

Sex as a Standardized Package

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Human beings are often seen as ordering animals. In fact, a criticism of humans is that we are often overly compulsive in our need to order and to provide categories for analyzing and controlling every aspect of life.¹ Ordinals are omnipresent, creating mechanisms with which to categorize everything. One of these “ordered” categories, one not often critically engaged in daily life, is sex.

Nearly every facet of human life embraces a conception of sex as dimorphic, existing in two separate and distinct categories. The categories of “man” and “woman” dominate individuals’ interactions from our bathroom stalls to our sporting teams. This desire to separate the sexes forms from the belief that a dimorphic standard is a natural, and hence appropriate, method for ordering human life. The dimorphic view, however, extends beyond a simple consideration of sex as a biological category to involve gender as a social category. In fact, the categories of sex and gender are often conflated. For example, restrooms are regularly labeled “men’s” and “women’s,” but have a corresponding image of a person with pants on or a person wearing a skirt. The iconography of restrooms indicates that wearing pants is synonymous with being a man and wearing a skirt is synonymous with being a woman. Despite widespread acceptance of these icons and their sexed meanings, these images conflate gendered (social) categories with sex (biological) categories. Similarly, surveys often ask for a participant’s sex, but then provide the gender categories of “male” and “female” instead of “man” or “woman.”

¹ For a strong argument on the human propensity for ordering see Michel Foucault. *The Order of Things: An Archeology of Human Sciences*. New York, Vintage. 1994. Thomas L. Hankins. *Science and the Enlightenment*. Cambridge, Cambridge University Press. 2003.

The conflation of sex and gender is, as are the systems of human ordering, omnipresent. Thus, at least in Western society, there is a dimorphic convergence between sex and gender. The task of this paper is to examine how Western society has arrived at a dimorphic conception of sex and gender. Because sex and gender are categories applied in multiple social realms and derived from attempts to provide scientific explanation and categorization, it is important to examine how this systematic convergence occurred. Although there are several possible explanations for the convergence of sex and gender into one interchangeable dimorphic form, there are only a limited number of theoretical tools from which to examine this systemic convergence. The theoretical options become even more limited when assessing a category transcendent of multiple social realms. To that end this paper focuses on two of the potential functional tools: boundary objects and standardized packages. After engaging in a theoretical debate about these two methodological perspectives, the paper will examine sex dimorphism through the social worlds of philosophy, medicine, law, and psychology to demonstrate that a convergence of sex and gender in its dimorphic conception does exist and that it has helped to create and cement a standardized package of this interdisciplinary understanding.

Standardized Packages and Boundary Objects

The production of knowledge across disciplines is a point of contestation. This is particularly true because construction of knowledge across different social realms is difficult. Joan H. Fujimura explains, “Consensus is a rarity rather than the norm. Instead, scientific work is heterogeneous in both method and substance.”² The concern is not only that there is a false sense of the scientific communities’ consensus making abilities; but also, that there is a false

² Joan H. Fujimura. *Crafting Science: Standardized Packages, Boundary Objects, and “Translation.”* In *Science as Practice and Culture*. Ed. Andre Pickering. Chicago: University of Chicago Press. 1992.

notion that scientific consensus is arrived at when nature is “discovered.” Susan L. Star and James R. Griesemer explain, “Common myths characterize scientific cooperation as deriving from a consensus imposed by nature.”³ The reductionist explanation that centers on convergence as a reflection of nature is false. Initial attempts to understand how there might be a convergence upon a concept or strategy in multiple disciplines focuses on the existence of a unifying denominator that exists in all of the disciplines that allowing cooperation and interdisciplinary knowledge. Michael Boris Shimkin argues that attempts at find this central “thing” have failed to produce what might unify these different approaches.⁴ The failure to discover a central unifying denominator that might lead to the convergence of knowledge in differing scientific fields drives the search for other explanations of the construction of knowledge across different social realms and disciplines.

Rather than focusing on the common denominator existing across social realms, studies began to examine negotiation, aligning, articulation, simplification, and triangulation as possible explanations for the formation of interdisciplinary knowledge.⁵ Studies of the intersection of different worlds in constructing new knowledge have produced two terms that reflect diverse but

³ Susan L. Star and James R. Griesemer. *Institutional Ecology, 'Translation' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907-1939*. *Social Studies of Science* 19.3, 1989. P. 388.

⁴ Michael Boris Shimkin. *Contrary to Nature: Being an Illustrated Commentary on Some Persons and Events of History of Importance in the Development of Knowledge Concerning Cancer*. Washington D.C.: Department of Health, Education, and Welfare. 1977.

