



## ARGUMENTATION

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# A Genealogy of Fallacies: Lewontin's Eristic

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## Abstract

The prevailing literature clearly demonstrates the erroneous presuppositions of the arguments against Richard Lewontin's "The apportionment of human diversity" (1972) <sup>[3]</sup> where he argued against the utility of traditional human racial taxonomy and how these unfounded arguments, the misnomered "Lewontin's fallacy", are given credibility when ignorantly repeated by researchers adjacent to the field of biology, such as evolutionary psychologists.<sup>[10]</sup> The literature further demonstrates the pollution of discourse surrounding the Lewontin-Edwards dialectic by fringe right-wing extremists.<sup>[9]</sup> Upon further examination, it is evident that the multiple fallacies Lewontin did commit have yet to be addressed by Edwardians and that Lewontinians have spent the past 3 decades bringing attention to Edwards' false allegation against Lewontin, thereby contributing to its spread. Moreover, all claims pertaining to the dubious credibility of Edwardian non-biologists and the pollution of discourse by fringe right-wing extremists are equally applicable to Lewontinian biologists and fringe left-wing extremists, respectively.

## INTRODUCTION

Charles Roseman argued <sup>[3]</sup> that, contrary to Anthony Edwards' accusation, <sup>[2]</sup> Richard Lewontin did, in fact, account for the correlations of genetic loci in his demonstration of genetic variation among traditionally defined human races when he used it as the basis for his eristic that human racial classification has no utility. <sup>[1]</sup> Edwards (2003) refers to the alleged fallacy committed by Lewontin as "the old statistical fallacy of analysing data on the assumption that it contains no information beyond that revealed on a locus-by-locus analysis" and referred to it in the subtitle as "The Fallacy"; nowhere in his paper does Edwards proclaim to dub Lewontin's alleged fallacy as "Lewontin's fallacy". Roseman (2021) confounds Edwards' use of the English possessive in the title to mean that "Edwards dubs the [fallacy] 'Lewontin's fallacy'". This paper is not the first to point out the misnomer. <sup>[12]</sup> Despite the misnaming of Lewontin's fallacy (LF), the term will henceforth be used due to its acceptance in the Lewontin-Edwards vernacular.

This paper demonstrates the numerous fallacies Lewontin did commit and hereby dubs them "Lewontin's fallacies" (LFs). None of LFs have ever been addressed by Edwardians. Moreover, Lewontinians (Witherspoon *et al.* 2007, Marks 2010, Winther 2018) have, for the past 3 decades, refuted Edwards without rejecting his false allegation which serves as the basis of his argument. Thus, Lewontinians have equally contributed to the pollution of the Lewontin-Edwards dialectic.

Predictably, researchers adjacent to the field of biology have gleaned false informa-

tion from this miscarriage of science. <sup>[10]</sup> Roseman (2021) acknowledges "the breakdown in communication between [population genetics] and the remainder of the evolutionary sciences" without specifying who is responsible. Subsequently to this statement, he invokes white nationalist rhetoric and ideology as an emotional appeal for the urgency of the issue; Roseman not only repeats this point but also concludes his paper with it.

Whereas he is factually correct about the use of Edwardian arguments by far-right extremists, <sup>[9]</sup> emotional appeals serve no purpose towards the adjudication of science. To the contrary, the attempt to persuade the reader and, therefore, to suspend reason in coming to scientific conclusions further contributes to the pollution of the Lewontin-Edwards dialectic and its consequent breakdown in communication between population genetics and other evolutionary sciences. Thus, emotional appeal is an obstruction of science and it is one which is pervasive to Lewontinian discourse, as exemplified by Lewontin (1972): "Human racial [classification] is of no social value and is positively destructive of social and human relations."

It naturally follows that the willingness to obstruct science in the interest of coming to a self-admittedly desired conclusion evidences an ulterior motive. Yet, Lewontinians have not declared any conflicts of interest. This omission is now exposed as a lie. Furthermore, invoking only the far-right omits the mutually radicalizing relationship between it and the far-left. <sup>[15]</sup> As such, the very basis of this common emotional appeal is duplicitous, given the obvious parallel and shared responsibility between the two

fringes. In addition, the far-left is equally responsible for the use of LFs in its argumentation as the far-right is in its use of LF. This glaring bias of Lewontinians is consistent with a conflict of interest.

