JOURNAL OF CONTROVERSIAL IDEAS

Article

Should Sports Be Organized on the Basis of Sex?

Daniel Kodsi [1,*] and John Maier [2]

[1] Department of Philosophy, New York University, 70 Washington Square South, New York, NY 10012, USA
[2] Balliol College, University of Oxford, Broad Street, Oxford OX1 3BJ, UK; john.maier@balliol.ox.ac.uk
* Corresponding author: danielkodsi@gmail.com

Submitted: 1 January 2026, accepted: 8 April 2026, published: 10 May 2026

Abstract: This paper argues that it is justified to exclude male people, and only male people, from certain spaces—sports teams, leagues, events and competitions—set aside for female athletes. More generally, it argues that it is justified to organize sports around the biological distinction between male people and female people. The first part of the paper argues that the problem of how to organize sports is not *sui generis*, but rather an instance of a more general philosophical problem to which the consideration of which categories are the more natural is relevant. Having offered some initial motivation for the methodological appropriateness of considerations of comparative naturalness, the paper argues that the category female enjoys greater comparative naturalness than any other in the vicinity. The paper concludes that proposals to exclude males reflect no special animus against cross-sex-identified males. This paper is based on an amicus brief submitted to the United States Supreme Court in September 2025, ahead of a landmark civil rights decision concerning the status and scope of the provisions that Title IX makes for women's sports.

Keywords: sex; natural properties; natural kinds; sport; gender; transgender; fairness

How to cite: Kodsi, D.; Maier, J. Should Sports Be Organized on the Basis of Sex? *Journal of Controversial Ideas* **2026**, *6*(1), 6; doi:10.63466/jci06010006.

1. Introduction

This paper is based on an amicus brief that was submitted to the United States Supreme Court in September 2025.[1] The brief sought to present relevant philosophical

[1] *Brief for Amici Curiae of Dr. Daniel Kodsi, Mr. John Maier, Prof. Robert George and 21 Other Philosophers in Support of Petitioners* (2025).

considerations to the justices ahead of what was likely to prove a landmark civil rights decision whichever way the court ruled. The Court was to hear two cases together: *Bradley Little, Governor of Idaho, et al. v. Lindsay Hecox, et al.,* and *West Virginia, et al. v. B. P. J., by her next friend and mother, Heather Jackson.* On their face-value interpretation, the statutes at issue in those cases enable female persons, and only female persons, to participate in certain spaces—namely, in certain sports teams, leagues, events and competitions. To achieve this aim, the statutes preclude male persons, and only male persons, from participating in those sports teams, leagues, events and competitions. On this face-value interpretation, the statutes propose to organize sports in part around the sex categories: female (person) and male (person).

The paper presents the central arguments of the brief, while abstracting from the specific legal details of the two cases brought before the U.S. Supreme Court. In particular, it uses the distinction between more and less *natural* categories—in the sense of "natural" popularized by David Lewis (1983, 1984)—to argue that organizing sports around the sex categories is fully justified, given the widely accepted background assumption that it is justified to organize sports approximately around the sex categories.

One note on terminology is in order. According to one simple view (which coheres well with the argument of this paper), the words "woman" and "girl," and "man" and "boy," pick out subsets of the sex categories female and male, respectively.[2] On the latter view, the English word "woman" and the English expression "adult human female" refer to the same thing; likewise the English word "boy," and the English expression "juvenile human male," refer to the same thing. Granting that view of the meanings of the key terms, the argument of this paper could legitimately proceed by speaking in terms of the justifiability of excluding *men and boys* from spaces and resources set aside for *women and girls*. However, we will avoid couching the paper's central question in those terms. This is because talking in this way is sometimes perceived as contentious, and, worse, can cause confusion. For clarity and to minimize the scope for such confusion, from here on the argument of this paper will be uniformly written using the explicitly sex-based language of "male" and "female." That is, the central question the paper addresses is its titular question: should sports be organized on the basis of sex?

The rest of this paper proceeds as follows. Section 2 elaborates the practical problem of how to organize sports and the broadly metaphysical distinction between more and less natural categories, and defends the relevance of the latter to the former. Sections 3 and 4 use considerations of naturalness to reinforce the case *for* organizing sports around the sex categories, as well as the case *against* reorganizing sports around alternative categories to which vividly *ad hoc* exceptions have been built in. Section 5 extends the discussion to the question of how to interpret the intended function of laws which propose to ban all and only males from certain spaces, arguing in effect that they are *not* reasonably understood as motivated by the aim of discriminating against those males actually attempting to join the relevant spaces. Section 6 briefly concludes.

[2] For discussion and defense, see Byrne (2020, 2023); Kodsi (2024).

2. Natural and Gerrymandered Categories

The question of whether it is justified to organize sports around the sex categories is not sui generis. That is, considerations that bear on the question of which categories to use in general bear on the question of which categories to use in the specific case of sports. (Indeed, it would be surprising if the organization of sports turned out to give rise to very special methodological problems.) It should be noted that within the subdiscipline of the philosophy of sport the question of how to appropriately group different competitors together in competition is often settled by reference to normative criteria such as fair play, meaningful competition or equal opportunity (see, for instance, Loland, 2002, Reid, 2022 and Pike, 2023). Such normative criteria risk being less tractable than the phenomena they are supposed to illuminate; arguably our judgments as to which competitions are fair, meaningful, or conducive to equal opportunity depend in part on our prior ability to make discriminations between the relevant categories, not the other way round. In any case, such approaches risk ignoring the fact that philosophers quite generally face the challenge of finding principled ways to distinguish different categories; we should expect the general tools they have developed to apply readily to the case of sports classifications. In particular, responding to the general need to make principled discriminations among the many alternative ways there are of categorizing any messy phenomena, philosophers have come to recognize a distinction between more and less *natural* categories.[3]

As is helpfully elaborated in Dorr and Hawthorne (2013), what makes some properties more natural than others can be glossed in a variety of ways, several of which were influentially introduced in Lewis (1983).[4] A fruitful feature of this distinction is its high level of generality: it applies in a similar way across a wide variety of subject matters. Further reflection on the organization of sports reveals that considerations of "naturalness" are not just relevant in principle to the problem of organizing sports but widely relied on by decision-makers in practice, albeit implicitly.

