRID achieves results that are close to the results obtained with the full instrument, at least for the current data set. Therefore, we suggest that the CoreGRID can be used for basic and applied research in which a lower level of comprehensiveness and detail can be tolerated, given that the result closely approaches that of the full version. The use of the full version is recommended for all those cases in which a standard is to be established for a particular language or a particular domain of words—especially in cases in which direct comparison with the current database is intended.

p. 545 A second, very short, instrument has been developed, the MiniGRID, which differs markedly from the full and the CoreGRID in that it does not attempt to produce a comprehensive semantic profile. Rather, it focuses on the position of words on the four overall dimensions that define the emotion domain: VALENCE, POWER, AROUSAL, and NOVELTY. By choosing the best predictor features from all components, we were able to select a pool of 16 features that allows for the prediction of these overall factors with high accuracy (with correlations exceeding 0.84 between the full and the MiniGRID factor scores). While the MiniGRID cannot be used to establish detailed semantic profiles for specific emotion words, it gives an accurate estimate of the position of a word on the four major dimensions of the emotion space. Thus, it is recommended to be used in all those cases in which this kind of resolution (which is likely to be close to what can be achieved with multidimensional scaling of similarity ratings) is considered sufficient for the research aim or application at hand. Moreover, the MiniGRID features can be used as response items to define the position of an emotion in four-dimensional space in research areas where modal emotion responses are unlikely (e.g., marketing/product research and research in esthetic domains: music, literature, and cinema), or where researchers want to avoid regular emotion words.

We end this section by pointing out that the GRID can also be used in the future to construct or improve new instruments in the emotion domain. For instance, because the GRID instrument represents the emotion domain in a balanced way and gives insight into the relationships between the emotion components, it can be used to improve the assessment of emotional intelligence (see Chapter 19).

45.2 Psychological perspectives: The componential approach

Psychologists have a hard time agreeing on the nature and definition of emotion (see Chapters 1 and 2). There is general agreement that (1) emotion episodes have several components (such as bodily reactions, facial/vocal expressions, and subjective feelings); (2) these episodes can be grouped into more or less prototypical categories for which most languages have developed labels; and (3) both nonverbal and verbally labeled emotional experiences can be represented in a lower order dimensional space (e.g., VALENCE, POWER, and AROUSAL). The different theoretical approaches in psychology do not agree, however, on the relative importance of these three elements (i.e., component features, categories and dimensions) and how they map into each other. We maintain that the GRID paradigm can help to clarify this conundrum and we will successively evaluate the relevance of the data gathered in this study for (a) the componential approach (with an emphasis on the Component Process Model) and (b) the basic emotion and dimensional approaches. We will conclude this overview of the relevance of the GRID for the psychological study of emotion with an attempt to integrate the three approaches. In the remainder of this section we will discuss the componential approach. Categorical and dimensional approaches will be discussed in section 45.3.

Promises delivered

p. 546

The GRID instrument has been developed on the basis of the Component Process Model (CPM) (see Chapters 1 and 5). The basic theoretical proposition of the CPM is that an emotion is a process elicited by a goal-relevant event that consists of a coordinated change in each of the involved human subsystems to prepare a rapid adaptive reaction. The three fundamental hypotheses generated from the CPM were that (1) emotion terms refer to a change in activity in each of the emotion components; (2) each of the components are characterized by their own internal structure, as each of them fulfils its own particular function in the emotion process; and (3) the emotion components are substantially interrelated, as they synchronize during an emotion process. These three fundamental hypotheses were fully confirmed in the GRID research. (1) It was indeed observed that emotion terms across languages and cultural groups refer to changes in Appraisals, Bodily reactions, Expressions, Feelings, and Action tendencies, as well as to regulatory efforts to deal with them (see Chapters 7–13). (2) Moreover, each emotion component was indeed characterized by its own internal structure (see Chapters 8–12). (3) Finally, the relationships across all features from each of the emotion components could be represented by a low-dimensional structure, as could be expected if these emotion components synchronize during an emotion process (see Chapters 7 and 13).

The internal structures of the individual emotion components are especially highlighted in this section, as the GRID project is the first to systematically study the internal meaning structure of each individual emotion component on the basis of its respective features. The most important aspect in the representation of the Appraisal component was whether an event is good or bad for the person (VALENCE). Beyond this overall VALENCE APPRAISAL factor, six additional appraisal dimensions could be identified: NOVELTY, COPING ABILITY, CONFIRMATION OF EXPECTATIONS, GOAL RELEVANCE, NORM VIOLATION, and SELF/OTHER CAUSATION (see Chapter 12). In the representation of the Action tendency component, the GRID revealed a prominent factor opposing APPETITIVE VS DEFENSIVE action tendencies. Two other factors also emerged, one opposing DISENGAGEMENT TO INTERVENTION, and another opposing SUBMITTING to ATTACKING action tendencies (see Chapter 11). For the Bodily reaction component, three readily interpretable factors emerged, one concerning DISTRESS SYMPTOMS, another AUTONOMIC AROUSAL, and a third BODY TEMPERATURE (see Chapter 9). For the Expression component, it was observed that the facial channels and the vocal channels are very different in meaning and internal structure (see Chapter 10). Three facial expression factors were observed: FROWNING VS SMILING, JAW DROP-RAISED EYEBROWS, and CLOSED EYES-TEARS. Two different vocal factors emerged: VOCAL ENERGY and having a FIRM VS PERTURBED SPEECH.

