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Recent Work on Human Nature: Beyond Traditional Essences

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Abstract

Recent philosophical work on the concept of human nature disagrees on how to respond to the Darwinian challenge, according to which biological species do not have traditional essences. Three broad kinds of reactions can be distinguished: (1) *conservative intrinsic essentialism*, which defends essences in the traditional sense, (2) *eliminativism*, which suggests dropping the concept of human nature altogether, and (3) *constructive approaches*, which argue that revisions can generate sensible concepts of human nature beyond traditional essences. The different constructive approaches pick out one or two of the three epistemic roles that are fused in traditional essentialist conceptions of human nature: descriptive (*descriptivism*), explanatory (*explanativism*), definitional (*taxonomic relationalism*), or explanatory and definitional (*property cluster essentialism*). These turn towards diverging epistemic roles are best interpreted pluralistically: there is a plurality of concepts of human nature that have to be clearly distinguished, each with a legitimate role in respective scientific contexts.

1. Two Dimensions

Talk of human nature traditionally picks out intricate theoretical and also deep practical philosophical issues. It is the boundaries towards animals on the one side and machines or superhuman creatures like gods on the other side that historically created the space of understanding important for the concept of human nature. Talk of ‘human nature’ thus marks a self-understanding that is anchored by our deepest fears (bestiality) and hopes (salvation), in part even within science, as Proctor (2003) indicates for questions about the origin of humans.

With respect to theoretical issues, the use of the term first and foremost raises concerns about the validity of references to essences, i.e., natures of kinds such as humans. Since essences have become precarious categories in contemporary philosophy of science, some have suggested that the concept of human nature should be eliminated. It does not, they argue, respect the variability of life, which makes each individual truly unique. Others try to defend a concept of human nature nonetheless.

In practical (in particular, in existential, moral, and political) terms, reference to human nature involves questions about identity, hopes, and fears (what humans are, how humans should live, and what humans can and should hope for), since facts about our constitution are relevant for our destiny and values. This dimension is at the fore in current claims that ‘human nature’ can be revived as a normative standard, notably in neo-Aristotelian meta-ethics, where the term is used to pick out ‘human flourishing’ (Hursthouse 1999, Foot 2001), and in applied ethical contexts, for instance as a constraint on permissible enhancement (Buchanan 2011).

Whereas essentialism in scientific contexts has been challenged as being incompatible with contemporary knowledge in biology, normative essentialism has been criticized for its tendency to lead to forms of social exclusion by implicitly or explicitly stigmatizing members of out-groups or subgroups as deficient or sub-human (see, for instance, Hull 1986, Haste

2000, Butler 2004, Haslam and Loughnan 2014). It has also been criticized for its ‘western’ ignorance of ‘alternative ontologies’ that don’t restrict ascriptions of humankind and personhood to humans (see Descola 2005, Sahlins 2008, Lloyd 2012).

In this article, we want to clear a path through the first, theoretical dimension of questions regarding human nature, currently hotly debated within philosophy of science. At the center of that dimension is the question in which sense a concept of human nature can or should assume an essence of the human kind (for other issues, see Roughley (ed.) 2000, Inglis et al. (eds.) 2005, Sandis and Cain (eds.) 2012, Downes and Machery (eds.) 2013).

2. *The Darwinian Challenge*

Historically, talk of a species’ nature, whether the nature of humans or of any other species, has generally picked out an essence with two epistemic roles, namely a definitional and an explanatory one. A number of authors, primarily Ernst Mayr (1963), David Hull (1978, 1986), and Elliott Sober (1980), influentially debunked such essentialism for biological species. As a result, essentialist specieshood concepts of human nature have had a rather bad press within philosophy of science.

