

# The Hiperextended Phenotype

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**Abstract**

Richard Dawkins developed the concept of the 'extended phenotype,' now extensively documented. The following text introduces a hyperextension of this concept, the 'hyperextended phenotype'—a theoretical construct that goes beyond the boundaries of Biology. The concept explains a vast number of seemingly paradoxical human behaviors. Understanding this phenomenon sheds light on a wide range of behaviors usually interpreted from other perspectives. The alternative perspective proposed below, in addition to elucidating unusual phenomena, will help to mitigate the problems they cause.

**Keywords:** Extended Phenotype, Compulsion, Food Cravings, Hiperextended Phenotype, Generalised Biology

**1. Introduction**

The concept developed by encompasses "all the effects of a gene on the world. Therefore, it refers to characteristics that, although encoded in an individual's genome, manifest outside its body, such as the architecture of bird, beaver, or termite constructions. The perplexity caused by the concept, however, becomes even more pronounced when considering its most bizarre aspect: the control of one organism by another, allowing, for example, even single-celled creatures to potentially manipulate the behavior of an extremely complex organism, turning it into a kind of puppet [1,2].

This intriguing concept accounts for a wide range of paradoxical and seemingly inexplicable phenomena without relying on such idealization, especially within the context of parasitic relationships, where the concept is most relevant. In these interactions, the phenomenon occurs both astonishing as regularly. Parasites whose life cycle requires transitioning between two different host species, for instance, almost certainly employ this strategy. Without it, they would be unable to move from one host to another and subsequently return to the the first, as is often necessary in various parasitic infestations

While the phenomenon manifests in its most astonishing forms among parasites, the concept of the extended phenotype is not limited to parasitic relationships. More broadly, coevolutionary interactions frequently exhibit expressions of this phenomenon. It should also be noted that the diverse behaviors composing courtship rituals displayed by partners during mating can be compared to performances orchestrated by puppeteers, each striving to manipulate the marionette into which they themselves have transformed —suggesting that courtship rituals are, in fact,

evolutionary improvisations, remnants derived from an ancestral parasitic relationship [3]. Illustrations of the phenomenon abound, and despite the strangeness of the description, there is no longer any doubt about its occurrence.

A brief list includes: Ophiocordyceps fungus–infected arboreal ants are manipulated into “zombies,” inducing them to position themselves in the canopy where the microenvironment is ideal for sporulation and dispersal to new hosts, held there by clamping down with jaws on a leaf vein Nematodes that infect ants and make them resemble ripe fruits that will be eaten by frugivorous birds and posteriorly dispersed by them [4,5]. The parasitic nematomorph hairworm which larvae develop inside the grasshoppers or crickets and induce them to jump into water to allow the grown parasite to exit and continue its lifecycle there [6]. Malaria-causing Plasmodium, which induces female mosquitos to be attracted to human odour so that they are more likely to bite and infect the ultimate host Gypsy moths infected by a baculovirus climb to the top of trees to die, liquefy, and “rain” virus on the foliage below to infect new hosts [7]. The viral gene that manipulates climbing behavior of the host was identified, providing evidence of a genetic basis for the extended phenotype [8].

The malaria mosquito *Anopheles gambiae*, infected with transmissible sporozoite stages of the human malaria parasite *Plasmodium falciparum*, takes larger and more frequent blood meals than uninfected mosquitoes or those infected with non-transmissible oocyst forms . This parasite-mediated manipulation of behavior in *An. gambiae* is likely to facilitate parasite transmission from human to mosquito [9]. In fact, the concept can be equally applied to social interactions, signaling, parasite

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manipulation, and interspecific relations [10-12]. The concept of the extended phenotype crosses taxonomic boundaries, from bacteria to plants, fungi and even viruses. A complete list would be immense [4,8,13-15].

## 2. Generalized Biology and the Hyper-Extension of the Concept

The theoretical framework developed in Biology to uncover the characteristics and phenomena of living beings, can also be applied to inanimate entities. When integrated with biology itself, these applications may be termed "Generalized Biology," as they represent an extension of biological principles. Many of these applications, when properly implemented, prove to be highly enlightening, shedding new light on everyday aspects of the world revealing them from unconventional perspectives from perspectives different from the usual. This approach, therefore, stands as a promising analytical strategy that leverages a robust arsenal of pre-existing research and methodologies.