Consider an analogous problem. Is it justified for there to be sporting events in which middle schoolers (aged 11–14) may compete, but from which all fully grown adults are excluded? Presumably. But why? One simple answer that springs to mind is that adults are faster and stronger than middle schoolers. However, on its own, that consideration does less to explain why sporting events are widely organized around age categories than one might expect.

An initial complication is that not all adults are faster and stronger than all middle schoolers. Of course, it is true that adults are on average faster and stronger than children and young teenagers. However, even divergences in the average performance between groups don't correspond to the lines around which sporting events are usually organized in any very straightforward way. That is, it is not always good sports policy to have dedicated sporting events for members of some underperforming group. An obvious counterexample: on average, athletes who never train are weaker and slower than athletes who train many

---

[3] See Lewis (1983, 1984); Dorr (2019); Dorr and Hawthorne (2013).

[4] Philosophers have explored the ideas that the less natural properties supervene on the more natural ones, that the natural properties are those that tend to be identified by the right methods in natural science, and that natural properties are somehow easier to refer to than gerrymandered ones because they act as 'reference magnets'. Readers interested in the twists and turns of this well-developed debate in metaphysics should consult the cited literature.

hours a day, but that difference hardly implies that there should be special sporting events set aside for lazy athletes, from which all hard-working athletes are excluded.

As these initial observations already suggest, the question of which lines to organize sports teams, leagues, events and competitions around—the challenge of organizing sports, as we shall abbreviate it here—is not always easy to answer. There is no obvious, one-size-fits-all formula available to settle whether to organize sports around the line between people who exemplify a given attribute which correlates with performing well at sports and those who do not.

This becomes especially clear when one attends to the dizzying array of distinctions—transient and permanent, biological and environmental, social and economic—that, to one degree or another, are correlated with differences in athletic performance. For instance, being taller is correlated to some extent with being better at basketball. Should basketball competitions therefore be reorganized around height categories? If not, why not?

When first presented with the full range of variation relevant to performance in sports, some pessimists may be tempted to declare an early defeat and conclude that all ways of organizing sports "are on a par": no way is any better than any other. Exactly what practical implications this subversive judgment is supposed to have for the real-world organization of sports is unclear. It is nevertheless clear that it should be rejected. Though their ways of doing so may be far from perfect, local, national and international sports regulators have in fact converged upon reasonable, non-arbitrary ways of organizing sports competitions the world over.

A more general reason to expect there to be more and less principled ways of organizing sports is that the problem of how to organize sports is similar to other problems of categorization. Such problems often seem intractable at first yet turn out to admit of systematic solutions.

Here is an example. Consider the long-standing scientific challenge of how to organize the animal kingdom into principled general groupings. Animals differ from each other in indefinitely many ways. Some animals can swim, while others can fly; some animals have four legs, while others have six; some animals have fur, while others have feathers; some animals have a relatively recent ancestor in common, while others have only a distant ancestor in common. Prioritizing one, rather than another, basis for classification would lead to radically different taxonomies of the animal kingdom. For instance, is the dolphin more similar to the shark, given that both live in the water, or to the hippopotamus, given that both have lungs? How are scientists to decide which basis for categorization to rely on in their thinking?

As before, when first presented with the full range of variation among animal species, some pessimists may be tempted to declare an early defeat and conclude that all ways of organizing the animal kingdom are "on a par": no way is any better than any other. But the development of principled zoological taxonomies within the broader scientific research program of evolutionary biology demonstrates that such pessimism is ill-founded. In the end, a systematic approach, based in cladistics, to organizing the animal kingdom into classes (species, genera, families, orders, …) turned out to be feasible. Within the philosophy of biology there remains debate about how to fine-tune these taxonomical boundaries; but that disagreement now takes place against a much higher level of background agreement as to the nature of the categories it is appropriate to employ. The emergence of such agreement is typical of a lot of scientific progress.

Of course, the analogy with animal taxonomy leaves open the question of just how much systematicity we can hope to achieve when it comes to the challenge of organizing sports. Equally, however, there is no initial reason to imagine the problem of organizing sports to be a locus of special obstacles. Further, reflecting on what sorts of categories are best to use in general is, the rest of this section argues, helpful for getting some traction on the problem as it arises in the specific case of sport.

2.1. Tests of Comparative Naturalness

In Plato's *Phaedrus*, Socrates proposes an ideal designed to govern clear and consistent discourse: "of dividing things again by classes, where the natural joints are, and not trying to break any part, after the manner of a bad carver" (264–6). Though the intervening centuries have brought many twists and turns in philosophical thought, Plato's contention that good reasoning "carves nature at the joints" commands broad support among many contemporary theoretical philosophers and the phrase 'joint-carving' has consequently entered the professional lexicon as a term of approbation. As has already been alluded to, in related terminology commonly used to advert to Plato's ideal, philosophers today commonly recognize a general distinction between more and less 'natural' categories. Facts about which categories are the more natural are supposed to have implications for which are most relevant to thought and action across a variety of domains.

The intended sense of "natural" that is being brought into focus here is best introduced by way of examples. Consider the following contrasting pairs of categories:

Gold	*Gold or iron pyrite (also known as "fool's gold")*
Water	*Water located in Lake Erie*
Oak (tree)	*Tree that looks like an oak from 10 feet away*
Odd (number)	*Number that is odd or less than 94*
Car	*Car owned by Bill Clinton*
Fact	*Whatever Paul McCartney believes is a fact*
American	*American born in either 1979 or 2003*
Mammal	*Mammal discovered before 1830*

Although the categories on this list all differ in various ways from each other—they run the gamut from natural-scientific categories (gold, water, mammal) to abstract categories (odd number, fact) to social categories (car, American)—there seems to be a general difference between each category on the left side and the neighboring category on its right side. Moreover, as philosophers sometimes say, the exhibited contrast is *projectible*: having been introduced to it on the basis of a few examples, it is easy to intelligently apply it to new cases. Readers will probably be able to tell on which side of the list to put the category *iced coffee made with beans from Colombia* and on which to put the category *beverage*, or on which side to put the category *electron* and on which to put the category *electron that is part of the Eiffel Tower*.

In contemporary philosophy, the terminology of "naturalness" has become influential as a means of describing this general difference between some categories and others.[5]

[5] The use of "natural" in this paper is primarily borrowed from the literature on natural properties (Dorr, 2019). But it also has some connections to the literature on natural *kinds* (Bird, 2022).