⁵ See Michel Callon. *Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieuc Bay*. In *Power, Action and Belief: A New Sociology of Knowledge*. Ed. John Law. London: Routledge and Kegan Paul. 1986. Adele E. Clarke. *A Social Worlds Research Adventure: The Case of Reproductive Science*. In *Theories of Science in Society*. Eds. Susan Cozzens and Thomas Gieryn. Bloomington, Indiana: Indiana University Press. 1990. Joan H. Fujimura. *The Molecular Biological Bandwagon in Cancer Research: Where Social Worlds Meet*. *Social Problems* 35, 1988. Pp.261-283. Bruno Latour. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, Massachusetts: Harvard University Press. 1987. John Law. *On the Methods of Long Distance Control: Vessels, Navigation, and the Portuguese Route to India*. In *Power, Action and Belief: A New Sociology of Knowledge? Sociological Review Monograph* 32. Ed. John Law. London: Routledge and Kegan Paul. 1986. Susan L. Star. *Regions of the Mind: Brain Research and the Quest for Scientific Certainty*. Stanford: Stanford University Press. 1989.

conciliatory concepts for explaining the production of interdisciplinary knowledge. The two terms are: boundary objects and standardized packages.

Susan L. Star and James R. Griesemer define boundary objects as, “Objects which are both plastic enough to adapt to local needs and the constraints of the several parties employing them, yet robust enough to maintain a common identity.”⁶ Boundary objects thus present two important characteristics. First, boundary objects exist locally within a specific domain limited by time and space. Second, boundary objects present lens recognizable across disciplines. For example, in the case of Star and Griesemer’s work, the location is Berkeley, California and specifically the Museum of Vertebrate Zoology between 1907 and 1939. This elucidated some specific restraints upon the scope of a boundary object. If a boundary object is utilized in a different location, it might have a different meaning. Both the benefit and the disadvantage of boundary objects is that they are “more easily reconstructed in different local situations.”⁷ The construction of what ought to be included in Museum of Vertebrate Zoology might not be the same in Phoenix or Vancouver or New York as it is in Berkeley and the museum might have different constructs of what ought to be included today versus in 1939. The changes in the boundary object are the result not just of location and time as independent variables, but also the result of changes in the institutions and individuals involved in forming the boundary object. Additionally, different agents in different social realms can use the same boundary objects. David H. Guston traces the example of patents as boundary objects, which can be used by scientists to establish a claim or by politicians to measure scientific productivity.⁸ A boundary

⁶ Star and Griesemer. P. 393.

⁷ Fujimura. *Crafting Science*. P. 169.

⁸ David H. Guston. *Stabilizing the Boundary Between US Politics and Science: The Role of the Office of Technology Transfer as a Boundary Organization*. Social Studies of Science, 19.1. 1999.

object is thus robust enough to be used by different agents in different circumstances, while retaining coherence across social realms.

Furthermore, boundary objects require management of information in their construction. In the case of Berkeley's Museum of Vertebrate Zoology, Joseph Grinnell became the manager of coordinating different social worlds to construct a boundary object. Star and Griesemer explain, "Grinnell's managerial decisions about the best way to translate interests of all these disparate worlds shaped the character of the institution he built, but also the content of the scientific claims."⁹ Thus, boundary objects require a manager to ensure a usable production of knowledge. Many recent studies focus on boundary objects as products of boundary organizations that manage knowledge production.¹⁰ Boundary objects seem to require a manager to maintain their coherence and applicability.

Standardized packages differ from boundary objects because they exist beyond local dimensions and presents consistency that forms stable "facts."¹¹ Fujimura contends that a standardized package "is a gray box which combines several boundary objects with standardized methods in ways which further restrict and define each. Such codification and corestriction narrows the range of possible actions and practices, but does not entirely define them. Thus, using a package allows for a greater degree of fact stabilization than using boundary objects."¹² The advantage of a standardized package is that it is far more portable than a boundary object and works to stabilize facts across social worlds, so that the meaning is not rigid but is more codified.

⁹ Star and Griesemer. P. 392.

¹⁰ For one example of this focus *see* the special symposium on issues of boundary objects and boundary organizations. *Boundary Objects in Environmental Policy and Science*. Science, Technology, and Human Values, 26.4, 2001.

¹¹ "Facts" here refers to the construction of ideas that are articulated as true but do not necessarily reflect reality.

¹² Fujimura. *Crafting Science*. P. 169-170.

Bruno Latour argues that fact stabilization is of the utmost importance because it allows for the translation of interests and the ability to utilize the knowledge produced.¹³ For Latour, facts are stabilized as the result of contestation; wherein, some ideas or concepts gain meaning in multiple social worlds at the expense of other ideas or concepts. Latour explains that fact builders “have to enroll so many others so that they participate in the continuing construction of fact...but they also have to control each of these people so that they pass the claim along without transforming it either into some other claim or into someone else’s claim.”¹⁴ Thus, for Latour, fact stabilization is the result of fact builders’ attempts to win allies to their set of “facts.” The goal of fact stabilization in standardized packages is forming stability, integrity, and continuity in several social worlds.¹⁵ Sheila Jasanoff expands upon Latour’s conception arguing that such stabilization results in “coproduction” of knowledge and social order.¹⁶ Thus, fact stabilization not only produces knowledge, but also functions as an ordering system to govern that knowledge.