The internal structure of the Feeling component revealed a paradoxical finding (see Chapter 8). On the one hand, VALENCE dominated the component to a much more important extent than it did for the other components. On the other hand, a complex four-factorial structure could still be robustly identified across language families. In addition to VALENCE, not one, but two AROUSAL factors emerged (RESTLESSNESS and TIREDNESS), as well as a POWER factor. The structure of the Feeling component indicates that the models that have dominated the emotion assessment literature—in particular the positive/negative affect model (Watson & Tellegen, 1985), the pleasure–AROUSAL model (Russell, 1980), the tense AROUSAL and energetic AROUSAL model (Thayer, 1989), and the pleasantness–activation model (Larsen & Diener, 1992)—are not just variations that can be represented in a common two-dimensional structure (Yik, Russell, & Feldman Barrett, 1999). At least when it comes to the meaning of emotion terms, each of them captures only one aspect of the four-dimensional structure of the Feeling component.

Future challenges and opportunities

The separate analyses on the internal structure of each emotion component generated many interesting questions for future research. For the Appraisal component, the results invite future research to operationalize the individual appraisal checks with a more comprehensive number of features and to systematically look at interaction effects between appraisals. Since many checks were operationalized by only one feature, they could not be identified as separate factors in the internal structure. The aspects of control, POWER, and adjustment in particular need to be separated and represented better by appropriate features. Moreover, according to the CPM, the appraisal process is essentially configurational rather than additive: it predicts that separate appraisals will interact with one another in a successive and Gestalt-like way to drive the emotion process. This requires going beyond the linear analysis methods that were predominantly applied in this book and especially looking at interaction effects between appraisals.

A further issue concerns Action tendencies. The analyses of this component revealed that seemingly incompatible responses, such as fleeing and attacking, tended to be similarly related to the meaning of emotion terms. They all shared the same high loading on the APPETITIVE VS DEFENSIVE action tendency factor. A question for future research is whether this observation points to a mere linguistic phenomenon or represents how action tendencies are activated during actual emotion processes. It could be that seemingly incompatible action tendencies are associated in terms of meaning just because they share the same VALENCE. In this case, the association would just be a linguistic phenomenon. However, it may also be that seemingly incompatible emotion action tendencies can be elicited within the same emotion process in order to allow for a rapid change of the eventual behavior as a function of the precise development of the emotional event. For instance, when a prey perceives a predator, it would be adaptive that fight, freeze, and flight responses are conjointly prepared, so that the animal can switch its behavior rapidly depending on the changing distance of the predator. In this case, language would reveal a genuine property of the Action tendency component.

The findings in the Bodily reaction component raise important issues about the underlying processes. Only one of its three factors could be clearly linked to physiological mechanisms; namely AUTONOMIC AROUSAL could be related to sympathetic AROUSAL (e.g., heartbeat going up). It is less clear which physiological mechanisms the other two factors refer to. TEMPERATURE may refer to a homeostatic process where very high and low temperatures point to a basic deregulation of the system. The DISTRESS SYMPTOMS factor seems to refer to a bodily protective reaction in which blood flow is channelled to the essential organs and withdrawn from the periphery (such as the muscles) and the less central organs for immediate survival (such as the stomach). A challenge for future research will be to further explore the meaning of these two latter factors and to validate their interpretation.

For the Expression component, only a few gestural features were included in the questionnaire. Future research is needed to operationalize gestural expressions more extensively and to see how the internal structure relates to vocal and facial expressions.

Finally, an important question emerging from the Feeling component is why a separate TENSE AROUSAL and a separate TIREDNESS factor could still be identified over and above the VALENCE and POWER factors. It may also be useful to investigate the interpretation of TIREDNESS as a wake–sleep cycle factor.

Further research is also desirable to explore alternative operationalizations of the components and their relationships. As mentioned in the previous section, for most of the five emotion components, only one dominant theory was extensively operationalized (see Chapter 5). In future research, it would be interesting to systematically compare different theories for a single component, as was done for the Feeling component in the current GRID instrument (see Chapter 8). For instance, for the Appraisal component, Lazarus's core relational theme appraisal theory (Lazarus, 1991b) and Roseman's structural appraisal theory (Roseman, 2001) could be systematically compared with the CPM.

To keep the results to be discussed manageable, we only investigated the relationship of each emotion component with the overall emotion structure (from which the respective emotion component had been removed) (see Chapters 8–13). Research on how the mutual relationships between emotion components are represented in language would be very timely.

45.3 Psychological perspectives: The basic emotion and dimensional approaches

Promises delivered

Emotion theories start from different vantage points, and thus view the phenomenon under study—emotion—from different angles. This fact alone often accounts for many of the debates since the days of William James. The most obvious, tangible, and accessible approach for studying emotion is to investigate emotion categories, precisely because natural languages contain the kinds of emotion labels we have studied in the GRID. As we saw in the introductory section, many emotion theorists propose going beyond these categories and either looking at specific components, or at dimensions. What we have tried to show in this book is that each of these three approaches (basic emotion, dimensional, and componential) constitutes a valuable vantage point for studying both emotion and its representation in language (see Chapter 2).

In the previous section we separately discussed the componential feature profile approach, because it formed the basis for the development of the GRID instrument (see Chapter 1). The GRID results clearly support the hypothesis that emotion terms can be defined as patterns of features that represent the state of each emotion component during an emotion process. In this section, we discuss whether and to what extent the GRID results are also relevant for the basic emotion and the dimensional approaches in the study of emotion, both of which are prominent in psychology (see Chapter 2).

