Sect and the Gauquelin Database

By Graham Douglas

Abstract: Sect theory is found to be supported for many Gauquelin professions. The strongest results are for MA and SA, with MO and VE also showing deviations in the predicted directions, while JU behaves quite oppositely to the traditional prediction. Many of the results are significant by the Xi^2 Goodness-of-Fit test, showing that when a control group derived by shuffling the whole professional data is used the Gauquelin Effect is significantly influenced by the time of day of birth. When the Gauquelin Combinatorial Control method is used the results are less striking. However it is argued that this method may over-compensate by repeating sun-planet phases in the control which may be an integral part of the phenomenon.

Introduction.

Sect is the term used in classical astrology to distinguish daytime from nighttime births. It was considered essential to classify a birth as Diurnal or Nocturnal in order to estimate the strengths of the planets. In addition the sun was considered to be the main significator in a diurnal chart and the moon in a nocturnal one.

The question of Sect is difficult to examine in birth data because the zodiacal positions of the planets are all to some degree correlated with that of the sun in geocentric coordinates. An earlier attempt by Lee Lehman was invalidated by not taking account of this (see Lehman 1997 for details); a more statistically aware study was made by Urban-Lurain at about the same time, concluding that there was no validity in the concept of Sect, but drawing attention to significant differences between the strengths of the two key Gauquelin sectors by day and by night.[1] This feature is evident but not commented, in the graphs of Francoise Gauquelin *et al.* (1975): an unconvincing attempt to show that solar hour has no part in the Gauquelin Effect.

Controls are crucial to a reliable conclusion in this work. In the present study one control set was generated to compensate for the solar correlations using the whole Gauquelin Professional database (N = 15934). The data were shuffled by computer in such a way as to keep the time, place and year of birth unchanged, while allowing the day and month to be exchanged. This was done chiefly to maintain whatever long term zodiacal biases were present, such as the

[1] Personal communication. The author of this study has kindly provided me with his slide show details, while requesting that they not be reproduced as he is considering re-publishing them. I have not been able to obtain information about his method of generating controls.

tendency of MA to be more frequently found in the signs close to Virgo in geocentric coordinates, as well as the preference of natural births to occur in the morning hours. A second control was generated by applying the same combinatorial method as the Gauquelins (1957), following the suggestion of Geoffrey Dean.[2] The use of two controls based on different techniques allows a more comprehensive picture of the effects to be constructed.

In order to test the possible existence of day-night influences on the strength of the Gauquelin Effect, both control groups were analyzed in the same way as the professions, by calculating the frequency of each Gauquelin planet in a 12-sector division of the day, after filtering each set into two subsets of Day and Night births, defined by when the sun was in sectors 1 to 6 or 7 to 12 respectively. It was then a simple matter to scale the control group frequencies down for each planet to a total number equal to that of the respective data set being studied. This scaled down control set was subtracted from the observed professional birth frequency distribution, and a fractional deviation calculated by dividing the difference for each sector by the expected frequency for that sector, derived from the control group.

It was decided to examine two features of the results:

1. The influence of Day/Night differences on the strength of the Gauquelin Effect was tested by comparing the fractional deviations (FDs from now on) in Key Sectors 1 and 4 in the graphs of frequencies by Day and by Night.
2. It was also supposed that if Sect was a valid category it would reveal itself not just in the Key Sectors but also in the sums of planetary frequencies above /below the horizon for diurnal/nocturnal births, depending on the nature of the planet, and these were also expressed as fractional deviations from the corresponding sums in the scaled control groups.

The Diurnal and Nocturnal natures of the planets in Classical Astrology.

It is necessary to understand the way that Sect is used to assess the strength of a planet in traditional astrology, which is done in terms of the classification of the traditional planets as follows: the Moon, MA and VE are said to be *Nocturnal*, in order of decreasing strength, while SA, JU and SO are increasingly *Diurnal*.

This means that a planet's strength is judged first by whether the birth occurs by day or night, which thus does or does not correspond with the planet's own diurnal or nocturnal nature, and secondly whether the planet is *placed* diurnally or nocturnally. A diurnal placement occurs when a planet is on the same side of the horizon line as the sun, and a nocturnal placement when it is

[2] I am grateful to Patrice Guinard for sending me a scanned copy of Francoise Gauquelin's article in APP (1985).

on the opposite side, independently of whether the birth occurred in day or night time.

This second consideration thus generates 4 combinations of placings between the planet and the sun, as follows: a planet may be diurnal or nocturnally placed in a diurnal chart, or it may be diurnally or nocturnally placed in a nocturnal chart. According to this schema the planet derives maximum strength when both its placing and the chart correspond to its nature. Thus SA and JU are supposed to be at their strongest[3] when diurnally placed in a diurnal chart, while MO,VE and MA are strongest when nocturnal in a nocturnal chart. A third factor is often considered, which relates to the sign in which the planet is found but this is said by classical astrologers to be the weakest of the 3 factors and I will not consider it here. When a planet is placed with all three factors in its favour it is said to be 'in Hayz'. Urban-Lurain (ibid.) found that this did not produce deviations sufficient to reject the Null Hypothesis in the Gauquelin database.