Latour is often criticized for constructing a theory of “entrepreneur-generals” who are “waging war” on intellectual and scientific battlefields to “conquer and discipline new allies.”¹⁷ The criticisms are somewhat warranted given that there seems to be coordination in the formation of stable facts, much like boundary objects require managers, that requires an agent to install these facts by increasing the number of adherents. At the smaller level, there are similar descriptions of contestation and conflict over fact stabilization, in particular with the construction of definitions. Everett C. Hughes argues that, within specific situations, agents attempt to use

¹³ Bruno Latour. *Science in Action: How to Follow Scientists and Engineers through Society*. Cambridge, Massachusetts: Harvard University Press. 1987.

¹⁴ *Ibid.* P. 208-209.

¹⁵ Joan H. Fujimura. *The Molecular and Biological Bandwagon in Cancer Research: Articulating Alignment*. *Social Problems* 35, 1998.

¹⁶ Sheila Jasanoff. *The Fifth Branch: Science Advisers as Policy Makers*. Cambridge, Massachusetts; Harvard University Press. 1990.

¹⁷ Fujimura. *Crafting Science*. Pp. 170-171.

definitions suitable to their circumstance and install these definitions into the translation of that fact.¹⁸ Fact stabilization is thus, at times, the result of a competition to see what idea will take on the largest number of adherents, often as the result of specific agents acting to increase the number of adherents.

Both standardized objects and boundary objects demonstrate how “collective action is managed across social worlds to achieve enough agreement at various times to get work done and to produce relatively (and temporarily) stable ‘facts.’”¹⁹ Thus, both standardized packages and boundary objects require coordination, often guided by managers or fact builders, and the formation of somewhat stable facts. Guston expands upon this explanation contending, “To the extent that boundary objects and standardized packages provide stability, however, they do so only through the consent of actors on both sides of the boundary.”²⁰ The goal of both boundary objects and standardized packages is to maintain their coherence on all ends of a boundary. Thus, Star and Griesemer argue, “Once the process has established an obligatory point of passage, the job then becomes to defend it against other translations threatening to displace it.”²¹ Both boundary objects and standardized packages become solidified once they are established and agents desire to maintain these standards.

Keeping in mind their similarities, it is important to examine how they are divergent. Boundary objects are generally local both in time and space, while standardized packages have a broader context. The other major distinction is that standardized packages work to “harden” facts through greater stabilization whereas; boundary objects remain local and thus do not.²²

¹⁸ Everett C. Hughes. *The Sociological Eye: Selected Papers*. Aldine-Atherton, Chicago. 1971.

¹⁹ Fujimura. *Crafting Science*. P. 168.

²⁰ Guston. P. 401.

²¹ Star and Griesemer. P. 391.

²² Joan H. Fujimura. *On Methods, Ontologies, and Representations in the Sociology of Science: Where do We Stand?* In *Social Organization and Social Process: Festschrift in Honor of Anselm L Strauss*. Hawthorne, NY; Aldine de Gruyter. 1991.

Since a dimorphic conception of sex is seen to be systematic, it is more useful to attempt to understand sex dimorphism as a standardized package because it is not limited by time or space and is pervasive in Western culture. If sex and gender are seen as dimorphic through a standardized package, we ought to see a convergence on the dimorphic view even in the face of competing facts. In fact, we ought to see the dimorphic view attempt to regulate other information to make it coherent to the standardized package. Given that standardized packages transcend social worlds, examination of a standardized package in one social world will see replication in another social world in a way that is difficult to disentangle. This is the nature of a standardized package; thus, examination of the production of sex dimorphism through this lens will necessarily require some examination across disciplines.

Philosophical Origins of Sex Dimorphism

Sex dimorphism in humans is often traced to Plato's *Symposium*.²³ In the *Symposium*, Aristophanes argues that there are two distinct and separate sexes: men and women.²⁴ Aristophanes argues that there initially there were three sexes because humans were once physically joined in pairs. The couplings were men and men, women and women, and men and women. The last category is the third sex – which Aristophanes calls “androgynous” before explaining that that category is now an “insult.” The humans attempted to ascend to the heavens and overthrow the gods. After counseling with the other gods, Zeus divided all humans to punish them – the result was two separate sexes men and women. Following the discussion of the formation of the two sexes the interlocutors continue to discuss the distinctions between men and women – not only the biological differences that are the foundation of sex, but also the

²³ Sally Markowitz. *Pelvic Politics: Sexual Dimorphism and Racial Difference*. Signs. 26.2, 2001.

²⁴ Plato. *Symposium*. Trans. Alexander Nehamas and Paul Woodruff. Indianapolis, Hackett Publishing Company. 1989. P.25.

socio-cultural gender roles. The Platonic ideal is that women and men are perfectly distinguishable and disparate as the result of their independent connection to a perfect type or form deriving from the initial separation.²⁵ The Platonic view of sex and gender as dimorphic thus becomes a foundation of Western culture. The Platonic dimorphic view of sex and gender could be seen as the starting point for a standardized package that, as will be shown, transcends social worlds.