What would an essence amount to in that context? Sober (1980: 354) phrased it in the following way: ‘The essentialist hypothesizes that there exists some characteristic unique to and shared by all members of *Homo sapiens* which explains why they are the way they are.’ (Sober 1980: 354) If something is unique, i.e., specific to members of a kind, this characteristic is *sufficient* for species membership, but it is not necessary. You can be human without it, but since *only* humans will have it, if you do have it, you are ‘in’. If something is, however, shared by all members of a kind, this characteristic is *necessary* for an individual to be a member of that kind. Otherwise, not *all* humans would have it. If you don’t exhibit it, you’re not ‘in’. Since necessary and sufficient conditions are traditionally held to provide the definition of a kind of thing, an essence plays a *definitional role* for the respective kind. Necessary and sufficient conditions for species membership can thus be said to be the *definitional essence* of a kind. If the respective definitional characteristics are *simultaneously explanatory* for the life form of that kind (i.e., ‘the way the members are’), then the definitional essence is also *explanatory*. Traditionally, the relevant explanatory characteristics were also considered to be intrinsic, rather than relational properties of the individuals whose essence is at issue.

Since the language of ‘essence’ traditionally refers to (a) intrinsic properties that are (b) necessary and sufficient conditions, we take it that characteristics that don’t satisfy both these roles should not be regarded as essential *in the traditional sense*. This excludes both extrinsic features and characteristics that would qualify as explanatory for a life form without being definitional (in the sense of necessary and sufficient conditions). We shall see in Sections 6 and 7 that there are more liberal ways of using the term ‘essence’.

If the essentialist was right, biological species would qualify as so-called natural kinds, i.e., kinds that have a definitional and simultaneously explanatory essence. But they are not natural kinds, or so the anti-essentialists argue. Ever since natural kinds became a topic in 20th century philosophy, chemical elements have been regarded as paradigmatic examples. First, chemical kinds are spatio-temporally unrestricted sets. Second, there is an essence for each kind, namely the atomic number, that defines the kind (i.e., allows delineation from other kinds and decides kind membership). Third, that essence explains, at least in part, properties of the kind members and consists of properties intrinsic to the members of the kind. Biological kinds are different in each of these three respects.

First, a biological species in the evolutionary sense is spatiotemporally restricted by historical, i.e., genealogical relationships at the level of the members as well as at the level of the species. Members of a species entertain a genealogical relationship with each other. This assumption is

shared by most species concepts of contemporary evolutionary biology, despite variation in what else these species concepts might assume. Furthermore, the different biological species are part of a genealogical branching structure, often depicted as a tree. Members of chemical kinds, by contrast, need not be genealogically related to be members of the same kind, and the kinds themselves form a periodic table rather than a genealogical system. A gold token, for instance, does not have to be descended from another token of gold to be gold, and gold as a type is not genealogically descended from any of the other chemical elements the way species are.

Second, because of the variability of life, there are no necessary and sufficient conditions for being a member (or part) of a biological species. Each individual is different. Some individuals may be missing one characteristic typical of the kind (e.g., the capacity to walk upright), others a different characteristic (e.g., language), despite them all belonging to the same kind. The kind's cohesion is created by genealogy (and other evolutionary mechanisms, see below), rather than by similarity. Variability entails that a defensible biological account of characteristics of a kind is statistical through and through, right down to the genetic level. This latter point holds since there is not even a single gene that is strictly shared by all and only the members of a particular species, as Okasha (2002: 196–7) stressed. Therefore, Darwinian kind thinking with respect to species is populational (oriented towards statistical features of a population) rather than typological (oriented towards types, individuals strictly instantiating the essence).

Third, such a populational account entails that there is no basis and no need for a reduction of apparent variation to a hidden intrinsic essence (analogous to the micro-structure of chemical kinds and exhibited by all and only the individuals of the kind). Examples of such hidden essences would be (i) a *disposition* for a specific range of human body height that explains body height variation or (ii) the *capacity* for human spoken language that makes everybody equal in terms of that fundamental feature even though not all humans exhibit that feature.