The basic emotion approach. According to the basic emotion approach, there are a limited number of qualitatively different and biologically rooted emotions. Three hypotheses were developed on the basis of the basic emotion literature (see Chapter 5): (1) basic emotion terms were expected to have a more stable meaning across languages and cultures, as they would refer to universal biologically rooted emotion processes; (2) on the grounds of the similarity sorting literature, emotion terms would cluster into four basic emotion categories (e.g., Fontaine, Poortinga, Setiadi, & Markam, 2002; Shaver, Schwartz, Kirson, & O'Connor, 1987)—joy, anger, fear, and sadness—which represent emotions that are recognized by all basic emotion theorists as basic emotions; and (3) if the emotion domain is organized in terms of qualitatively different and internally coherent emotion processes that are each labeled by different emotion words, then people should infer these emotion processes from each of the emotion labels.

The second and third hypotheses were clearly confirmed. Earlier findings were replicated by using hierarchical cluster analysis on profile similarities from which four large emotion families were identified in the emotion domain: joy, fear, sadness, and anger (see Chapter 7). Moreover, a particular emotion process was indeed inferred from each of the 24 emotion terms. It was possible to correctly assign up to 81% of all emotion terms across all samples to one of the 24 emotion categories on the basis of their feature patterns (see Chapter 7). Thus, across cultural and linguistic groups, the 24 emotion terms tended to be characterized by a stably differentiated meaning profile. The first hypothesis, however, was not confirmed. There was no tendency for presumably basic emotion terms to have a more stable componential pattern than “non-basic” emotion terms (see Chapter 7). In general, emotion terms that referred to interpersonal contexts (such as *being hurt*, *guilt*, *shame*, *love*, and *hate* . . .), which were expected to vary the most across cultures, were not less stable in meaning than the presumed basic emotion terms, which were expected to be more stable (such as *joy* and *fear*).

p. 549 **The dimensional approach.** Since much emotion research, especially research using emotion terms, relies on a dimensional model of emotions, the insight afforded by the GRID data on the dimensional approach is particularly relevant for psychology (see Chapter 2). From the dimensional emotion literature (e.g., Shaver et al., 1987), it was expected that the meaning of emotion terms could be represented in a three-dimensional space characterized by the dimensions of VALENCE, POWER, and AROUSAL. As predicted, VALENCE, POWER, and AROUSAL were found to define the emotion structure in that order of importance on the basis of the feature profiles of the emotion terms. Moreover, a fourth smaller factor emerged across language groups—NOVELTY (see Chapter 7).

This low-dimensional representation does not conflict with the componential approach to emotions discussed in the previous section. According to the CPM, the defining characteristic of an emotion process is the synchronization between emotion components (see Chapter 1). This implies that clear relationships are expected between them. In a factor analysis, this coherence between the components would be represented by a low-dimensional factor model. While the GRID data clearly lends itself to a low-dimensional representation, the emerging structure differs in two important ways from the commonly used dimensional models in psychology. These models are two-dimensional and generally represent VALENCE and AROUSAL. In the GRID, not one, but two additional dimensions structure the meaning space, namely POWER and NOVELTY.

The emergence of the POWER factor in research on the meaning of emotion terms is not in itself new (see Chapter 2). A POWER factor was earlier observed across languages in research that studied the perceived similarities between emotion terms (e.g., Shaver et al., 1987). Moreover, extensive work by Osgood and colleagues from the fifties to the seventies had already revealed that the connotative meaning of words is universally organized according to the three dimensions of VALENCE, POWER, and AROUSAL, in that order of importance (Osgood, May, & Miron, 1975). The unique contribution of the GRID research is that VALENCE, POWER, and AROUSAL emerge when people are asked to evaluate the meaning of emotion terms on the basis of features that directly operationalize the emotion process itself. Thus, the present project has revealed not only that Osgood's classic three dimensions are relevant for studying the connotative meaning structure in language, but that they also emerge when emotion terms are exclusively rated on emotion-defining features.

The most surprising finding, however, was that a fourth dimension was identified, which is defined by appraisals of NOVELTY and facial expressions of surprise. This NOVELTY dimension is not an artifact of the GRID method itself. It was demonstrated that people spontaneously use the NOVELTY dimension to evaluate the similarity between emotion terms (thus without making explicit the features on the basis of which the similarity has to be judged) (see Chapter 14).

The GRID data clearly reveal an overall compatibility between the dimensional and the componential approaches in the study of emotion. Furthermore, the data have also demonstrated that the dimensional approach is not incompatible with the basic emotion approach—quite to the contrary. When only the coordinates on the overall four factors were used to assign an emotion term to one of the 24 emotion categories, 69% of the terms could be correctly assigned (compared to 4.2% under random assignment) (see Chapter 7). A four-dimensional representation of the feature profiles thus contains most of the categorical information. Moreover, the categorical representation on the basis of the dimensional information confirms the importance of the POWER and the NOVELTY dimensions. When only VALENCE and AROUSAL are used to assign an emotion term to one of the 24 emotion categories, correct assignment was substantially reduced. With these two dimensions, only 41.2% of the terms could be correctly assigned.

p. 550 In summary, it can be concluded that the analyses of the GRID data from the componential, the basic emotion, and the dimensional approaches confirmed that each of these approaches offers interesting and worthwhile vantage points from which to study emotion. More importantly, the three approaches not only generate different information about the emotion domain, but they also generate compatible information. The feature profiles of emotion terms can be represented by the same dimensional structure as that identified on the basis of direct similarity ratings of emotion terms, and the similarities between emotion terms on the basis of their

respective feature profiles also replicate the categorical cluster structure in the emotion domain. Moreover, the dimensional representation of the features allows us to categorize the 24 emotion terms with a high level of accuracy.

