

Original Article

A PROPOSED TAXONOMY OF HUMAN EVOLVED PSYCHOLOGICAL ADAPTATIONS

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Abstract

This paper discusses the need for a comprehensive taxonomy of human evolved psychological adaptations (EPAs). The classification system tentatively proposed here, a Functional Table of Human Evolved Psychological Adaptations, categorizes EPA taxa according to their corresponding mechanisms of evolutionary change (e.g. natural, sexual, and kin selection). Space is also included for each EPA taxon's neurolocalization and neurochemical substrates, putative functions in the ancestral environment, elicitors, and outputs. Schmitt and Pilcher's interdisciplinary diagnostic criteria for evaluating evidence of psychological adaptation are also utilized in this taxonomy to describe each EPA's corresponding evidentiary breadth and depth for quality control purposes. The hypothesis-generation and didactic functions of this taxonomy and its organizing structures are also discussed.

Keywords: Evolved psychological adaptations, classification, taxonomy

Introduction

At some point in a discipline's scientific program, it becomes useful to taxonomically synthesize and classify the observed entities (taxa) that have been discovered so far, as in *Gray's Anatomy*, Mendeleev's Periodic Table of Elements for chemistry, the *Diagnostic and Statistical Manual of Mental Disorders (DSM-IV-TR)* for psychiatry, and so on. Classification systems enable the organizing and labeling of entities under observation within a discipline, so that scientists can communicate with each other, plan research studies more effectively and utilize a common terminology to describe the empirical phenomena under study.

One of the empirical objectives of evolutionary psychology, a social-scientific discipline, is to discover and examine evolved psychological adaptations (EPAs) in human nature (Schmitt & Pilcher, 2004), but it has yet to possess a classification system of its own (Mills, 2003). The aim of this article is to propose a classification table that

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categorizes and organizes each EPA by its mechanism of evolutionary change, and emphasizes quality control as paramount.

Principles of Evolutionary Psychology And Evolved Psychological Adaptations

According to fundamental principles of evolutionary psychology, organisms' brains are constructed by thousands of years of evolution over time, and are rigged with programs and mechanisms that drive organisms toward maximizing their own chances for survival and reproductive success in the service of their genes' demands for replication (for reviews, see Barkow, Cosmides and Tooby, 1992; Buss, 1999; Cartwright, 2000; Wright, 1994).

Adaptive psychological programs and mechanisms of this type can be called "evolved psychological adaptations" (EPAs) -- adaptations which organisms inherit from previous phylogenetic ancestors who were previously exposed to appropriate selection pressures that led to the evolution of the former. Any physical feature of an organism must fit crucial evolutionary criteria before they can be classified by biologists as functional EPAs, simply because *not every feature of an organism is an adaptation*. Instead, a feature could exist simply because it is a byproduct of other adaptations, the result of learning, or the result of genetic drift (Cartwright, 2000).

Well-known examples of naturally-selected EPAs in humans are ones that aid the overall continued survival of the organism, such as the eyeblink, adrenaline-spike, and vomiting responses, and often activate unconsciously. Other examples of psychological phenomena that have been examined and can now be reasonably inferred as species-wide human psychological adaptations are the fear response (a defensive EPA which allows humans to react immediately to physical dangers; Oehman & Mineka, 2001), love and romantic attraction (a goal-directed EPA which motivates humans to efficiently focus their attention on an appropriate mating partner; Fisher, Aron, Mashek, Li & Brown, 2002), the infant startle response (a protective EPA which prepares the human body for an impending violent strike; Wilson, 1998), and finally the emotion of disgust (an aversive EPA which protects humans from pathogens and disease; Curtis, Aunger & Rabie, 2004).

Classifying EPAs

To classify cognitive, behavioral, and emotional phenomena as EPAs, evolutionary social scientists can systematically assess humans' according to evaluative criteria (such as design specificity, fitness enhancement properties, cross-cultural universality, low phenotypic variance, and low genotypic variance), then formally decide whether to "upgrade" that psychological mechanism to EPA status (Schmitt & Pilcher, 2004). If the psychological mechanism is not congruent with the bulk of these evaluative criteria, then it is instead more likely that that feature is instead a product of cultural transmission, operant or Pavlovian conditioning, socialization, or other alternative explanations (Schmitt & Pilcher, 2004).

