Contents

Introduction

Humans have applied ornamental natural objects and artifacts to their bodies and most likely also practiced body painting for some hundred thousand years, if not longer. Extant figurative paintings as well as musical instruments are about forty thousand years old.[1] Given the evolution of the human vocal tract, the presumably oldest human arts, those of singing (and perhaps also of concomitant dancing), may well have been practiced already for several hundred thousand years. However, by their very nature, these pure performance arts left no material traces, and hence no conclusive empirical proof, in the archeological record. In any event, countless animal practices of artful singing, dancing, and multimedia displays are likely to be far older than their human analogues. Importantly, these animal practices, like those of humans, typically involve extensive learning and practicing, and accordingly show substantial "cultural" variation.[2] In fact, Darwin exclusively spoke of animal "arts" in cases where the respective practices are *not* fully genetically coded but require ontogenetic learning.[3]

Findings and hypotheses of this sort constitute the rationale for the questions asked by evolutionary aesthetics: Can the animal and the human arts both be conceived as evolved adaptations? And has their respective evolution potentially been driven by similar functional benefits? Moreover, looking at features distinctive of the human arts only (such as the use of

1 For details, see below, p. 92–101.

2 Kroodsma, "Learning and the Ontogeny of Sound Signals in Birds"; Payne et al., "Biological and Cultural Success of Song Memes in Indigo Buntings." For more details, see below, p. 4–5, 32–34.

3 Darwin, *The Descent of Man, and Selection in Relation to Sex*, I 55–56. Quotations from this book follow the Princeton 1981 edition, which reproduces the text of the first edition of 1871. The Roman numeral I or II denotes the relevant part of the book, the Arabic number the page. Quotations from the second edition (1874) of Darwin's book, which contains some amendments and additions, are pointed out by footnotes.

technology for art production purposes, fictional content, etc.) raises the question of how previously evolved human adaptations facilitated their emergence? And do the current human arts still show traces of their potential ancient origin and functions?

The present book discusses theoretical hypotheses regarding these fundamental questions, while reviewing the available empirical evidence. Evolutionary explanations of the animal and human arts in the end all involve a response to the question "Wherefore art?"

After all, according to the standard theory, evolutionary processes favor some bodily and behavioral traits over others, if and to the extent they provide some advantage in a given—or coevolving—evolutionary environment. Functional hypotheses regarding the evolution of the human arts are tricky battlegrounds.[4] As already indicated, archaic functions of bodily and behavioral adaptations—and hence the very drivers of their evolution according to the standard model—have often left no archeological traces. If they did, these traces are typically fairly difficult to read. In any event, it is far from clear to what extent, if at all, the function of a behavioral trait observed today is identical to the archaic function that originally drove its evolution.[5] Regarding archaic practices of the human arts, the worst case applies: visual artworks and musical instruments (but not music itself) are handed down to posterity, but without any cues as to their meaning, uses, and functions in cultures from which nothing is left but material traces limited to particularly durable objects. Comparisons with historically documented and current human cultures offer some guidance for arriving at hypotheses regarding the role of the arts as practiced tens if not hundreds of thousands of years before our time; yet again, it can by no means be taken for granted that the functions of the human arts have not significantly changed over such a long stretch of time.

For all these fully acknowledged risks and difficulties, the first three chapters of the present book, while always including empirical research into physiological mechanisms, discuss primarily three hypotheses of function. The first two are frequently discussed as potential evolutionary functions:

4 Cf. Tinbergen, "On Aims and Methods of Ethology," and Fitch, "The Biology and Evolution of Music," 174 sqq.

5 Cf. ibid., 175.

1. The human arts of singing and self-adornment evolved as competitive practices of aesthetically appealing self-presentation (self-advertisement) in the context of *sexual courtship*. This is how Charles Darwin's treatment of the animal and the human arts is typically understood. Chapter 1 discusses this hypothesis with an emphasis on the limitations of the human–animal parallel that Darwin explicitly highlighted. Many scholars have neglected to discuss the limitations of this parallel. The role of the arts for *social self-distinction* can be considered as an extension of this hypothesis beyond the narrower sexual context.
2. The arts of singing, dancing, and ritual multimedia displays evolved as communal practices of reinforcing *social cooperation and cohesion* within or between human groups. This hypothesis has some advocates in evolutionary theory and enjoys much support in ethnology and social anthropology. It is discussed in Chapter 2.
3. The arts serve the *ontogenetic self-(trans)formation of individuals*. This hypothesis by and large underlies the humanist concept of "liberal education." Because this hypothesis is not a hypothesis about the evolutionary origins of art, but about the role of art education in modern school systems and societies, Chapter 3 does not treat it at length, but exclusively focuses on the question: How incompatible or compatible is this hypothesis with the hypotheses of sexual competition/social distinction and social cooperation/cohesion?