Future challenges and opportunities

The central question for the future will be why the assessment instruments that are commonly used in psychological research to assess emotion and affect have only identified two dimensions so far, while the GRID and similarity research robustly identify three to four dimensions (see also Chapter 14). One possible explanation can be excluded, namely that there is a divergence between the actual emotional experiences of people and the meaning structure that is encoded in language. When the componential emotion profiles are computed on the basis of daily emotional episodes, a four-factorial structure emerged that is highly similar to that identified by GRID for emotion words (see Chapter 15). Throughout the book, two explanations have been suggested for the absence of POWER and NOVELTY in other studies (e.g., Chapter 14). The first is that the VALENCE and the POWER dimension are distinguishable, but not independent. We find evidence for a correlation between both factors when they are obliquely rotated, with a tendency for powerful emotions to be more positively valenced (see Chapter 7). This raises the hypothesis that the existing two-dimensional models do not lack a POWER dimension, but that the POWER dimension is confounded with the VALENCE dimension in those models. A similar account could hold for AROUSAL and NOVELTY, since in a three-dimensional representation of the GRID data, the third dimension was defined by both AROUSAL and NOVELTY features (see Chapter 7). Another possible explanation for the absence of POWER and NOVELTY in earlier studies is that the commonly used models do not make a distinction between emotion terms that refer to synchronized activity between emotion components (such as the terms “anger” and “fear”) and feeling terms that refer to the general quality of the emotional experience (such as “good” and “strong”), a distinction that has been made in the GRID instrument (see Chapter 8). In the Feeling component, which is operationalized by terms such as *good/bad*, *strong/weak*, or *restless/calm*, the AROUSAL dimension was observed to be relatively more important than the POWER dimension (two AROUSAL dimensions even emerged in the Feeling component). It could therefore be hypothesized that the AROUSAL dimension is much more salient for general feeling terms than for emotion terms. This would imply that the more an assessment instrument contains general feeling terms, the more AROUSAL is likely to emerge as a second factor in the emotion domain.

It has been repeatedly mentioned that the GRID paradigm is compatible with all of the major theoretical approaches in the psychology of emotion—componential, basic emotion, and dimensional. The current data set facilitates the discussion of the convergence between these approaches. These three approaches refer to different levels of abstraction. Clearly, the component features form the lowest, most detailed level of the conceptual structure. They provide the building blocks for the categorization of emotional experience into labeled emotion prototypes at a mid-level of representation and for the mapping of component feature configurations onto four major dimensions at the highest level of abstraction. The intermediate level categories or labels can, as shown by similarity rating studies, also be mapped into a low-dimensional space. From a statistical point of view, this intermediate step is not necessary: as we have shown, the features map directly into a low-dimensional space. It remains for future research to examine the underlying psychological processes. Concretely, does the proprioception of component changes immediately produce a central representation of a position in low-dimensional space (as the proponents of a “core affect” notion propose; see Chapters 1 and 2), or is there an intermediate step of categorization at a mid-level (albeit possibly in a much larger fuzzy set of possibly nonverbal categories rather than a small set of basic emotions)? One important issue to consider in this context is that, if features are immediately mapped into low-dimensional space, the specific information of the components is lost and unavailable for categorization at the mid-level, should the need arise for such categorization (for example, if one is asked to label an emotional experience after the fact).

45.4 The cultural-comparative perspective in emotion research

Promises delivered

Four major culture-comparative issues have received particular attention in the study of emotion (see Chapter 3). (1) The first issue is the existence of culture-specific emotion words and culture-specific meanings of seemingly equivalent emotion words. Both in cultural anthropological and in cross-cultural psychological research, emotion terms have been reported that seem to be culture-specific and cannot be translated into English, such as Japanese *amae* or Portuguese *saudade*, or that exist in English but the meaning of which has no counterpart in other languages, such as English *sadness* in Tahitian. Furthermore, even when translation-equivalent words exist, their meaning need not be exactly the same in different cultural groups. (2) A second issue at stake is the fact that, according to more relativistic accounts of emotion, not only do emotion terms shift in meaning between cultural and linguistic groups, but fundamental cultural differences can also be expected in the very organization of the emotion domain. (3) Third, it has been hypothesized that cultural groups differ with respect to the salience they give to the somatic component of emotions, with Western cultural groups focusing more on the mental aspects of emotions and non-Western groups focusing more on the somatic aspects. (4) Finally, a whole tradition exists that expects cultural differences in the interpersonal aspects of emotions, with emotions being more intrapersonally oriented in independent cultural groups and more interpersonally oriented in interdependent cultural groups (e.g., Markus & Kitayama, 1991).

These four major cultural issues have been taken into account both in the construction of the GRID instrument and in the analyses of the GRID data (see Chapter 5). First, those aspects that were hypothesized to vary the most between cultural and linguistic groups—the somatic and the interpersonal aspects of the emotion process—were extensively operationalized in the GRID instrument. The somatic aspect was included by default because the GRID was developed on the basis of the CPM, which means that all emotion components were represented in the questionnaire, including the Bodily reaction component. The interpersonal and relational aspects of emotions were operationalized both as interpersonally oriented features (such as the appraisal that the event had negative consequences *for others*), and as emotion terms that were clearly interpersonal in nature (such as *love* and *being hurt*). Second, language- and culture-specific words were added to the basic set of 24 emotion terms in some samples (e.g., *toska* in Russian). Third, most analyses were executed in such a way that no equivalence in meaning between cultural and linguistic groups needed to be assumed: the terms in each linguistic group were treated as separate emotion words, even though they were intended to be translation equivalents. Finally, the possibility that the emotion domain is structured in fundamentally different ways in different communities was explored by investigating whether and to what extent the overall dimensional structure across all samples could be replicated in four language groups, namely Germanic, Romance, Slavic, and East-Asian.