Natural categories contrast with what are known as gerrymandered categories: categories that have weird, jagged or otherwise arbitrarily delineated boundaries.[6] In general, it is quite hard to make a once-and-for-all determination as to exactly how natural a category is, when judged in isolation. But problems of categorization—such as those that arise in sports and zoology—typically involve making comparisons between different potentially relevant categories. And in many cases, such as those listed above, it is possible to reach robust judgments as to relative or comparative naturalness: that is, as to which of two categories is more natural than the other.

There is, unsurprisingly, much underlying disagreement among philosophers about what makes one category more natural than any other. But a popular idea is that the more natural a category, the more its members are similar to each other in respects that matter and dissimilar to non-members. Conversely, the more unnatural a category, the more its members are dissimilar to each other in respects that matter but similar to non-members.

Given this understanding of what makes for naturalness, a simple test for the unnaturalness of a category is how random or arbitrary its membership is: something that will tend to reduce both intra-categorical similarity and inter-categorical dissimilarity. Could membership in the category very easily have been different? Is its membership liable to change in unpredictable ways over time? The answers to these questions support the judgments that categories like *mammal* and *water* are more natural than categories like *mammal discovered before 1830* and *water located in Lake Erie*, respectively. The very same species of mammal could have been discovered before the year 1830 or after it, as a function of mere historical contingency, changing very little else about the species itself. The same molecule of water could be located in Lake Erie or not located in Lake Erie, again changing very little else about it. In fact, specific water molecules do move about the Earth in a more or less unpredictable way, as modeled by the Earth's water cycle.

A second test for the unnaturalness of a category is whether it encodes sensitivity to the value of some easy-to-vary "parameter." For example, consider the category *number that is odd or less than 94*. Membership in this category is not contingent, but necessary: whether a certain number is either odd or less than 94 can't change. But the category is just one of infinitely many equally arbitrary alternatives which could be specified using similar disjunctive formulations: *odd or less than 90*, *odd or greater than 103*, and so on. Unless there is some reason to think that all of these categories are natural, a safe conclusion is that none of them is especially natural.

A third important test for the naturalness of a category is simply: what happens when one attempts to reason on the basis of the category in practice? This pragmatic test is supported by the fact that actions guided by natural categories will tend to go better than actions guided by gerrymandered ones. As a simple illustration of the connection, suppose a team of engineers were to decide to organize its work around the category *gold or iron pyrite*, rather than the more natural category *gold*. In particular, suppose that when constructing connectors intended for military use, these engineers use gold and iron pyrite interchangeably, given that both materials belong to the category *gold or iron pyrite*. The expected result would be connectors that are unfit for the important purposes they are

[6] Of course, such a metaphorical use of "gerrymandered" is intended without prejudice to the actual electoral practice of gerrymandering.

supposed to serve. The moral is that the disunity of the category *gold or iron pyrite* is not merely of theoretical interest. Insufficient sensitivity to its unnaturalness would have real, and perhaps disastrous, practical consequences. Relatedly, it is no mere accident that modern-day scientists and engineers do not lump iron pyrite together with gold, despite the two minerals' superficial visual similarities.

Even taken together, the three tests just outlined do not provide a perfectly reliable criterion for determining whether a category is natural or gerrymandered. This fact—and the relatively abstract level at which one has to conduct any general discussion about the character of natural categories—notwithstanding, the idea of naturalness is tractable enough to be of use, and in particular to be of use for adjudicating among rival ways of organizing sports.

2.2. Natural Categories in Sports

For all that has been said so far, doubts may remain about the relevance of the distinction between natural and gerrymandered categories to the problem of organizing sports. But these doubts are misplaced, as we will now argue. Reflection on where lines are in fact drawn—and, just as significantly, not drawn—in sports reveals that, far from being irrelevant to the challenge of organizing sports, the distinction between natural and gerrymandered categories is implicitly relied on by sports regulators virtually all the time. Appreciating that this is the case will also make clear why the prioritization of natural categories over gerrymandered ones is not optional, but rather a mandatory constraint on the organization of sports, as it is in other human activities.

The key point is simple. Here is an example to help illustrate it. In tennis, as in other sports, there are many junior competitions, participation in which is limited to those aged 18 or younger. Suppose that it were to be proposed that the line for inclusion in junior tennis be redrawn. In particular, suppose it were proposed that the criterion for participation in junior tennis should be weakened to make an exception for non-juniors who happen to be from Switzerland. That is, rather than at the boundary between the categories *junior* and *non-junior*, the line for participation in junior tennis is to be redrawn at the boundary between the categories *junior or from Switzerland* and *neither a junior nor from Switzerland*. Clearly, such a proposal is to be rejected. But what is wrong with it?

An initially tempting answer might be this: enacting the proposed change to junior tennis would have bad and unfair results because Swiss non-juniors would start to win junior tennis tournaments. And that prediction may well be true. But the challenge could be pressed in response of how we know what the results of such a change to the condition for eligibility to compete in junior tennis would be? After all, who knows how many Swiss non-juniors would actually want to compete in junior tennis if given the chance? There is always a chance that few, if any, would. More generally: there is nothing unfair about the fact that certain subsets of a given sports category tend to win competitions conducted within it. Trivially, certain subsets—the more athletic, better trained, or more gifted with hand-eye coordination—of the category juniors already tend to win tournaments conducted among juniors. So why would it be unfair if the Swiss subset of the category Swiss or junior tended to win junior-or-Swiss tournaments?

In principle, one could attempt to respond to such questions without invoking the difference in naturalness between the categories junior and junior or Swiss. One could

attempt to think up some plausible specific considerations, tailored to the example in hand, that distinguish the two categories. But that would be a trap. The reason it would be a trap is that proposals to organize sports around gerrymandered categories can be multiplied without limit. As a simple practical matter it would be infeasible to have to provide, in the case of each candidate proposal, bespoke evidence pertaining to the likely effects of drawing the line in a given sport in the mooted place as a means to rule out making the proposed change. As a theoretical matter, the commitment to evaluating arbitrarily many ad hoc proposals on their specific merits concedes too much to the ungrounded assumption that there is no general basis on which some proposed ways of organizing sports can be appropriately rejected by default.