Based on this observation, the concept of the Extended Phenotype can be hyper-extended to encompass non-biological entities that "act" in a manner analogous to manipulative parasites. This hyper-extension offers fresh insights on a multitude of everyday situations, offering a new perspective that can illuminate previously unconsidered facets of these events. Many individuals struggle with a range of compulsions they wish to overcome, often in vain. The list of such afflictions is extensive and well-known, even excluding drug addictions, which are generally attributed to chemical interactions. Compulsion for gambling is one such example. The most common, however, is likely the compulsion for food. 'Obsessive thoughts and feelings of loss-of-control or compulsion-to-consume are salient characteristics of food and drug cravings' [16]. We define a food craving as an intense desire or longing to eat a particular food . Food cravings are highly salient psychological phenomena, and are thought to be important because of their influence on snacking behavior and on compliance with dietary restrictions . There are numerous theories of the basis for food cravings [17].

In recent decades, obesity has emerged as a significant global health concern, with its prevalence rising dramatically across the world, [18-20]. Characterized by an excessive accumulation of body fat in adipose tissue, obesity is associated with a range of adverse health effects, Several studies have identified obesity and overweight as risk factors for chronic and life-threatening illnesses, including diabetes various cancers 2017, Mulcahy, cardiovascular disease, and hypertension, [21-26]. The increasing prevalence of obesity and overweight, and its resulting mortality and morbidity, threaten people's health in many countries. In addition, it causes destructive health conditions and financial burdens on people and society, [21,27,28]. All of this has been widely known for decades, yet despite growing alarms and repeated warnings, the problems stemming from obesity continue to rise at an alarming rate worldwide, year after year, as an ever-increasing number of people fall prey to compulsive eating. One suggestion arising from the perspective of Generalized Biology is that such compulsion, like many others, may stem from the extended phenotype of

certain foods.

## 3. The Hiperextended Phenotype

While the extended phenotype broadens gene's expression, allowing its effects to manifest in organisms beyond the gene carrier, thus extending the concept, the hyperextended phenotype originates from entities that lack a genome altogether. The idea is that treats, along with many other commonly sold products, 'act' similarly to the previous mentioned, manipulating individuals and turning them into marionettes compelled to engage in behaviors they despise and wish, in vain, to overcome. In other words, even without a genome, treats and other objects of desire manipulate individuals in a way similar to how parasites influence their hosts [29-30]. From this perspective, the treats drive human behavior to ensure their own replication. Manufacturers, transporters, and other participants in the production and distribution chain of treats also serve as hosts required by the life cycle of these products. While they may appear unaffected by the harm inflicted on consumers, it is likely their employees who ultimately bear the consequences generated by these replicators.

## 4. Conclusion

The amount of energy used by humanity today is many times greater than what would be needed for the survival of an equivalent population, We expend far more energy on transportation and production of everything we consume than we would need for mere survival. All this energy serves the products we consume, driven by them with the 'purpose' of self-replication, and has been produced in ever-increasing quantities. This disparity suggests that we have already lost control.

The realization that we act compulsively to produce an ever-growing array of unnecessary items reveals that we are suffering from a parasitic disease infecting all of humanity. While its ubiquity makes it seem harmless, we don't even realize that we are ill. An analysis of this disease will reveal a clear analogy with parasitic diseases, making such an analysis a crucial first step toward its recognition. Once the processes that generate compulsion are identified, it may be possible to take measures to control the parasites, and to discern measures to at least prevent a total loss of control over our actions, even though the immense amount of energy directed by these processes suggests that we may have already lost control.

An analysis of this disease will reveal a clear analogy with parasitic diseases, making such an investigation a crucial first step toward its recognition. Once the processes driving compulsion are identified, it may be possible to implement measures to manage these influences and to prevent a complete loss of control over our actions, even though the immense amount of energy directed by these processes suggests we may have already lost control.

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