The first known attempt at a taxonomy for EPAs was originally made by Mills (2003), who proposed a classification system for EPAs similar to Plutchik's Classification Table of Emotions (Plutchik, 2002). Therefore, Mills included in his taxonomy a "list of ancestral problems and subsequent putative mechanisms," including

each EPA's associated emotions, functions, environmental inputs, cognition, behaviors and effects.

The classification system proposed in this paper takes an alternative approach, focusing less on criteria such as the elicitors and outputs of each EPA, but more on meeting empirical meta-goals such as quality control and didactic utility. Hence, one way to decide how to organize a new classification system well is to take a “best practices” approach by carefully examining the classification systems of other tried-and-tested scientific disciplines.

How Other Scientific Disciplines Classify Their Relevant Taxa

When creating a novel classification scheme for any scientific discipline, it becomes useful to examine the characteristics of other classification schemes for inspiration. For example, the DSM-IV-TR (2000) is a taxonomy used in psychiatry for the classification of mental disorders such as schizophrenia, post-traumatic stress disorder, generalized anxiety disorder, and so on. Some of the best features of the DSM-IV-TR (2000) are that it attempts to portray mental disorders accurately and validly, it clusters disorders together with respect to their common underlying properties, it describes each psychiatric disorder's symptoms so specifically that it enables the precise study of each disorder's reliability and validity, and it has been revised and updated every few years using a DSM committee of psychiatric experts for quality control purposes. (see Barlow & Durand, 2000; Grob, 1991; Oken, 2000)

Some of the criticisms leveled against the DSM, however, are that some of its categories are perceived to be either too narrow, too wide, or too irregular; that it emphasizes reliability at the expense of validity; and that the symptoms often assigned to some disorders are too nebulous (Barlow & Durand, 2000).

As another example, Mendeleev's Periodic Table of the Elements organizes and categorizes the chemical elements. Some of this classification system's best features include the fact that it abbreviates each taxon's nomenclature in a symbolic format for efficiency (e.g., “Li” represents Lithium and “Fe” represents Iron), it has organizing principles (e.g. each taxon is positioned on the table according to its respective atomic weight), elements within a single group (i.e. column) tend to share many underlying chemical properties, and that the entire classification system reflects chemical phenomena in the real world (i.e. the table is arranged in accordance to periodic law, which states that after certain regular but varying intervals, the elements show an approximate repetition in their chemical properties). Lastly, critical information about each element (e.g. atomic weight and number) can be represented “up front” and graphically on each taxonomic unit for comparison and contrast of taxa (see Scerri, 2006). The International Union of Pure and Applied Chemistry (IUPAC) is also the official administrative body of committee members who make key quality control decisions about the inclusion or exclusion of taxa for each revision of the Periodic Table of the Elements.

Some scientists critique the Periodic Table's configuration and array, since there is some debate about how best to arrange the elements according to their common underlying properties. Other critics point to a lack of universality, since there are multiple versions of the table, i.e. certain countries utilize differing labeling conventions for groups of elements (Scerri, 2006).

Overall, some key take-away lessons that one can consider when creating a new classification system, are: taxa must reflect phenomena in the real world accurately and validly, taxa can be abbreviated as symbols for efficiency, critical information about each taxon can be represented “up front” in numerical or symbolic format, taxa should be grouped according to common underlying properties, the creation of an expert oversight committee may be useful to revise and update the classification system quality control purposes regularly, and that the system’s graphical format should ideally allow for the comparison and contrast of taxa. The proposed taxonomy of EPAs attempts to incorporate *all* of these design features.

