

## Archimedean Approach to Explain the Higher Density of the Female Brain

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**Abstract:** There has been a lot of work done in the area of systematically understanding the hows and whys of the functioning of the female brain. It is believed by many that a proper theory that explains why women think the way they do will help unravel the question of whether or not they are actually an alien race. Of course it remains an open question on who first inhabited the planet Earth, men or women, thus making it equally likely that men could be the alien race. In this paper, we hope to address a specific issue, viz. the reason why women sometimes never ‘get’ men and why they do things the way they do. We do this by deriving rigorously that women are more ‘dense’<sup>1</sup> than men.

**Keywords:** Women, Men, Dense, Archimedes, Bayesian Neural Networks.

### I. INTRODUCTION

Women and men<sup>2</sup> are very different creatures. This is quite evident from the following situation [2]. If two men bump into each other on a given street at a given time on a given day, they will either (i) walk away without realizing that they just jarred someone else’s shoulder bone out of its socket, or (ii) glower and start a verbal abuse marathon that culminates in both men going away with approximately 12.58 teeth missing between them. Women on the other hand, approach the same situation in a slightly different manner. In roughly 98% of the cases, the two women will stop, look at each other with a startled expression, usually cover their open mouth with one or two hands, and profusely apologize for the incident, claiming all along that it was their own fault. This usually culminates in an intense round of hugging followed by the women walking off together hand in hand to pick out new drapes for Oprah’s house. As an aside, the author would like to mention that, a typical man would have hoped the encounter between the women would have ended in a mud wrestling match between them. In the other 2% of the cases, a reaction similar to that in the

case of men is noticed. This is easily explained given that in such cases, it is highly likely that the individuals are men ‘trapped’ in women’s bodies. (The author would not be addressing these cases as it is beyond the scope of the work done). This work seeks to emphasize that women act the way they do because they are significantly differently structured than men. The results proved below will go a long way in beginning to unravel other mysteries like why most women’s rooms are some variation of a shade of pink.

### II. RELATED WORK

The literature is replete with prior work describing the efforts made to comprehend the differences between the male and female brains. Different authors have approached the problem from different angles. There has been work done in the physiological realm to study the brain structure of the different (two) sexes and draw inferences on the observations made. Psychologists have looked at the problem in Freudian and Aristotlian terms and have invariably come to the conclusion that it’s ‘your’ mother’s fault. Humorists have studied the cultural and social upbringing patterns that affect the behavior of men and women. They have generally identified why women act the way they do, but these results are not totally reliable since most humorists [2] and [3] have been men whose writing can be explained if we took into consideration, their mothers.

### III. PROPOSED SOLUTION TO THE DENSITY PROBLEM

We chose to shed some light on the plainly evident fact that women are more ‘dense’ than men. We concluded that it is ‘plainly evident’ based on a Bayesian statistical analysis of a large random sampling of men drawn from the ‘gene pool’. (The author would like to caution that the gene pool is not related in any way to a store that sells truck loads of cheap ‘export reject quality’ jeans trousers). However, since the funding agency, United Women’s Liberation Front, withdrew the funding that had been allocated to this research endeavor, the experiment could not be completed by paying the large ‘random sample’ of

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<sup>1</sup> The author would like to clarify the use of the word ‘dense’ when referring to a human specimen. To say a person is ‘dense’ means they don’t get ‘obvious’ things. The author warns that unless the reader has understood the concept of ‘dense’, it would be disastrous to proceed any further.

<sup>2</sup> Hereinafter, the author may interchangeably use the terms male and men, female and women.

men who had turned up to fill in the carefully prepared questionnaires. The author had to rely on the sole answer of the handyman, Bob, who was in a foul mood that morning since his wife made it plenty clear that she could not understand why he had spent their anniversary savings fund on a shiny new bowling ball. The following knowledge is assumed of the reader for a proper understanding of the material presented from this point on.

1. Basic knowledge of Class XII Physics excluding principles of the space-time continuum concept.
2. Thorough understanding of the space-time continuum concept.
3. Archimedes and his naked frolicking incident.

Consider two flowers,  $F_A$  and  $F_B$ . Now consider the male and female brain. It is inherently obvious that both brains have mass and volume since the brain is a physical object and all physical objects have mass and volume (as opposed to C++ objects which have only private parts). Some researchers argue that since the female brain is ‘supernatural’, it need not have mass and volume. We will not be considering that dimension here as it will make matters more complex and because there is no formal proof for that claim. We will be looking at this problem using the underlying notion of the problem statement, viz. density. The definition of density is attributed to Archimedes [5]. Archimedes was a legendary philosopher and mathematician who solved the problems of world hunger and poverty by running naked through the streets of Syracuse, Sicily yelling “Eureka! Eureka!” which loosely translated means “Help! I’m being chased by a mad bull, help!” He is also known as the inventor of the Archimedes Screw, which, contrary to popular opinion is not a love making position but in fact, just what its name implies; a screw. If we look up [5], we will know that