It is clear that these factors do not depend on whether a planet is in a Gauquelin + zone or not, and the hypothesis to be tested here is therefore that in the birth charts of eminent people their key planet (which depends on profession in the well-known manner which the Gauquelins established) will be further strengthened according to these rules. The first rule suggests that more births than expected by chance will occur diurnally or nocturnally depending on the planet concerned, and this is what Lehman attempted to test, but without proper controls. The second rule derived from planetary placing will be the main interest here, since it will easily be shown that the first rule alone does not correspond to significant differences in the Gauquelin data, except for the Moon. This is interesting because it challenges the traditional belief that the diurnal or nocturnal nature of the chart has more influence on planetary strength than the planetary placement. In Urban-Lurain's study he was only concerned with investigating the possible effect of Day/Night on the strength of the Gauquelin Effect in key sectors, but did not examine the broader categories of diurnal or nocturnal placing of the planets.

It should be noted that the interest of making this study is not limited to testing classical astrology, but may also offer a pointer in the search for a mechanism for planetary effects on birth. The classification of the planets as diurnal or nocturnal implies that their effects are greater when they are respectively closer to a geocentric solar conjunction (opposition) when diurnally placed, or a heliocentric opposition (conjunction) when nocturnally placed.

The phases of planetary synodic cycles have been implicated in several recent papers attempting to account for the solar activity cycles. It has been proposed that this might be related to the way that angular momentum is transferred between the planets and the sun, a factor for which there is increasing evidence in studies of solar activity variations (Hung 2007; Palus *et al* 2007; Wilson *et al* 2008; Juckett 2000; Garai 2009).

[3] The meaning of strength seems to be equivalent to intensity of effect for JU , MO and VE, but for MA and SA it seems closer to a notion of balanced efficacy. Thus Ptolemy justifies MA being nocturnal by saying its heat needs to be moderated, while SA requires the warmth of the daytime. These issues are discussed by Joseph Crane (2007) and Robert Hand (1995).

Finally it needs to be recognized that the tests to be carried out assume that the astrological strength of a planet is correlated in a straightforward way with the achievement of a certain kind of professional eminence. This will be addressed again in the Discussion.

RESULTS

In Table 1 the probabilities corresponding to each FD have been calculated simply with reference to the expected frequencies of births with the planet in question in sectors 1 to 6, for day and night separately derived from the control group, without using a contingency table, and they are thus partly determined by the relative strength of the Gauquelin Effects by day and night. The effect of Sect alone will also be analyzed by a Goodness-of-Fit Xi^2 test, after deriving a new set of expected frequencies which neutralize deviations due to the Gauquelin Effect.

Planet	Profession	Day FD	P day	Night FD	P night	Comment
MOON	Writers	- 0.018	Ns	+ 0.073	< 0.025	**Night > Day**
	Journalists	- 0.013	Ns	- 0-018	ns	
	Sport	- 0.005	Ns	- 0-030	ns	
	Military	- 0.02	Ns	- 0.006	ns	
	Science	+ 0.05	Ns	+ 0.067	0.1 > p > 0.05	Night not predicted
	VEALL	+ 0.014	Ns	- 0.024	ns	
JUPITER						
	Journalists	+ 0.075	> 0.1	+ 0.022	ns	**Day > Night**
	JUALL	+ 0.062	< 0.01	+ 0.048	0.1 > p > 0.05	Night wrong direction but weaker than Day
	Military	+ 0.057	< 0.01	**+ 0.074**	**< 0.005**	Wrong direction, but MA is Nocturnal
	Science	+ 0.020	Ns	- 0.008	ns	JU is not a Gauq + planet for Science.

	Physicians	- 0.017	Ns	- 0.018	ns	Day right direction night not
	Writers	- 0.020	Ns	- 0.011		
MARS						
	Sport	- 0.012	Ns	+ 0.075	< 0.03	**Night > Day**
	Military	- 0.033	< 0.03	+ 0.05	0.1	**Night > Day**
	Writers	+ 0.007	Ns	- 0.038	ns	
	VEALL	**- 0.032**	**0.05**	- 0.009	Ns	Day wrong direction
	Science	+ 0.008	Ns	+ 0.134	< 0.01	**Night > Day**
	Physicians	+ 0.020	Ns	+ 0.057	< 0.05	**Night > Day**
SATURN						
	Journalists	- 0.127	< 0.005	- 0.021	ns	**Night > Day**
	Science	+ 0.082	< 0.025	- 0.013	ns	**Day > Night**
	JUALL	- 0.080	< 0.005	+ 0.037	ns	**Night > Day**
	Military	- 0.069	< 0.005	+ 0.046	< 0.05	**Night > Day**
	Physicians	- 0.040	0.05	+ 0.097	< 0.001	Both wrong direction but MA also + for Physicians
	Journalists	- 0.12	< 0.005	- 0.02	ns	**Night > Day**
VENUS						
	VEALL	+ 0.003	Ns	- 0.013	ns	
	Writers	- 0.008	Ns	+ 0.19	< 0.025	**Night > Day**
	Sport	- 0.0025	Ns	+ 0.007	ns	
	Military	+ 0.004	Ns	- 0.018	ns	

Table 1.Showing the Fractional Deviations of each planet for the 6 Above-Horizon Gauquelin Sectors, separated into Day and Night subsets, with probabilities by Xi^2 (Df=1). Comments are only given for cases where significant probabilities were found, in green for those which conform to Sect predictions, and in red for the contrary outcomes.

Statistical Analysis.