A Functional Table of Human Evolved Psychological Adaptations

Proposed here is a suggested plan for an alternative classification system that categorizes and organizes EPAs as taxonomic units and emphasizes quality control as paramount. A symbol-based graphical format is proposed for this taxonomy. Just as the Periodic Table of the Elements organizes its taxa by the period to which they belong, this particular taxonomy organizes its taxa (EPAs) via the three major types of evolutionary selection/mechanisms of evolutionary change (natural, sexual, and kin selections), along with a separate category for EPAs that are currently uncategorized or still being debated by the scientific community. Natural, sexual, and kin selections have been labeled Class I, II and III, respectively.

A partial taxonomy of EPAs is appended in Fig. 1, and a more detailed chart of each EPA’s particulars is outlined in Table 1. This classification structure categorizes each EPA by its type of evolutionary selection, as well as interdisciplinary evidence that each EPA described is an adaptation in the first place (drawing upon Schmitt and Pilcher’s framework for evaluating evidence of a psychological adaptation). Additional detailed dossiers can provide detailed “zoom-in” information about each EPA such as its neurolocalization, neurochemical substrates and elicitors.

Table 1. List of Evolved Psychological Adaptations Displayed in Figure 1.

Class	Symbol	EPA
I	Snk	Wariness Around Snakes
I	Pai	Pain
I	Art	Wariness Around Arachnids
I	Foo	Biased Food Preferences
I	Anx	Infant Anxiety Toward Strangers
I	Cry	Modulated Infant Crying
I	Spt	Spatial Orientation Device
I	Mch	Intuitive Mechanics
I	Num	Sense of Number
I	Dsg	Core Disgust
I	Phy	Phytophilia
I	Ani	Anti-Predator Animal Detection Device
I	Lip	Preference for Consuming Lipids
I	Swe	Preference for Consuming Sweet Flavors
I	Cdm	Cheater Detection Mechanism
I	Ing	Bias Toward Perceived In-group

Classifying evolved psychological adaptations

Class	Symbol	EPA
I	Ctm	Coalition Tracking Mechanism
I	Mac	Machiavellian Intelligence
I	Fac	Recognition of Facial Expressions
I	Tom	Theory of Mind Mechanism
I	Cot	Threat-Induced Coalition-Seeking Bias (Sociotaxis)
I	Shm	Shame
I	Emp	Empathy
I	Apr	Anti-Predator Directed Gaze Reflex
II	Iav	Incest Avoidance Bias
II	Jls	Sexual Jealousy
II	Sxd	Sex Drive
II	Lov	Love
II	Pfr	Female Preference for Resources
II	Pat	Attachment to Romantic Partner
II	Sfd	Male Steep Future Discounting
II	Pfa	Preference for Low Morphological Fluctuating Asymmetry
II	Sxv	Male Preference for Sexual Variety
II	Whr	Male Preference for Low Waist-to-Hip Ratio
II	Epc	Extra-pair Copulation Bias
II	Sts	Male Drive for Status
II	Ovm	Female Ovulation-induced Preference for Morphological Masculinity
III	Rde	Genetic Relatedness Detector
III	Ral	Genetic Relatedness-induced Bias for Altruism Toward Kin
III	Odo	Olfactory Detection of Offspring
III	Etp	Pregnancy-Induced Amplification of Anti- Outgroup Bias
III	Sso	Sensitivity to Step-Offspring
III	Rfx	Female Ovulation-Induced Recognition of Fear Expressions
III	Prs	Pregnancy Sickness
III	Mvo	Maternal Vocalizations (Motherese)
III	Ice	Infant Communication/Signaling System for Resource Extraction
IV	Lad	Language Acquisition Device
IV	Ses	Self Esteem System
IV	Lrn	Learning System (Classical Conditioning)
IV	Frg	Optimal Foraging Bias
IV	Rlg	Religious Propensity
IV	Fae	Fundamental Attribution Error
IV	Mor	Moral Judgment Bias
IV	Mus	Musicophilia