## THE ERISTIC

Lewontin (1972) points to the evolution of scientific thought as it pertains to the significance of intragroup versus intergroup genetic variation. Up until the development of protein electrophoresis and other immunological techniques from 1967 and on, it had been impossible to objectively quantify the degree of genetic variation.<sup>[1]</sup> As such, the primary markers of difference used to assess variation were (morphological and cultural) phenotypes which, according to Lewontin, biased the assessment in favor of greater intergroup variation.<sup>[1]</sup> Thus, Lewontin compares the alleles of the classically defined human races at 17 polymorphic loci to measure genetic variation.

His findings yielded the famous observation that there is greater variation within classically-defined races than between them: “Less than 15% of all human genetic diversity is accounted for by differences between human groups! Moreover, the difference between populations within a race accounts for an additional 8.3%, so that only 6.3% is accounted for by racial classification.”<sup>[1]</sup> This observation is then used to assert that the historical perception of large intergroup differences is a biased perception. Lewontin commits the following fallacies:

1. *Strawman*. Lewontin misrepresents traditional race science by falsifying intragroup homogeneity. The phenomenon of racial admixture (and degrees thereof) has long been known, as evidenced by the colonial use of the centuries-old words *mestizo* and *castizo*.
2. *Petitio Principio*. Lewontin points out that the convention used in traditional racial classification decreases “the calculated diversity between races and [increases] the within-race, between-population component, since it would lump together, in one race, groups that are genetically divergent.” Yet, he chooses to use traditional racial classification for his analysis. Therefore, his observation as it pertains to intergroup versus intragroup variation is inherently tautological. By definition, there could have been no other finding. Indeed, when race is defined in such a way as to maximize intragroup variation and minimize intergroup variation, we predictably find that there is greater variation within groups than there are between them. In truly circular fashion, Lewontin “found” what he wanted to find.
3. *Non-Sequitur*. When intragroup variation is greater than intergroup variation, those groups cease to be valid, according to Lewontin. This claim assumes that variation is a determinant of group validity. However, an imperfect goodness-of-fit does not invalidate a group. Instead, it merely evidences a group’s fuzziness.<sup>[16]</sup>
4. *False Binary*. Fuzzy groups are of no utility, according to Lewontin. Whereas it is preferable, in the interest of scientific accuracy, to conduct race science with racial definitions

which are not lacking-of-fit (when possible), fuzziness merely reduces predictive accuracy. It does not, however, eliminate it altogether.<sup>[16, 17]</sup> Depending on the degree of fuzziness, any conclusions or predictions stemming from fuzzy groups will, to some degree, fail to take into account the correlation structure of the data and will thus commit LF.<sup>[3]</sup> Nevertheless, they will also carry a greater degree of truth, the greater the goodness-of-fit.<sup>[17]</sup> As such, imperfect goodness-of-fit does not invalidate the entirety of traditional race science, the existence of human subspecies or genetic clusters, and their observed phenotypic patterns. Instead, it only demonstrates the need for greater rigor, and thus, more research into the subject.

5. *Ignoratio Elenchus*. Lewontin concludes from the relative lack of intergroup genetic variation that intergroup differences are insignificant. This form of reasoning is no different than the claim that the difference between humans and monkeys is insignificant, as they genetically differ by less than 2%.<sup>[18]</sup> This argument ignores that the relative lack of genetic variation between 2 groups only proves the significance of what little genetic difference there is to the tremendous intergroup phenotypic variation. Intergroup genetic invariance is, therefore, nothing more than statistical noise. In fact, pattern classification is one of the primary objectives in machine learning (ML),<sup>[19]</sup> even in the case of fuzzy sets.<sup>[20]</sup> The greater the classification accuracy despite set fuzziness, the better the ML algorithm for its intended pur-

pose. Thus, the ability of a ML algorithm to overcome statistical noise is a standard of efficacy to computer scientists. To contrast, statistical noise (lacking-of-fit) is used as evidence of cluster invalidity by Lewontin(ians) (Hunley *et al.* 2016, Long *et al.* 2003). Given that Lewontinianism is based on an axiomatic claim about the nature of cluster analysis and classification, the axiom must congrue with the prevailing mathematical, statistical, and computational theory pertaining to the aforementioned concepts. As demonstrated, the Lewontinian axiom contradicts the prevailing theory. Both cannot be simultaneously true.