Boxing commissioners, for example, are under no obligation to take seriously potential proposals to weaken the criterion for inclusion in the welterweight category to make an exception for any or all of (i) boxers with exactly shoulder-length hair, (ii) boxers from Laos or (iii) boxers who weigh exactly 156 pounds. Redrawing the relevant line in boxing in any of those ways would in effect be to partly reorganize boxing matches around a vividly gerrymandered category: something that should not be done.

The absence of any conspicuously gerrymandered categories from any mainstream sporting competitions is itself informative: their absence indicates that criteria of naturalness operate in the background, implicitly circumscribing the range of options under consideration by decision-makers for inclusion or exclusion in sports in the first place. The fact that naturalness is prioritized by default also helps to explain why the role of naturalness in structuring sports competitions has often gone unrecognized. Many of the categories currently used in sports are clearly far from perfectly natural, especially as compared to the naturalness of categories relied on in, say, fundamental physics. (That this is the case is of course more revealing of the differing natures of fundamental physics and sports than it is of the comparative failures of sports organizers to avail themselves of the very best organizational boundaries.) Nevertheless, the absence from mainstream sporting competitions of vividly gerrymandered categories such as *junior or from Switzerland* testifies to the fact that naturalness is prioritized in the organization of sports, whether sports regulators think in those terms or not.

Considerations of naturalness can also be brought to bear on the problem in hand in a more positive way, to encourage organizing sports competitions around certain categories (not just to rule out organizing them around extremely gerrymandered ones). Most notably, one category that it is clearly justified to organize sports around is the *open* category: that is, the category in which anyone can compete. For a sports category that is subject to no special restrictions is in effect as natural as the species category *human* itself. Given the assumption that sports competitions should as far as possible be organized around natural categories, it is unsurprising that many competitions do in fact avail themselves of an open category. In all sorts of casual and amateur sporting events, anyone who wants to participate is free to. For instance, more or less anyone can join a pick-up basketball game or participate in an open-entry runners' marathon. Admittedly, professional sports tend not to explicitly incorporate an open category. The reason for this omission is in effect the subject of the remainder of this paper.

3. Sex Categorization in Sports

Organizing sports by separating male from female people represents a departure from the open category. From one crude point of view, categorizing within sports competitions according to sex compromises the fairness embodied in the open category, which made no such discrimination between competitors. From another point of view, to fail to separate on the basis of sex would be an injustice to female people, who would thereby be deprived of an opportunity to compete on fair terms.

A roughly parallel tension to that just sketched is tracked in American civil rights law. There, the prima facie tension is between two legal doctrines: equal protection law and Title IX law. Title IX is a civil rights statute dating from the 1970s designed to prevent discrimination on the basis of sex, for instance in educational, academic and athletic contexts. Equal protection law, as enshrined in the Fourteenth Amendment to the U.S. Constitution, on the other hand, requires that laws apply in the same way to all individuals regardless of distinguishing characteristics such as sex.

In general, equal protection law requires that "similarly situated" individuals be treated equally. One of the main implications of equal protection law is that, by default, it is unjustified for the law to treat male people and female people differently. Indeed, part of the purpose of the Supreme Court's recognition of sex as a so-called 'quasi-suspect' class is to ensure that laws which, taken at face value, do treat male and female people differently are subjected to proper scrutiny.

Title IX, meanwhile, is a paradigm of a law that *does* classify on the basis of sex. Indeed, as applied to sport, one reasonable understanding of Title IX provisions is that it says that decision-makers may treat males and females differently in sporting contexts. In particular, Title IX enables decision-makers to create and foster the existence of categories that exclude males and only males: namely, female sports teams, leagues, events and competitions. This raises an obvious question: why isn't Title IX in violation of equal protection law?

When it comes to sports, this obvious question has a familiar answer: because the distinction between males and females is systematically correlated with differences in performance in sports. Empirical studies confirm that males' physiology and anatomy confer on them a 'profound' advantage over females when it comes to sporting events that rely on strength, power, speed and aerobic endurance (Senefeld & Hunter, 2024). Nor is the male physiological advantage significantly attenuated by testosterone suppression (Hilton & Lundberg, 2021). To a good first approximation, any kind of sporting event in which males can compete is a sporting event that males will win. In all the most popular sports, many non-professional male athletes can out-perform even the best professional female athletes. A representative data point: in 2016, every teenage male finalist in the NBNO ("New Balance Nationals Outdoor") track-and-field meet for high school athletes had a faster time than every female finalist in the Olympics across all of the 100-, 200-, 400- and 800-meter events.[7] These examples are readily multiplied.

Such observations help explain the provisions Title IX makes for female sports. Having sports events reserved for female athletes, and from which male athletes are excluded, ensures that female people have a chance to compete in and win sporting

[7] See 'Boys vs Women', link to the post.

events. Correspondingly, so far from constituting illicit sex-based discrimination, Title IX makes fair competition possible. The background moral point is familiar. Although unfairness often consists in treating similar individuals differently, it can also sometimes consist in refusing to treat different individuals differently. Refusing to make special provisions for female sports plausibly exemplifies the second half of this maxim.

The foregoing considerations will not be news to most readers of this paper. Sports provide a paradigm case in which treating the sexes differently—specifically by separating them—serves the interests of both, while prejudicing the interests of neither. The question only remains, then, whether it is justified for states and other decision-makers to enable female people, and only female people, to participate in certain sports teams, leagues, events and competitions, and to do so by the means of excluding male people, and only male people, from those sports teams, leagues, events and competitions. That is, the question is whether it is justified for sports to be organized *exactly,* rather than merely approximately, around the sex categories. We will now argue that it is.

Categorizing Exactly on the Basis of Sex

One reason to prefer a classification in sports that tracks the distinction between the sexes *exactly* derives from the comparative naturalness of the sex-based categories *male* and *female*. The distinction between males and females has all the hallmarks of being a natural distinction in the sense introduced above. In particular, the distinction between males and females is one of the most explanatory distinctions between higher organisms in the theory of evolution by natural selection, itself one of the most successful scientific research programs ever conceived. It is not the aim of this paper to adduce all the relevant evidence that attests to the naturalness of the sex distinction. Suffice it to say that if any distinction between types of humans is natural, then the distinction between female humans and male humans is.

