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Purpose of Thesis

There is a common necessity of choice which can be found both in the humanities and the sciences. While the two fields have long been thought of as being distinct and isolated from each other, I propose that they are actually very much connected. Choices and decision-making in both fields are based upon a common value system. Research of such literary works as Oedipus Rex, Paradise Lost, and A Doll's House has shown me that choices and decision-making change as society changes. Similarly, as technology develops in areas such as genetics, the scientific world is increasingly faced with problems requiring difficult ethical decision-making choices. It is this type of analogous situation in literature and in genetics that this paper explores. Specific examples from both literature and genetics will be cited as evidence.

The Grayness of Choice:
A Phenomenon of Both Science and the Humanities

The areas of science and humanities have often been viewed as being completely separate. Many see science as an extremely black and white field with exact answers to all questions posed. In contrast, the humanities have been viewed as an area which envelope many choices and options. This paper reflects upon the notion that, possibly, these two worlds of science and humanities are not as distinct as many have come to believe.

A connection between the humanities and science can be made by examining specific areas in each, namely, literature and genetics. The analysis of several literary works, including Oedipus Rex, Paradise Lost, and A Doll's House, demonstrates how choice pervades the literary field. This paper identifies the types of problems that the characters in these works encountered. It also examines the choices made by the characters and investigates the complexity, or simplicity, of their choices. Also incorporated in this paper is an analysis of the influencing factors of the characters choices, and an examination of the results and significance of these decisions. The connection between literature and genetics is made obvious upon the investigation of these same questions when applied to actual genetic case studies. This paper researches three scenarios involving neurofibromatosis, fetal

alcohol syndrome, and sex selection of fetuses. Each case is compared to some aspect of choice in a corresponding literary work. Many similarities involving the choices, decisions, and consequences have been found. The comparisons show how the choices and consequences involved in the application of science can be as complicated and intertwined as those which abound in the humanities. Therefore, neither area is black and white. Rather both are enveloped in a grayness of choice.

I

Sophocles' Oedipus Rex is a work which involves many complex choices. As one may recall the story, Oedipus makes a very important choice very early in his life. After being told by the oracle at Delphi that he is fated to kill his father and marry his mother, Oedipus makes a decision to flee his home and family in Corinth and travels to Thebes. This shows his determination to prevent his destiny. Unbeknownst to him, this determined self-sufficiency will eventually seal his fate. This time the problem will not be a simple personal one, but one which involves the entire community.

Having rid Thebes of the Sphinx, Oedipus has been hailed as a hero and has married the queen, but soon he must solve a new problem and make more choices. His community is being plagued, according to the oracle of Apollo, until the murderer of their former king, Laius, is found and brought to justice. King Oedipus is extremely determined to find the killer of the

late King Laius. He ironically states that "not for some distant friend, but on my own behalf shall I dispel this guilt" and demands that the killer be found.

King Oedipus makes several decisions to ensure that the murderer is found. First he calls on the blind prophet, Teiresias, who, although he begs to be left alone, reveals that, it is Oedipus himself who is the murderer, and now is living in a "shameful union." King Oedipus, however, decides to reject the truth and, instead, out of fear and anger, accuses his faithful brother-in-law, Creon, of plotting with Teiresias against him. Oedipus allows his fear of the fates and his desire to remain in power cloud his decision-making.

Still, King Oedipus does not let the matter rest. His desire to know his destiny compels him to search out the truth. More and more information is accumulated against him. For instance, he learns from Queen Jocasta that the oracle had warned King Laius that he "was doomed to be murdered by a son, his and mine." King Laius therefore had decided to circumvent such a fate by having their three-day old infant son abandoned to die on Mount Cithaeron, or so they thought. This story prompts King Oedipus to inquire further. Summoning the Corinthian shepherd, King Oedipus learns that the baby of King Laius and Queen Jocasta, that was left to die, was actually Oedipus. Moreover, it is Oedipus that murdered his father, King Laius, on the road and later married his mother, Jocasta.

Research into this story of Oedipus Rex has revealed that even the simplest of choices can become very complex.

The Grayness of Choice:
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by

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they have a very good chance of having such a child. However, prenatal diagnosis cannot inform them if they will, nor is there any way to predict the degree of disability the child will face if they do continue the pregnancy. Their decision to gain the knowledge of the possibilities has left them with many complicated choices.