The standard method applied in this case to determine whether the frequencies of births at which a given planet occupies key sectors varies between day and night births is to calculate a value of Xi^2 from a so-called Contingency Table, such as that shown below:

Key Sector	Other Sectors summed	
a	**b**	Daytime
c	**d**	Nighttime

The letters **a** to **d** are the frequencies of births in the professional dataset being analyzed, in which the planet of interest occurs under each of four possible conditions. The expected frequencies are then calculated as weighted means on the assumption that there is no influence of the day or night condition on the frequencies in different Gauquelin Sectors. So for the first cell of the table the expected value of **a** would be: E(a) = (a + b)*(a + c)/N, where N = a + b + c + d.

However this standard method is not applicable here, since we know that the correlation of geocentric planetary longitudes with that of the sun will cause a significant deviation of the expected values from simple weighted means, and these expected frequencies must first be known in order to assess whether the observed frequencies differ from them.

The procedure adopted to calculate the expected frequencies in this case was to divide the total number of births in the professional dataset in each column of the table (such as the term **a + c** in this example) in the proportion observed in the control group [4] for the same sectors.[5] Thus, suppose that 3600 births in one control group occurred with 1800 each by day and night, and that in say sector 4, *in the control group*, Mars was found to occur 200 times during the day and 100 times by night, instead of 150 times in each. Suppose further that the observed professional data (also N = 1800 each by day and night) had 212 births by day and 130 at night in KS4, making a total of 342 births instead of the 300 expected, an increase of 14%, then the expected values for KS4 would be calculated by apportioning the observed total 342 in the ratio 100:200, giving frequencies of 114 and 228 respectively, instead of 171 in each by the standard method which would use the proportions 150:150. Xi^2 is calculated separately for the Day and Night data, and it then becomes a Goodness-of-Fit test (GoF from now on), which is one-tailed .

The method just described for key sectors KS1 and KS4, was also applied to the two sets of sectors 1 to 6 and 7 to 12. Thus the new expected frequencies were derived by dividing the total observed *for each sector* in the

[4] Only the first shuffled set of control groups were used, not the combinatorial method.

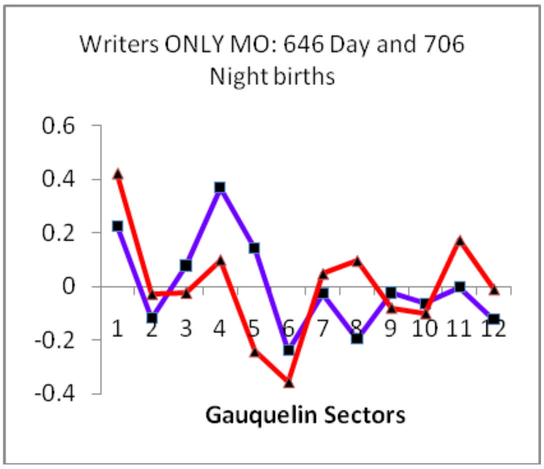
[5] I am grateful to Geoffrey Dean for commenting on this method.

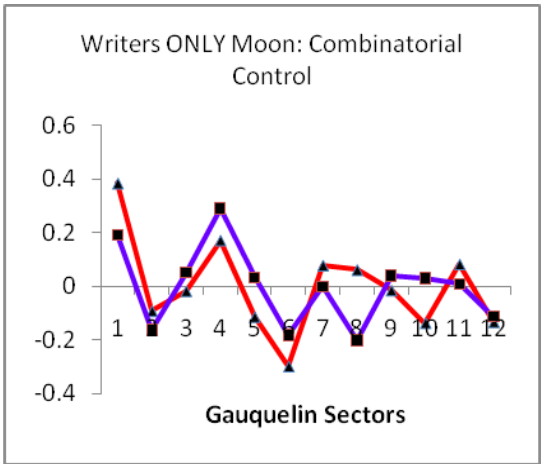
same proportion as the day and night fractions of that sector in the control group. In this way the higher totals in KS1 and KS4 due to the Gauquelin Effect were still divided in the proportions in the control group *to create a new set of expected frequencies*, and thus the remaining deviations of the observed data from these frequencies, by day and night, were as far as possible only attributable to an influence of sect, without the interference of the Gauquelin Effect as a whole. In calculating the new expected frequencies the total number of day and night births often changed slightly, so the final values were scaled back to make the totals the same as those in the observed group, a condition for the GoF test to be used. [6]

The Graphs of Fractional Deviations from Expected Frequencies

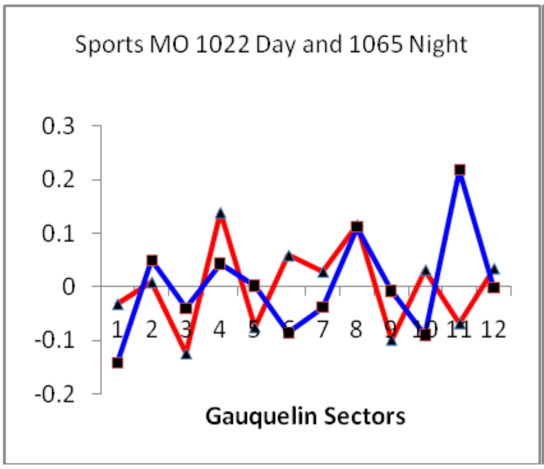
In the first set of graphs each professional group has been divided into Day and