Medical Sex Dimorphism

Scientific depictions of sex generally adhere to a dimorphic view. Medical science has adhered to sex dimorphism for segregating individuals. From a scientific perspective, there are as many as seven categories for determining a person's sex within the dimorphic system. The categories are:

1. Primary sex characteristics (sexual organs – phenotypical)
2. Secondary sex characteristics (sex differentiation at puberty – phenotypical)
3. Hormonal sex characteristics (generation and use of primarily oestrogens or androgens)
4. Gonadal sex characteristics (presence of ovaries and testes – reproductive role)
5. Chromosomal sex characteristics (human X or Y combinations – genetics)
6. Brain structures and functions (characteristics generally vary by sex)
7. Gender identity (psychological sense of self in regard to gender typing).²⁶

A person is a man if he adheres to all of these categories along the “man” end of the dichotomy and vice-a-versa. Despite some level of concern about the accuracy of these categorizations and some divergence from them medical science has generally adhered to these categories.

The sixth category of brain structure and function has been hotly contested; but studies have generally attempted to link differences in the corpus callosum to an indication of sex

²⁵ Melanie Blackless, Anthony Charuvastra, Amanda Derryck, Anne Fausto-Sterling, Karl Lauzanne, and Ellen Lee. *How sexually dimorphic are we? Review and Synthesis*. American Journal of Human Biology. 12.2, 2000. Pp. 151-166.

²⁶ Tere Prasse. *Medical Sex v. Social Gender: Tried in the Court of Human Knowledge and Experience, the 21st Century CE*. 2000. <http://christielee.net/med3.htm>

difference between dimorphic categories. A sampling of brain studies illustrates the presence of a dimorphic view of sex in scientific constructions of the brain. Studies conclude: females have less clear lateralization than males and the callosal size decreases with age in men, but not in women;²⁷ absolute brain size is larger in males, and significantly so, while the posterior one-fifth area (splenium) is larger for females;²⁸ and a negative correlation between the absolute value of Sylvian fissure (planum temporale) asymmetries and the size of the isthmus in males but not in females, along with a significant negative correlation between the size of the Sylvian fissure (or planum temporale) and the size of the callosal mid-body in males but not in females.²⁹ These studies illustrate scientific categorization of brain structures as dimorphic with regard to sex.

Some studies have linked differences in the brain to *gender* dimorphism, instead of sex dimorphism. Laura S. Allen and Roger Gorski argue, “In adults, the midsagittal surface area of the cerebral cortex decreased significantly with age in women but not in men. These anatomical sex differences could, in part, underlie gender-related differences in behavior and neuropsychological function.”³⁰ Thus, the conclusion that Allen and Gorski arrive at codifies a gender link to biological mechanisms, thus, reinforcing a dimorphic view of sex and gender. Anne Fausto-Sterling explains that these studies often attempt to explain why women would naturally have stronger verbal skills and men stronger visuo-spatial skills.³¹

²⁷ Sandra F. Witelson. *Hand and Sex Differences in the Isthmus and Genu of the Human Corpus Callosum: A Postmortem Morphological Study*. Brain. 112. 3. 1989.

²⁸ Dr. Ralph L. Holloway, Paul J. Anderson, Richard Defendini, and Clive Harper. *Sexual dimorphism of the human corpus callosum from three independent samples: Relative size of the corpus callosum*. American Journal of Physical Anthropology. 92.4. 2005.

²⁹ Franciso Aboitiz, Arnold B. Scheibel, and Eran Zaidel. *Morphometry of the Sylvian Fissure and the Corpus Callosum, with Empahsis on Sex Difference*. Brain. 115. 5. 1992.

³⁰ Laura S. Allen and Roger Gorski. *Sex Differences in the Corpus Callosum of the Living Human Being*. Journal of Neuroscience. 11. 1991.

³¹ Anne Fausto-Sterling. *Sexing the Body: Gender Politics and the Construction of Sexuality*. New York, Basic Books. 2000. Pp. 116-117.

Within the studies of the brain, there seems to be a convergence upon the dimorphic view that has been somewhat persistent, despite challenges to the dimorphic view. Stephanie Clarke, Rudolf Kraftsik, Hendrik van der Loos, and Giorgio M. Innocenti present one argument against the dimorphic view arguing, “The sexual dimorphism of the human corpus callosum is currently controversial, possibly because of difficulties in morphometric analysis.”³² The conclusion of Clarke et al points to the convergence of a dimorphic view of sex despite inaccurate measures that could lead to different outcomes in different studies. Thus, the result of a convergence upon sex dimorphism in the brain, without better measures, is likely the result of a standardized package rather than a reflection of nature.

Using hormones to try to identify sex is also complicated, but seems to fit into sex dimorphism as a standardized package. Before the 1930’s it was a largely held view that certain hormones were only manifest in men and others only in women; thus, a dimorphic position could be drawn based upon the manifestation of certain hormones.³³ Given that scientific study of hormones was only possible since the turn of the century, it is likely that such studies were adhering to a dimorphic view in the conclusions that they drew. After the 1930’s, the view on sex hormones began to change in the scientific community. Sex hormones began to be better understood as “under the right circumstances ...dramatically affect[ing] sexual development at both the anatomical and the behavioral level...They are, in short, powerful growth hormones affecting most, if not all, of the body’s organ systems.”³⁴ Sex hormones are no longer considered as existing in only one sex; but the view remains that certain hormones are present in

³² Stephanie Clarke, Rudolf Kraftsik, Hendrik van der Loos, and Giorgio M. Innocenti. *Forms and measures of adult and developing human corpus callosum: Is there sexual dimorphism?* Journal of Comparative Neurology. 280.2. 2004.