If the couple decides to avoid what may be considered the destiny which their genes may have given the fetus, then the only choice is to terminate the pregnancy by abortion. This has emotional, moral, physical, and psychological consequences which must then be faced. On the other hand, the choice to continue the pregnancy, in a sense, to accept their genetic fate, also brings with it the potential for significant emotional, physical, and psychological consequences.

In this scenario, it is difficult, if not impossible to say what the correct decision would be. However, as science advances and new information is gained, choices such as these are forced upon us. As in Oedipus Rex, the information one gains must be dealt with. One can not avoid choice, even if it may lead to other, more complex choices.

II

Another literary work, in which the characters can be found faced with profound choices, was Milton's Paradise Lost. This work is Milton's portrayal of the Jewish account of the creation and fall of man. In it, Adam and Eve are faced with

temptation, and ultimately choose to turn away from God.

The choices that Adam and Eve made must be viewed independently from each other, although together they have additional significance. As Milton presents the story, Adam has a higher intellectual and spiritual status than Eve. In addition, Adam is privileged by God to have Raphael conduct a special seminar for him alone. Eve, on the other hand, is excluded and expected to take care of domestic matters in their home. Also, in his special meeting with the angel, Adam is reminded that in times of temptation, he has within himself the ability "to stand or fall." Thus, it is Adam who is privy to all the warnings, and therefore, should be best prepared to make the right choices.

On the other hand, it cannot be said that Eve is blameless in her decision to eat the forbidden fruit. Eve does make the first foolish choice, and she is aware at that time that she is breaking God's commandment. There is no bypassing the fact that her choice is wrong; it is an obvious act of pride and desire to obtain power. However, Eve is much more vulnerable than Adam is. And, in addition to this, Eve is directly tempted by Satan. This is not the case with Adam.

Adam makes his foolish choice in spite of the additional knowledge he had been given. Adam is completely informed and forewarned. He is not tempted by Satan, as Eve was, or even by Eve, though she has planned to do so. Rather, it is his inner weakness and culpability to Eve's natural charm that prompts him to freely choose to eat the fruit...."against his

better knowledge, not deceived." Adam thus wilfully chooses to ignore the benefits of higher intellectual status and extra knowledge, and chooses disobedience over obedience, evil over righteousness.

Taken together the decisions that Adam and Eve make have many consequences. Some of them were immediate, others, long-term. For example, they lose their innocence, faith, and purity. Guilt, shame, and lust overcome them and passions gain power over their reason. In addition to these, some additional consequences follow. Though forgiven by God, they are ordered to leave the safety and comfort of the Garden. They now have to live East of Eden and must toil and experience pain. Perhaps, the most significant effect of their deliberate disobedience, is that their punishments will be transmitted to future generations. Because Adam and Eve choose to disobey God's command, their children will bear the consequences of their sins.

This situation can be easily likened to many areas of genetic diseases. Science has given humanity an immense amount of knowledge. Due to the great deal of research into medical genetics, the causes of many diseases have been found. Often, the discoveries lead to the conclusion that some birth defects are preventable. It may not be fate, or chance, that leads to a disability, but the choices and actions which one of the parents decides to make.

There are a multitude of examples which could be cited, however, fetal alcohol syndrome is a prime illustration.

Fetal alcohol syndrome is a disease which affects between 2,000 and 4,000 newborns every year. It is characterized by a variety of conditions ranging from a low birth weight, to facial deformities and mental retardation. Science has taught us that this condition is entirely avoidable, and society is being made aware of its causes and dangers. Often individuals who decide to engage in drinking while pregnant can be likened to Adam or Eve. Many times they are aware of the possible consequences, but choose to act against what they know is right. They, too, ignore the benefits of knowledge. As a result of their foolish choices, the consequences of their "sins" are passed on to the next generation.

As science advances, society will continue to gain valuable information. Individuals, unlike Adam and Eve, must be wise enough to apply the information that they are given.

II

The final literary work which will be considered is Ibsen's, A Doll's House. This work deals with the choices made by the very naive housewife, Nora. Nora has led an extremely sheltered life. She has always been protected, first by her father, and then by her husband, Torvald. However, when her husband falls ill, she takes it upon herself to step out of her doll's house. She chooses to forge her dead father's signature in order to borrow money and then to take her ill husband on a trip. This step into the real world

has many consequences. Nora scrimps and saves in an effort to pay back the loan, but nevertheless, is caught in her wrong decision. She is forced to inform Torvald about how she acquired the money for the trip. His reaction of being more concerned about his own honor than the love he is supposed to have for his wife, drives Nora to make further decisions.