The first and longest chapter of the present book follows in the footsteps of the giant of evolutionary theory, Charles Darwin. Surprisingly, many important theoretical distinctions Darwin proposed for an evolutionary understanding of the visual, vocal, and verbal human arts have gone completely untreated not only in textbook renditions of his theory but also in the narrower context of evolutionary theory. Put briefly, the reason for this lacuna lies in the strongly asymmetrical reception of Darwin's theory of *natural selection*—as presented in his book *The Origin of Species* (1859)—and his theory of special processes of *sexual selection* (*The Descent of Man, and Selection in Relation to* Sex, 1871). Whereas the theory of natural selection covers all interactions between an organism and its ecological niche at large (including climate, food resources, competition with other species, self-imposed changes on the ecological niche), Darwin's theory of sexual

selection primarily if not exclusively addresses within-species competition for and choice of sexual partners.

Darwin hesitated many years before he finally decided to set the processes of sexual selection categorically apart from those of natural selection. In the end, he did so for two reasons. First, sexual selection largely suspends the otherwise pervasive rule of violence and fight. Males do not automatically win over females by outfighting other males; rather, they must in addition court the females in a nonviolent way by the charms of their appearance, songs, dances, or multimedia performances. Moreover, many of the bodily ornaments that are selectively useful for sexual courtship are fairly disadvantageous in other contexts of natural selection; for instance, they often reduce capacities for flight or make the individual highly visible for predators. Hence winning over by beauty seems to involve special processes that often appear to be at odds with the mechanisms driving natural selection and are to this extent "autonomous" from the more pragmatic concerns of daily life.

Darwin's contemporaries strongly rejected his proposal of special processes of sexual selection—not least because it attributes to the female sex the "power" not only of sexual choice but also of driving the evolution both of the male body and of male behavior. Neo-Darwinist theories of the twentieth century likewise mostly rejected the frontal assault that Darwin's theory of the evolution of sexual ornaments, beauty competitions, and sexual singing entailed for the role of the male sex.[6]

There is a second reason why Darwin's book *The Descent of Man, and Selection in Relation to Sex* is yet to be discovered by both humanists and scientists. Humanists do not read this book, because they are not interested in biological evolution, and scientists do not read it, because they do not read books of more than 800 pages anymore, all the less so if they date back some 150 years. In fact, several evolutionary biologists I spoke with readily confessed to never having read Darwin's book. As a result, the prevailing notion regarding its content is based on abstracts that made it into textbooks, and these do not entail what will be brought to the fore in the upcoming pages. Even a recent book wholly based on Darwin's theory of sexual selection skips over many of Darwin's finer distinctions the present study places a special focus on. As though he needed some excuse that he actually read Darwin's book, the author starts out with a remark informing the reader that s/he should not be concerned about getting too close a

6 For a more detailed account of the unhappy fate of Darwin's theory of sexual selection and the arts, see Prum, *The Evolution of Beauty*, 17–53.

reading of Darwin's own words: "It's not that I am interested in doing a Talmudic-style investigation of Darwin's every word."[7]

If some readers feel that the first chapter of the present book does precisely this, that's fine with me. An integral part of this effort of close reading is to bring out something that to date has been completely disregarded by both the sciences and the humanities: Darwin consistently builds bridges between his evolutionary hypotheses regarding the "sense of beauty" and humanist traditions of aesthetics. Specifically, his general assumptions concerning aesthetic virtues and aesthetic judgment are strongly informed by British and German eighteenth- and nineteenth-century philosophical aesthetics and ethnology. Even more importantly, close attention to the many nuances of Darwin's considerations reveals that he uses the hypothesis of function underlying his animal model of the arts—displays of beautiful looks and artistic capabilities enhance success in competitive sexual courtship—only with great caution and decisive qualifications in his quest for an evolutionary understanding of the human arts. In the end, this understanding will be shown to be anything but the simple "singing for sex" hypothesis to which it has been largely boiled down.