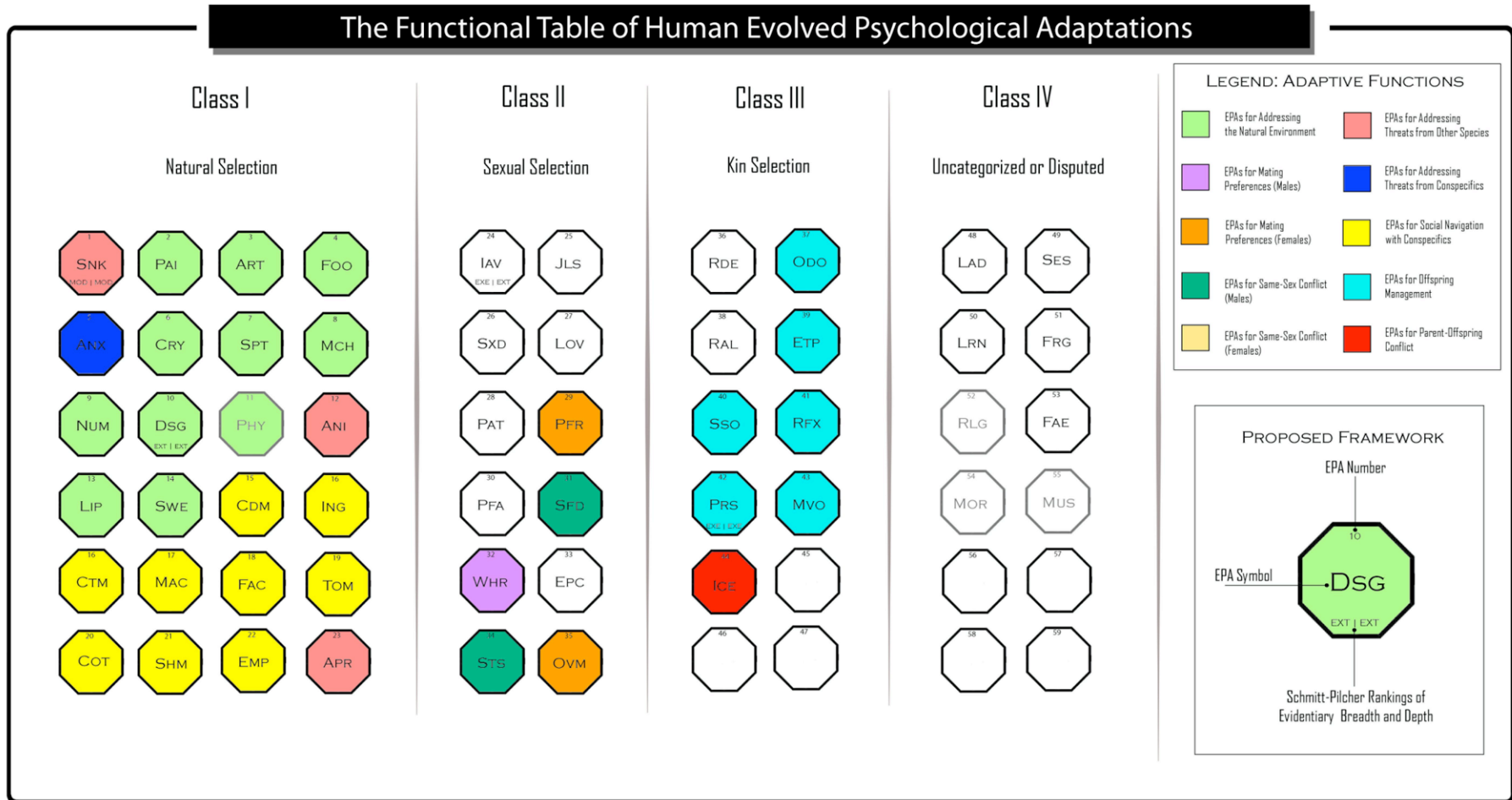


Figure 1. The Functional Table of Human Evolved Psychological Adaptations. Partial classification table for human evolved psychological adaptations, with each taxon categorized by its fitness-enhancing function in a three-letter symbolic format, as well as its current Schmitt-Pilcher evidentiary breadth and depth rankings. Grayed-out EPAs indicate hypothesized or “predicted” EPAs that may be substantiated or perhaps appear in the future through developing research.

