

Title: Statistical testing of a few fundamental astrology rules through comparative analysis of astrological charts of mentally retarded persons versus intelligent persons

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Abstract -

This work is a continuation of the earlier work published in this journal in 2008 where Astrology was examined through a double-blind test. In this test, astrologers in the state of Maharashtra (India) were given a random mix of astrological birth charts consisting of mentally retarded and Intelligent persons while keeping their identity and details hidden. When they were asked to identify which birth-charts belonged to mentally retarded persons purely through astrological means, none of them could perform better than chance, that is, 50 percent. In this paper, we take this investigation further by forming two groups of birth charts, one of mentally retarded persons and the other of intelligent persons and statistically comparing them for compliance to a few fundamental principles or rules of astrology. When tested through the chi-square test for each planet, house and planet which acts as lord of each house, we observed that these rules are complied equally in both groups despite exactly opposite life patterns and thus are not valid. Since none of them were significantly different, our results raise questions about the basic premise of astrology that certain planets, houses or house lords are significant for predicting the effects of life. We have also shown that the average number of negative rules complied with by any planet is equal in both groups. We have thus shown that the popular approach of using the total number of negative rules complied as a criterion for prediction of negative effects is erroneous. These results explain why none of the astrologers could classify the cases with more than 50 pc accuracy in a double-blind test. At the same time, they pose many questions on validity of astrology because these rules, various other rules based on them and hypothesis of significance are an inherent part of astrology.

Key words: astrology, statistical testing, mentally retarded, double blind test, astrological rules

1.0 Introduction

Astrology has a huge influence on Indian society. Given the impact it makes on human lives, it must be tested in all possible ways before it gets passed on to our future generations.

There have been numerous experiments conducted in the western world to test astrology¹⁻

². In almost all such attempts, it has been concluded that Astrology cannot be used for predicting life effects but there are arguments on both sides.

Testing of Indian Astrology, in particular, has many challenges since it critically depends on birth time or Moon's planetary position and no data bank with birth details is available to researchers if they want to undertake such a study. Additionally, there is no single authentic source of rules that can be relied upon up for testing. To make things more complicated, there are too many rules and many different ways in which astrology is practiced. If someone tries to disprove one, there is always another that remains to be disproved. It could be due to these reasons that there has not been any attempt made to test Indian astrology at scale and to the point that it will satisfy all stakeholders.

On this background, the double-blind experiment conducted by Narlikar et al³, reported in this journal should be considered as pioneer efforts to test astrology. It generated a lot of debate and probed many people's interest at that time. In continuation of those efforts, a thorough statistical test of empirical nature at scale was seen as an opportunity to prove the point further and has been attempted in this study.

2.0 The Previous experiment

This test was conducted in Pune in 2008 and was of double-blind nature³. In this test the criteria chosen was kept clear, namely whether a person is mentally handicapped or intelligent. As part of the test, a sample of 200 cases was formed, 100 belonging to each of the above two classes. From this pool of birth charts, astrologers in the state of Maharashtra (India) were given a random mix of 40 astrological birth charts while keeping the identity and details hidden. Then, they were asked to identify which birth charts belonged to mentally retarded persons and which belonged to the other category purely through astrological means. If astrology could tell a person's intelligence from their birth chart, it is expected that astrologers would have correctly classified at least 28 birth charts, which is 70 percent of the cases given to them. All out efforts were made to maximise participation by appealing to astrologers and their associations through newspapers and press conferences. In total, 51 astrologers took up this test, 27 of them responded but none could correctly classify with an accuracy of 70 percent or better as required by the test. Overall average success performance was 17.25 (43.13%), even less than 50 percentage. The success rate of institutional participant (one astrologer's association in Pune) which was given all 200 cases to analyse was also not up to the mark. They could only hit 102 cases correctly, well below the stipulated minimum of 117 required to make a case for astrology. Thus, we find on the basis of this test that the predictions given by the astrologers did not fare better than pure chance like tossing of a coin.

3.0 This Experiment

Despite several failures in the double-blind test globally, astrology is still projected as a science. Ideally, if it is a science, it should be proven through a universal framework of empirical testing. However, no such attempt of repute has been reported to date on Vedic astrology nor are there plans by any institution to investigate this in detail.

Statistical testing of astrology was therefore taken up in this study by forming two groups, Group A consisting of birth charts of intelligent persons and Group B of mentally retarded persons. The experiment focused on the same criteria that were tested in the previous experiment, namely whether astrology can predict intelligence. Though the core data remained the same, we expanded the base of data to 338 cases in each group so as to achieve a reasonable confidence level.