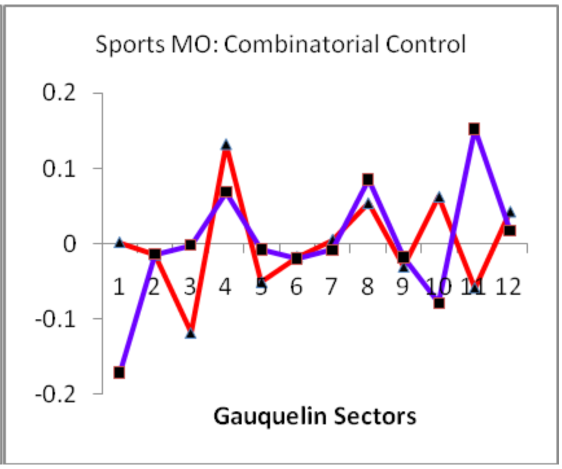
Night subsets as described above, and the Fractional Deviations from controls are displayed, calculated as described in the text. In all cases the Daytime births are shown as a red line and the Nighttime births in blue. The features of all the professional graphs will be considered in the discussion section.

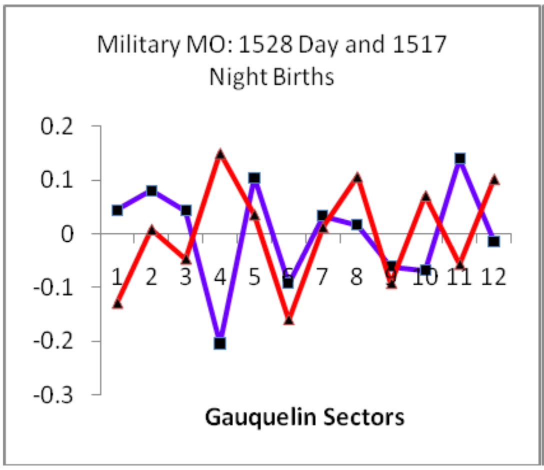


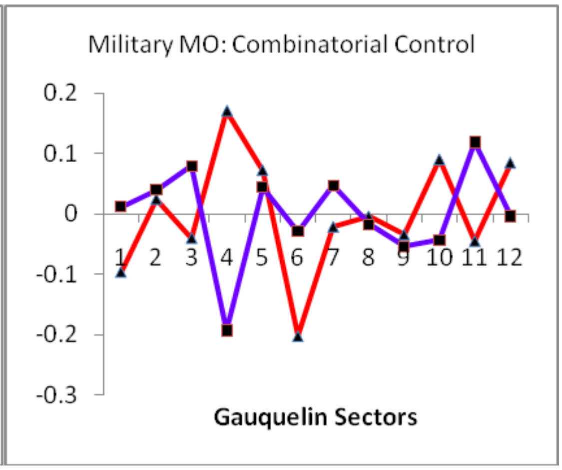


[6] I am grateful to Dr. Jan Ruis for help with this procedure.