It is thus the quintessential *variability* within each *genealogically* bounded kind that marks biological kinds off from paradigmatic natural kinds (such as chemical kinds) with their intrinsic definitional as well as explanatory essences that are shared by literally all members of the kind.

Taken together, these points have cemented a consensus in philosophy of science that an essentialist concept of a human nature (or of any species' nature) is *incompatible* with contemporary biological knowledge regarding evolution, heredity, and development.

3. Three Kinds of Reactions

There have been three kinds of reactions to this consensus in recent literature. One type of reaction challenges the consensus by marshaling new arguments for intrinsic essences of biological species, a second proposes abandoning the concept altogether, and a third attempts to construct a replacement concept of human nature that is compatible with the consensus. Our focus will be on variants of the third type of reaction. We begin, however, with a few words on the first and the second, explaining why we think, first, that conservative intrinsic neo-essentialism cannot work and, second, that eliminativism is unnecessarily defeatist.

3.1. CONSERVATIVE INTRINSIC ESSENTIALISM

Devitt (2008) and Boulter (2012) claim that there have to be hidden essences, i.e., developmental resources that are both shared by individuals and intrinsic to each individual, resources, moreover, that are definitional as well as explanatory and thus essences in the traditional sense. These authors are probably best interpreted as employing an inference to the best explanation: how else to explain the overt similarity between individuals, if not by an essence in the traditional sense? The Darwinian populationist thinker answers 'By genealogy that creates a

similarity, a family-resemblance,' without involving a shared essence intrinsic to individuals. There is no good reason why an explanation invoking essences should be regarded as the best available given the availability of a Darwinian explanation.

Dumsday (2012) adopts a different strategy, arguing for a classification of biological kinds based on the concept of organisms rather than on the concept of species, as the former allows for intrinsic essences independent of the Darwinian challenge. According to Dumsday, an entity is an organism, rather than a non-living entity, because of intrinsic features, namely internal relations of the organism's parts to each other. Therefore, the argument goes, each kind of organism's essence must be (in part at least) intrinsic. The problem with this defense of an intrinsic essence is that the term 'human nature' (or a term picking out any species nature) traditionally refers to biological kinds not as organisms but as species, i.e., to evolutionary units. As such evolutionary units, biological kinds do not have intrinsic essences whose instantiation by individuals is necessary and sufficient for membership. This follows from the fact that species are biologically defined by genealogical relations between their individual members.

3.2. ELIMINATIVISM

A genuine option for those who take the Darwinian picture seriously is the abandonment of *any* scientific use of the expression 'human nature', given its essentialist heritage and given the Darwinian challenge to that heritage. This eliminativist proposal, advanced by Hull, has indeed been taken up by a series of authors (e.g., De Sousa 2000, Dupré 2003, 2011, Lewens 2012, Downes forthcoming). The use of the term has, some even claim, done considerable harm in the social realm by excluding or discriminating against human beings with untypical traits, who are then categorized as 'less human'. Moreover, the sciences do not need any concept of human nature. Here, philosophy of science and cultural studies, particularly gender and disability studies, join forces against all forms of essentialism (see Antony 1998 and Silvers 1998 on the latter areas' critical stance towards essentialism regarding humans).

Yet, it seems that some research issues in the human sciences (e.g., anthropology, psychology, economy, sociology, and also history) must presuppose the possibility of generalizations, some of which are explanatory, ranging over all humans. It should be a criterion for success of a philosophical theory of human nature that it makes sense of general references to humans in the human sciences. Furthermore, eliminativism is unnecessary if it can be shown that there are benign replacements for a traditional essentialist concept of human nature.

3.3. CONSTRUCTIVE APPROACHES

The most interesting reactions to the Darwinian challenge propose newly configured concepts of human nature that are explicitly taken to be defensible in light of the need to move beyond traditional essences. These reconfigurations are the result of an epistemic turn in the debate. As so often in philosophy, progress is made by showing that different things have been lumped together under one term ('human nature') because the epistemic roles of the things or features referred to by that term (e.g., whether these are meant to be definitional or explanatory or both) have not been sufficiently distinguished.