Categorization by Mechanism of Evolutionary Change

EPAs can be classified in many possible ways: by neurolocalization, associated selection pressures, common underlying properties, and so forth. However, the simplest way to classify each EPA for now is, arguably, by via the three major types of evolutionary selection/mechanisms of evolutionary change (natural, sexual, and kin selections). This measure maintains the classification system's focus on the type of evolutionary selection which gave rise to each EPA in facilitating the organism's achievement of reproductive success or survival. Therefore, this table divides and clusters all EPAs into the following three classes of evolutionary selection:

Class I: EPAs That Arose Via Natural Selection. A cornerstone of evolutionary biology and social science is that organisms tend to function with a bias for positive fitness outcomes, so that their genes will be passed on to the next generation. EPAs that originally helped ancestral-era organisms survive were likely to be naturally selected by evolution, such as those that alerted them to severe reproductive threats in the physical environment, helped them navigate social situations and enabled them to survive fitness threats from not only other species, but also conspecifics. In addition, effective social navigation across groups of conspecifics is closely tied to reproductive success. Across several species, the formation of coalitions with conspecifics has also been documented as an adaptive behavioral response to aversive situations (deWaal and Harcourt, 1992; MacDonald, 2005; Sherif, 1961; Silk, 2003; see Reynolds et al., 1987 for a review). Individuals (and therefore their "selfish genes") benefit from forming coalitions with ingroup conspecifics because reproductive resources (food, territory, mates, etc.) can be better acquired and fought over when there is safety and power in numbers. EPAs that helped facilitate effective social navigation in the ancestral environment tended to translate to species' reproductive success. In sum, since natural selection is a fundamental pathway for the evolution of myriad adaptations -- especially those that function for the survival of the organism's genes -- a separate class of EPAs labeled "Natural Selection" has been added to this classification scheme.

Class II: EPAs That Arose Via Sexual Selection. Sexual selection "depends on the advantage which certain individuals have over others of the same sex and species, in exclusive relation to reproduction" (Darwin, 1871, p. 256). Adaptations that help facilitate mating behaviors, as well as successful intrasexual competition, tend to translate to species' reproductive success (Buss, 2009). For example, mating behaviors associated with the sex drive evolved to motivate individuals to copulate with conspecifics deemed to be appropriate mates (Fisher et al., 2002). EPAs such as love, romantic attachment, and jealousy evolved to conserve mating energy by focusing individuals' mating efforts on one appropriate partner, to pull two mating partners together via a strong, emotional bond for the purpose of ensuring safe, bi-parental child-care and finally, to deter rival suitors, respectively (Fisher et al., 2002). Since sexual selection is a critical mechanism of evolutionary change -- especially for those adaptations that function to drive successful mating and reproduction - a separate class of EPAs labeled "Sexual Selection" has been added to this classification scheme.

Class III: EPAs That Arose Via Kin Selection. Another cornerstone of the evolutionary social sciences is kin selection theory, which states that family dynamics

and reproductive success are closely linked to each other. Hamilton (1964) found that cooperation among kin is an important reproductive strategy, since these activities are likely to enhance the inclusive fitness of relatives (including parents and offspring) sharing the same genes. In addition, adaptations that facilitate the effective management of offspring are a critical gateway to reproductive success in many species, including *Homo sapiens*. There is a wealth of interdisciplinary evidence that we specifically harbor both EPAs and physiological adaptations naturally selected for effective offspring conception and care functions (Fleming, Ruble, Flett & van Wagner, 1990; Jones et al., 1980; Kaitz, 1987; Marlowe, 2000; Navarrete, Fessler and Eng, 2007; Profet, 1988; Tooby & Cosmides, 2003; Wilson & Daly, 1997). In addition, childbirth customs, childcare, and a parental preference for one's own children are also all cross-cultural universals in all human societies worldwide, pointing to their likely evolutionary roots (Brown, 1992). In sum, evolution would have therefore selected for specialized EPAs that helped bias organisms toward cooperating with kin through inclusive fitness, identify and distinguish kin from non-kin, facilitate effective parenting and offspring management, and so on. Therefore, a separate class of EPAs labeled "Kin Selection" has been added to this taxonomy.