$$Density = \frac{Mass}{Volume} \quad \text{-----} \quad (1)$$

It is also common knowledge that both men and women have the same brain mass. Brain mass is the weight of the brain attributed to the amount of information stored in it as knowledge. This is true since no person worth their salt can claim that either sex, on the average, is more knowledgeable than the other. It is chauvinistically wrong and there exists no reliable results that indicate otherwise. Since the Mass

factor is the same for both men and women, we can consider that to be a constant in equation (1) and rewrite it as

$$Density \propto \frac{1}{Volume} \quad \text{-----} \quad (2)$$

From (2) we see that since Density is inversely proportional to Volume, higher volume corresponds to lower density values. It is also an accepted and easily verifiable fact that the average size of the male brain is more than that of the female brain. This can be corroborated by observing the average sizes of the cranial chambers (heads) of males and females of the human species at the same ages. Hence, we know that the female brain has less volume as compared to the male brain. If we use this evidence in (2), we notice that the Density value for the average male brain is less than that for the average female brain at the same specimen ages. Hence, we have proved, empirically, that women are more ‘dense’ than men.

At this point, we would like to explain why we asked the reader to consider two flowers  $F_A$  and  $F_B$  at the beginning of the formal rigorous derivation. We wanted to be sure that only readers with a scientific bent of mind could go forward from that point and hence truly appreciate the rigorous derivation performed. A reader with a non-scientific / research background would have been stuck at that point, trying to ‘consider’ the two flowers,  $F_A$  and  $F_B$ . This is analogous to the use of semaphores in Operating Systems, where a process is not allowed to proceed beyond a certain point until some condition is met. We chose to use the Operating Systems analogy, since we had just used semaphores a day before this draft was prepared, to enable Santa Claus to deliver his gifts as part of a multi programming project for our graduate course requirement. (Yes, the author is still a graduate student. No, you may not go out with him).

#### IV. EXPERIMENTAL RESULTS

The author performed the following experiment on his female cousin. The subject was asked to assist the author in the preparation of the traditional morning meal, breakfast. As the bread had just been toasted at exactly 87° Celsius, the subject was asked to butter the sides of the bread at which point she proceeded to promptly butter just the four edges, i.e. the brown crust, of the slices of bread. We also tested the rage

shown by a woman when *her* man uses *his* money to buy a clicky, blinky gizmo and the subsequent remorse a man shows for the same purchase. These factors were plotted against the currency units used in the purchase and are shown below, in figure 1.

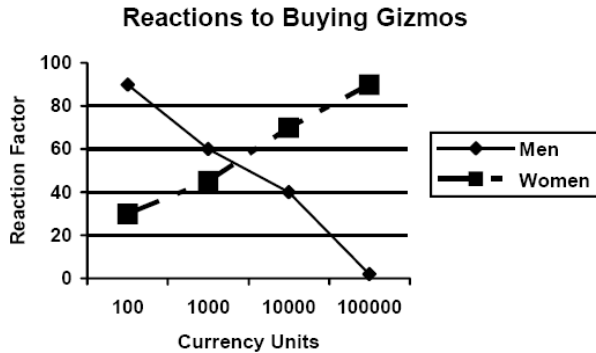


Figure 1. Graph plotting Reaction Factor against Currency Units used in a gizmo purchase.

It is interesting to note from figure 1 that a woman will not be at 100% rage level even at a very high value of currency used. In unrelated research, the author observed that 100% rage level is achieved only when one fails to notice a woman's 'new' haircut, which, given the nature of man, would only be obvious to him if the woman had her head completely shaved.

#### IV. CONCLUSIONS AND FUTURE WORK

In this paper, we have proved, by rigorous derivation, that women are more 'dense' than men. We hope this will be a useful result to aid other researchers in understanding some of the questions that are nagging this elite research fraternity, like how the democratic governments of the world function with large scale tax evasion by the taxable segment of the public and non-attendance by the legislators in the legislative houses. Since the results of the work presented in this paper are ground breaking, we have chosen to leave it to other interested researchers to use these results to devise experiments to corroborate these claims. The author is currently working on the question that both sexes have debated over from time immemorial. Does size really matter?

#### V. REFERENCES

- [1] Dr. John Gray, "*Men are from Mars, Women are from Venus*"; HarperCollins I Edition, April, 1993; ISBN 006016848X.
- [2] Dave Barry, "*Neither Man, Woman nor Rat can fold the Laundry*"; The Miami Herald, July, 2000.
- [3] Dave Barry, "*Guide to Marriage and/or Sex*"; Rodale Books, January, 2000; ISBN: 0878577254.
- [4] Mad Magazine, "*Men are from Mars, Women are from Mars too, just another part?*"; In Proc. Of Mad TV May, 2000.
- [5] Archimedes, "*On Floating Bodies*"; circa 300 BC.

**Note:** The author profusely apologizes to all the Bayesians out there, for his not using Bayesian Neural Networks anywhere in the treatment of this subject matter.

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Draft edited and proof read by Sandhya S. Madhan; previously, Graduate Student, Dept. of CSE, SUNY – Buffalo, NY; currently "Professor (of Undergraduates)" at Dept. of CSE, Kansas State University, Manhattan, KS. It is rumored that her appointment as professor was a direct consequence of her involvement in this controversial paper.

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