The constructive positions held in the recent literature attribute different epistemic roles to the concept of human nature: descriptive (descriptivism), explanatory (explanativism), taxonomic (taxonomic relationalism), or a new combination of explanatory and definitional roles (property cluster essentialism). After illustrating these, we conclude in the final section that this reassignment of epistemic roles is indicative of a legitimate pluralism of successor concepts to that of traditional 'human nature', concepts that are appropriate in different scientific contexts.

4. Descriptivism

One possibility left unchallenged within the Darwinian framework is a concept of human nature with a merely descriptive role, i.e., one that simply picks out the characteristic features of the human life form that traditional essences had been supposed to explain. These would simply be properties instantiated by a statistically significant number of humans, properties whose alteration would have marked effects on the overall behavioral profile of humankind.

Machery (2008), for instance, specifies a 'nomological concept' of human nature as referring to those traits (e.g., human language) that are species-typical and evolved. According to him, these characteristics need not be species-specific, since such a requirement would be asking for a definitional taxonomic role again, i.e., one which would demarcate us from other animals. The resulting nomological concept is first and foremost meant to be descriptive: it refers to generalizations about humans described by sciences such as anatomy, physiology, ethology, and especially cognitive-behavioral research, e.g., psychology. In a recent proposal, Ramsey (2013) focuses particularly on human life history traits, whether they have evolved or are due to social learning, e.g., vulnerability to certain diseases or psychological dispositions. He defines human nature as 'the pattern of trait clusters within the totality of extant human possible life histories' (Ramsey 2013: 4). This trait cluster is a statistical distribution and may change during the existence of the human species. It is thus not meant to have a definitional role with respect to species membership. Some of the remarks of Dupré, Lewens, and Downes can equally be interpreted as going in this more constructive rather than eliminative direction. For a descriptivist position, the search for human nature simply is, as John Dupré put it, a 'search for the best characterization available of what humans are like' (Dupré 2011: 169–70). On this account, the expression would simply pick out a *descriptive human nature*.

5. Explanativism

Explanativist accounts, by contrast, argue for the following: given that there nonetheless is *something* that developmentally and evolutionarily explains the human life form, scientists use (and should use) the expression 'human nature' for this explanans (rather than for the descriptive human life form, the explanandum). Language, for instance, is not only part of human nature, it is also explanatorily relevant for further features that rely on it, be these traits typical (e.g., morality) or varying (e.g., speaking Japanese). There are then explanatory relations between the properties of the cluster forming the pattern of similarities and differences between humans. For an explanativist, the descriptive human life form contains an explanatory human nature.

One of the best known recent empirical accounts of 'the way humans are' is provided by Michael Tomasello. As he is a psychologist, Tomasello's preferred level of analysis is that of individuals, 'humans', as he mostly calls his object of study (e.g., in Tomasello 2008). He does not use the term 'human nature' and only very rarely calls humans a species (Tomasello 2008: 344). Nonetheless, the empirical research in Tomasello's case does two things: it, first, picks out a descriptive life form, and, second, establishes explanatory relations between the features of the human life form. The comparative psychological tests that Tomasello et al. (2005) conducted with humans and other primates revealed a single feature to be distinctive and explanatory for human social interaction: shared intentionality, i.e., the ability to participate with conspecifics in collaborative activities with shared goals and intentions, a mutuality that is not only characteristic for but also unique to humans. Connected with and explained by shared intentionality is a pattern of capacities, psychological dispositions, and motivational states that are equally characteristic (typical and unique) for humans. Examples would be humans' characteristic modes of communication and their cumulative culture that is so obviously unparalleled.

This pattern clearly does not define what it means to be a human since, although shared intentionality and its consequent capacities might turn out to be contingently sufficient, they are clearly not necessary.

