Humans and Hybrids:
A Critique of the Western Moral Framework

Abstract

This paper uses the advent of human-animal hybrids, created though somatic cell nuclear transfer experiments in America and Australia, as a tool to deconstruct and challenge the dualistic belief that humans are morally distinct and superior to animals. The view that moral value corresponds to species membership creates a scientific and cultural environment that prohibits or restricts human embryo experimentation whilst permitting the extensive use of animals for research. The dualistic premise therefore motivates the creation of human-animal hybrids for research as a way for scientists to side-step restrictive legislation. Furthermore, ethical frameworks that incorporate the dualistic assumption have been incapable of objectively assessing the moral value of hybrid embryos. This failure indicates the arbitrariness of the moral dichotomy between animals and humans. Moral dualism, based on species membership, should be replaced with a liberal ethical framework based on a consistent standard such as interests.

Hybrid Experiments.

In 1998 the American public became aware of stem cell experiments conducted by Advanced Cell Technology (ACT), a private biotechnology firm, that involved the production of cow-human hybrid embryos. The news was greeted with horror, outrage and substantial confusion. President Clinton wrote directly to the National Bioethics Advisory Commission, indicating that he was “deeply troubled” by the news and requesting immediate advice as to the ethical status of the hybrids.1 Similar experiments have been conducted in Australia by Stem Cell Science (SCS) using pig oocytes and have also elicited concern and skepticism.2

ACT and SCS used somatic cell nuclear transfer cloning techniques to form interspecies chimeras in order to derive human embryonic stem (ES) cell lines. Both companies transferred a human somatic cell nucleus, containing a full human genome, to an enucleated surrogate animal oocyte in order to form a pre-embryo.3 In the environment of the egg, the human somatic nucleus was reprogrammed to begin embryo formation. The hybrid ES cell experiments at ACT began in 1997. Of the nuclear transfer units produced, 26% grew to the 4 -16 cell stage, and 3% grew to the 16 – 400 cell stage. Cells with similar morphology to human ES cells were derived from this 3%.4

One reason these hybrids ignited such public controversy was because they challenge a fundamental tenet of Western moral philosophy – the moral distinction between human and animal.
Introduction.

The dualism between man and beast is central to the Western philosophical tradition and to the Judeo-Christian perspective. While other traditions such as Buddhism and Taoism emphasize a more integrated view of humanity and the animal kingdom - stressing interdependence, connection and harmony - the Western tradition has relied on the moral dichotomy between humans and animals. This dualistic standard has not been without its critics. Recent philosophical debates have tackled the notion of personhood and sentiency, and claims of speciesism have attempted to broaden the moral horizons. However, these debates have resulted primarily in the sub-categorization of human beings relative to capacity rather than an expansion of the moral community. For those who support the animal liberation movement, any changes that have occurred in relation to our attitudes to the treatment of animals have been far from satisfactory. In other words, the discussion of personhood has lead to an internal re-organization of the moral community, not an expansion of the moral realm to include non-human-animals. The moral boundary still rests on the grounds of humanness.

A comparison between the regulations governing human embryo experimentation and those governing animal experimentation will illustrate the persistence of the dualistic assumption that there is a clear distinction in the moral status of humans and animals. I will argue, firstly, that disallowing the use of human embryos for scientific experimentation has lead to the creation of human-animal hybrids. Second, I will contend that hybrids pose a significant challenge to the dualistic premise and that the inability of ethical frameworks that embody the dualistic premise to adequately respond to hybrids is a reason for rejecting the dualistic assumption in favor of a liberal interests account that accords moral value on non-arbitrary grounds.

Moral Dualism Between Human and Animal.

Historically, Western philosophy and religion has considered the human-animal species distinction to also represent the boundary of the moral sphere. Peter Singer notes that “the distinction between human beings and all other animals is fundamental to our ethical attitudes towards ourselves [and] towards the rest of nature.” Pico della Mirandola’s Oration on the Dignity of Man described the universe as a hierarchical pyramid, from the lowest forms of matter to God himself. In this representation, man held the central, pivotal role in the “Great Chain of Being” between God and earth. Looking further back, contemporary Western philosophy has been deeply influenced by the Greek philosophers, Plato and Aristotle who emphasized the natural dominance of man. Aristotle viewed the world as a natural hierarchy where the less rational creatures exist for the benefit of those with greater reasoning capacities: “Since nature makes nothing purposeless or in vain, it is undeniable that she made all animals for the sake of man.”