The results of the GRID study have shed valuable light on the four major issues raised above. (1) With respect to the relative equivalence of emotion words, the GRID revealed a striking overall similarity across languages and cultural groups. Although evidence was certainly found for some meaning differences between translation-equivalent words, most of these words shared a comparable profile of features. The 142 feature profiles allowed us to correctly identify the emotion word in 81% of the cases across languages, cultural groups, and samples (see Chapters 7 and 13). Moreover, if only the scores of those words on the four overall factors were taken into account, 69% of the emotion terms could still be correctly identified (see Chapters 7 and 13). Thus, while differences in translation-equivalent words certainly exist, the majority of these words shared highly comparable meaning patterns across cultural and linguistic groups.

(2) No overall differences were found between language groups. The dimensional structures per emotion component and across all emotion components were highly comparable between the Germanic, Romance, Slavic, and East-Asian languages (see Chapters 8–12). At least for these four groups, there was no evidence of

fundamental differences in the meaning structure of the emotion domain. A limitation is of course that these groups are not representative of the variation of languages in the world. Nevertheless, the structures were confirmed for the East-Asian group (Chinese and Japanese), one that is very different from the other languages, which are all Indo-European.

No evidence was found for differences between cultural groups either in the role of the somatic component or in the interpersonal orientation of emotions. (3) The somatic component defined the emotion structure in comparable ways across language groups, as can be inferred from the stability of the overall structure across all emotion components (see Chapter 7). The Bodily reaction component played an especially defining role in the overall AROUSAL dimension. Its role, however, is not limited to AROUSAL. Two of the Bodily reaction factors contributed to additional overall dimensions: DISTRESS SYMPTOMS are strongly related to the overall POWER dimension and BODY TEMPERATURE to the overall VALENCE dimension (see Chapter 9). Thus, Bodily reactions play an important role in defining emotion words across all cultural groups.

(4) A similar result was observed for the interpersonal aspects of the emotion domain. Both in typical Western independent and in typical Eastern interdependent cultural groups, an overall POWER dimension emerges characterized by interpersonal features (such as feeling dominant and feeling submissive) (see Chapter 7). Moreover, interpersonal appraisals seem to play an important role in differentiating positive emotions (see Chapter 42). The GRID results seem to indicate that, rather than Western culture, it is Western scientific theorizing that has (over)stressed the intrapersonal aspects of emotion.

The results obtained with the GRID instrument further illustrate the essential complementarity between identifying similarities and identifying differences in the meaning of emotion words. The stability of the overall structures functioned as a *tertium comparationis* (Poortinga, 1997), or point of reference, on which the cultural specificities could be mapped. For instance, the observation that self-conscious emotion words (*pride*, *guilt*, and *shame*) differ in meaning in high POWER-distant countries compared to low POWER-distant cultures could only be observed because each of the translations for these terms could be represented in one and the same emotion space and their position could be quantified (see Chapters 25 and 26).

p. 553 The GRID data have revealed both similarities where differences were expected (e.g., the terms *viha* in Finnish and Estonian share a highly similar componential pattern, despite the fact that the predominant meaning of the word *viha* is *hate* in Finnish and *anger* in Estonian; see Chapter 21) and substantial differences between seemingly equivalent terms, even within languages (e.g., the componential pattern of the Spanish term for *despair* in the Basque Country looked much more like the Basque term for *despair* than was the case in the other two Spanish-speaking samples) (see Chapter 20). Differences between translation-equivalent terms were demonstrated both at a feature level (e.g., between Japanese and English *happiness*) (see Chapter 35) and at a dimensional level (e.g., between Polish and English *fear*, see Chapter 29, or between *happiness* and *contentment* in English and Polish, see Chapter 36). Specific differences in the vocal component were analyzed for Russian, Ukrainian, and US English emotion terms (see Chapter 40). The GRID semantic profiles were also used to explore the relationship between partially overlapping words, such as *disgust*, *anger*, and *fear* (see Chapter 17). Additionally, the profiles helped to characterize the meaning of language-specific emotion words, such as the Russian *toska* (see Chapter 23), and to identify the best translation-equivalent where several competing terms were available in a language (see Chapter 41). The GRID results were also used to generate hypotheses about the emergence of emotional dialects between cultural groups in emotional expression (see Chapter 43). Moreover, the GRID could be used to identify culture-driven specificities within a single language; for example, differences in the meaning of *pride* were found between Northern and Southern Italy, consistent with a distinction between collectivistic and individualistic cultures (see Chapter 24). Specificities in the overall dimensional structure were observed and explored in the Turkish sample (see Chapter 33) and the Greek sample (see Chapter 34). The specific meanings of *pride* and *shame* were explored in the Hong Kong Chinese sample (see Chapter 37) and the specific meaning of *shame* in the Dutch sample (see Chapter 38).

Future challenges and opportunities

The GRID has proven to be a useful paradigm in the study of emotion terms within and across languages and cultures, allowing for a feature-based, componential, and dimensional description of the meaning of words. The existence of a stable four-dimensional structure underlying the semantic space, the attestable relevance of all five components, and the richness in detail provided by the 142 features constitute a valuable *tertium comparationis* for comparative research.

An important future challenge for the GRID project will be to extend the number of languages and cultures investigated. The current sample is not fully representative of the cultural and linguistic variety of the world. Special attention should be paid to the emotion terms in Africa, as the few attempts to apply the GRID method there turned out to be problematic (see Chapter 32). Further investigation is needed on whether these difficulties are attributable to methodological problems, mainly due to a lack of familiarity with the instrument (web-based, design, and response scale), or whether there are genuine cultural differences in the conceptualization of the emotion domain.