The choices that now face Nora concern the issue of whether or not she is willing to continue to be treated as a plaything, to be sheltered and protected from reality, or if she will emerge into a world full of knowledge and learn about herself and the world. Nora chooses the latter. She realizes that knowledge has become extremely important, and that she was no longer willing to live under someone else's choices and decisions. She must make her own.

This final decision holds many implications and consequences for Nora and her family. By deciding to search for self-actualization, Nora turns her back on many of the more traditional views of society. She places her efforts for self realization above religion, morals, and justice. Educating herself means that these societal values, and indeed, her own children, must be regarded as less important than her own individual wants and needs. This decision will indeed severely impact Nora's life and the life of her family.

Nora's decision to act upon the truth she had gained, and to seek out more knowledge, can not be viewed as simply good or bad. The result of this decision has both positive and negative impacts. Her children are left without a mother, and

this can be viewed as being wrong, but then one must also ask what type of mother they really have. For Nora's own individuality, the choice seems to be positive. However, one cannot be certain that someone who has been so sheltered from life will be capable of acting wisely on newfound knowledge. Whether Nora can survive and succeed in her new world, making the correct decisions, is left unanswered.

This research into The Doll's House has led to the question of when one should search out knowledge, and also, when one should act on the knowledge that is uncovered. These questions abound in science.

New knowledge is being gained so rapidly in science, especially in the area of genetics, that more and more often one must question whether indeed the information should be sought, much less applied.

This question has been asked in the case of seeking amniocentesis for the purpose of selecting the sex of fetuses not at risk for having a sex-linked disease. This practice is common in some Asian countries, such as China, where having a male offspring is sometimes considered very important. While it is not common in the United States, the knowledge and technology to perform such procedures is available, and it does occur. For example, consider the case of a couple in their late forties who already have three teenage sons and are suddenly expecting their fourth child. They have decided to determine the sex of their unborn child. If it is not female, it will be aborted. While most of society may not be

in agreement with this, it is that couple's choice to seek out the truth and act on the knowledge they gain.

There are many consequences of making such a choice. The choice seems to be in a agreement with some American values. For instance, there is an immense value placed upon the right of the individual. Also, society demands that information be sought by the scientific world and that it be available to people. Today's society values knowledge and independence, just as Nora does.

However, having the knowledge and ability to abort a fetus because of its sex also goes against many of today's accepted values. For many Americans, the decision to do this rejects the currently accepted view of morality, family, and justice. However, so does Nora's decision.

It is indisputable that it is extremely difficult to choose when to apply new knowledge, for both literary characters and those faced with scientific information. As scientific research and technology evolve, more and more often complex and emotional issues will have to be faced. The consequences of every decision must be carefully examined before a choice is made. In order to help in making those decisions, it may be wise for individuals to reflect and learn from the difficult choices made by fictional characters in some of our great literary masterpieces.

Postscript

It should be made clear that this thesis has been written as a creative work. The ideas and conclusions which have been incorporated are as a result of my own exploration into the connection between science and the humanities. My interest stemmed from discussions with my humanities professor and mentor, Dr. Daryl Adrian, about how I realized that in some ways I was leading almost a double life as a student. A part of my week was spent as humanities student, learning to think and deal with choices as a humanist. The rest of each week was spent functioning as a scientist, dealing only with the exactness of the scientific field. Upon reflection, and with Dr. Adrian's encouragement, I decided to explore the notion that possibly my two worlds were not as distinct as I thought.

This was accomplished by first reading several literary works and analyzing the choices that were made the consequences that accompanied them. Of the many I read, I then selected three works, Oedipus Rex, Paradise Lost, and A Doll's House, from which I drew connections to the sciences.

My research in the scientific area of this thesis was done in much the same way. While I was exploring ideas for this thesis, I was enrolled in a bioethics course which introduced to me the complexity of applying scientific knowledge. In this class I studied many cases involving complex choices. I also did much research outside of the

class investigating genetic issues. The Neurofibromatosis case and the Fetal Alcohol Syndrome case were taken from March of Dimes Birth Defects Foundation pamphlets provided to me by genetics professor, Dr. Tom Mertens. The sex selection case was obtained from a Hastings Center Report.

The preliminary results of this creative exploration into the connection between science and the humanities were presented at the literary section of a research conference at Butler University in April of 1992. My personal inquiry into this relationship seemed to be successful in provoking reflection and interest about how the two fields could be united.