Class IV: Currently Uncategorized or Disputed EPAs. Finally, a separate, temporary category has been added to this taxonomy for EPAs that don't initially reflect the mechanisms of evolutionary selection above, for EPAs that seemingly straddle multiple classes, or for phenomena where there is not yet a scientific consensus on their final categorization. In short, currently uncategorized or disputed EPAs can be assigned to this class as a temporary holding place, until the mechanisms of selection are agreed upon or until more evidentiary breadth and depth accumulates.

Individual EPAs' Adaptive Functions Coded by Color

Within the three aforementioned larger overarching classes that have been established, each EPA can be sub-classified even further by its original fitness-enhancing function. This measure maintains the classification system's focus on not only the type of evolutionary selection mechanism, but also the adaptive function of each EPA in facilitating the organism's achievement of reproductive success or survival. There are many ways to achieve reproductive success: survival, sex-differentiated mating preferences, effective parenting and offspring management, etc. Therefore, this taxonomy sub-classifies and clusters EPAs into multiple classes of fitness-enhancing, functional pathways, including EPAs for: addressing threats from other species, social navigation with conspecifics, offspring management, and so on (Buss, 2009).

Hence, colored categories representing adaptive functions have been added to Figure 1: each micro/functional category (e.g. offspring management, social, etc.) has been assigned a different color or shading pattern as per the Legend in the upper right-hand corner. New functional categories that arise can be easily assigned a new color. Since adaptive functions are different in color, then some EPAs that might have multiple or disputed functions could be initially identified based on functional relevance by the three-letter symbolic acronym within the appropriate coded color.

Three-letter Symbolic Format

Basic EPA units take a form parallel to that of the “best practices” of the Mendeleevian Periodic Table. EPAs in the table are abbreviated as discrete symbols, rather than having each name of each EPA fully written out. For simplicity’s sake, a three-letter, easy-to-interpret symbolic format is proposed to represent each EPA. For example, “Jls” represents “Sexual Jealousy” within Class II (Sexual Selection), and “Snk” represents “Wariness Around Snakes” within Class I (Natural Selection).

The Schmitt-Pilcher Framework: Evidentiary Depth and Breadth Rankings

Quality control is paramount in a discipline such as evolutionary psychology, with its potentially nebulous construct validity. The classification system, therefore, should be able to rule out which phenomena are EPAs and which ones aren’t. As a quality control measure, researchers can utilize the diagnostic evolutionary psychological standards outlined by Schmitt and Pilcher (2001), which allows evolutionary social scientists to marshal multiple lines of evidence to evaluate the existence of an EPA.

The eight lines of evidence that Schmitt and Pilcher recommend to be tested in these empirical arguments are: Theoretical, Psychological, Medical, Genetic, Physiological, Phylogenetic, Hunter-Gatherer and finally, Cross-Cultural Evidence.¹ The Schmitt-Pilcher framework then assesses each potential EPA against two sets of standards: evidentiary breadth and evidentiary depth.

Evidentiary breadth is described as how many aforementioned lines of evidence a hypothesized EPA possesses. For example, Schmitt and Pilcher (2001) tentatively propose that “having one box of adaptation evidence should be considered a ‘minimal’ level of evidentiary breadth. Two or three boxes in a nomological network should be considered ‘moderate’ evidentiary breadth. Four or five boxes of evidence should be considered ‘extensive’ evidentiary breadth, and six or more boxes should be considered ‘exemplary’ evidentiary breadth.”