³³ Nelly Oudshoorn. *On the Making of Sex Hormones: Research Materials and the Production of Knowledge.* Social Studies of Science. 20.1. 1990.

³⁴ Fausto-Sterling. P. 193.

higher concentrations in one sex or the other – oestrogens in females or androgens in males. The result is a muddling of the previous bright line for diagnosing sex through sex hormones. This does create a continuation of a dimorphic view, thus reinforcing the dimorphic view by morphing the conditions for its recognition.

In fact, there are a multitude of individuals that do not fit into the dimorphic categories of biological sex. Such individuals are categorized as being “intersex,” this category applies to those formerly labeled as hermaphrodites.³⁵ Definitions of the term intersex vary and result in different estimates of the occurrence of intersex. Leonard Sax argues that the term intersex should only be used for those whose chromosomal sex is inconsistent with their phenotypic sex, or cases where the phenotype is not classifiable as either male or female. According to Sax’s definition of intersex, intersex occurs in only 0.02% of all births³⁶. Contrastingly, in a paper published by Melanie Blackless, Anthony Charuvastra, Amanda Derryck, Anne Fausto-Sterling, Karl Lauzanne, and Ellen Lee the definition of intersex is broadened to include individuals with a number of disorders, like late-onset congenital adrenal hyperplasia, sex chromosome aneuploidies, and vaginal agenesis, thus, the number of intersex individuals is closer to 2%.³⁷ Johns Hopkins University categorizes any problems in the formation of chromosomes, gonads, or external genitals as an indication of intersex and estimating that 1 in every 100 children is born intersex.³⁸ Intersex can be the result of chromosomal variance (such as Klinefelter Syndrome and Turner Syndrome), hormonal variance (such as Androgen Insensitivity Syndrome and Congenital Adrenal Hyperplasia), morphological variance, or enzyme variance (such as

³⁵ The term hermaphrodite is now generally seen as derogatory, thus, the preferred nomenclature is intersex.

³⁶ Leonard Sax. *How common is intersex? A response to Anne Fausto-Sterling*. The Journal of Sex Research. 39.3. 2002. Pp. 174-178.

³⁷ Blackless et al. Pp. 151-166.

³⁸ See John Hopkins Children Center. *Syndromes of Abnormal Sex Differentiation*. <http://www.hopkinsmedicine.org/pediatricendocrinology/>.

Testosterone Biosynthetic Defects and 5-Alpha Reductase Deficiency), many of which can cause some variance in the appearance of the genitals.

Individuals who are intersex do not fit into the dimorphic sex view because they do not directly correspond with the scientific categories that determine sex. Yet, the medical community largely attempts to ensure individuals fit into the dimorphic view by “treating” intersex children. The general medical prescription for children who are intersex is surgical alteration at birth to better fit the dimorphic sex system.³⁹ This standard medical practice is generally necessitated by the need to provide sex identification on the birth certificate as a legal requirement.⁴⁰ Generally, the procedure does not fully correct the “problem,” because many of the variances experienced in intersex are the result of other conditions; other therapies are later necessary to control hormone production or enzyme production. The result of such procedures is to make the intersex individual adhere as much as possible to one of the dimorphic categories. In cases where children are altered at birth, the decision is made so that children can be more “normal” and adheres more closely with the socially accepted dimorphism. Post operation, children are often not aware they have been surgically altered, mainly because parents and doctors are afraid children would feel abnormal.⁴¹ Such medical procedures and the discourse accompanying them demonstrates a mutually constituting position between the social and medical norms that cause a preference for children to fit into one of the two dimorphic sex categories.

³⁹ Elizabeth Weil. *What if it's (sort of) a boy and (sort of) a girl?* The New York Times. September 24, 2006.

⁴⁰ The decision to assign the sex of the child at birth has been challenged in court in the United Kingdom. The decision that the court made is that sex assignment surgery is preferable to non-surgery even in light of psychological problems because not assigning a sex would leave the child in social and legal limbo. *See W. v. W. (Physical Inter-sex)* [2001] Fam. 111

⁴¹ Fausto-Sterling. P. 46.

Practices relating to intersex children have somewhat changed since the 1990's. In 2006, 50 international experts on intersex children signed *The Consensus Statement on the Management of Intersex Disorders*, contending that a child's sex should still be assigned as soon as possible, but discouraging doctors and families of intersex children from having surgery right away.⁴² The decision to wait is primarily the result of a desire to have more indications of a child's sex before surgically altering a child to fit a dimorphic model. Operations are still advocated, despite increased potential for psychological problems in children as they grow up. Although many children grow up and are never aware of their intersex status, some cases of operations to "correct" intersex have led to gender dysphoria, wherein gender and sexual identities fail to match: with gender dysphoria the individual is left disassociating their sex and gender.⁴³ Even in these cases, the solution is often to bring the sex and gender back into dimorphic congress by performing sex reassignment surgery to align the individuals' gender and sex.