A Cooptation Account of the Evolution of the Human Arts

Chapter 4 of the present book pursues a different avenue toward an evolutionary theory of the human arts. Here, the primary focus is not on the functional attractor(s) that hypothetically drove the evolution of the human arts. Rather, the focus is on *how* the human arts may have evolved and specifically on how previously evolved adaptations may have paved the way for the evolution of the human arts. Both Darwin and recent evolutionary theory entail provisions for evolutionary processes that need not proceed via the selection of a special and task-specific novel adaptation. Rather, a new behavior can just as well evolve via the "cooptation"[8] of existing traits—be they task-specific adaptations or nonadaptive side effects of adaptations—for novel (additional) functions.

As Gould and Vrba point out,[9] already Darwin hinted at several examples for such evolutionary cooptations, specifically regarding complex traits of human behavior.[10] This type of evolution relies on cross-modular,

7 Ibid., 17.
8 Gould and Vrba, "Exaptation," 13.
9 Ibid., 5 sqq.
10 See, for instance, Darwin, *Descent of Man*, II 335.

or domain-general, uses of our cognitive, emotive, and behavioral abilities and dispositions and hence accords with the widely shared notion that the peculiar creativity and flexibility of the human mind specifically manifests itself in such cross-modular uses of its special evolved capabilities.[11] Ontogenetic learning and purely cultural transmission play a great role in such evolutionary processes. Some models of evolution even completely rely on nongenetic processes of feedback and transmission.[12]

Specifically, the cooptation model of the human arts outlined in Chapter 5 proposes that humans extended the field of the arts far beyond the hypothetical analogues of the bird arts (i.e., the singing and dancing that Darwin assumes in the ancestors of the modern Homo sapiens) by coopting distinctly human capacities for play behavior, tool use, and symbolic cognition, which developed independently from the arts, into the field of art production and reception. For birds, singing or dancing for sex is a very serious predicament; it is not inherently playful or exploratory. The human arts, by contrast, for all the passion and seriousness with which they, too, are pursued, often do entail elements of play and exploration that are relatively free from direct pragmatic consequences. Together, play behavior, technology, and the cooptation of symbolic cognition not only extended the range of the hypothetical arts of aesthetically appealing self-presentation and (sexual and social) display; these distinctly human capacities also added important new cultural levels and functions.

The original German version of this book was published in 2011. For the purposes of the present English translation, it was substantially revised.

11 Cf. the reflections on our higher cognitive capacities in Fodor, *The Modularity of Mind*, Donald, "Art and Cognitive Evolution," 17, and Mithen, *The Prehistory of the Mind*. See also Neumann, *Funktionshistorische Anthropologie der ästhetischen Produktivität*, particularly 117.

12 See, for instance, Heyes, "Grist and Mills: On the Cultural Origins of Cultural Learning," and the entire volume on the evolution of human cognition of which this article is part.

1

Competitive Courtship and Aesthetic Judgment/Choice: Darwin's Model of the Arts

Darwin's evolutionary aesthetics primarily explains the evolution of aesthetic preferences for particular features of bodily looks and their role in competitive sexual courtship and choice. His theory of the evolution of the arts of singing, dancing, and poetic speech is an intriguing extension of this model of "sexual selection" for beautiful looks, one that has surprising observations and interpolations in store to this very day.

Section 1 analyzes Darwin's general assumptions regarding features of aesthetic appeal, mechanisms of beauty judgments, and their role in sexual courtship and choice. Section 2 is devoted to Darwin's visual aesthetics. It traces the reasons why Darwin regarded naked skin as the single most important and most distinctive human body "ornament" (2.1), discusses how this very special ornament favored the development of the human arts of self-painting and other types of visual self-decoration (2.2), and reveals the importance of naked skin and of the correlative practices of wearing and putting on clothing for the emergence of visual "imagination" (2.3). Section 3 discusses Darwin's theory of the musical arts (3.1) as well as of music-elicited emotions (3.2), and comments on his hypotheses regarding the poetic and rhetorical elaboration of language in light of both classical rhetoric and recent research in rhetoric and poetics (3.3). Section 4 discusses the merits and limits of the new perspectives on the human arts that Darwin brought to the fore by comparing them with the performances of peacocks and songbirds.