Another challenge will be to further define criteria for the establishment of “sufficient similarity” between emotion words. One of the major goals of the GRID study, explicitly intended from the start of the project, was to provide a tool for researchers in the area of culture-comparative research on affective phenomena to compare the semantic profiles of supposedly equivalent terms, so as to ensure that comparable concepts are used in different language groups. To this purpose, sufficient similarity could be established, for example, on the grounds of a certain level of profile correlations, or by differentially weighting certain emotion component features, depending on the intended use of the terms.

p. 554 Finally, while many semantic differences have already been reported, more insight should be gained about the reasons behind them. For example, a point of attention for future research is the ↴ relationship between broad cultural dimensions (e.g., POWER distance, individualism–collectivism) and meaning shifts in individual emotion terms.

45.5 The linguistic perspective in emotion research

Promises delivered

Within linguistics, lexical meaning can be investigated by adopting a semasiological or an onomasiological approach (see Chapter 4 for further details). Semasiology looks at the meanings of individual words, while onomasiology investigates how concepts are represented lexically, that is, what words are used to label them, also in different languages. The GRID paradigm adopts a synchronic semasiological approach to the study of meaning, but the data also afford onomasiological insight. Both types of contribution are discussed below.

In the GRID, the meaning of emotion words is described as a profile across 142 semantic features concerning five emotion components: Appraisal, Bodily reaction, Expression, Action tendency, and Feeling. For each of the 24 emotion terms, features from all five components were identified that either clearly defined the term or were excluded from its meaning. At the same time, the feature profiles allow us to look into the low-level structural organization of the domain. Across emotion terms, a highly consistent internal semantic structure emerged in terms of four major dimensions: VALENCE, POWER, AROUSAL, and NOVELTY. This underlying dimensional structure obtained from the analysis of semantic features is the same as that obtained in studies based on similarity ratings of emotion terms (see Chapter 14) and on ratings of the characteristics of actual emotional experiences (see Chapter 15). Additionally, as already mentioned, this structure resembles the three dimensions discovered by Osgood and colleagues (1975) for connotative meaning: evaluation (good vs bad),

potency (strong vs weak) and activity (active vs passive). In the GRID, VALENCE, POWER, and AROUSAL—akin to evaluation, potency and activity, respectively—also emerge as the three most important dimensions. This congruency allows us to construct compelling hypotheses about why language is universally characterized by three connotative meaning dimensions. It is possible that words of any type (e.g., *table*, *politics*, *future*) acquire a connotative meaning in terms of VALENCE, POWER, and AROUSAL because those dimensions represent the core of affective experience, and words acquire the affective value of the experiences associated with them (i.e., the affective value of the contexts in which the words are used).

The GRID allowed us to identify four major emotion clusters across languages (anger, fear, sadness, and joy, see Chapter 7); in other words, these are four broad emotion concepts that find lexicalization in many languages of the world. Since the terms were selected to represent as accurately as possible the scope of the emotion space, the emerging clusters can be said to represent the main “focal points” in this cross-linguistic semantic space. The GRID also allowed us to explore differences between the lexical realizations of the same general concept. For instance, the analysis of the concept “anger” in Spanish and Russian resulted in the identification of two main types in each language: a high-power and a low-power type of anger (see Chapter 22).

The GRID paradigm was able to reveal basic characteristics of the meaning of emotion words by using small samples of judges (see Chapter 6). Indeed, the most important difference between the GRID and commonly used linguistic methods in the study of emotion semantics is that the GRID directly assesses speakers’ linguistic awareness, while typical linguistic methods rely on language use observation, as is the case in corpus studies, frame semantics, metaphor studies, and Natural Semantic Metalanguage. The GRID results were shown to converge with those from other methodologies (see Chapters 14 and 28–30), but also to provide method-specific information about the meaning of emotion words across languages and cultures (chapters in Parts III to V in this volume). The reliability of the speakers’ judgments, the overlap in findings across methodologies, and the ability of the GRID to contribute method-specific insight into the study of lexical meaning confirm the utility of the method for linguistic research and make the GRID a suitable instrument for triangulation with other linguistic methods in order to get a more complete account of what is conceptually represented in the speakers’ minds.

In summary, the GRID has contributed a number of important insights for linguistics. First, the study demonstrates that informants can be used to investigate meaning and that this method is complementary to others in linguistics based on language use observation (see Chapters 5 and 27–30). Second, lexical meaning has been shown to be encyclopedic: when cued by decontextualized words, people can reconstruct a wealth of information pertaining to varied aspects of emotional experience (e.g., see Chapter 7). Third, the semantic content of emotion words seems to reflect the conceptual representation that we make of emotional experience. This is observed in two ways: (a) the features selected a priori on the basis of psychological theories of emotion proved to be present in the meaning of the words (e.g., see Chapters 5, 7–13); and (b) a highly similar dimensional structure emerged from the GRID feature ratings and from emotional experience self-report (see Chapter 15). Fourth, the semantic content of the words can be profitably described as an “averaged,” “modal,” or “prototypical” (in the sense of most likely features) representation of emotional experience. Whether some of these features always appear across subjects for the meaning of a term still needs to be investigated, as well as whether such features would be stable across languages and cultures (see Chapter 7). Fifth, the results of the GRID suggest that certain words may be preferred to label an experience because they provide the closest match to the profile of features representing the emotion process (see Chapter 15). And finally, the GRID paradigm emerges as a valuable *tertium comparationis* for emotion semantic description across disciplines because it directly links semantics with psychological accounts of emotion and can be profitably used to describe and compare meaning across lexicogrammatical constructions, languages and cultures (see Chapters 20–26).