It bears re-emphasis that the term “natural” is still being used here in its somewhat technical philosophical sense: the sense in which it ranges easily over objects both abstract and non-abstract, scientific and everyday, and so forth. The categories *male* and *female* are clearly also natural in another more familiar sense, in virtue of being biological categories. Moreover, the fact that they are natural in this latter sense plausibly stands in some relation to their being natural categories in the former somewhat technical philosophical sense. But, still, it is important not to confuse or conflate the two notions. What is of central significance in this argument is that the distinction between males and females is natural in the sense of not being gerrymandered.

It is also worth emphasizing that the claim that the categories *male* and *female* are natural in this sense does not imply that it is always or even usually justified to treat males and females differently. After all, though there are various ways in which male humans differ from female humans, there are indefinitely many other ways in which the sexes are alike. Recognizing the reality of differences between the sexes is fully compatible with recognizing the reality of similarities between the sexes, much as recognizing the physically important distinction between gold and iron pyrite is compatible with recognizing the many physically important properties that gold and iron pyrite have in common.

Those qualifications out of the way, we are in a position to state the main claim of this section of this paper: that, since this is a case in which it is recognized that some line needs to be drawn *approximately* along the boundary between males and females,

lawmakers and sports organizers more generally are justified in drawing the line *exactly* at the boundary between males and females, given that it is the most natural line in the vicinity. More specifically, lawmakers are justified in protecting the interests of female athletes by means of excluding male athletes from various sports teams, leagues, events and competitions.

At a minimum, opponents of organizing sports exactly around the sex categories face the burden of proof. They must provide positive reasons not to embrace the simple approach of having female-only sports events. In effect, they are arguing for the overturning of a natural default currently in operation.

Typically, efforts to motivate alternatives to the division of sports into male and female events and competitions pursue what could be broadly characterized as "reductionist" styles of argument. This strategy often involves a mixture of casting doubt on the scientific good standing of the sex binary, while attempting to shore up the standing of some alternative non-sex-based approach to organizing sports.

To cast doubt on the robustness of the sex binary, one standard move is to advert to the existence of intersex individuals. Such moves establish nothing to the purpose and have been addressed comprehensively elsewhere (Byrne, 2023). It is not in general true that the existence of a few hard-to-classify problem cases is sufficient to undermine an otherwise robustly discriminating biological categorization. In the specific case of intersex conditions in humans, both the preponderance and the nature of the phenomenon are often mischaracterized. Disorders of sexual development (DSDs) are rare, and those that make for genuine ambiguity as to which sex category an individual belongs to are vanishingly so (ibid).[8] Finally, the controversial question that is central to the organization of sports is usually not about how marginal cases of physiologically atypical individuals should be handled, but rather whether some unambiguously male-typical individuals should be admitted to the female category.

At the same time as casting aspersions on the robustness of the sex binary, philosophers of a reductionist inclination sometimes try to motivate an alternative to sex categorization that they allege is better suited to the job of organizing sports. Usually what is alighted on is some, allegedly more precise, biological characteristic.

There is, of course, a large cluster of specific biological distinctions which correlate at least to some degree both with being male (and hence with sex differences) and with superior performance in sports. Doriane Coleman, whose work is cited by Idaho's state law, lists several examples: among the many traits that correlate both with being male and with performance in sport are levels of testosterone, hemoglobin levels, body fat content, the storage and use of carbohydrates, and the development of type 2 muscle fibers (Coleman, 2017).

Indeed, a great many other physical traits, such as the ability to grow a beard or tendency to be red-green color blind,[9] will also correlate with superior performance at sport. In these latter cases, the traits' obvious causal irrelevance to sporting prowess more readily reveals that the correlation observed is explained by the fact that being male is correlated both with the cited physical traits and with superior performance at sport.

---

[8] Ibid.

[9] Red-green color blindness is more than ten times as common in human males as it is in females.

Relatedly, the fact that there is an extremely large cluster of more and less specific biological distinctions which roughly map onto the difference between males and females has sometimes been invoked to problematize the simplicity—or in the present terms, naturalness—of sex categories. But this is just a confusion. The fruitful application of the sex-based categories both in science and everyday life testifies to their comparative naturalness, as contrasted with these proposed alternatives. Proponents of alternative bases for categorization often selectively overlook the way in which their own objections to the sex distinction—accusations of arbitrariness, vagueness, or the existence of unclear cases—apply even more damagingly in the case of their own preferred criterion.

Consider what is often thought to present a problem for the sex-based proposal: the case of male people with complete androgen insensitivity syndrome (often referred to as 'CAIS' males). Male people with this rare genetic condition are insensitive to testosterone and other androgens from birth onwards, due to variants in the androgen receptor (AR) gene. These individuals consequently develop female-typical secondary sexual characteristics, despite being otherwise (e.g. chromosomally) male-typical. Physically, CAIS males are typically indiscriminable from female people and often choose to socially present that way. Thus, if we are to be at all tempted to somehow 'fine-tune' the sex categorization so as to reach a different verdict about atypical problem cases, CAIS males are a paradigm of those who should be accommodated. However, on one popular alternative to the sex binary—namely, an individual's circulating level of testosterone—the case of CAIS males fails to be accommodated in the desired way.[10] This is because CAIS males have male-typical levels of testosterone circulating in their bloodstream: it is just that their bodies are unable to respond to it in the typical way. To be sure, that is just one illustration of how an alternative to the sex binary can clearly fail to improve on the classification achieved by sex. But given space and appetite for the exercise, such cases could be multiplied.

All of the various fine-tuned biological distinctions in the vicinity of the distinction between males and females provide less natural alternatives to it. They are also less relevant to understanding performance in sports than the distinction between males and females itself. Within theoretical science, it is a mistake to assume that the distinction between male and female is to be understood in terms of some one element of the many basic distinctions typically associated with it: in terms of chromosomes, testosterone levels, the possession of certain body parts, or whatever. Scientists have not eliminated sex terms from their theoretic vocabulary; on the contrary, they continue to find them conveniently general terms in which to frame their thinking. The lesson is that attempted physical reduction does not always register that an increase in theoretical depth has been achieved.

For similar reasons, there are no grounds to expect it to be helpful to eliminate the terms "male" and "female" from reasoning about the organization of sports. There too, we should feel a strong pull towards anti-reductionism. Alighting on any one more fine-grained biological feature signals a diminution, rather than increase, in our ability to

[10] We mention this alternative ground for classification not merely because it is generally credited in wider political debate, but because it was an alternative adverted to several times in the materials escalated from the lower courts up to the Supreme Court in the legal cases which led to the writing of this paper.

think in a clear and readily generalizable way about the problems of fair competition we are interested in.