The approach of designing this test was – apply the rules, measure the number of cases that comply with the given rule, and compare both groups through statistical methods to see if there is any significant difference. In astrology, applying a rule means checking for a specific astronomical configuration in the birth chart. These configurations are assumed to be characteristic of certain effects, attributes or events in human lives and they act like astrological signatures or markers in the birth chart. These rules are primarily based on the assumption that destruction in power associated with the planet, house or planet which acts as lord of house result in undesired life effects of natives⁴⁻⁷. Without contesting the logic of the rule, we however decided to test them empirically.

It is a known fact that in astrology there is no published and universally agreeable list of rules that one can refer to for predicting a given life effect. We, therefore, noticed that regardless of which rule we test for mental retardation there will always be arguments about whether testing of those rules is enough to prove or disprove astrology. Further, if we look at the diversity of rules being discussed by astrologers in various books⁴⁻¹¹ and forums, we come across a number of planets and houses shown to be significant for predicting intelligence. For example, conventionally Mercury and Moon are considered significant for predicting intelligence⁴⁻⁷ however some astrologers believe Uranus and Jupiter also have qualities like Mercury and are equally responsible for influencing intelligence^{6,8-9}. Others consider lords of the third and fifth houses contributing to intelligence⁴⁻⁵ as these houses are linked to academics and so on. On this background, we went through a number of books⁴⁻⁹, deliberated with some of the astrologers, and decided to test a few of the basic rules that are well known and act as fundamental principles of astrology. We decided to test them for all planets and houses so that regardless of which of them is significant we see the difference in at least one of them.

3.3 The experimental Set Up –

A computer-based solution was developed to perform the testing. The solution has three components.

3.3.1 Software for casting birth chart – It makes use of Commercially available APIs to cast birth charts and details like planetary positions, dignities, retrogrades, house numbers, etc are written in the database.

3.3.2 Analyser Engine – This component applies various rules, measures which ones comply, and creates a database of number of cases that comply with the given rule in both groups. Python-based automation developed in this module enables the software to cast and process hundreds of birth charts in a single go.

3.3.3 Statistical testing – This module works on the database created by the Analyser engine. It filters the data to create two groups and performs comparison through the Chi-square test which was run on a number of cases that comply with the given rule for all entities. Here the Null Hypothesis was defined as numbers of cases complying with the rule of an entity under test in both groups are equal. In other words, this hypothesis is basically saying that there is no difference in compliance of rule in both the groups, and hence the particular rule of astrology under test is not valid. The alternative hypothesis is that both the groups are not equal in numbers of cases which will support the validity of the rule. If astrology and its rules are true the difference between the two groups is expected to be of the order of 50 % at least. Thus, from the test point of view, it is a very liberal test to pass through for the astrology or its rules. Whereas for us to disprove the rules it is the stringiest possible criteria to meet. We intentionally decided to run the test in this manner so that there remains no ambiguity.

4.0 Data –

The statistical test calculator stipulates that we need to have a minimum sample size of 661 (both groups together) to achieve a confidence level of 99% with a confidence interval of 5

% to test the difference in two groups. To ensure we meet this criterion we fed birth details of 338 cases each of intelligent and mentally retarded persons to our solution. The birth details involved in this experiment were collected by a team of volunteers who reached out to various schools in the state of Maharashtra, India, and made a special appeal to parents. The objective of the experiment and the need of being accurate in terms of birth date, time, etc was specifically emphasized in this appeal. Birth details were obtained through a consent form filled and signed by parents. For cases in Group B, the team approached some special schools being run for such students in different parts of the State of Maharashtra, India, and approached parents through the teachers. For intelligent students that is Group A, we requested birth details of only those students who were certified as intelligent by their teachers based on their school records. We could get 116 names for Group A through this initiative which were not sufficient and hence to meet the stipulated number, we added few cases from the personal collection. The criteria for selection of these additional cases were (a) Higher educational qualifications such as Doctorate, Postgraduate, MBBS or Certified Chartered Accountant (b) Age is in the range of 30 to 42 which is same as that of Group B (c) there is sufficient confidence on the accuracy of data and (4) there is no history of mental retardation or other mental disorder to the person.