The Judeo-Christian story of creation also stressed this dualism between the moral relevance of man in contrast to the rest of the animal kingdom. Humans alone were made in the image of God and were given dominion over the earth and instructed to subdue it. God gave humans a soul and this made them members of the moral community.

Furthermore, the distinction between man and beast is represented in the much-discussed psychological distinction between emotion and reason. Morality has often been described as an
internal battle, as reason seeks to gain control over the animal desires and emotions of the beast within.\textsuperscript{13} The metaphysical dualism between human and animal has continued to be an influential force in current ethical debates ranging from beliefs about the treatment of animals to the acceptability of abortion and embryo experimentation.

While the personhood debates\textsuperscript{14} and Peter Singer’s accusations of speciesism\textsuperscript{15} have challenged the moral dichotomy between animal and human on philosophical grounds, the very notion of “humanness” has not until recently been controversial. However the advent of hybrids directly challenges the concept of what it is to be human and therefore undermines this established moral dualism. It is for this reason that the public in America and Australia responded so strongly.

Moral Status of the Human Embryo

An analysis of the moral status of the human embryo is instructive because early embryos are clearly on the periphery of the moral community. They are useful for establishing the moral weight that a creature possesses, due exclusively to its membership to the species \textit{Homo sapiens}. I am interested in the popular attitude towards the human embryo and its influence on current Western practice.

The moral status of the human embryo is controversial. On one hand the conservative position endorsed the dualistic view of human-animal moral value and accords moral status to all \textit{Homo sapiens} equally, whether embryos or fully conscious and sentient.\textsuperscript{16} Conversely, the liberal position rejects the notion that human embryos have equal moral status, and promotes, instead, an interests\textsuperscript{17} or personhood\textsuperscript{18} based theory of moral rights.\textsuperscript{19} The liberal applies the standard of moral status (whether that be interest or personhood) equally to all entities. The two impacts of the liberal view are to include non-human animals in the moral sphere and to deny moral status to some members of the species \textit{Homo sapiens}. These are, of course, gross generalizations of the two positions but they will suffice for mapping out the ethical terrain around this issue.

Considering these incompatible views, how can we uncover a generalized Western view of the moral position of the human embryo? International and national ethics committees that aim to respond to and reflect public opinion have attempted to do just this. An analysis of their conclusions will provide the most balanced\textsuperscript{20} view of the public perception of the moral value of human embryo and thus allow us to measure the degree to which the dualism between human and animal pervades the public consciousness. Interestingly, the broad principles adopted by Western ethics committees have been surprisingly consistent.

The position adopted by many ethics committees has been to deny human embryos equal \textit{moral status} but to accord them \textit{moral value}. Following this view, it is acceptable to conduct research on embryos but only under strict conditions and only when necessary for medical or scientific inquiry. This ‘moral value’ view of the human embryo accepts destructive embryo research in principle but supports restrictions in order to demonstrate the special respect owed to the human embryo. It has been adopted by ethics committees globally including: the \textit{Report of the Human Embryo Research Panel}\textsuperscript{21} of the National Institutes of Health and the National Bioethics Advisory Committee report on the \textit{Ethical Issues in Human Stem Cell Research}\textsuperscript{22} in the United States; the Warnock Committee\textsuperscript{23} in Britain; the Australian Academy of Science position statement \textit{On Human
Cloning\textsuperscript{24} and the Australian National Health Medical Research Council (NMHRC) Ethical Guidelines on Assisted Reproductive Technology\textsuperscript{25}; the Canadian Royal Commission on Reproductive Technologies\textsuperscript{26}; and the World Health Organization (WHO) Draft Bioethics Guidelines\textsuperscript{27}.