Consider, as a somewhat different example, laws based on the distinction between the categories *physically mature human being* and *physically immature human being*—or, as it is more colloquially known, the distinction between adults and children. For instance, in most democracies, adults can vote and children cannot. There is a broad informal consensus that there are many, more fine-grained, traits, including competencies and interests, relevant to an individual's entitlement to vote. Most of these traits tend to emerge around the time of adulthood (physical maturity), though some individuals will develop them precociously and others belatedly. It is virtually never the case that a given individual comes to possess these traits for the first time on the day they become an adult. Nevertheless, it is fully appropriate for the law to use the non-reductionist attribute of maturity to distinguish those who are legally entitled to vote from those who are not. If pressed to explain or justify voting age restrictions, people may well begin to advert, in reductionist style, to some one or other of the underlying traits correlated both with maturity and with the entitlement to vote. But it would be a mistake to think, for that reason, that voting laws were in some sense really trained on these other traits rather than maturity itself. That would be a misinterpretation of the rule in question: one that is about the age of individuals in the most straightforward sense.

Attempts to defend reductionist alternatives to natural distinctions often conceal grave theoretical and practical problems. Typically, there is a reason the reduced categories were not the ones identified to begin with: they tend to be less natural, more arbitrary, more challenging to measure or detect, less well integrated into neighboring domains of inquiry, and more likely to conceal hidden difficulties behind their false promise of greater precision. And it would certainly be a mistake to assume that the properties referred to in the law are somehow mere "proxies" for such ill-specified reductionist alternatives. A far better assumption is that lawmakers intend to pick out the categories that they actually, explicitly, literally pick out. This is clear enough in the case of age in relation to voting laws. It is even clearer in the case of sex in relation to sports.

4. Non-Sex-Based Categorizations and the Costs of Complication

We are arguing that given the broadly conceded fact that it is justified to organize sports approximately around the distinction between males and females, it is justified to do so exactly. That justification is only strengthened, we believe, when explicit alternatives to the sex distinction are put on the table. One reason is that those alternatives can then be compared to the distinction between males and females as regards their relative naturalness.

However, it bears pointing out that opponents of the proposal that sports should be organized exactly on the basis of sex very often *do not* provide an explicit alternative to sex-based classification. Quite remarkably, as was pointed out in the amicus brief on which this paper is based, in neither of the two cases before the Supreme Court did the plaintiffs or lower courts explicitly identify any alternative category that could do the

job instead.[11] That omission is itself remarkable, given the fact that law must be made tolerably clear in order to be understood, implemented and followed. That places a burden on legal revisionists to say clearly what they think the law should be when it comes to making any proposals for a change to it.

The omission also raises a difficulty about how to interpret opponents of sex-based categorization in sports in the most charitable way. Without an explicit alternative to the distinction between males and females, it is impossible to compare rival proposals for their relative naturalness. Those who criticize reliance on one distinction, while refraining from offering an explicit alternative to that distinction themselves, may be suspected of implicitly recognizing that any alternative they could offer would readily fall prey to versions of their original criticism, thereby revealing those criticisms to be less discriminating and hence less damaging than they first appear.

As suggested in the previous section, that dynamic is indeed frequently exemplified in the case of sport. It is common for opponents of strictly sex-based categorization to vaguely suggest there exists a clear alternative to sex, which would be fairer, and more justified, to use in its place as a demarcating criterion. But as the case study of CAIS males suggests, when explicit proposals are made precise enough to consider, they give rise to serious problems of exactly the kind that were held to count against the sex demarcation. The 'circulating-levels-of-testosterone' criterion cannot handle even the case of males as developmentally similar as CAIS males are to females: that is, it cannot generate the desired verdict that they should be allowed to participate in female sports.

That failure is far from a one-off. Indeed it points to a wider methodological lesson, with practical implications too, about how to respond to apparent problem cases. Much as it can be tempting to somehow accommodate anomalous cases (such, you may think, as that presented by CAIS males) when engaging in theorizing, the attempt to do so can lead to trouble. Replacing a simple theory with a more complicated one so as to accommodate a single special case, or set of cases, can often result in a surprisingly large decrease in naturalness, without even guaranteeing that the attempted accommodation will cover the cases one hopes to assimilate under the theory. For instance, those who hope to adopt a form of sports categorization that is more inclusive of cross-sex-identified males often favor the criterion of circulating levels of testosterone; but that criterion clearly fails to accommodate CAIS males, an anomalous grouping that should be smoothly accommodated by a fairer theory if any is, given their developmental similarities to female people. The general lesson is that in becoming more fine-grained, a categorization often simply becomes worse at doing its job.

The potential for complicated forms of categorization to encounter unexpected obstacles is one reason that scientists, and model-builders quite generally, place a good deal of priority on the theoretic virtue of simplicity. Indeed, simplicity tends to be favored even when it comes at the perceived cost of some degree of recalcitrance in the data being described. Systematic thinking in more practically oriented areas has converged on a similar insight. This includes law. Indeed, in previous judgments the United States Supreme Court, for instance, has expressed its wariness with the ideal that classifications

[11] As mentioned in the previous section, both Courts appeal in passing, and with somewhat less than explicit commitment, to the promise of using the criterion of "circulating testosterone levels"; but for reasons already given above, that criterion is unpromising.

should achieve perfect 'fit' in a roughly analogous sense.[12] Sensitivity to the hidden dangers of complication is wise.

The Non-Sex-Based Alternative

What, then, is the most charitable interpretation of the position of those who seek to replace the sex-based organization of sports with an alternative? We judge that the most charitable way to make our opponents' alternative appropriately explicit is to construe them as requiring sports to be organized around the nevertheless vividly unnatural boundary between *males who do not identify as female* and *females or persons who identify as female*.

As a matter of fact, arguments about participation in sex-based sports competitions are typically closely connected to arguments about whether a sex-based classification discriminates against transgender individuals. (That, for one data point, is the route by which the respondents in the legal cases covered by this paper argue that the relevant statutes unlawfully discriminate. That is, they argue that a strictly sex-based categorization unlawfully discriminates against a certain kind of woman: namely, 'transwomen'.) That they argue in this way strongly suggests that the only place they would not object to drawing the line is at a location at which all cross-sex-identified males ('transwomen') are included in the protected category (namely, the category which is supposed, perhaps only approximately, to include all female people).