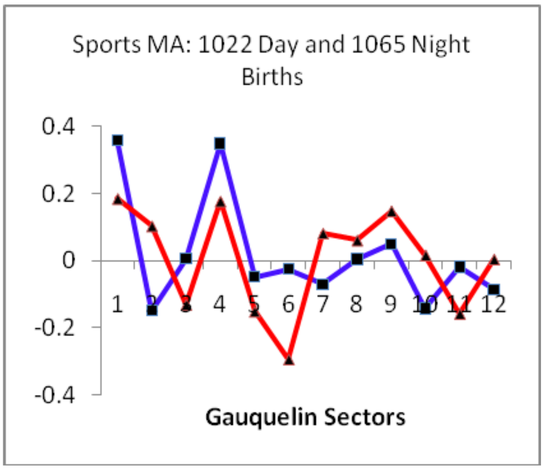


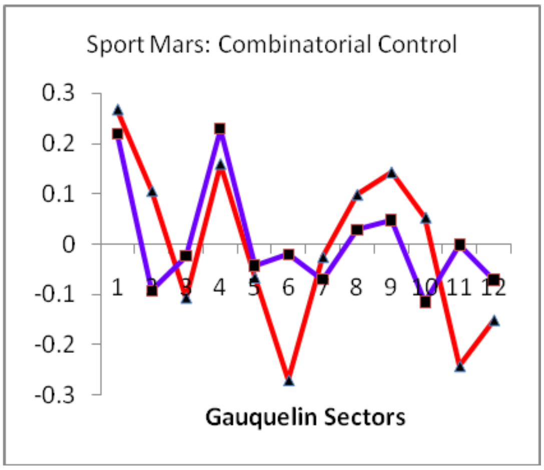


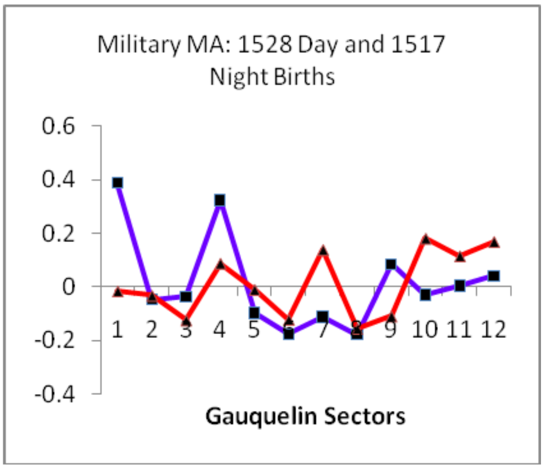


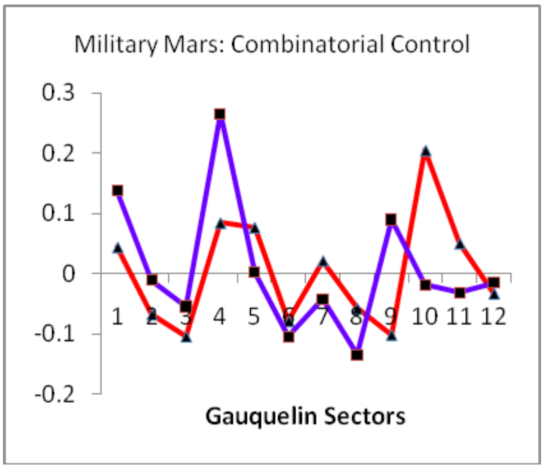


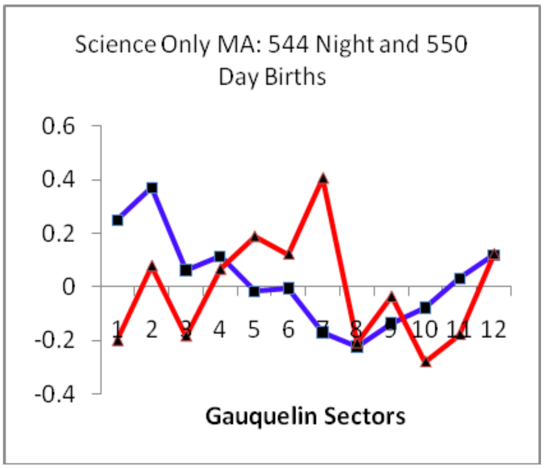
MARS RESULTS

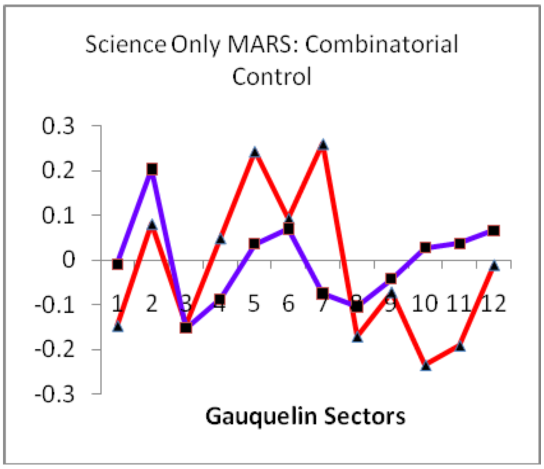


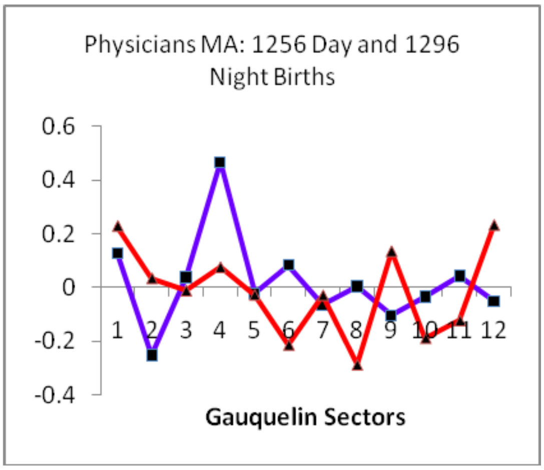



Military MA: 1528 Day and 1517 Night Births
Gauquelin Sectors


Military Mars: Combinatorial Control