1. The "Sense of Beauty": Darwin's General Assumptions regarding Aesthetic Virtues and Aesthetic Judgment

Darwin spent decades ruminating about the "beauty" of bodily looks, as it represented a major challenge to his theory of natural selection. Decorative feathers, horns, and antlers have reached astonishing forms and sizes in many animals, so much so that they are a massive handicap "in the general conditions of life"[1] and mostly of little use as weapons. A cardinal text of philosophical aesthetics, one that Darwin cites more than once, seems to have directly guided his theorizing regarding a "sense of beauty"[2] or "taste": Edmund Burke's *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful* (1756). Burke already conceptualized the extreme beauty of the peacock's ornaments in terms of a conflict with practical "fitness," and specifically the "aptitude" for flying.[3] How could the peacock's tail and analogous "ornaments" evolve despite the fact that they impair movement and flight capacities, renders the respective animals highly visible to predators, and hence seem irreconcilable with Darwin's model of adaptive natural selection?

Responding to this challenge, Darwin ended up proposing a rich set of general assumptions regarding aesthetic virtues, aesthetic judgment, and their role in sexual courtship and choice. The key concepts he relies on have a long tradition before him and keep informing research in aesthetics to date: beauty, taste, novelty, familiarity, prototypicality, exaggeration, variety for the sake of variety, caprice.

To start with, Darwin holds that the first step toward the evolution of a preferred body ornament is generally arbitrary. Some existing feature grows slightly more expressed through (genetic) variation. The very novelty, relative rarity, and differential quality of this "exaggeration" can attract attention. This assumption is in line both with classical aesthetics and with the current understanding of the brain functions of "predictive coding,"[4] of consistently comparing all incoming information with anticipations based on prior knowledge. If anticipations are met, no special response is required; if minor detours from expectations occur, the brain automatically devotes more attention and more effort to dealing with the not fully expected stimulus.

1 Darwin, *Descent of Man*, I 279.
2 Darwin, *Descent of Man*, I 63–65.
3 Burke, *A Philosophical Enquiry*, 106.
4 Cf. Friston, "The Free-Energy Principle: A Rough Guide to the Brain?"

Which particular characteristics of bodily appearance end up becoming preferred as ornamental traits and pushed to ever higher degrees cannot be predicted by Darwin's theory; random variation plays a great role in this context. At the same time, some mechanisms act as constraints on potential aesthetic preferences for random variations. Thus, preferred ornaments should *not* be similar to those of closely related species,[5] and they should, of course, be in line with the general sensory dispositions of a species. In any event, since sexual ornaments mostly lack a pragmatic function outside the context of sexual courtship, all they need to do is to *impress and please as such*—and this can, in principle, be achieved in many ways. This is why Darwin's model postulates a great variance and arbitrariness of features preferred for their "beauty." The "caprices of fashion"[6] are a cultural analogue Darwin refers to on more than one occasion.

The over-expression of ornamental traits need not be large in order to attract attention and, potentially, desire. Small, even minimal differences suffice. Thus, there is no conflict between the preferences for "mere novelty," "change for the sake of change" and "mere variety"[7] and for the equally well-established preference for the average prototype of a species and hence for familiarity.[8] Pointing to male preferences regarding women's looks, Darwin exemplifies this combination by stating on the one hand: "The men of each race prefer what they are accustomed to behold," and on the other: "As the great anatomist Bichat long ago said, if everyone were cast in the same mould, there would be no such thing as beauty. If all our women were to become as beautiful as the Venus de Medici, we should for a time be charmed; but we should soon wish for variety; and as soon as we had obtained variety, we should wish to see certain characters in our women a little exaggerated beyond the then existing common standard."[9]

This dual preference for norm conformity[10] and some degree of deviation (novelty, variety, exaggeration) corresponds exactly to a basic Aristotelian rule for the verbal arts. According to this rule, the poet should include something foreign (*xenón*) and exaggerated (*aúxesis*) in his diction,

5 Eberhard, *Sexual Selection and Animal Genitalia*; Lande, "Genetic Correlations between the Sexes in the Evolution of Sexual Dimorphism and Mating Preferences."

6 Darwin, *Descent of Man*, II 230, 339.

7 Darwin, *Descent of Man*, II 230.

8 Cf. Kant, *Critique of the Power of Judgment*, § 17; Fechner, *Vorschule der Ästhetik*, 262; Martindale and Moore, "Priming, Prototypicality, and Preference"; Winkielman et al., "Prototypes Are Attractive."