I have called this the \textit{pragmatic} stance because it is essentially political and has typically been adopted by ethics committees which are seeking a middle ground between the profoundly opposed philosophical positions of the conservatives and liberals. The pragmatic view, sometimes referred to as the \textit{pluralistic} framework\textsuperscript{28}, is aligned with the liberal position in so far as it allows for some embryo experimentation. But because of the pressure and influence exerted by the conservative Catholic Church and Right-to-Life groups, ethics committees have been forced to accommodate the conservative premise that all human life is innately valuable.\textsuperscript{29} In a conciliatory move the pragmatic position accords human embryos moral value and asserts that they demand \textit{profound respect} as a \textit{potent symbol} of human life. Taking the middle line and supporting this intermediate position is an attempt to placate both the conservative and liberal audience.

Most developed countries regulate human embryo use relative to the purpose of the research, the maximum age of the embryos and the source of the embryos. A common way of expressing \textit{respect} for embryos has been to limit embryo research to spare IVF embryos and prohibit the creation of embryos for the express purposes of research.\textsuperscript{30} Embryos that were originally created for the purposes of reproduction, but are now no longer required for the couple’s procreative goals, are not considered to have the “manufactured-orphan status” of research embryos.\textsuperscript{31}

They [HERP] maintain that development of embryos expressly for research is inherently disrespectful of human life...will lead to the instrumentalization of the pre-implantation embryo, and by extension other human subjects,... [and] may result in the commodification of embryos and even their commercialization.\textsuperscript{32}

Such a distinction is entirely symbolic. It cannot be justified in terms of harm to the embryo because both spare embryos and research embryos are destroyed in the process.

The stipulation that human embryos have symbolic value,\textsuperscript{33} moral value or are due profound respect\textsuperscript{34} but do not have equal moral status has ignited strong international criticism. Philosophers have attacked the distinction between moral status and moral value as incoherent and unconvincing.\textsuperscript{35} Whilst I believe these criticisms hold merit, it is the practical implications of the pragmatic view, in the world of scientific research, that I wish to address in this paper.

\textbf{Moral Status of Animals.}

However, first let us briefly consider the popular attitude towards the moral status of animals, who are commonly bred as livestock and used extensively for scientific and medical purposes including biological research, as disease models, teaching resources and for agricultural and industry research.\textsuperscript{36} It has been estimated that 200 million animals are used annually in laboratory experiments around the world.\textsuperscript{37} It should be remembered that many of these animals are mature adults - both sentient and conscious.
Animal research in Australia is governed by the NHMRC 1997 *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*. The Code permits the use of animals for scientific and teaching purposes. The research objectives are broad in scope and allow for the extensive use of animals. Nevertheless the Code does promote the principles of Replacement, Reduction and Refinement which aim to limit the scientific use of animals. This indicates that the Code assumes animals are worthy of some ethical consideration but that their interests can be overridden by human interests, needs and objectives. As such, the Code supports the prime facie assumption of the inferior moral status of animals. The United States *Animal Welfare Act* adopts a similar position in regard to the instrumental use of animals.

This double standard in the treatment and concern for humans as opposed to animals is clearly exemplified by the Australian NHMRC report outlining the scientific, ethical and regulatory aspects of human cloning and stem cell research. The deliberate creation of research embryos was not endorsed for the reasons discussed above - the desire to acknowledge and protect the moral value of the human embryo. Chapter One of the report discusses alternative research options and specifically suggests that: “basic research may be supported, for instance through the establishment of a non-human primate facility”. Apparently, the imperative to protect the non-sentient human embryo legitimises keeping a group of conscious, sentient primates captive for research purposes. This report was released in October 2001, and it illustrates that dualism based on species membership is still an influential force in contemporary ethical debates and policy setting.

**Why Create Hybrids?**

The pragmatic framework generates an environment where public policy, legislation and public opinion all hinder the scientific use of human embryos but allow for the widespread use of animals. The motivation for creating human-hybrids is a product of legislation that endorses, to varying degrees, the dualistic conception of moral value. From a purely scientific perspective it is significantly more efficient to work with a single species system, where both the egg and the nucleus belong to the same species. As the results of the hybrid experiments show, it is technically difficult to achieve results with human-animal hybrid experiments. Hybrids do not offer any innate scientific advantages; they offer practical advantages because they avoid policy that limits human embryo experimentation and therefore offer researchers more scientific freedom.