Gauquelin Sectors


Science Only MA: 544 Night and 550 Day Births
Gauquelin Sectors


Science Only MARS: Combinatorial Control
Gauquelin Sectors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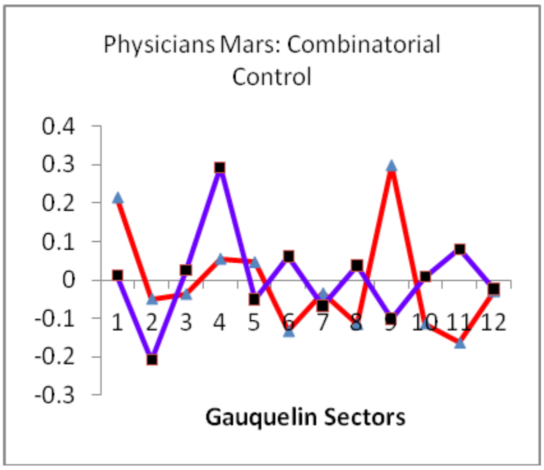
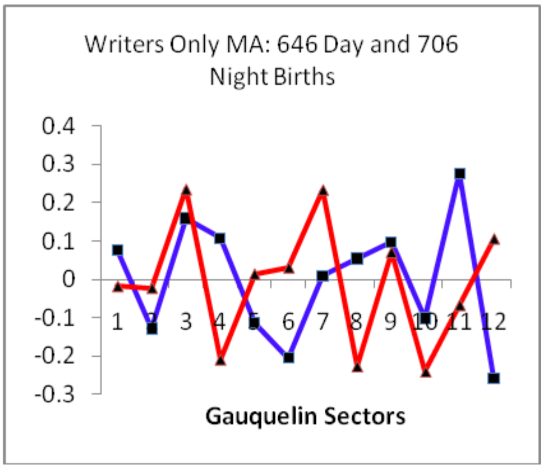
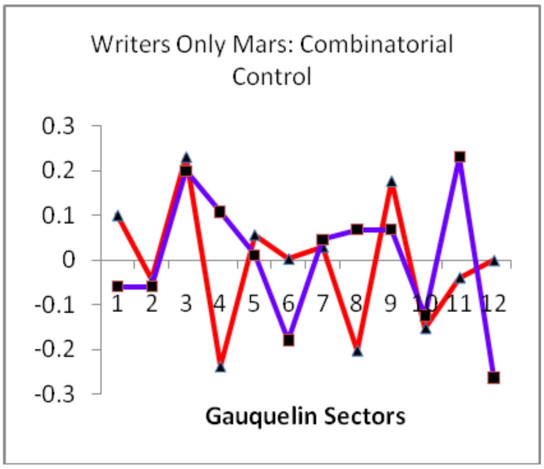
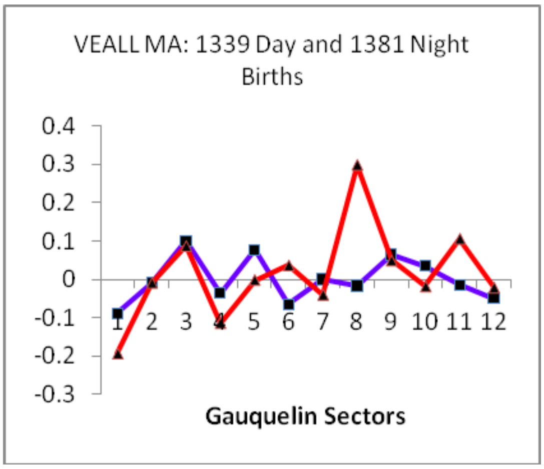
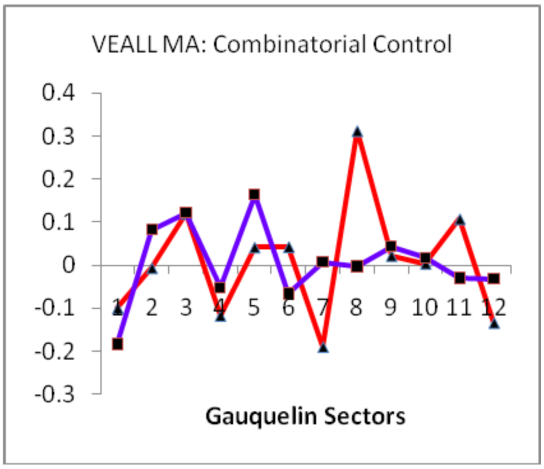