Lastly, evidentiary depth is described as the quality of the research studies marshaled as evidence for the existence of a given EPA. For example, Schmitt and Pilcher tentatively propose that within each line of evidence, a “minimal” level of evidentiary depth might be the appropriate ranking for single studies with one mode of measurement, poor methodological control, and unrepresentative sampling. “Moderate” levels of evidentiary depth might be the appropriate ranking for at least two studies with more than one mode of measurement, good levels of control, and good sampling techniques), while “extensive” levels of evidentiary depth might be the appropriate ranking for numerous studies with more than two modes of measurement, high levels of control, and high sampling quality. Finally, “exemplary” levels of evidentiary depth might be the appropriate ranking for lines of evidence with dozens of studies with multiple modes of measurement, highest levels of control, and true representative sampling. These levels are all abbreviated on the table as MIN (minimal), MOD (moderate), EXT (extensive) and EXE (exemplary), respectively.

¹ Each individual EPA taxon is represented in the proposed classification table (Figure 1) as a specific discrete shape -- an octagon in this case. The reason for the octagonal shape for each EPA is to allude to the aforementioned eight multidisciplinary lines of evidence that can be marshaled in the service of arguing for the existence of an EPA.

Core Disgust

Symbol: Dsg

Class: Natural Selection (I)

Number: 10

Putative Functions in Ancestral Environment:
Protective. Served to bias behavior away from pathogens and disease in general.

Neurolocalization:
Globus pallidus, gustatory insula, basal ganglia

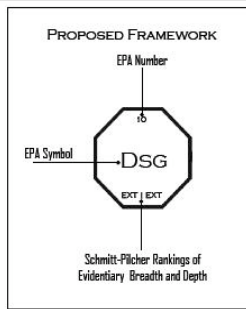
Neurochemical Substrates: Unknown

Elicitors: Food/eating, body products, animals

Outputs: Nausea, increased salivation, physical distancing, revulsion, facial movements that tend to discourage entry into the body or to encourage discharge.

Current Evidentiary Breadth: Extensive

Current Evidentiary Depth: Extensive



	Theoretical Evidence
	Curtis, Aunger & Rabie, 2003 Rozin et al., 2000
	Psychological Evidence
	Fessler et al., 2003 Rozin, Haidt, McCauley, et al., 1999 Rozin, Millman & Nemeroff, 1986
	Medical Evidence
	Curtis & Biran, 2001
	Physiological Evidence
	Murphy, Nimmo-Smith, et al., 2003 Phillips et al., 1997 Rozin et al., 1993
	Genetic Evidence
	Phylogenetic Evidence
	Hunter-Gatherer Evidence
	Cross-Cultural Evidence
	Brown, 1991 Curtis, Aunger & Rabie, 2003 Ekman & Friesen, 1986 Haidt, Koller & Dias, 1993 Mesquita & Frijda, 1992

Figure 2. Example profile or “dossier” of one EPA-- Core Disgust-- with detailed information on the adaptation’s three-letter symbol, functional class, assigned number, putative function, neurolocalization, neurochemical substrates, elicitors, outputs and its current evidentiary breadth and depth rankings. The table on the right provides ample space to list research studies and empirical evidence that support the existence of the EPA according to Schmitt and Pilcher’s interdisciplinary evaluative framework.

Detailed Dossiers for Each EPA

In addition to a classification table that provides an overview of numerous EPAs, their mechanisms of evolutionary change and their fitness-enhancing functions, it would be useful to have an appended profile or “dossier” of each EPA selected for entry into the taxonomy. Hence, beyond the information displayed “up front” on the classification table (i.e. each EPA’s three-letter symbol, assigned class, assigned number, and its current evidentiary breadth and depth rankings), an appended dossier about each EPA can also provide the additional space to display detailed information about each EPA such as: the adaptation's putative functions in the ancestral environment, its neurolocalization, its neurochemical substrates, its elicitors, and finally its behavioral, cognitive or physiological outputs. Most significantly, ample space should also be provided on each EPA's appended dossier to record past and emerging research studies and empirical evidence for the existence of each, ideally according to Schmitt and Pilcher’s interdisciplinary evaluative framework described above. An example of such an appended dossier is provided in Fig. 2.