Future challenges and opportunities

The GRID has opened the door to a number of exciting possibilities. One of them concerns the long-standing controversy in linguistics about the convenience of the classical definition of meaning (minimal and sufficient features) versus a prototype approach (see Chapter 4). The semantic profiles in the GRID are proposed as probabilistic bundles of features, none of which is a priori expected to always be present across subjects in the meaning of a word. A close investigation of the semantic profile of a given emotion term across a large enough sample could tell us which features are more recurrently present and which differentiate the term better from neighboring categories, and thus whether the patterns would provide evidence of the existence of a subset of necessary and sufficient features in the meaning of the word. The same could be done to explore the issue across languages.

Adopting an onomasiological approach, it would be interesting in the future to investigate which GRID features best define each of the four overall concepts or broad emotion categories identified (anger, fear, sadness, and joy), and how the specific words in those groups relate to one another hierarchically (i.e., which words are more general and more specific with respect to the others and thus higher or lower in the structural hierarchy).

Other avenues for future exploration include the investigation of meaning change in bilinguals (how do their semantic repertoires change with respect to monolinguals?) (see Chapter 38). One could also use the GRID to assess meaning equivalence across different lexico-grammatical constructions used to refer to emotion; for example, the GRID could be used to describe the semantic content of idioms and metaphorical expressions and to find the best match in meaning between them and the available emotion words of a language.

Additionally, the GRID can be applied to investigate semantic variation in other grammatical forms. A commitment for only nouns over adjectives or verbs (or any other grammatical construction) entails some drawbacks for onomasiological research. Corpus linguistic studies of emotion have demonstrated that the nominal and adjectival construals of an emotion need not be the same conceptually (e.g., Glynn 2009, 2010). Additionally, an emotion concept may be preferentially realized in a language as a noun, as an adjective, or as a verb, and this preferential grammatical construal can also inform us about differences in conceptualization. Verbs encode emotions as processes and relationships, thus highlighting their procedural and interpersonal aspects. Nouns and adjectives, in contrast, by construing emotions as “things” and “qualities” pertaining to the person, respectively, are more likely to focus on the experience of the individual. Accordingly, it has been found that, in the self-report of emotion experience, verbs are used more than nouns or adjectives to name the felt emotion in cultures that value interdependence compared to those that emphasize the value of the individual. Conversely, more individualistic cultures prefer the use of adjectives and nouns over verbs (Semin, Grrts, Nandram & Semin-Goosens, 2002).

Another exciting extension of the GRID paradigm will be to use the instrument in the study of contextualized examples. Using decontextualized words as cues to reconstruct their meaning misses the potentially important nuances conveyed by grammar. For example, the emotion nouns may more frequently appear as subjects than as objects of the sentence, hinting at an active (vs passive) view of the emotion as a causer of changes, rather than as an object of manipulation. The same could be hinted at by a higher degree of personification (i.e., construal as “living being”) over reification (i.e., construal as “material thing”) in the figurative uses of the word. The GRID paradigm cannot observe these preferences in construal, but it can describe the differences in meaning that the speakers of a language perceive in them.

Finally, the GRID paradigm could be used to explore the semantic differences between three types of affective labels: emotion words (*anger, fear, joy*), feeling words that represent the general quality of the emotional experience (*good, strong, excited*), and words that predominantly make reference to one of the emotion components (*offended, aggressive, cold*). Several hypotheses are worth investigating, for example, whether “emotion terms” (e.g., *anger*) are more complex semantically than “feeling terms” (e.g., *excited*), or whether

their dimensional structure differs. One would also expect “component words” (e.g., *aggressive*) to be semantically less well defined than the canonical emotion words that they can metonymically refer to (e.g., *anger*). Furthermore, their semantic profile could be used to identify the specific emotion words that they are compatible with (*offended* → *anger/hurt/sad*).

Another interesting development would be to investigate whether the sedimentation of emotion terms in language follows a lawful pattern when emotion language is studied diachronically. For instance, a pattern in semantic change could be hypothesized from words that refer to one of the components only versus full-blown emotion words that refer to whole emotion processes.

45.6 The lexical sedimentation hypothesis

Promises delivered

p. 557 The first chapter of this book started with a quote by Austin suggesting that we should examine words to learn more about the phenomenon they refer to—here, the emotions. According to the lexical sedimentation hypothesis, important aspects of human functioning get encoded in language. Correspondingly, many of the hypotheses about the meaning of emotion terms throughout this book were developed on the basis of theories on emotion processes and on the assumption that the respective emotion processes sediment in language (see Chapter 5). Virtually all hypotheses formulated in this way were confirmed (e.g., see Chapter 7). As expected from the CPM (which constituted the basis for the GRID instrument), Appraisals, Action tendencies, Bodily reactions, Expressions and Feelings that refer to the general quality of the emotional experience constituted the very core of the meaning of emotion terms. Each of the components was also observed to be characterized by its own internal structure and the components to be mutually related to a large extent. Moreover, as predicted by the dimensional models, it was observed that the relationships between a very large set of emotion features can be represented by a low-dimensional structure. Furthermore, as predicted by the discrete emotion models, an emotion term can be well identified on the basis of its profile of features. More importantly, these phenomena were observed across diverse linguistic and cultural groups and a strong correspondence was observed between the meaning structure of emotion terms and the experience structure of emotion terms (see Chapter 15). These cross-cultural and cross-linguistic structural similarities, as well as the convergence between meaning and experience, can be best explained as an effect of lexical sedimentation, that is, by hypothesizing the existence of recurrent and fairly homogeneous emotion processes across cultural groups that have been encoded in similar ways in the languages of the world.