Physicians Mars: Combinatorial Control
Gauquelin Sectors

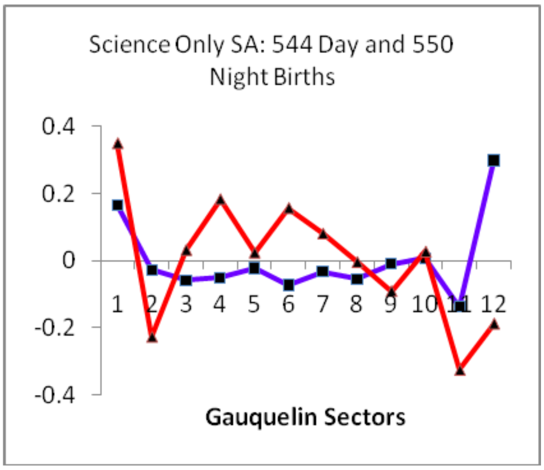


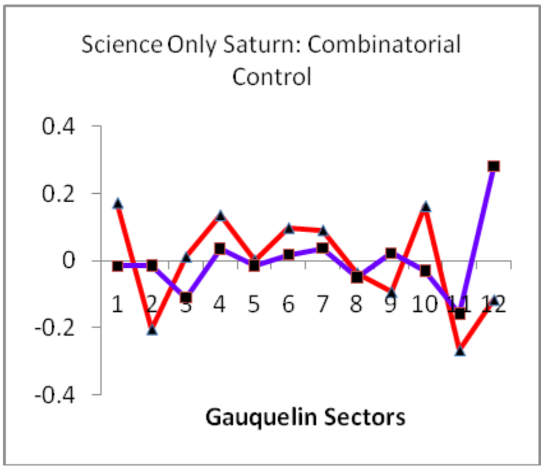


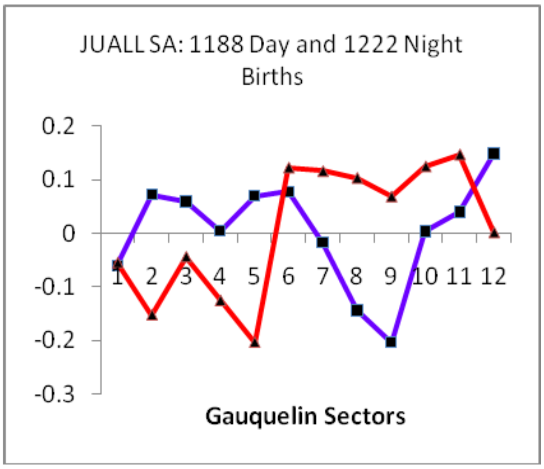




SATURN RESULTS






JUALL SA: 1188 Day and 1222 Night Births
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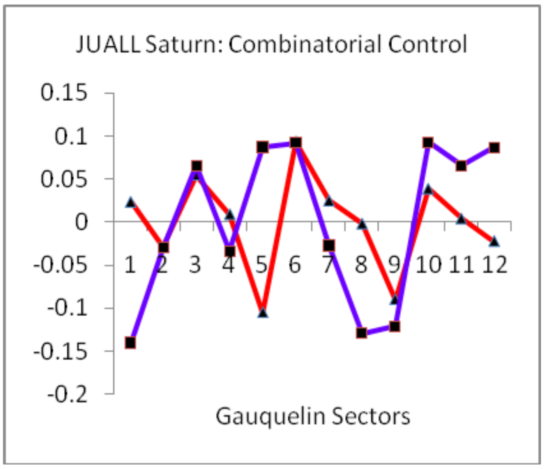
0.1
0
-0.1
-0.2
-0.3
1 2 3 4 5 6 7 8 9 10 11 12
Gauquelin Sectors


JUALL Saturn: Combinatorial Control
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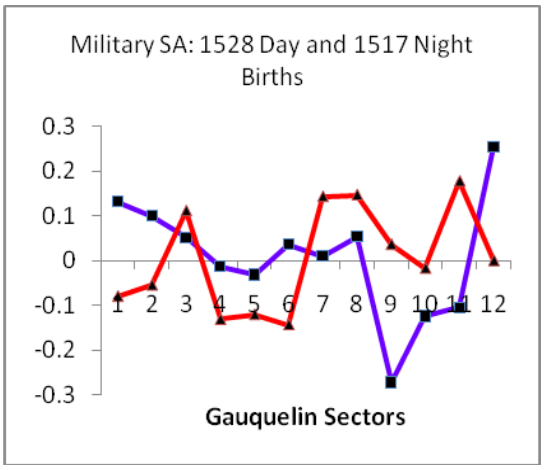
Gauquelin Sectors


Military SA: 1528 Day and 1517 Night Births
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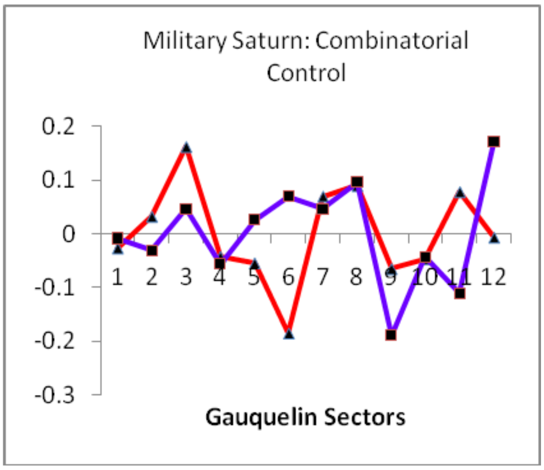
Gauquelin Sectors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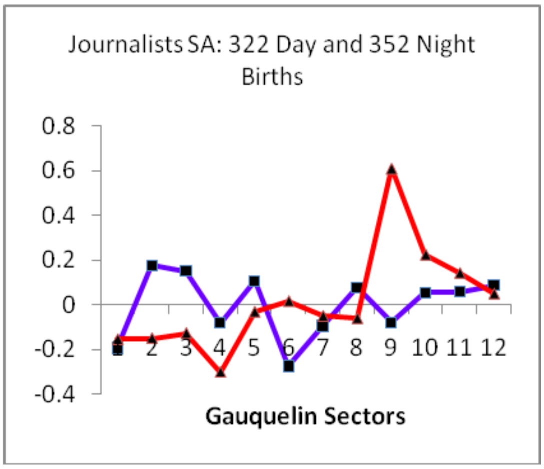
Journalists SA: 322 Day and 352 Night Births
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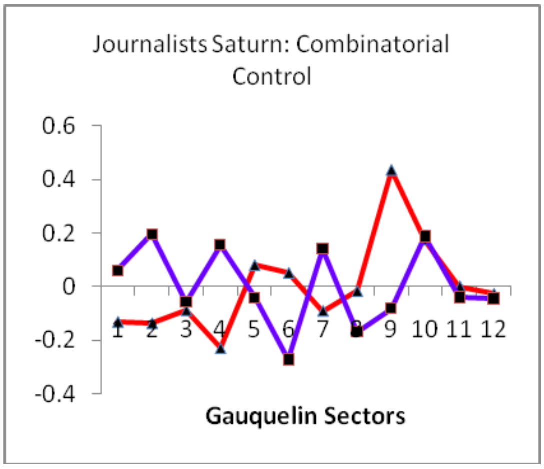
1 2 3 4 5 6 7 8 9 10 11 12
Gauquelin Sectors