In its explanatory role, shared intentionality can be compared to the central function attributed to reason or language in classical philosophical accounts of human nature. According to Roughley (2011), traditional claims that such features constitute 'human nature' are, once divested of any definitional aspirations, best understood as claims that these features are 'structural properties of the characteristic human life form', where the characteristic human life form itself corresponds to a first, weaker concept of human nature. Structural properties are understood as explaining not only why humans typically instantiate particular further features but also the way in which those features are instantiated. If Tomasello is right about shared intentionality, for instance, shared intentionality can explain both the genesis of language as a system for intentionally directing attention and the transformation of animal emotions within shared conventional frameworks.

Samuels (2012) is also best understood as defending an explanativism regarding human nature. His aim is to show how human nature is used in cognitive and behavioral sciences. Human nature is for him 'a suite of mechanisms that underlie the manifestation of species-typical cognitive and behavioral regularities.' These mechanisms are themselves regularities (e.g., language production systems), but regularities that explain surface patterns of similarity and difference (e.g., similarities and differences in spoken languages).

Walsh (2006), who explicitly embraces the Darwinian challenge, regarding talk about a definitional essence as senseless, nevertheless assumes that there are explanatory essences, natures of individual organisms. These consist in recurrent developmental mechanisms and those capacities of the organisms of a particular species (such as plasticity) that explain that species' evolvability.

Kim Sterelny (2012) has developed an approach that is similar in that it also emphasizes mechanisms he takes to be responsible for evolvability. Although he makes no explicit use of the term 'human nature', his theory works with an explanatory conception that fulfills precisely the explanatory function of a species' essence that Walsh specifies. According to Sterelny, there are unique feedback mechanisms that explain not only the rapid evolutionary divergence between humans and their close relatives but also why humans are so exceptionally plastic in their behavior. These mechanisms thus explain the pattern of similarity and differences referred to by a descriptive concept of human nature. One such feedback mechanism, for instance, connects individual expertise, social learning, and life history. As the relevant mechanisms constitute a dynamic pattern, Sterelny's explanatory human nature is not realized in any specific feature, but in a purely formal uniqueness of humans. In Sterelny's words, 'we are creatures of feedback' (Sterelny 2012: 75). The specific evolutionary feedback mechanisms themselves are the explanatory human nature. They are the theoretical entities that provide the deepest explanation of why humans are the way they are.

6. Taxonomic Relationalism

Okasha (2002) defends a liberal essentialism by dropping the requirement that species' essences have to refer to intrinsic properties. Essences remain definitional, but now have no prominent explanatory role, at least not for those taxonomic sciences that have the species category as a core category. Such *taxonomic essences* consist in *relationships between*, rather than *intrinsic properties of* individuals, e.g., genealogical relationships. For taxonomic relationalists, similarities between organisms are derivative, i.e., they result from the relations. Thus, if similarity conflicts with genealogy in our conception of a species' boundaries, the latter rules. In other words, if an entity falls short of being similar enough to other individuals of the species, then it can still partake in the species as long as it is genealogically related to it. Taxonomic relationalists claim to properly

account for the actual and successful scientific practices in taxonomy, i.e., for the way actual boundaries are drawn between species.

In spite of his prominent espousal of the Darwinian challenge and misgivings about the misuse of talk of 'human nature' in the social sphere, David Hull (1986) still developed a constructive account, an account that is similar to Okasha's in its focus on relational properties. For Hull, the nature (aka essence) of the human kind is nothing but the genealogical relatedness of the organisms partaking in the kind.

Neither Hull nor Okasha assumes that relational essences offer an explanation for the human life form, since the genealogical relatedness that exists between humans also exists between organisms partaking in different species. Thus, the relevant relations cannot explain why the individuals in the species have the properties they have and why others do not. Therefore, they don't (at least they don't directly) explain the descriptive human nature other scientists, such as behavioral ecologists or cognitive scientists, might be interested in.