9 Darwin, *Descent of Man*, II 354.

10 Cf. Langlois et al., "What Is Average and What Is Not Average about Attractive Faces," and Perrett, "Facial Shape and Judgments of Female Attractiveness," 239–42.

yet also remain close to the usual and the familiar. The deviating elements provide a pleasure that is based on astonishment (*hedy dè tó thausmastón*); the familiar, on the other hand, is pleasant because it is easy to process. The two are to be interwoven in an appropriate fashion, according to context and genre.[11] A recent theory of "optimal innovation" in the field of aesthetic and rhetorical forms states the same,[12] and so does a theory of aesthetic pleasure based on the "predictive coding"–hypothesis regarding the working of the human brain.[13] Continued preference for minimal deviations can lead to a self-reinforcing and, evolutionarily speaking, relatively rapid process of increasing nuances of difference step by step;[14] in the end, this dynamic can result in extreme expressions of body ornaments that guide sexual choice. The notion of a "runaway selection" has been largely accepted since Ronald A. Fisher's mathematical reformulation of Darwin's model.[15] (Extremely hypertrophying male and female features of looks through self-shaping or plastic surgery are intentional and non-evolutionary analogues to this process.)

In the auditory and visual arts, Darwin saw the same mechanisms at work as in the preference for certain body ornaments. Self-evidently, the arts can satisfy the demand for novelty, variety, and exaggeration much faster than the evolution of natural differences between sexual ornaments of the body. This applies already to the animal arts of singing and dancing: the more they depend on ontogenetic practicing and learning, the better they serve the demand for differences in performance. Darwin therefore used the concept of "art" for animal performances exclusively in cases when they involve substantial individual efforts of refining the singing and dancing,[16] and hence involve a *dual inheritance* of a phylogenetic and an ontogenetic nature.[17] Ever since Darwin, substantial evidence has been collected regarding the importance of learning and local traditions, and hence of nongenetic change, in the animal arts, specifically in birds.[18] Ontogenetic

11 Aristotle, *Rhetoric* 1404a.

12 Giora, "Weapons of Mass Distraction: Optimal Innovation and Pleasure Ratings," 115–41. Cf. also Miller, "Evolution of Human Music through Sexual Selection," 344–46.

13 Van de Cruys and Wagemans, "Putting Reward in Art: A Tentative Prediction Error Account of Visual Art."

14 Darwin, *Descent of Man*, II 351.

15 Fisher, *The Genetical Theory of Natural Selection*.

16 Darwin, *Descent of Man*, I 55–56.

17 Cf. Verpooten, *Art and Signaling in a Cultural Species*; Boyd, *On the Origin of Stories*; Boyd and Richerson, *Culture and the Evolutionary Process*.

18 Cf. Kroodsma, "Learning and the Ontogeny of Sound Signals in Birds"; Kroodsma, *The Singing Life of Birds*; Payne et al., "Biological and Cultural Success of Song Memes in

factors, general learning abilities, and local traditions thus gain importance compared to a purely genetic variation between sexual body ornaments, which is the only object of Fisher's reformulation of Darwin's model.

Darwin attributed the discovery of the "principle" of self-reinforcing preferences for particular ornaments to Alexander von Humboldt.[19] Humboldt's travel reports provided many of the ethnic examples for both the natural and cultural body fashions that Darwin refers to. These examples concern primarily the interaction between natural body features and their cultural treatment, such as the amplification of biologically evolved differences in skin color through cultural body painting.[20] For Darwin, the differential treatment of the male beard is a particularly conspicuous example for such a feedback loop between nature and culture:

> It is remarkable that throughout the world the races which are almost completely destitute of a beard dislike hairs on the face and body, and take pains to eradicate them. The Kalmucks are beardless, and they are well known, like the Americans, to pluck out all straggling hairs; and so it is with the Polynesians, some of the Malays, and the Siamese. . . . On the other hand, bearded races admire and greatly value their beards; among the Anglo-Saxons every part of the body, according to their laws, had a recognized value; "the loss of the beard being estimated at twenty shillings, while the breaking of a thigh was fixed at only twelve."[21]

Analogously, if the biological evolution has resulted in more oval or in more broad faces, each respective preference is then culturally amplified.[22] Capricious practices that make small feet even smaller than they are naturally[23] or stress broad female behinds,[24] elaborate hairdos,[25] or different fashions for teeth and head forms[26] also fit well into Darwin's series of examples along the lines of the Humboldt principle.

Even more strikingly, many animal species probably evolved in the first place because deviating preferences for sexually attractive ornaments finally

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Indigo Buntings"; Saranathan et al., "Genetic Evidence Support Song Learning"; Prum, "Coevolutionary Aesthetics in Human and Biotic Artworlds," 826–27.