For example, destructive research on human embryos is banned in Victoria (Australia) where SCS conducted the pig-human intercellular nuclear transfer experiments. The Victorian *Infertility Treatment Act 1995* forbids the use of cloning to produce genetically identical human embryos. SCS’s hybrid experiments were a way around this legislation. The hybrid embryos were not classified as human embryos and were therefore outside the scope of the Act. Professor Loane Skene, an expert in medical law at the University of Melbourne (Victoria) confirmed that the experiments carried out by SCS did not contravene the Act.

The ACT experiments in America were indirectly motivated by the principle of moral dualism. ACT is a privately funded biotechnology laboratory and as such it is not affected by the United States federal prohibition on the use of public funds to support therapeutic cloning experiments. They were instead driven by practical considerations of expense and accessibility.
are easier and cheaper to access than human oocytes. Because bovine oocytes, used in the ACT experiments, can be supplied by abattoirs they are easier and cheaper, at US$1 per egg, to access.\textsuperscript{50} Human oocytes, when they are available, cost about US$2000 per egg.\textsuperscript{51}

If the treatment of human embryos ignites such controversy, yet the breeding of research animals is broadly accepted, what of the creation of human-hybrids for research purposes? How is the community to view something that is part human, part animal? The advent of hybrids poses a substantial challenge to the existing moral dualism that correlates moral status with membership of the species \textit{Homo sapiens}. Before exploring the pragmatic response to this challenge let us briefly consider the broader context of human-hybrid research.

**Broader Context of Human-Hybrid Research.**

The SCS and ACT hybrid experiments have received a huge amount of press coverage and generated considerable public concern, but the creation of human-animal hybrids is, in fact, quite common. Hybrids are routinely formed at both the cellular and genetic level. For example, hamster eggs are the basis of the most common form of male infertility test – a male sperm sample is tested by seeing how efficiently it fertilizes a hamster oocyte.\textsuperscript{52} This technique is accurate and avoids the creation of human pre-embryos (an important factor considering the dualistic ethical climate).

Animal systems are now widely used in the production of human protein based therapeutics. For example, mice can be genetically engineered to produce human antibodies.\textsuperscript{53} In other words, the genetically modified mice have a human antibody repertoire. When the mouse has matured, it is possible to remove the spleen, which contains the antibody producing cells, in order to create a factory for human monoclonal antibodies.

More generally, transgenic mice models have been used extensively to study the function of human gene segments.\textsuperscript{54} They offer the ability to test and mutate the function of specific human genes in isolation. This research has added to a general understanding of gene function but is only indirectly related to medical treatments.

**Hybrids: The Challenge to Humanness.**

The scientific use of human hybrids is certainly not novel. Nor is it always controversial. Why did the ACT/SCS hybrids inspire ethical concern? To answer this we must again return to the moral double standard between animals and humans, for it appears that while hybrids occupy the ground between animals and humans, those that fall nearer the human end of the scale inspire greater interest and concern. There is a temptation to classify the hybrids as \textit{either} human or animal. The use of animal models to study human genes is publicly acceptable because the resulting creature looks and acts like a mouse. Disrupting the mouse genome by introducing foreign DNA can be dismissed in the same way the general welfare of laboratory animals, especially lower vertebrates, is dismissed. By contrast, the embryos created by ACT and SCS were reported as being “95% human”\textsuperscript{55}, which led to the research being depicted as the corruption of the purity of the human genome.

Hybrids pose a clear practical problem for those endorsing the dualistic proposition. How is a
system that relies on the moral status of being human supposed to respond? Should the hybrids be given moral value in accordance with the proportion of human DNA they contain? Such a moral distinction based on the proportion of human DNA in a non-sentient embryo has no sound justification.

An easy response to such a dilemma, and the one that seems to have been adopted, is to reinterpret the scientific data in a way that does not upset established principles. It is for this reason that the pragmatic framework attempts to classify the hybrids as either human or animal. Unfortunately, this approach is contradictory, inconclusive and inadequate. If, as the Victorian legislation indicates, the SCS embryos are not human, they should not be expected to have elicited such attention. If, however, the embryos are human, as suggested by the public response, then their creation should have been prohibited by legislation in the first place. An attempt to categorize the hybrids in this way is an inadequate approach because it refuses to acknowledge that a problem even exists. Hybrids are problematic because they are both human and animal. The inability of the current philosophical framework, based on a moral double standard, to deal consistently with the creation of hybrids demonstrates the arbitrary nature of its original dualistic premise.