7. Property Cluster Essentialism

Still other authors, most famously Boyd (1999), want to rescue an explanatory role in combination with a definitional role of the concept, in spite of the Darwinian challenge. This is supposed to be achieved with the help of the notion of 'homeostatic property clusters' (HPCs). Boyd maintains the term 'essence' by interpreting it liberally, dropping the second requirement of traditional essences, namely that a definition requires necessary and sufficient conditions.

Boyd believes that HPCs are a benign replacement for traditional species' essences. Species, he claims, 'have defining, real essences' (Boyd 1999: 146). They consist of clusters of typical properties plus the homeostatic mechanisms that cause the respective properties to *cluster* and to be both developmentally and evolutionarily *typical* and *static*. Dropping the intrinsicity requirement of traditional essences, Boyd also argues that these mechanisms can be of various kinds and either internal or external to the organisms (e.g., developmental mechanisms, interbreeding, or the genealogical relationship of the taxonomic relationalists).

Both the definitional and the explanatory claims of property cluster accounts have been criticized. On the one hand, they have faced the criticism that, by allowing phylogenetically unconnected populations to be species, they are at odds with the 'biological assumption that taxa are first and foremost historical entities' (Ereshefsky and Matthen 2005: 18). It is thus questionable whether an HPC can fulfill the definitional role traditional essences (even interpreted liberally) were meant to play. On the other hand, it has also been argued that HPCs are not explanatory in the right sense. First, since many taxa are characterized not only by similarity but also by 'stable and persistent differences' (polymorphisms), property cluster accounts cannot explain *why species members differ* in stable ways (Ereshefsky and Matthen 2005: 7). Second, since homeostatic mechanisms are general rather than species-specific, an HPC is still not 'sufficient to determine the boundaries of the species that it is supposed to define' and can thus also not explain *why species differ* (Reydon 2009: 729).

For our topic, the most important point concerns Boyd's claim that HPCs can play both the definitional and the explanatory roles of traditional essences. For the account to succeed, it would need to rebut the objections on both fronts, a task that looks to be daunting at the very least. Even if Boyd were to be able to respond to the critique of HPCs' definitional role, he would still have to show that the essence (to which they are supposed to belong) can fulfill the above-mentioned explanatory roles. This looks unlikely. Either way, it seems that the account will have to scale down its ambitions. Its prospects as a post-Darwinian successor to traditional essentialism that manages to bring together both the epistemic roles essences traditionally played thus look extremely slim.

Griffiths (1999, 2011) opts for an approach that combines the relationalist account with the HPC account. The result is a concept of an all-inclusive human nature that comprises all the resources needed to stabilize the development of the patterns of similarity and difference observable in humankind. Human nature, the thing that explains and defines the human species, is then a genealogically anchored explanatory essence of gigantic proportions, namely the whole developmental system of humankind, including the developmental niche (Stotz 2010). Like the HPC account, this developmental system concept of human nature is an attempt to develop a concept of human nature that fulfills more than one epistemic role. It is otherwise a very distant relative of the traditional concept of human nature, since it construes everything involved in and resulting from human development as part of human nature. It is doubtful whether such an all-encompassing concept of human nature is of any concrete use for the sciences, that is, for describing and explaining commonalities or explaining differences within humankind or between the human and other species.

8. *The Pluralistic Solution*

One theoretical option that has remained largely untried in recent work on human nature is a pluralistic approach. According to such a perspective, the term ‘human nature’ has been used for different things in the world, depending on differing epistemic goals.

Section 2 reviewed the background of recent debates on human nature: traditional essentialism not only combines definitional and explanatory roles in its concept of human nature but also assumes that *one and the same thing in the world* is playing each of those roles. Sections 4–7 dealt with recent constructive proposals that accept the Darwinian challenge, but remain conceptually monistic: they all seem to take it as given that there can be only one concept of human nature, unsurprisingly, the one they propose themselves. In doing so, they fail to take account of the fact that different scientific fields are in need of different concepts of human nature, each fulfilling an independent epistemic role. Sometimes, an explanatory but not a classificatory concept is required (as in the case of Sterelny or Tomasello); in other contexts, what is needed is a classificatory concept that has no explanatory role (as in the case of taxonomy).