19 Darwin, *Descent of Man*, II 351.
20 Darwin, *Descent of Man*, II 346–47, 352.
21 Darwin, *Descent of Man*, II 349.
22 Darwin, *Descent of Man*, II 344–45, 354.
23 Darwin, *Descent of Man*, II 352.
24 Darwin, *Descent of Man*, II 345–46.
25 Darwin, *Descent of Man*, II 340, 348.
26 Darwin, *Descent of Man*, II 340–41.

led to the emergence of separate subspecies.[27] In this regard, Darwin points to birds that are otherwise of the same species yet have developed opposite extremes of coloration, such as black and white swans, storks, or ibises.[28]

The tendency to intensify sexual ornaments can thus lead to pronounced aesthetic *contrasts* between species. In general, such self-reinforcing preferences, once they take hold, can evolutionarily favor very striking forms, colors, and movement/display patterns in the long run—unless natural selection stops this trend and/or as long as it is supported by the respective animal's sensory dispositions in combination with the light and visibility conditions of its ecological niche. Hence the many colorful, indeed garish and eccentric examples that Darwin presents in his panorama of the natural addiction to ornamentation. The preference for strong contrasts, for pure, luminous colors, and for elaborate aesthetic displays has meanwhile been confirmed in studies on animals and humans (children in particular).[29] At the same time, it is just as clear that human cultural aesthetics regarding paintings, clothes, and interior design can likewise favor the very opposite tendency (i.e., preferences for subtle color contrasts).

Darwin's examples and his general assumption regarding the interaction of aesthetic preferences and sexual choice keep stressing that, at least partially, the aesthetic "sense of beauty" or "taste for the beautiful"[30] has its own laws that cannot be (fully) derived from pragmatic concerns and functions. Such remarks are well in line with the modern notion of "aesthetic autonomy." Moreover, locally divergent aesthetic preferences within a species can hardly serve as genetically determined fitness indicators, as demonstrated by the beards of human males (unless it can be demonstrated that a beard and its absence respectively correlate with "good genes" in the different populations).

Kant and idealist aesthetics combined the hypothesis of beauty as being devoid of concept and purpose with attributing to it important *functions* for human cognitive and affective needs.[31] Darwin's functional hypothesis

27 Cf. Gould and Gould, *Sexual Selection*, 89 sqq.

28 Darwin, *Descent of Man*, II 230–31.

29 Cf. Fechner, *Vorschule der Ästhetik*, 231–34, and Rensch, "Ästhetische Grundprinzipien bei Mensch und Tier." The latter study, however, finds a preference for pure colors only in some animals. Cf. also Rensch, "Ästhetische Faktoren bei Farb- und Formbevorzugungen von Affen"; Tigges, "Farbbevorzugungen bei Fischen und Vögeln"; Ryan, "Sexual Selection, Sensory Systems, and Sensory Exploitation"; Miller, "Evolution of Human Music through Sexual Selection," 341–43.

30 Darwin, *Descent of Man*, I 63–64.

31 Cf. Kant, *Critique of the Power of Judgment*, § 1, 10; Schmücker, "Funktionen der Kunst," particularly 15–20; and Menninghaus, *Kunst als "Beförderung des Lebens."*

regarding the many "capricious" body ornaments of natural species focuses precisely on the very sexual implications from which idealist aesthetics tried to purge the concept of "pure" aesthetic pleasure. These ornaments, Darwin holds, provide a competitive advantage in the highly specialized context of sexual courtship. The tendency to disregard adverse effects of beautiful ornaments on other aspects of everyday life makes up the "autonomy" of the ornament; its adaptive benefits in contexts of sexual courtship and choice make up its functional value.

