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Selfish Gene Theory Explains Oedipus Complex

Olga Kosheleva and Vladik Kreinovich

Abstract Sigmund Freud famously placed what he called Oedipus complex at the center of his explanation of psychological and psychiatric problems. Freud's analysis was based on anecdotal evidence and intuition, not on solid experiments – as a result, for a long time, many psychologists dismissed the universality of Freud's findings. However, lately, experiments seem to confirm that indeed men, on average, select wives who resemble their mothers, and women select husbands who resemble their mothers. In this paper, we provide a possible biological explanation for this observational phenomenon.

1 Oedipus Complex: A Brief Reminder

What is Oedipus complex. From his experience with patients, Sigmund Freud discovered that several of his male patients experienced subconscious hostility towards their fathers and subconscious sexual feelings towards their mothers; see, e.g., [4, 5]. Since his attention was attracted to these unexpected feelings, he started searching for such feelings in other patients and found such feeling in most of his patients – as well as in several healthy folks whom he analyzed. So, he came to a conclusion that such feelings are universal, starting with early childhood.

Freud called such feelings Oedipus complex [4], after the legendary King Oedipus who killed his own father – not knowing that this was his father, and married his own mother – again, not knowing that this lady was his mother.

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Psychologists also discovered similar feelings in females: they have a subconscious hostility towards their mothers and subconscious sexual feelings towards their fathers.

Modern attitude. Freud's ideas were based on anecdotal evidence – as many other ideas in the psychology of his time. Later, psychology became more of an experimental science, many anecdotal-based ideas turned out to be not fully supported by the evidence. As a result, many psychologists summarily dismissed these ideas – and the universality of Oedipus complex was one of the ideas that many psychologists dismissed.

However, later experimental studies provided support to the Oedipus complex idea: for example, it turned out that, statistically, a person's wife is more similar in appearance to the person's mother than an average woman from his region; see, e.g., [1, 7, 8].

How can we explain this experimental evidence. Freud himself provided a sociological explanation – that in ancient times, sometimes, the only way for young people to get food and women was to kill their fathers, and that we still keep, to some extent, this murderous instinct, just like many we keep many other aspects of behavior – like fight or flight body reaction to dangers – even though they mostly make no sense at present.

This explanation is as speculative as the original idea of the Oedipus complex. It is desirable to have a more solid explanation for the Oedipus complex phenomenon. Such an explanation is provided in this paper.

2 Our Explanation

Selfish gene theory: the basis for our explanation. In our explanation, we will use the *selfish gene* theory; see, e.g., [3, 9]. According to this theory, each gene wants to spread as much as possible.

From selfish gene theory to an explanation: an idea. From the viewpoint of the selfish gene theory, what is the best partner for a man so that their children preserve as many of the man's genes as possible?

Seemingly ideal spouse. In general, in a child, half of the genes come from the father, and half from the mother. So, the ideal situation when all 100% of the genes are preserved in all the children is when the wife is genetically identical to the husband. In this case, children get exactly the same genes as both parents.

Problem with this seemingly ideal idea. But how does the body know about the genes? The only way for a body to see how close are the genes is to rely on the fact that people with similar genes look similar and have other similar characteristics such as smell, voice, etc., i.e., have similar *phenotype* – observable appearance.

The problem is that there is a big difference in appearance between men and women, so even when a man and a woman have similar genes, they look differently.

Thus, when a man selects a wife – and a woman selects a husband – they cannot rely on similarity in appearance to decide which potential partner is the closest to them genes-wise.

We need to look for similarity between people of the same sex. To make such a decision, a man needs to have some other pattern (not himself) to whom to compare his future wife – this must be a woman who has as many genes in common as this man.

Two options. Here, we have two options.

- First, since a man inherits half of his genes from his mother, so the mother has 50% genes in common with her son – we mean the genes that vary from person to person; of course, the vast majority of the genes are common to all of us – these are the genes that make human beings and not fish or apes.
- Another female relative who, in principle, shares half of the genes with a man is his sister. All other relatives share 25% and less of the genes.

From this viewpoint, a man should look for a wife who resembles either his mother or his sister.

Mother or sister. Shall he select a mother or a sister?

- With a mother, there is a guarantee that she shares 50% of the genes.
- In contrast, for a sister, the actual percentage may be lower. It is known that even in monogamous animals, there is a significant percentage of children whose father is different from the permanent partner; see, e.g., [2, 6].

From this viewpoint, on average, a sister shares fewer genes. Thus, a mother is a more reliable pattern to whom men can compare future wives.

This explains the experimental Oedipus effect for men. So, our conclusion is that from the biological viewpoint, it is beneficial for men to look for wives who resemble their mothers – this is exactly what the experiments show.

What about women? Similar arguments show that for a woman, the best chance of preserving as many genes as possible in their children is to select a husband who is similar to their father.

But why now take Oedipus's example literally? But why do we say “similar” to a person's mother or father? Why not identical?

At first glance, it may look like that from this viewpoint, the best idea is to simply have joint children with your own parents, exactly as Oedipus himself did. The reason why we cannot replace “similar” with “identical” in our conclusions is that, as is well known, such an incest (and even more remote incest) is very damaging to the genes.

In addition to good genes, there are also not so good genes causing all kinds of diseases. Many of these genes only become active when they are inherited from both parents. When spouses are not previously related, the probability that both have a copy of such a damaging gene is low. However, when they are closely related and

their genes are similar, the probability becomes high – and diseases start. Experiments on animals – when practitioners try to match close relatives to come up with the fastest horse or the most productive cow – show that incest (which for animals is called inbreeding) indeed leads to a wide spread of damaging fluctuations and degeneration; see, e.g., [10].

This is a simple biological explanation of why marrying your own parent is a undesirable pathology, but marrying someone who somewhat resembles you own parent is a healthy common practice.

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