Thus, corresponding to the three epistemic roles, three concepts of human nature can be distinguished. First, there is a classificatory concept of a *definitional human nature* (e.g., referring to relations between *Homo sapiens* or perhaps to homeostatic property clusters). This concept has applications in taxonomic sciences delineating species. Second, ‘human nature’ can refer to features of the characteristic *human life form*, whereby ‘human’ can refer to the species *Homo sapiens* or to a larger group (e.g., *Homo sapiens* as well as Neanderthals or all hominids). If ‘human nature’ refers to the human life form, then this is a mere *descriptive nature* that is quite independent of any classification or explanation of that life form. A variety of disciplines will be in need of such a descriptive concept of human nature, basically all those that want to simply refer to humans in general. Third, the characteristics of the human life form can be explained by evolutionary and developmental mechanisms or even by structural features of the human life form that are explanatory for the other features. If the term ‘human nature’ refers to any of these, we have an *explanatory human nature*. Not all, but many important projects in the human sciences will be in need of such a concept of human nature. (See Roughley (2011) for a similarly pluralistic partitioning of different concepts of human nature.)

The proposals that we discussed in Sections 3–7 fail to sufficiently acknowledge that pluralistic conclusion. Eliminativists throw out the baby with the bathwater because of the indefensibility of traditional essentialism. Property cluster accounts want to conjoin what has irrevocably fallen apart. And descriptive, explanatory, and taxonomic accounts all tend to forget that other epistemic interests are frequently important in scientific contexts not in the focus of

such accounts. Different things fulfill different roles in different scientific contexts. There are thus only *human natures* in the world picked out by our epistemic needs: for species boundaries, for generalizations about humans, and for particular kinds of explanations. These do not easily map onto each other.

To sum up, different scientific fields draw on different epistemic roles (definitional, descriptive, and explanatory). Depending on which epistemic role is given priority in a specific scientific field, the referent of the term 'human nature' is in each case going to be a different kind of thing. Nevertheless, the term is used and can be used coherently for all of these things. Thus, what recent debates on human nature beyond traditional essences show is that there is no one thing in the world that simultaneously and transcontextually fulfills the epistemic roles that traditional essences were meant to play within sciences.

9. Conclusion and Future Research

The general conclusion we wish to draw is this: despite the Darwinian challenge, the term 'human nature' can and should survive within the sciences – pluralistically twisted into distinct but connected concepts. What we expect and would welcome from future research are convincing and critical case studies on how exactly the concepts of human nature are – explicitly or implicitly – assigned roles in different scientific and social contexts. Equally interesting is how the normative concerns frequently associated with the term (see Section 1) interfere with the scientific concerns we have picked out, since many normative discussions assume a particular scientific concept of human nature. This holds especially for positions according to which certain features of the human life form are normatively loaded in such a way as to specify the conditions of human flourishing.

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Georg Toepfer (co-author) is head of the department 'Knowledge of Life' at the Centre for Literary and Cultural Research in Berlin. He studied biology and philosophy and received his diploma in biology from the University of Würzburg and his PhD in philosophy from the University of Hamburg. His principal area of research is the history and philosophy of biology, with a special focus on conceptual history. Currently, he is particularly interested in the history and theoretical role of important concepts from the humanities in biology (such as 'history', 'culture', and 'mind'). His main publications are as follows: *Zweckbegriff und Organismus. Über die teleologische Beurteilung biologischer Systeme* (2004), *Philosophie der Biologie* (ed. with Ulrich Krohs, 2005), *Historisches Wörterbuch der Biologie. Geschichte und Theorie der biologischen Grundbegriffe* (3 vols., 2011), and *Evolution* (2013).

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