To be sure, Kant's hypothesis of a "disinterested" aesthetic judgment—in which we still may take some "intellectual interest"[32]—is nearly reversed in Darwin's theory. After all, for Darwin, a marked function for success in competitive sexual courtship is ultimately driving the feats of ornamentation. Still, in the situation of being courted, peahens prefer a more splendid male ornament just as immediately and conceptless as required by Kant's model. They do not prefer the most beautiful peacock because they imagine him to be most useful for the proliferation of their own genes. In other words, the *proximate* mechanisms of aesthetic sexual courtship and choice should not be confused with the *ultimate* mechanism underlying this behavior (i.e., its effect on self-reproduction).[33] Rather, *the displays of aesthetic virtues in bodily appearance, song, and dance and the responses to these displays in birds and other animals are special adaptations for the phase of sexual courtship and choice only—and hence for showing/producing and evaluating aesthetic virtues—but not for their possible consequences (copulation, pregnancy, rearing the young).* The important theoretical distinction evolutionary theory makes between proximate and ultimate mechanisms thus implies that the aesthetic appreciation of courtship displays is driven by its own specialized and self-contained mechanisms. It is thus categorically different from the adaptations for sexual copulation, regardless of the potential temporal and even causal link between the two.

On a similar vein, human artists typically strive for some attention and acceptance on the part of a wider or narrower audience. This may in some cases imply that appreciation for their art also enhances their social opportunities and even their sexual success. Still, such consequences would not mean that their artistic efforts are primarily driven by pragmatic goals and interests rather than by inherent artistic motivations. Therefore, the proximate mechanisms of artistic production need to be categorically distinguished from the potential functions they might serve (or not serve) in the end.

32 Kant, *Critique of the Power of Judgment*, § 42.

33 For a similar argument, see Davies, *The Artful Species*, 13–14.

The failure to differentiate between proximate mechanisms of aesthetic appreciation and potential ultimate functions for sexual purposes has led to several confusions and pseudo-alternatives. The most widespread among these is the idea that Darwin's evolutionary aesthetics does not deal with "beauty" at all, but only with physical "attractiveness."[34] To use Kant's terms, "disinterested pleasure" is at the basis of "purely" aesthetic perception and judgment; however, judging the artistic displays of sexual courtship—the argument goes—is not disinterested. This argument does not only fail to question the historic specificity of the modern decree of the disinterestedness of aesthetic pleasure, but also it fails to acknowledge that several languages and philosophical theories from antiquity until today do not hesitate to designate the sexually attractive appearance of men and women as "beauty." Some philosophers, and particularly Kant, tried to banish even the most subtle affinity to sensuous and sexual charms from the lofty realm of transcendental aesthetics. Thus, "highbrow" culture—most notably, eighteenth-century German bourgeois culture—attempted to draw a rigid line of demarcation between the genuinely "aesthetic" domain of beauty and anything even remotely sexually attractive. British and French treatises of aesthetics have not advocated a similarly rigid purging, if not exorcism, of all sexual implications from the very concept of beauty.

Speaking of sexual body "ornaments," Darwin connects evolutionary biology to a central category of philosophical aesthetics. Since the later eighteenth-century aesthetics, ornaments have been the epitome of purposeless and nonconceptual beauty. This is why arabesques, ornamental vines, and other parerga dominate among the examples of "free" beauty Kant provides in his *Critique of the Power of Judgment*.[35] Owen Jones's *Grammar of Ornament* (1856) offered Darwin a contemporary panorama of the aesthetics of ornament. Darwin pictures the evolution of certain body parts in a fashion fully analogous to the application of ornaments. This corresponds to the biological fact that many body ornaments only become prominent in times of sexual courtship and then disappear, immediately or gradually. Such ornaments are no longer conceived as the work of a Creator who has not only created nature wisely but also adorned it beautifully. Instead, sexual selection is considered the driving force: over very long periods of time, countless individual acts of "choice" by the opposite sex made certain "ornaments" hereditary and more pronounced, thereby translating into a genuine power of evolutionary "selection." Darwin is the

34 For instance, Eibl, *Kultur als Zwischenwelt*, 159.

35 Cf. Kant, *Critique of the Power of Judgment*, § 16, and Menninghaus, *In Praise of Nonsense*, 72–92.

first and maybe the only author in the history of aesthetics who stringently conceived of bodily beauty in terms of an aesthetics of ornaments.

Darwin's concept of "caprice"[36] emphasizes the arbitrariness, if not the near absurdity, of elaborate decorative traits when viewed from a pragmatic perspective. To Darwin, the capricious preferences for exuberant plumage are in the final analysis as erratic as the predilection that led to the development of pink backsides in certain monkeys.[37] Considered as quirks, whims, and arbitrary hobbyhorses, these caprices have something endearing, and at the same time something weird, even slightly mad. German equivalents of "caprice" are *Laune*, *Marotte*, *Tick*, and *Manier*.[38] Kant's definition of an aesthetically "capricious manner [*launichte Manier*]"[39] is part of the tradition that informed Darwin's use of the term.