5.0 Statistical Analysis

5.1 Rules for planets:

The results of the six primary principles or rules we tested for various planets are given in Table 1. For the scope of this article let us call them negative rules as they are considered

for predicting malefic or negative effects in life. As per astrology, the configurations associated with all these rules destroy the power of the planet to give good effects related to its significance and result in undesired outcomes in native's life⁴⁻⁷. Conventionally Mercury, Moon, and Jupiter are considered as planets of significance for intelligence⁴⁻⁷ however we tested these rules for all planets. Regardless of which planet is significant for intelligence and without contesting the logic involved, our strategy was to test the probability of astronomical configurations involved empirically. If the rule is valid, we should see significantly higher compliances of these rules in Group B, in other terms more occurrences of astronomical configurations involved, for at least one planet. Description of the rules we tested and the analysis of results is given below.

5.1.1 Planet in 6th, 8th, or 12th house: This rule is one of the primary negative rules considered for predicting any adverse life effect. For instance, to predict mentally retarded state this rule will be checked for planets which are considered as 'significant' for predicting intelligence. Mathematically this is a probability that a planet is in the zodiac sign of $x+5$, $x+7$, or $x+11$ when x is the zodiac sign number of Ascendant. Regardless of which planet is significant for intelligence we find that none of the planets have a significantly higher probability to get placed in these zodiac signs when the native is mentally retarded. Chi-square test confirms further that the Null hypothesis cannot be rejected based on p values and hence this rule was not found to be valid.

5.1.2 Planet in conjugation or square or opposite to Saturn, Mars, Rahu, Ketu, or

Uranus: This rule is checking a probability of a planet having a difference of 0, 90, or 180 degrees (allowing tolerance of ± 4 degrees) with one of the five planets namely Saturn, Mars,

Rahu, Ketu or Uranus. Astrology assumes that such configuration results into malefic effect related to significance of planet. Again, we find that none of the planets nor Ascendant, have a significantly higher percentage of such configurations in Group B as against Group A despite having opposite life patterns. The principle therefore got disproved.

5.1.3 Planet in debilitated or enemy sign: This rule anticipates a planet of related significance to be in particular signs (considered as debilitated or enemy signs) for natives when the corresponding life effect is undesired. We find from the Chi-square test that the probabilities of such configurations are similar in both the groups for all the planets and hence the rule is not valid.

5.1.4 Planet in debilitated or enemy sign AND in conjunction or square or opposite to Saturn, Mars, Rahu, Ketu, or Uranus: This rule is nothing but simultaneous compliance with Rule 5.1.2 and 5.1.3 and is considered as producing a more malefic effect. Since the probability of complying with both rules simultaneously is much lesser for the planet, the number of cases that comply with this rule comes down in both groups. When compared with each other however they are not significantly different between the two groups. Neither the rules nor the combination, therefore, act as a differentiator.

5.1.5 Planet is in conjunction with the lord of 6th or 8th or 12th house: This rule is about the difference in degrees between planet under test and planets that act as lords of 6th, 8th or 12th house in the birth chart. If the difference is ± 4 degrees then the rule is considered as complied. If this rule is valid it should have reflected in the results of at least one planet but we did not find the same.

5.1.6 Planet in malefic Nakshatra namely Kritika, Ashelsha, Mul: In this rule, we are again checking the probability of degrees of the planet being in a range that correlates⁴ to above nakshatras. The Moon and Mercury in these nakshatras are especially considered malefic from fortune and intelligence perspective respectively, not only by astrology but even by many people in the society. As can be seen from the results however there is no significant difference in the number of cases in both groups, not only for these two planets but for none others and hence the rule is proven as invalid.

Above results pose a lot of questions on rules as well as couple of basic premise of astrology. Considering the importance of Mercury, Moon, and Jupiter in astrological predictions and especially for intelligence⁴⁻⁹, the above results show that their significance to intelligence is not getting proved for above rules at the least. In fact, since neither planet shows the significant difference, we can conclude that none is significant as such for prediction.

We must add that besides testing these rules for all planets we also have tested them in a similar manner for the planets which act as lords of individual houses. Astrology believes that like every planet the lords of the houses also contribute to the prediction. The lord of house is nothing but a ruler planet of the zodiac sign of the house⁴⁻⁷. Depending on the ascending sign, the zodiac signs of the houses are different. In our experiment computer system identifies the lord of the house, applies the rule and captures the data for each birth chart. When two groups were compared, we did not find any difference in compliance of the rules by the lords of houses. As an example, astrology expects that lord of 1st house

complies above negative rules with more probability in Group B than Group A. Empirically, though, this has neither proven true for lord of 1st house nor for lords of other houses. We are not giving the details here to avoid repetition but that certainly poses questions around the fundamental rules being defined around the concept of lords of houses.