The irony of this situation is that, not only has the moral double standard created an environment that has encouraged scientists to create hybrids; but it is the conservatives who most strongly support dualism that are most offended by the creation of hybrids. Conservatives, and to a lesser degree pragmatists, believe that hybrid experiments violate the genetic integrity of the human embryo, an interpretation derived directly from the dualistic distinction between animal and human. For example the Canadian Ministry of Health offers the following justification for prohibiting human-animal hybrid experiments.

The Royal Commission felt that the creation of animal-human hybrids violates the basic norms of respect for human life and dignity, denies the embryo’s connection to the human community, and should be prohibited.

Moral Status of Hybrid Embryos.

There is a need to establish a coherent ethical framework that is capable of considering the moral status of these hybrids and therefore the moral permissibility of this research. The lesson to be taken from this critique is that we should abandon the notion of dualism: of humans as morally distinct and superior to animals. The replacement of the dualistic assumption of moral worth based on species membership with a liberal sentience or interests view would profoundly affect many aspects of our daily lives. However if, for present purposes, we focus on the specific issue addressed in this paper, we could anticipate such a transformation would result in the following changes: greater scientific freedom and a reduction of the limits on early embryo experimentation; a parallel reduction in the imperative to create hybrids, because of the absence of arbitrarily restrictive legislation; the growth of regulation that accorded moral status according to capacity and advocated protection on these grounds. If hybrids continue to be produced their moral value should be assessed objectively. This can only be done if dualism is rejected and we refrain from trying to classify them as either human or animal. A consistent approach should be taken to human and animal embryo regulation that is based on capacity and interests rather than prejudice. The ACT and SCS hybrids may be similar enough in their nature and interests to human embryos that they too
can claim some of the protection extended to human embryos. To the degree that this is the case, experiments that produce and work with these hybrids should be governed by legislation similar to that which regulates the use of human embryos. Policy should be formulated that stipulates the acceptable aims of the research and the maximum age of the hybrid embryos based on a liberal conception of moral status.

Conclusion.

This pragmatic ‘mess’ is not benign. By endorsing dualism it has created a legislative and ethical environment that initiates the scientific search for entities such as hybrids that allow for greater experimental freedom. The production of hybrids is an attempt to dodge the legislative minefield of human embryo experimentation.

The moral double standard between humans and animals then forces the public, philosophers, and scientists to attempt to classify the hybrids as either human or animal. This dichotomy fundamentally misinterprets the nature of hybrids. The essential point about hybrids is that they fall on a graduated scale between humans and animals.

Following the rejection of this dualistic standard we would be left with the conceptual space to more objectively consider frameworks that accord moral status in relation to sentience, interest or capacity.\(^{58}\)

Angela Ballantyne
Monash University

Notes


5. Throughout this paper the term “dualism” refers to the moral dualism that draws an absolute distinction between the moral status of humans and animals, such that any human, by virtue of their membership to the species Homo sapiens is granted superior status to any non-human animal.


30. The United Kingdom is the only country to have introduced legislation regarding human embryo experimentation that permits the creation of research embryos.


32. HERP. (1994) at p42.


37. Ibid.


39. Ibid. §1.1.1, p5.

40. Ibid. §1.1.9, p6.

41. Ibid. §1.1.10-12, p6.

42. Ibid. §1.1.13-26, p6.


45. Ibid. Executive Summary (E4) at p iv.


48. Fannin ibid.


50. Comments by Michael West (ACT), reported in Hall ibid. at p94.

51. Again it is the (dualistic) view that all humans, even when dead, have moral value that prohibits the removal of organs (including oocytes) from those who have not given consent prior to their death in Canada, the United States, England and Australia. See: Somerville M. (2000) “Crossing the Animal-Human Divide: The Ethics of Xenotransplantation” in *The Ethical Canary: Science, Society and the Human Spirit* (Harmondsworth: Penguin Books) at p 91.


56. See the views of Nicholas Tonti-Fillipini, an Australian Catholic ethicist in Fannin ibid.


58. I would like to thank Dr David Neil and Dr Robert Irvine for their helpful comments on an earlier version of this paper.

Copyright à 2004, Humboldt State University