The "problem" with intersex individuals might not be their *condition*, but the desire to maintain a standardized package around sex dimorphism. In his book *The Disorder of Things*, John Dupre challenges the notion that science should aim to find any real essences, including in the realm of biological sex, mainly because looking for intrinsic qualities that compose a category is a futile effort. Such qualities would only be based on generalizations that in some cases would be meaningless, especially when dealing with a complex phenomenon like human sex. In Dupre's words, "The properties that are causally fundamental in explaining sexual dimorphism between the members of a species are unquestionably not those that constitute the

⁴² Christopher P. Houk et al. *Summary of Consensus Statement on Intersex Disorders and their Management*. *Pediatrics*. 118.2. 2006.

⁴³ Tom Mazur. *Gender dysphoria and gender change in androgen insensitivity or micropenis*. *Archives of Sexual Behavior*. 34.4, 2006. Pp. 441-421.

real essence (if any) of maleness and femaleness.”⁴⁴ Despite signs that indicate the failings of a dimorphic view, there is a strict adherence to this standardized package, an adherence essential to the coherence and function of the standardized package.

Legal Sex Dimorphism

From a socio-political perspective, legal cases codify sex and gender dimorphism and bind sex with gender. Case law has often presented sex and gender as tied to one another in a seemingly natural link. Legal precedent then establishes sex and gender as the same and inseparable. Examination of workplace discrimination law in the United States demonstrates this relationship. The first major decision regarding sex discrimination in the work place, made in 1872, was *Bradwell v. Illinois*.⁴⁵ The Supreme Court in *Bradwell v. Illinois* established discrimination based on gender justifiable because of fundamental differences between men and women. This decision was based upon the assumption that sex and gender are indistinguishable and natural. Justice Bradley explains in the concurrent decision:

Man is, or should be, woman’s protector and defender. The natural and proper timidity and delicacy which belongs to the female sex evidently unfits it [sic] for many of the occupations of civil life. The constitution of the family organization, which is founded in the divine ordinance, as well as in the nature of things, indicates the domestic sphere as that which properly belongs to the domain and functions of womanhood. The harmony, not to say identity, of interests and views which belong, or should belong, to the family institution is repugnant to the idea of a woman adopting a distinct and independent career from that of her husband...
...The paramount destiny and mission of woman are to fulfill the noble and benign offices of wife and mother. This is the law of the Creator.⁴⁶

Bradley’s decision rests upon two assumptions that codify the connection between sex and gender. First, Bradley argues that this connection is natural. Bradley contends that women are naturally more timid and delicate and are therefore incapable of doing many jobs. Second,

⁴⁴ John Dupre. *The Disorder of Things*. Cambridge, Massachusetts, Harvard University Press. 1993.

⁴⁵ *Bradwell v. Illinois* 83 U.S. (16 Wall.) 130 (1872)

⁴⁶ See *id.* at 141 (Bradley, J., concurring)

Bradley argues that women's work is divinely ordered. This position is based on a Christian view of the role of women, a view that finds the proper position for women to be in the home as wife and mother. Connecting sex and gender in this manner takes the dimorphic view of sex out of the simple realm of biology and enters it into the complicated sphere of social dynamics.

Being a man or a woman takes on social dimensions determinant of how people ought to act. Although sexual discrimination law has expanded the protection of women over the years, there remains a solidly lingering view that sex and gender are connected. In 1976 in the case of *Craig v. Boren*,⁴⁷ the Supreme Court continued to support the proposition that sex limits individuals in terms of their occupation. Following the 1971 equal protection analysis in *Reed v. Reed*,⁴⁸ the decision in *Craig v. Boren* solidified the claim that gender classifications serve important governmental objectives and are substantially related to achievement of those objectives. While *Craig v. Boren* expands the protection of women in the workplace, it continues to operate under the assumption that certain occupations can have legitimate sex restrictions. Thus, in combination with *Bradwell v. Illinois*, sex and gender are judicially established as the same category.

Title VII⁴⁹ of the 1964 Civil Rights Act also reifies the position that sex and gender are the same and dimorphic. Title VII states:

It shall not be an unlawful employment practice for an employer to hire and employ [an] employee...on the basis of his religion, sex, or national origin in those certain instances where religion, sex, or national origin is a bona fide occupational qualification reasonably necessary to the normal operation of the particular business or enterprise.⁵⁰

⁴⁷ *Craig v. Boren*, 429 U.S. 190, 197 (1976)

⁴⁸ *Reed v. Reed*, 404 U.S. 71 (1971)

⁴⁹ Civil Rights Act of 1964 703(e)(1), 42 U.S.C. 2000e-2(e)(1) (1988)

⁵⁰ *Ibid.*

Title VII, like *Craig v. Boren* and *Reed v. Reed* establishes a position that certain occupations are in fact tied to sex. The picture established in sex discrimination law enforces a view of sex and gender as interchangeable and dimorphic.