It is therefore worth briefly illustrating how dysfunctional, because unnatural, a direct implementation of this approach would be. That is, let us directly consider a proposal to reorganize sports around the boundary between *males who do not identify as female* and the disjunctive grouping *females or persons who identify as female*.

At first glance, those alternative categories may appear to be *gratuitously* gerrymandered. Why not alight on the comparatively simple categories *male-identified people* and *female-identified people* to do the job of sex categories? Those latter categories, notice, are still less natural than their sex-based alternatives. But they face additional, specific problems too. They risk unfairly excluding from protected competition female people who do not identify as female, but who are otherwise completely sex-typical. Such individuals exist, and to insist they are simply mistaken in their self-identification would run counter to the entire spirit in which revisions to sex-based classifications are motivated. For related reasons, some female and male athletes would risk exclusion from all categories whatsoever on the mooted view (perhaps because they identify as 'non-binary'). Those considerations mean that the most charitable way to interpret opponents of the sex-based classification is as preferring the categories: *males who do not identify as female* and the disjunctive grouping *females or persons who identify as female*.

Now, compare the sex categories with the proposed alternative categories for their relative naturalness:

---

[12] *Tuan Anh Nguyen v. Immigration and Naturalization Service,* 533 U.S. 53 (2001); Petition for Writ of Certiorari at 23, *Little v. Hecox,* No. 24-38 (U.S. filed July 11, 2024); Petition for Writ of Certiorari at 17, *West Virginia v. B.P.J.*, No. 24-43 (U.S. filed July 11, 2024).

Male (person)	Male person who does not identify as female
Female (person)	Female or person who identifies as female

The resemblance between these contrasting cases and those examples tabled in Section 2.1 above should be clear. In both cases here, a relatively natural, well-unified group is replaced by an artificial, gerrymandered one. One obvious contrast is that only the categories on the right side require reliance on the relation of identifying as. Despite its widespread social adoption, this relation remains obscure. Perhaps identification should be thought of as a form of belief or desire, with "transgender" individuals being those who believe or desire that they are the opposite sex. Alternatively, perhaps it should be thought of as a *sui generis* mental state. Either way, the envisaged proposal for reorganizing sports incurs significant costs in naturalness.

The category *female or person who identifies as female* does not stand up well to the general tests, sketched above, for a category's relative naturalness.

First, unlike the category *female*, its second disjunct relies on how individuals happen to identify. Unlike *female*, its composition thus varies over time and space in ways that are difficult to predict.

Second, the disjunctive categorization can evidently be varied in a manner that would produce indefinitely many no-less-natural exceptions, which clearly provide no basis for special treatment. Some examples are *female or person who believes it is fair for them to compete against females* and *female or person who wants to compete against females*. As already mentioned, there is no general obligation to diagnose specific problems with a given proposal for reorganizing sports around a vividly gerrymandered category: that is a skeptical requirement which mistakes where the burden of proof lies.

Third, to reason on the basis of the category *female or person who identifies as female* would lead one into analogous trouble as that invited by the category *junior or from Switzerland*. In a tennis tournament that pits transgender-identified males against females, reasoning with the disjunctive category *female or person who identifies as female* will be of no help in explaining or predicting why the former group is likely to win: for that, one needs the more natural categories *male* and *female*.

Finally, and more generally, to account for the typical male advantage in sport by adverting to the fact that a person is a male who does not identify as female creates the undesirable implication that the way the individual identifies is causally implicated in his advantage. It is akin to explaining someone's sudden death by adverting, not to the fact simply that they were run over by a bus, but to the fact that they were run over by a bus that wasn't painted red. In both cases, the more gerrymandered category makes for a defective kind of explanation.

We conclude that the contrast between *female* and *female or person who identifies as female* vividly and systematically exemplifies the comparative unnaturalness of the latter. It is a poor alternative to organizing sports exactly around the distinction between males and females. On the face of it, it would be as unjustified and arbitrary to carve an exception into protections for female sports in order to benefit males who identify as female as it would be to do so in order to benefit any other kind of male.

At a minimum, theorists and activists who would weaken protections for female sports to accommodate males who identify as female face a severe challenge: to motivate such a change in a way that does not ramify against protections for female sports more generally. Many proposed bases for permitting males who identify as female to compete in female sports fail that test. For instance, it is sometimes proposed that female-identifying

male athletes who suppress their testosterone should be accommodated, given that their advantage over the best female athletes is thereby attenuated. But on its own, that fact—if it is one (see Hilton & Lundberg, 2021)—does not support permitting such male athletes to compete in female sports. To draw that conclusion, a background assumption like "male athletes who are not much better than the best female athletes should be permitted to compete in female sports" is needed. But implementing such a background assumption systematically, rather than *ad hoc* in the special case of male athletes on testosterone suppressants, would cripple protections for female sports.

More generally, we conjecture that, because the category *female or person who identifies as female* is so unnatural, attempts to limit the case for including male athletes in female sports to those male athletes who identify as female will fail.

5. How Should Laws Excluding All Males from Certain Spaces Be Interpreted?

Proponents of alternatives to sex-based sports classifications often see the use of sex-based categories as discriminatory. In particular, it is argued that sex-based categories discriminate illegitimately, within the category *woman*, against a specific kind of woman, namely transgender women.

That certainly appeared to be the position advocated by the plaintiffs, and in the decisions of the lower courts, in the cases brought before the Supreme Court, which prompted the arguments in this article. In those legal materials, priority is given to the question of whether state laws, such as those implemented in Idaho and West Virginia, discriminate against transgender people. More generally, opponents of sex-based sports classifications often seek to establish an interpretation of the rules or laws in question on which their intended function is to exclude "transgender girls" from playing on girls' sports teams.

The obvious alternative to this framing of the function of the sex-tracking laws and rules in question is to interpret them as giving priority to the established interest of female people in having their own sports teams, leagues and competitions. That is, such rules and laws have their face-value function: to reinforce protections for female sports.

The arguments of this article lend support to the latter of the two general approaches to interpreting laws designed to protect female spaces. For it has been argued here that the sex-based organization of sport is supported by considerations of naturalness; thus, it likewise supports an interpretation of rules and laws which confer those protections as motivated by the justified aim of excluding males from female sports, rather than anything else. It is therefore distortionary to interpret laws and rules, appropriately motivated to protect the interests of a sex, as surreptitiously motivated by the unjustified aim of excluding a subset of males who identify as female in particular.