Darwin's notion of a "capriciousness of taste" is also closely reminiscent of a literary phenomenon, namely, the equally capricious poetics of digression, as exhibited in Lawrence Sterne's *Tristram Shandy* (1759–67) and its German Romantic relatives. Sterne's novel promises to offer the "Life and Opinions" of its protagonist; however, due to constant interruptions of the expected storyline through diverse digressions, multiple self-proliferating excursions of a theoretical, historical, and narrative nature, "capricious" anecdotes, and frame stories, it takes *Tristram Shandy* several hundred pages to get as far as the protagonist's birth. The narrative art of German Romanticism also makes ample use of such digressions and techniques of self-proliferating arabesques. Just as in Sterne's novel, multiple paratexts and addenda keep forcing themselves into the foreground, to the point of obstructing the expectable unfolding of the core narrative.

From Friedrich Schlegel via Edgar Allan Poe to Charles Baudelaire, such literary practices were technically designated by reference to a specific type of visual ornament, namely, the "arabesque," with the rococo arabesque being of particular importance.[40] The concept of the arabesque thrived in music, too, above all in the form of "capriccios." Talking about the caprices of taste and the extravagances of ornamental fashion, Darwin is alluding to this rich cultural horizon. This is more than a metaphor: the plumage of many a bird of paradise could quite literally work as a rococo ornament. Thus, Darwin uses the same categories for natural bodies that were used

36 Darwin, *Descent of Man*, II 230, 339.

37 Darwin, "Sexual Selection in Relation to Monkeys," 207.

38 Cf. Strasser, *Bedeutungswandel*, and Menninghaus, *In Praise of Nonsense*, 15–31.

39 Kant, *Critique of the Power of Judgment*, § 54.

40 Cf. Oesterle, "Vorbegriffe zu einer Theorie der Ornamente"; and Menninghaus, *In Praise of Nonsense*, 72–159.

within historical aesthetics to describe phenomena that ostentatiously display their artificiality, such as rococo arabesques and the provocative writings of Lawrence Sterne, Ludwig Tieck, or E. T. A. Hoffmann.

Most other terms Darwin uses to characterize all sorts of aesthetically preferred stimuli (bodily features, songs, dances, and multimedia performances) are likewise derived from philosophical aesthetics and rhetoric (novelty, variety, rarity, exaggeration).[41] However, he uses these categories in a highly innovative fashion. Concepts that have been previously applied to phenomena of art and decoration are adopted for purposes of an unprecedented aesthetics of natural bodies. The connection between aesthetic preference and sexual selection makes "aesthetic judgment," which has a purely *reflective* character in Kant's aesthetics,[42] directly *constitutive* for the very existence, and even for the gradual exaggeration of its objects (i.e., the sexual body ornaments). Projected back onto conventional aesthetics, Darwin bestows the role of aesthetic judgment—which is typically exerted by the female sex that evaluates the looks and/or presentations of male competitors—with an enormous power: female choice[43] does not only *evaluate* given bodily ornaments and artistic presentations, but literally *drives* the future evolution of these traits (i.e., of ever more refined physical ornaments and display practices of great splendor, and hence of "new art").

Experiments suggest that animals, just like humans, tend to prefer exaggerated, supernormal stimuli, and that a preference, once established, can rapidly propel itself to extreme levels (*peak shift effect*).[44] For instance, through food rewards rats were conditioned to prefer squares to other geometric forms. In the next step, a non-square rectangle was introduced and associated with an even larger reward than the square. As expected, the rats learned to reliably prefer the rectangle. Less predictable was the third part of the experiment. The rats were offered the opportunity to choose between the rectangle they already knew and associated with large rewards and another rectangle, the proportions of which were even more different from those of a square. Interestingly, rats picked this novel variant, without undergoing any reward-based conditioning in favor of it. A possible explanation is thus that they chose the larger difference from the original square (i.e., the exaggeration of *non-squareness*).

41 Cf. Darwin, *Descent of Man*, I 63–65, II 230h, 339, 351, 354. Bredekamp supposes that Darwin's concept of "variety" was influenced primarily by William Hogarth's *The Analysis of Beauty* (1753); cf. Bredekamp, *Theorie des Bildakts*, 314 sqq.

42 Cf. Kant, *Critique of the Power of Judgment*, § IV.

43 Darwin, *Descent of Man*, II 273.

44 Ramachandran, "The Science of Art," 18.