5.2 Rules for houses:

In astrology, like planets, the houses are also considered characteristic of life effects depending on the significance attached to them⁴⁻⁷. Regardless of which house has significance for the intelligence, we tested the two most fundamental rules for all twelve houses to see if they show up in our experiment for at least one. Both rules are assumed by astrology to give malefic or undesired effects. If they are indeed valid, we expect them to get complied with a higher number of cases in Group B for at least one of the twelve houses. The rules and their results are presented below and, in the table - 2.

5.2.1 Saturn and Mars are placed in the house or in opposite house or have 3rd / 10th aspect of Saturn or 4th/8th aspect of Mars: This rule anticipates a certain placement of Saturn and Mars with respect to the house under test with more probability in case of Group B. As can be seen from the Chi-square test none of these twelve houses in Group B show any more chances of such configurations as compared to Group A. We therefore do not find merit in this rule.

5.2.2 Lord of 6th, 8th, or 12th house placed in the house: The consideration here from astrology point of view is that the planets which act as lords of 6th, 8th and 12th house play an evil role in birth chart. When they get placed in the house, they contribute to the destruction

of effect of life which is associated with the house. The results show that these planets do not get placed in any particular house with a higher probability in birth charts of Group B as against Group A. The rule around their placements is therefore not found to be valid.

In astrology, like rules for malefic effects, there are rules for benefic (beneficial) effects too. For the purposes of this paper, we refer to them as positive rules. These positive rules predict beneficial effects and are generally defined in exactly the opposite manner to the negative rules we examined above. For example, the positive rule opposite to the rule given in 5.1.3 will predict greater intelligence (beneficial effect) if the planet is in exalted or friendly sign instead of debilitated and enemy signs respectively. And for a rule opposite to 5.2.1, the auspicious planets namely Venus, Jupiter and Moon will take place of Saturn and Mars. For the sake of completeness, we tested positive rules opposite to rules 5.1.1 to 5.1.6 for all planets and rules opposite to 5.2.1 and 5.2.2 for all houses. Here if those rules are true, we should see more compliance in Group A (a group of Intelligent persons) as these rules predict a beneficial effect which is intelligence in this case. The detailed data is not given here for space reasons and to avoid repetition, however, we did not find any significant higher compliance of these positive rules in Group A than Group B.

To take our investigation further we also computed total number of negative rules complied by each planet for all the birth charts and took the average for Group A and Group B. From the astrology point of view, one would obviously expect a greater number of negative rules getting complied on an average in Group B. Many astrologers use this approach to predict undesired or negative effects. While analysing the birth chart they count the number of negative rules that are complied with and compare with the threshold value that is

established based on their past experiences. When tested for each planet through two sample T test of significance (Table – 3) however we did not find any significant difference in average number of rules complied in Group B as against Group A. It is important to understand that the prediction of adverse effects on the basis of greater compliance of negative rules is erroneous. This is because empirically both groups have the same compliance on an average basis and individual values do vary in certain range (defined by standard deviation) around the mean value for both the groups. We can take the example where the number of negative rules complied to by Mercure is 3 in a given birth chart. The prediction of adverse effects related to significance of Mercury in this case just because compliance exceeds 1.75 (Group B mean) will be incorrect. This is due to the fact that the number of rules complied varies from zero to five for both groups. If we account for the number of cases where compliance is greater than three in both groups in this example, they will not be significantly different and hence it is incorrect to predict on the basis of total number of negative rules complied. On similar lines, we calculated the total number of positive rules complied with by the planets and found that their averages were also not significantly different among the two groups. Thus, the total number of positive rules complied with cannot be the criterion for predicting positive effects.

The above results also explain why in our double-blind test none of the astrologers could hit a better success rate than 50 pc. In our view, though astrologers have their own set of rules used for predictions they are mostly based on the fundamental principles tested above and use the approach of counting number of negative or positive rules complied and hence they could not succeed.

Perhaps there are few more rules that we should have tested in our experiment and we agree to take up the same in our next study. At the same time, there is a need for astrologers and researchers to find out answers on why none of the rules above act as a differentiator when they are universally agreed fundamental principles of astrology. We do not claim that we have tested the entire scope of astrology here. However, whatever has been tested and found invalid is the inherent and core part of astrology and is being used in day-to-day practice of astrology. Astrology cannot be practiced without using these rules or making the hypothesis of the significance of the planets or houses that were found to be invalid in our empirical test. This certainly poses several questions on the validity of astrology and warrant more testing and investigations.