The present results do not, however, provide evidence for deterministic relationships between the underlying emotional processes and the emotion vocabulary referring to them, either at the level of the different languages and cultural groups, or at the level of the individual language users. On the contrary, evidence was found for individual, cultural, and linguistic differences in the meaning of emotion terms. What has been observed, though, is a convergent structure that consists of probabilistic relationships between emotion terms and emotion features. This convergent structure across languages and cultures does not exclude the possibility that cultural-linguistic constructivist processes affect the development of emotional language, but it substantially constrains their potential extent. More importantly, the convergent structure can be used as *tertium comparationis* to identify specificities in the lexical representation of individuals, cultural groups, and languages.

Similarly, our observations on the decontextualized meaning of words do not exclude the possibility of more constructivist processes in the process of *labeling* concrete emotional episodes. The meaning of a word, as captured by the GRID, is a highly coherent representational structure that probably emerges from recurrent patterns of features across experiences labeled with that word; but the concrete experience one undergoes at a

given moment need not match these prototypical patterns. Arguably, one would tend to choose the label that best matches the componential profile of one's experience, but this leaves room for psychological labeling effects and constructivist processes. Moreover, the adherence to a particular label may well change the represented quality of the experience to some extent. Maybe it is just because emotion terms represent the most probabilistic relationships of features in general that they can have powerful effects when used to label a specific emotional experience.

An important limitation of the GRID paradigm is that all observations reported in this book are based on *associations* between emotion features across a representative set of emotion terms. Such observations cannot confirm any *causal* model for the relationships between the components that constitute the emotional phenomena. For example, the componential, basic emotion, and dimensional theories of emotion differ in the mechanisms that they assume to account for the relationships between the emotion components. Componential emotion theories account for the relationships between the components by resorting to a multidimensional appraisal process, while basic emotion theories account for those relationships by means of a limited set of different $\perp$ and internally coherent affect programs. In turn, the fundamental difference between componential emotion theories and dimensional theories has to do with the status of the dimensions. Componential theories do not exclude the possibility of representing the emotion domain in a low-dimensional space, but they see these dimensions as properties that emerge from complex multicomponential processes. In the dimensional theories, by contrast, the dimensions constitute the core of the emotion construct, with each of the components being more or less likely to become associated with these dimensions.

In conclusion, although the psycholinguistic methodology used throughout the current book allows neither choosing between any causal account of the emotion domain, nor postulating deterministic relationships between emotion processes and emotion language, the methodology does offer clear evidence against a dissociation between emotional experience and language. Lexical sedimentation constitutes a plausible explanation for the observed stability in emotion structures.

Future challenges and opportunities

As we have studied neither a fully representative sample of linguistic and cultural groups in the world, nor an exhaustive set of emotion terms, much empirical research on the lexical sedimentation hypothesis still needs to be done. Further investigation will be necessary to determine whether the current findings can be generalized to other linguistic and cultural groups and to other terms used to label emotional processes. It is important to point out that the lexical sedimentation hypothesis would not be falsified by the observation that expected associations between emotion features do not hold for a specific emotion word in a specific situation in a particular linguistic or cultural group. The lexical sedimentation hypothesis does not imply a deterministic relationship between the actual emotional experiences and their lexicalization in language. Rather, probabilistic relations are expected, with more frequent and salient emotion experiences being more likely to be encoded across languages.

The litmus test for the lexical sedimentation hypothesis eventually consists of studying the convergence between the associations among emotion features as they have been encoded in language and the associations among these emotion features as they emerge during actual emotion processes. In this respect, we are only at the beginning of the journey, as we have just started studying this relationship in one linguistic group (see Chapter 15).

Studying the convergences or divergences between information encoded in language and the actual emotion processes is a gradually evolving research process because the scientific study of emotion semantics and of actual emotion processes are interdependent. On the one hand, studying the actual emotional processes relies almost always (directly or indirectly) on emotion words because participants have to report on their emotional

reactions by rating emotion words the stimuli used in emotion research are often emotion words and emotion words often play an indirect role in selecting the stimuli. Thus, a better grasp of the meaning of emotion words would allow for a more focused investigation of the actual emotion processes. For instance, the research reported in the current book suggests the important role of POWER and NOVELTY in the actual emotion experiences (e.g., see Chapters 16 and 18), although both dimensions are absent in the current assessment models.

On the other hand, new insights into the actual emotion processes offer new opportunities to improve our understanding of what emotion words mean in language. The GRID instrument is a good example of this. Developed entirely on the grounds of scientific (psychological) theories of emotion, it provides a new methodology whose findings about emotion term semantics (although necessarily partial) can be immediately related to other findings on emotion experience from neighboring disciplines.

p. 559 The results reported in this book are evidence that more intense exchanges between psychological research on actual emotion processes and psycholinguistic research on the meaning of emotion terms would benefit both research domains.

45.7 General conclusion

At the end of this book, we can conclude that the aim of constructing an instrument capable of studying the meaning of emotion terms from various disciplinary perspectives and theoretical approaches was by and large realized by the GRID instrument. It has been shown that each of these perspectives and approaches reveals specific and complementary information about the emotion domain. We have tried to show that the utility of the GRID paradigm consists, among other things, in the pertinence of the empirical data collected with the instrument to mediate between different disciplinary perspectives and theoretical approaches. The most important contribution of the project, however, is probably not to be found in the questions that have been answered, but in the new research questions that have been raised and in the introduction of a valid interdisciplinary method to address them. We hope that this will lead, in due time, to breaking the deadlock that characterizes much of our current theorizing and research on emotion and will help settle the existing disputes in a more empirical fashion. ↵

p. 560

Notes

- 1 Corresponding author: Johnny J. R. Fontaine. Department of Personnel, Work and Organisational Psychology. Faculty of Psychology and Educational Sciences. Ghent University. Henri-Dunantlaan 2, 9000 Gent, Belgium.
Johnny.Fontaine@UGent.be