The following points have not been added to the list of LFs, as they are not classical fallacies in the way the term is used in philosophy and mathematics. For reference, this paper dubs them “Lewontin’s errors” (LEs):

1. Importantly, it should be noted that classical race scientists did not, unlike Lewontin, have the hindsight of protein electrophoresis for locus-by-locus analysis, nor did they have any knowledge of modern genetics. All subjects generally increase in accuracy over time, as a natural result of the scientific process. Yet, Lewontin does not reject classical Newtonian mechanics for failing to take relativity into account. This double-standard evidences disingenuity on his part. If imperfect accuracy invalidates a scientific subject, then the near-entirety of science would have to be abandoned on those grounds.

2. Lewontin (1972) does not merely claim that classical definitions of race are invalid or have no utility, as Roseman (2021) suggests. Lewontin concludes his paper by claiming as such about human racial classification. The latter claim is doublespeak. The reader is falsely lead to believe that Lewontin has refuted the validity and utility of human classification itself, rather than traditional racial taxonomy. Moreover, the claim, even as it pertains to classically-defined races, contradicts modern medical considerations, such as racial differences in rates of specific cancer types,<sup>[21]</sup> differential genetic polymorphisms which interfere with drug metabolism,<sup>[11, 7]</sup> and race-appropriate patient care,<sup>[6]</sup> to name a few.

In the interest of specificity in scientific discourse, it is recommended that the following numeric standard be used to reference individual LFs or LEs, in the form: LF1, LF2, ... and LE1, LE2.

## THE ALLEGATION

Edwards (2003) alleges that Lewontin (1972) failed to take locus correlation into account, i.e. LF. Edwards provides an example of two hypothetical groups with a focal allele frequency set to 0.3 and 0.7, respectively; the probability of misclassification is 0.3 if only that locus is used as the determinant. In the very unrealistic scenario where a multitude of equifrequent loci are used, the probability of misclassification approaches 0.

However, Lewontin's 17 loci only correlate to the degree that the population groups share common ancestry and are otherwise independent, due to their genome-wide spread. Moreover, Lewontin could only have determined his intragroup variation estimates from a non-zero intergroup correlation. Roseman (2021) independently made the exact same argument, albeit in greater detail. Edwards (2003) is baseless, unfounded, inapplicable to reality, and tacitly accepts LFs with the assumption that Lewontin's only error was methodological.

Edwards' false allegation is an *ignoratio elenchus* of Lewontin's *ignoratio elenchus* (LF5) of classical race science. By taking the false allegation as fact, Lewontinian refutations of Edwards' *ignoratio elenchus* (Witherspoon et al. 2007, Marks 2010, Winther 2018) amount to *ignoratio elenchi* in themselves; Roseman (2021) is a welcome exception.

## THE DIALECTIC

Both Lewontinians and Edwardians tacitly accept LFs and LEs when they repeat points made by Lewontin and Edwards', respectively. Collectively, they are responsible for the pollution of scientific discourse and their supporters are guilty of publishing pseudo-scientific papers which deny the existence of human subspecies<sup>[4, 8]</sup> or which support its existence with false claims.<sup>[5]</sup> Both of these are obstructive to scientific progress and are responsible for the spread of online misinformation in the political fringes,<sup>[9, 15]</sup> given that both camps are the originators of that false information.

Therefore, the political fringes merely amplify Lewontinians and Edwardians. To place the blame on the far-right or evolutionary sciences outside of population genetics<sup>[3]</sup> is a deceptive maneuver which deflects responsibility from the population geneticists which are guilty of obstructing the conduct of science to begin with.

## CONCLUSION

Lewontin did not commit LF, but he did commit LFs. Edwards' contribution to the discussion has been entirely counter-productive to the proper development and understanding of human biodiversity, as he failed to address Lewontin's argument and instead made a false allegation of no scientific relevance to reality.

This is a scientific issue of great concern, as both Lewontinians and Edwardians are responsible for the spread and popularization of pseudo-scientific race denial. All scientists with concern for a society which rewards beauty and genius, and for a state which protects its women and children by illiberal means, must be prepared to combat the propensity by which science is tarnished by the backwards and religious aims of liberal zealots.

## CONFLICT OF INTEREST

None.

## DATA

N/A

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