Psychological Sex Dimorphism

Of primary interest in analyzing the dimorphic view of sex and gender in the field of psychology is the treatment of Gender Identity Disorder. *The International Statistical Classification of Diseases and Related Health Problems* classifies Gender Identity Disorder as a mental disorder. It is defined as:

The desire to live and be accepted as a member of the opposite sex, usually accompanied by the wish to make his or her body as congruent as possible with the preferred sex through surgery and hormone treatment. The transsexual identity has been present persistently for at least two years. The disorder is not a symptom of another mental disorder or a chromosomal abnormality.⁵¹

This classification establishes that sex, as a biological condition, is naturally congruent with gender, a social construct, just as previous dimorphic views have contended. The definition of Gender Identity Disorder exposes the conflation between sex and gender. If sex is simply a biological category, than why is there a desire for people to accept their sex as congruous with a corresponding gender? Acceptance occurs at a social and psychological level, not a biological level thus “acceptance” is more relevant to the concept of gender rather than sex. The congruence of sex and gender is seen as the natural human state. The fact that incongruence between sex and gender is an indication of a mental illness reifies the sex gender bind. The medically prescribed treatment for Gender Identity Disorder, sexual reassignment surgery, further enforces the notion that gender and sex are tied to one another. The end result is a

⁵¹ *The International Statistical Classification of Diseases and Related Health Problems – Second Edition*. World Health Organization, Geneva. 2000.

determination of what it means to be a “normal male” or “normal female” that connects these definitions of gender to sex. Psychological assessments of sex and gender articulate a bound dimorphic view. The legal interpretation of these psychological definitions varies but they continue to articulate a dimorphic position.

In legal cases relating to transsexuals, the deployment of dimorphic definitions is often translated to fit the particular case. The dimorphic view of sex retains its status as a standardized package because, even if it employs different elements of the standardized package for particular “facts,” it reinforces the broader dimorphic view. Legal standings regarding transsexuals are tried at the state level because laws governing sex are connected to birth certificates issued by states, not the federal government. The adjudication of cases retains the dimorphic view of sex, but often employs different standards for determining adherence to the sex dimorphism. Examination of two cases will illustrate how a dimorphic view can be employed using different translations to fit the particular “facts.”

In *Littleton v. Prange* a post-operative male to female transsexual petitioned for the right to sue for malpractice and the wrongful death of her husband. Dr. Prange petitioned claiming that Christie Lee Littleton could not make a claim of wrongful death because she was a man and her marriage was therefore invalid. In the majority opinion, Chief Justice Hardberger explains that, although Christie physically looks like a woman, she is not functionally a woman because she does not possess a womb, ovaries, or a cervix and that she retains male chromosomes. Thus, Chief Justice Hardberger concluded that she is a man and cannot legally be married to a man.⁵² The Texas court of appeals affirmed the lower court ruling, indicating that sexual identity was not determined by sexual organs but instead by chromosomes. Littleton’s marriage was

⁵² *Christie Lee Littleton v. Dr. Mark Prange* 288th Judicial District Court, Bexar County, Texas 98-CI-15220 (1999).

invalidated and she does not have the right to sue on her husband's behalf.⁵³ In the case of *Littleton v. Prange* the judges used a particular translation of sex dimorphism to form their decisions. They focused on a chromosomal standard and, to a lesser extent, functioning biology to categorize a sex ambiguity into a dimorphic position. Chief Justice Hardberger explains, "Some physicians would consider Christie a female; other physicians would consider her still a male. Her female anatomy, however, is all man-made. The body that Christie inhabits is a male body in all aspects other than what the physicians have supplied."⁵⁴ The court's decision in *Littleton v. Prange* demonstrates a view of sex as natural and reinforces this dimorphic view as a standardized package.

The case of *Richards v. United States Tennis Association* presents the application of a dimorphic view of sex with a different translation. Renee Richards, a post-operative male to female transsexual, petitioned the state of New York for the right to compete in the United States Open as a woman. Renee had previously participated as a man in the United States Open before her sex reassignment surgery.⁵⁵ The United States Tennis Association rejected her application arguing she had an advantage because her previous status as a man made her physically stronger. The United States Tennis Association argued that the Barr-body test indicated that Renee had a Y chromosome and that the very expression of the Y chromosome gave her a physical advantage. The New York State Supreme Court decided the Barr-body test for chromosomes was inadequate because hormone therapy had effectively repressed the impact of the Y chromosome.⁵⁶ The decision in *Richards v. United States Tennis Association* reaffirms the standardized package of sex dimorphism, but unlike *Littleton v. Prange*, it focuses on the *effect*

⁵³ *Littleton v. Prange*, 9 S.W.3d 223,224 (Tex. App. 1999).

⁵⁴ *Christie Lee Littleton v. Dr. Mark Prange* 288th Judicial District Court, Bexar County, Texas 98-CI-15220 (1999).

⁵⁵ Elizabeth Fee, Theodore M. Brown, and Janet Laylor. *One Size Does Not Fit All in the Transgender Community*. American Journal of Public Health. 93.6. 2003. P. 899.

⁵⁶ *Richards v. United States Tennis Association*, 400 N.Y.S.2d 267,269 (1977).

of chromosomes, rather than their presence as an indication of sex. Once again, the impact of the decision is based upon the translation of the standardized package to meet the particular “facts.”