Neurochemical Substrates. Since evolutionary cognitive neuroscience research has found that many EPAs have distinct neurochemical underpinnings (Platek et al., 2007), it may be prudent to add this data to each EPA's appended dossier for the purpose of comparing and contrasting common neurobiological properties, especially in the forms of neurotransmitters, neuromodulators, and hormones.

Neurolocalization. It is arguably important that a classification system of EPAs answer the question: What are the associated structures in the human brain that comprise each classified EPA? From a taxonomical design perspective, displaying the neuroanatomical substrates of every single EPA on the table itself would be exceedingly difficult because of the sheer complexity of the task. Therefore, associated brain areas for each EPA can be displayed on its appended dossier instead, and can be updated as new evolutionary cognitive neuroscience research emerges.

Summary of Taxonomical Information to be Displayed

The tentative classification system described in this paper proposes that each EPA's corresponding class, assigned number, and evidentiary breadth and depth rankings should be displayed "up front" on the table for quality control purposes. Additional items such as the adaptation's putative functions in the ancestral environment, neurolocalization, neurochemical substrates, elicitors, outputs and a list of interdisciplinary studies associated with each EPA can be appended for updating and revision whenever relevant research and dialogue emerges. EPAs can then be upgraded and downgraded on their evidentiary breadth and depth rankings accordingly.

Potential Applications of a Taxonomy

Quality Control

Because not every psychological phenomenon is an adaptation, any classification system of EPAs should systematically exclude which ones are EPAs, and which ones aren't. The Schmitt-Pilcher framework described earlier provides this quality control filter, by forcing each proposed EPA through a gauntlet of multiple evidentiary evaluations. Each EPA can be upgraded or downgraded in its rankings, as new research, evidence, and scientific dialogue emerge.

A Hypothesis Generator

Similar to Mendeleev's initial approach to classifying the chemical elements, predicted EPAs can be displayed on the table as well, marked by lighter colors or dotted lines on the table which delineate hypothesized EPAs that may be substantiated or perhaps appear in the future through developing research. For example, the partial classification table shown in Fig. 1 displays a few psychological mechanisms whose status is currently under debate within the social sciences, such as general Religious Propensity (Rlg), and Musicophilia (Mus). These "hypothesized EPAs" and others can then be either validated or excluded from the taxonomy via peer review and other organizing processes.

A Teaching Instrument

Just as students in chemistry, biology or psychiatry courses must memorize their fundamental relevant taxonomies in order to understand the discipline as a whole, so should students in evolutionary social scientific courses in order to appreciate this branch of knowledge from the bottom up. A functional table of EPAs would have high didactic utility by providing a wide-ranging survey of evolutionary social science because of the nomenclature's natural functional categories (mating, social adaptations, etc.). It would also provide students with insights into which areas of evolutionary social scientific research would be open to further empirical inquiry.

Discussion

The proposed classification system aims to bring quality control, a taxonomic approach, and consilience to the evolutionary social sciences. By synthesizing and classifying the wide-ranging, multidisciplinary, and somewhat balkanized literature on EPAs as Mills (2003) has advocated, the taxa that have been discovered so far can be categorized efficiently as abbreviated symbols according to the mechanism of evolutionary selection and fitness-enhancing function. Schmitt and Pilcher's interdisciplinary diagnostic criteria for evaluating evidence of psychological adaptation can also be utilized in this taxonomy to display each EPA's corresponding evidentiary breadth and depth on the taxonomy.

Additional dossiers for each EPA can provide the space for recording information about each EPA such as: the adaptation's putative original functions, its neurolocalization, neurochemical substrates, elicitors, outputs and corroborative research studies. A classification system of this kind would have notable implications for quality control, didactic utility and hypothesis generation. The taxonomy also follows some of the "best practices" in the design of scientific classification systems: categorization based on common shared properties, symbolic abbreviations and critical information about each EPA displayed both "up front" and in each dossier for instant reference, comparison, and contrast. Finding inspiration from the history of how additional scientific disciplines' classification systems were eventually produced may be quite valuable in this regard.

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