6.0 Conclusions

The double-blind experiment conducted earlier had demonstrated that astrologers could not predict intelligence with sufficient accuracy. In this statistical testing, we tested some of the most fundamental rules of astrology and showed that none of them is valid. Our results raised questions about the basic premise of astrology that certain planets, houses or house lords are significant for predicting the effects of life. We have also shown that the mean number of negative or positive rules complied with by any planet is equal in both groups. We have thus shown that the popular approach of using the total number of negative rules complied as a criterion for prediction of negative effects is erroneous. This explains why none of the astrologers could classify the cases with more than 50 pc accuracy in a double-blind test. Since the fundamental rules and hypothesis regarding significance of planet or

houses that we disproved are used in day-to-day practice, the prediction accuracy of astrology, in general, is in question and need more investigation.

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Table 1: Results of Chi-Square test run on number of cases in Group A and Group B complying various rules related to planets

Rule	Rule 5.1.1		Rule 5.1.2		Rule 5.1.3		Rule 5.1.4		Rule 5.1.5		Rule 5.1.6	
Planet	p value	Stat value	p value	Stat value	p value	Stat value	p value	Stat value	p value	Stat value	p value	Stat value
Sun	0.19	1.73	0.78	0.08	0.07	3.33	0.31	1.04	0.62	0.24	0.81	0.06
Moon	0.06	3.56	0.11	2.56	0.51	0.43	0.25	1.33	1.00	0.00	0.62	0.24
Mars	0.94	0.01	0.84	0.04	0.83	0.05	0.78	0.08	0.86	0.03	0.72	0.13
Mercury	0.15	2.09	0.95	0.00	0.26	1.25	0.93	0.01	0.34	0.91	0.26	1.25
Jupiter	0.70	0.15	0.55	0.36	0.95	0.00	0.84	0.04	0.91	0.01	0.09	2.92
Venus	0.41	0.68	0.74	0.11	0.28	1.19	0.58	0.31	0.93	0.01	0.09	2.80
Saturn	0.26	1.27	0.48	0.49	0.48	0.50	0.17	1.88	0.73	0.12	0.80	0.06
Rahu	0.09	2.95	0.11	2.56	0.37	0.81	0.57	0.32	0.43	0.62	1.00	0.00
Ketu	0.19	1.69	0.71	0.13	0.43	0.63	0.24	1.40	0.05	3.85	0.51	0.43

Null Hypothesis: The numbers of cases complying with the given rule are equal in both groups.

Conclusion: Null Hypothesis could not be rejected for any planet for compliance with any of the rules tested above since the p-value has been > 0.05 and Chi-square Statistic value has been < 3.84 (critical value), in all cases.

Table 2: Results of Chi-Square test run on number of cases complying Rules related to houses in Group A and Group B.

	Rule 5.2.1		Rule 5.2.2	
House tested	Chi-square P value	Chi-square Statistic	Chi-square P value	Chi-square Statistic
House 1	1.00	0.00	0.48	0.49
House 2	0.75	0.10	0.93	0.01
House 3	0.96	0.00	0.45	0.56
House 4	0.84	0.04	0.15	2.03
House 5	0.08	3.10	0.05	3.69
House 6	0.46	0.54	0.17	1.86
House 7	0.38	0.78	0.93	0.01
House 8	0.76	0.09	0.19	1.73
House 9	1.00	0.00	0.31	1.01
House 10	0.45	0.57	0.10	2.74
House 11	0.92	0.01	0.16	1.97
House 12	0.96	0.00	0.59	0.29

NULL Hypothesis: The numbers of cases complying with the given rule are equal in both the groups.

Conclusion: Null Hypothesis could not be rejected for any of the houses we tested as p-value has been > 0.05 for all the rules and Chi-square Statistic value is < 3.84 (critical value) in all cases.

Table 3: Results of Two sample T test on average number of negative rules complied by each planet in Group A and group B

Planet	Av no. of negative rules complied in Group A	Av no. of negative rules complied in Group B	p value of T test
Sun	1.50	1.64	0.11
Moon	1.66	1.74	0.40
Mars	1.17	1.21	0.62
Mer	1.63	1.75	0.24
Jup	1.44	1.37	0.38
Ven	1.55	1.59	0.69
Sat	1.44	1.38	0.49
Rah	1.26	1.26	0.97
Ket	0.94	0.99	0.48

Null Hypothesis: Average number of negative rules complied by the planet in both groups are equal

Conclusion: We cannot reject the Null Hypothesis since p - value of each planet has been always > 0.05. The average number of negative rules complied to by the planet can thus not act as a differentiating factor.