The decision does not question the status of sex dimorphism.

The United Kingdom provides a more codified standard for examining the standardized package of sex dimorphism, because laws in the United Kingdom are more centralized. With relation to transsexuals, it is possible to trace how the standardized package of sex dimorphism translates across social worlds. English law has treated sex as dimorphic and fixed at birth. The words “male” and “female” are interpreted as sex categories determined by reference to physical indications of sex: chromosomal (XY indicating male and XX indicating female), gonadal (testes indicating male or ovaries indicating female), and genital (external organs indicating male and internal organs indicating female).⁵⁷ English law seems to mix gender terminology with sex terminology since male and female refers to gender and not sex. In fact, there has been some challenge to the terms used in English law as failing to understand the distinction between gender and sex.⁵⁸ However, the law remains the same regarding the terminology. With regard to transsexuals the born sex is the only legally recognized sex and registration cannot be changed.⁵⁹ The result of these decisions is a fully dimorphic system wherein a person is assigned a sex at birth, which is legally, if not psychologically, connected to their gender.

Two pivotal cases are changing the status of transsexuals in the United Kingdom and throughout Europe. The European Court of Human Rights in the landmark cases of *Goodwin v. The United Kingdom*⁶⁰ and *I v. The United Kingdom*⁶¹ challenged the status of transsexuals in the

⁵⁷ Corbett v. Corbett (or se Ashley) [1971] P. 83

⁵⁸ See Stephen Michael Cretney, Judith Masson, and Rebecca Bailey-Harris. *Principles of Family Law – Fifth Edition*. London: Sweet and Maxwell, 1990. Pp. 46-48.

⁵⁹ Corbett v. Corbett (or se Ashley) [1971] P. 83; S.-T. (formerly J.) v. J. [1998] Fam. 103, CA; Bellinger v. Bellinger (Lord Chancellor intervening) [2003] 2 WLR 1174, HL

⁶⁰ *Goodwin v. the United Kingdom* – Rep. 1996-II, fasc. 7 (27.3.96)

⁶¹ *I. v. the United Kingdom* [GC], no. 25680/94 – (11.7.02)

United Kingdom. In the cases' joint ruling, the majority opinion explains, "The unsatisfactory situation in which post-operative transsexuals live in an intermediate zone as not quite one gender or the other is no longer sustainable." The decision in effect requires the United Kingdom to change its laws and recognize the acquired sex of post-operative transsexuals. The European Court of Human Rights decision is predicated upon the ambiguity created by the law in recognizing only the born sex of individuals. The "intermediate zone" is one that exists some place between man and woman, because, while there is psychological recognition of a post-operative transsexual having made the transition into a new sex, the law does not recognize that change. Thus, the decision in *Goodwin v. the United Kingdom* and *I v. the United Kingdom* is an attempt to further harden the "fact" of sex dimorphism, solidifying its status as a standardized package. In fact, the purposed legislation in response to these decisions reflects a hardening and stabilizing of sex dimorphism, because it provides hard guidelines for determining when a person has fully transitioned into their acquired sex.⁶²

Conclusion

Sex dimorphism in Western culture is often philosophically connected to Plato's *Symposium* and has grown from that time to constitute a standardized package applicable in multiple social worlds. Sex dimorphism allows for coherence across these social worlds. The standardized packages work to stabilize and harden the "facts" around conceptions of sex and gender. Although the translation might have some variation from one social world to another, utilizing a definition that is suitable for the circumstance, there is a convergence upon the general meaning and impact of sex dimorphism. Sex dimorphism as a standardized package has

⁶² See House of Lords and House of Commons Joint Committee on Human Rights. *Draft Gender Recognition Bill. Nineteenth Report of Session 2002–03*. Volume I: Report. 2003

effectively challenged and displaced other potential translations of sex and is constantly reinforced. Despite the existence of ambiguities such as intersex and transsexuals, sex dimorphism has continued to govern Western categorizations of sex – medically, legally, and psychologically. The status of transsexuals in the United Kingdom is the strongest indication of a convergence over sex dimorphism as a standardized package, because it works to apply a more stable and less ambiguous translation of sex.

The one disadvantage of a view of sex dimorphism through the lens of a standardized package is that there is no specific manager or fact builder who has guided the construction of sex dimorphism. Sex dimorphism is constructed as a standardized package independent of an agent-directed construction. Although an argument can be made that Plato was the agent that initiated the dimorphic view, there is insufficient evidence to confirm such a claim. It can only be deduced that Plato is often cited as the source of the dimorphic view in Western culture. With the increasing focus in the study of boundary objects on boundary organizations and the focus on fact builders in the study of standardized packages, analysis of sex dimorphism indicates a need to examine a more decentralized approach to the study of both. Furthermore, sex dimorphism in the West exists at such a pervasive level that it seems to transcend the conception of a standardized package that can translate in many social worlds to a standardized package that translates in all social worlds. It could therefore be contended that sex dimorphism exists as a kind of hegemonic standardized package in the West that impacts almost every facet of life and is translated into all social worlds. Future studies ought to examine other standardized packages that seem to enact such a hegemonic role.