Consider a simple analogy. Imagine that we are back in Medieval Europe. Gold is the currency of the land. Consequently, many merchants prefer to accept gold and only gold as payment. However, a new movement is afoot, whose members are known as the alchemists. The alchemists purport to have found a way of turning lead into gold. Some people are convinced by the claims of the alchemists, though many others are not. This difference in attitudes starts to lead to time-wasting interactions in which an alchemist or fellow traveler tries to purchase a good using lead from a merchant who, unmoved by well-publicized insistence on the part of the alchemists that only irrational prejudice could

lie behind lingering doubts about the possibility of converting lead into gold, continues to insist on only accepting gold as payment. One such merchant, whose unofficial working policy has hitherto been to accept only gold as payment, decides to make his policy official by putting up a sign on his store saying, "Only gold accepted (no lead!)."

What is the best way to interpret the merchant's newly explicit policy? Given that his longstanding practice has been to accept only payment in gold, and that his sign literally articulates a general policy of accepting only gold as payment, should we interpret the merchant as acting on a policy of accepting only gold as payment? Or alternatively, given the parenthetical mention of "lead" in his sign, should we interpret the merchant as primarily acting on a more narrowly tailored policy of not accepting lead as payment?

The answer is obvious. The sign expresses the merchant's general policy of only accepting gold as payment. The parenthetical "no lead" is included on the sign only to clarify that the merchant's general policy extends to the form of non-gold that is in practice likeliest to be proposed to him as payment in lieu of gold. In fact, of course, no alchemical technology is available for converting lead into gold. The merchant's refusal to make a special exception to his general policy of only accepting gold as payment for the allegedly special case of lead is easily explained by his justified disbelief in claims by the alchemists to possess one.

Of course, there are differences between laws which exclude all males from female sports and the merchant's sign stating that he accepts only gold as payment. Nevertheless, the latter case is an example of how clarifications of policy which happen to be prompted by a specific historical-social movement which mistakenly assimilates some non-instances of a natural category to instances of that category need reflect no special animus.

A more general point is worth making, too. Inevitably, general principles need to be applied in specific cases. For example, the merchant's principle "only gold as payment" needs to be applied multiple times a day to proposed payments. It is always possible for those who object to the application of a general principle in a specific case to accuse those who are applying the principle as motivated not by the principle but instead by a pre-conceived verdict about that case. ("You are only rejecting this payment because you dislike this very coin!") If people with principles had to respond to each such accusation of operating a uniquely tailored policy of targeted refusal, the result would be a systematic obstacle to bringing principles to bear on practice.

All of this, of course, carries over to laws and rules, which similarly need to be applied every day in specific cases and to specific individuals. In that sense, every application of the law to a specific case may provoke the challenge, "Does this law only exist to discriminate in this very case?" If the justice system were under an obligation to answer each such potential challenge on its individual merits, it would grind to a halt. Clearly, it is under no such obligation.

6. Conclusion

Like scientific theorists and other decision-makers, lawmakers do better to rely on natural, rather than gerrymandered, categories whenever possible. Statutes which exclude all males from female sports are justified in part because they respect this general constraint on good practical and theoretical reasoning. Potential alternative regimes which carve

ad hoc exceptions into established protections for female sports are unjustified in part because they flagrantly violate it.

Author Contributions: The authors contributed equally.

Funding: This research received no external funding.

Acknowledgments: For joining the amicus brief on which this paper is based, the authors thank Tomás Bogardus, Peter Carruthers, Adam Caulton, Cora Diamond, Rona Dinur, Paul Elbourne, Gary Francione, Molly Gardner, Robert P. George, Moti Gorin, Joel David Hamkins, Holly Lawford-Smith, Mary Leng, Jeff McMahan, Kate Phelan, Jon Pike, John Schwenkler, Bradford Skow, Scott Soames, Roger Teichmann, Timothy Williamson, and Crispin Wright.

Conflicts of Interest: The authors declare no conflict of interest.

References

Bird, A. (2022, January 28). Natural kinds. *The Stanford Encyclopedia of Philosophy*. Available online: link to the article (accessed on 15 April 2026).

Brief for amici curiae of Dr. Daniel Kodsi, Mr. John Maier, Prof. Robert George and 21 other philosophers in support of petitioners. (2025, September 18). Available online: link to the article (accessed on 15 April 2026).

Byrne, A. (2020). Are women adult human females? *Philosophical Studies*, *177*, 3783–3803. [CrossRef]

Byrne, A. (2023). *Trouble with gender: Sex facts, gender fictions*. Polity Press.

Coleman, D. L. (2017). Sex in sport. *Law and Contemporary Problems*, *80*, 63–126.

Dorr, C. (2019, September 13). Natural properties. *The Stanford Encyclopedia of Philosophy*. Available online: link to the article (accessed on 15 April 2026).

Dorr, C., & Hawthorne, J. (2013). Naturalness. In K. Bennett, & D. W. Zimmerman (Eds.), *Oxford studies in metaphysics* (Vol. 8, pp. 3–77). Oxford University Press.

Hilton, E. N., & Lundberg, T. R. (2021). Transgender women in the female category of sport: Perspectives on testosterone suppression and performance advantage. *Sports Medicine*, *51*, 199–214. [CrossRef] [PubMed]

Kodsi, D. (2024, September 16). *Unexceptional sex. The Philosophers Magazine*. Available online: link to the article (accessed on 15 April 2026).

Lewis, D. (1983). New work for a theory of universals. *Australasian Journal of Philosophy*, *61*, 343–377. [CrossRef]

Lewis, D. (1984). Putnam's paradox. *Australasian Journal of Philosophy*, *62*, 221–236. [CrossRef]

Loland, S. (2002). *Fair play in sport: A moral norm system*. Routledge.

Pike, J. (2023). Why 'meaningful competition' is not fair competition. *Journal of the Philosophy of Sport*, *50*, 1–17. [CrossRef]

Reid, H. L. (2022). *Introduction to the philosophy of sport* (2nd ed.). Rowman & Littlefield Publishers.

Senefeld, J. W., & Hunter, S. K. (2024). Hormonal basis of biological sex differences in human athletic performance. *Endocrinology*, *165*, bqae036. [CrossRef] [PubMed]