Journalists Saturn: Combinatorial Control
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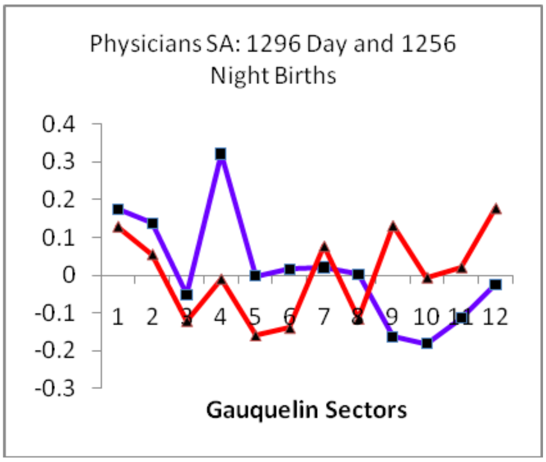
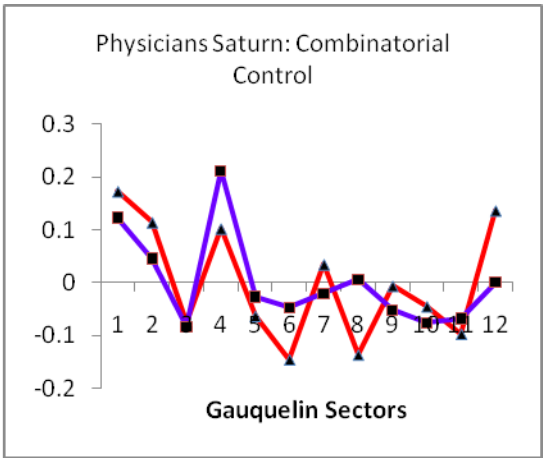
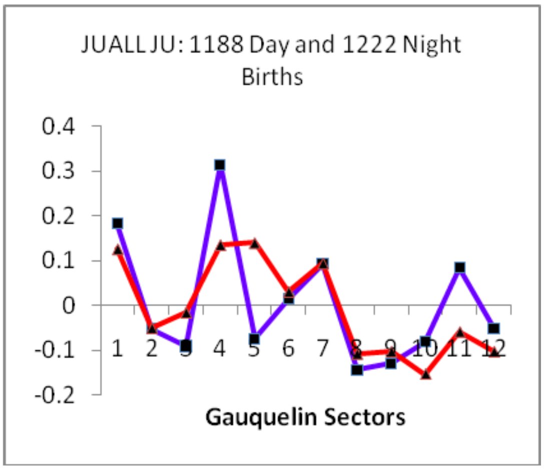
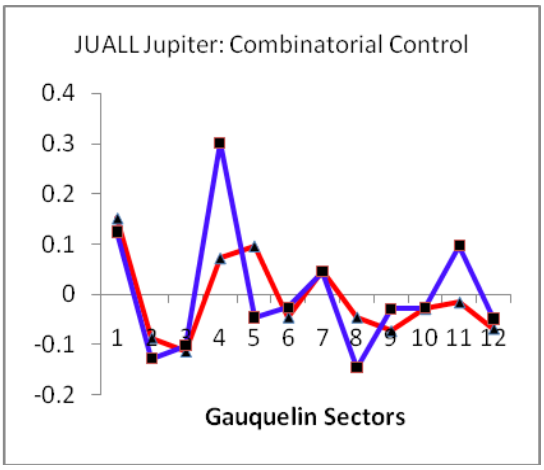
Gauquelin Sectors

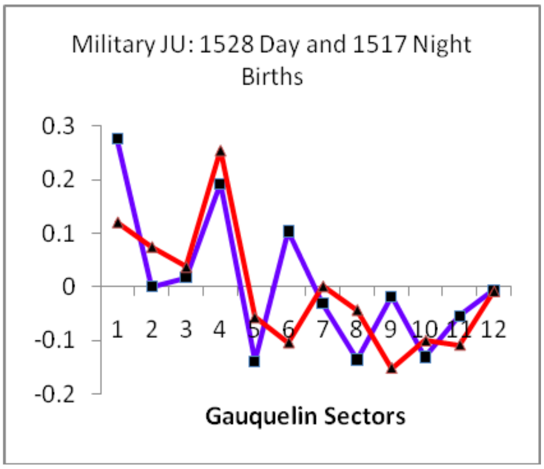


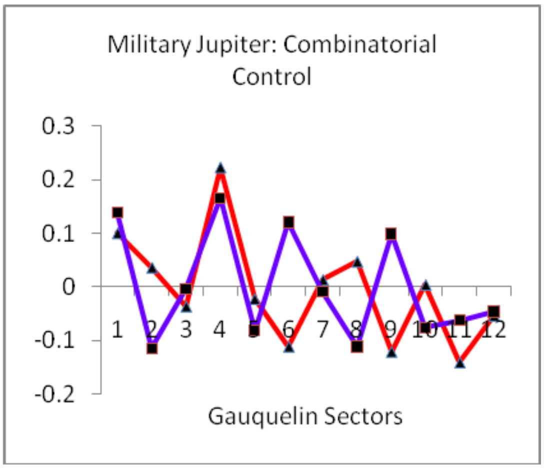


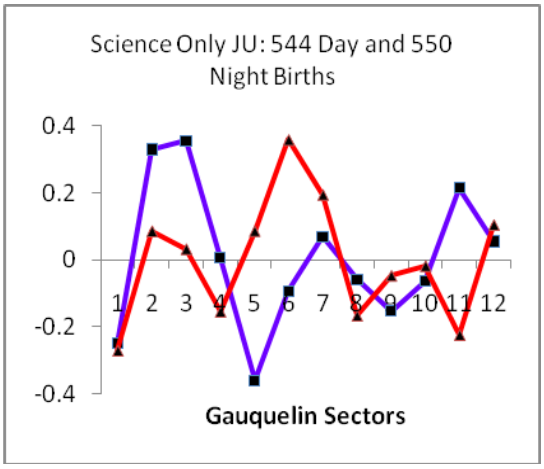
JUPITER RESULTS










Science Only JU: 544 Day and 550 Night Births
0.4
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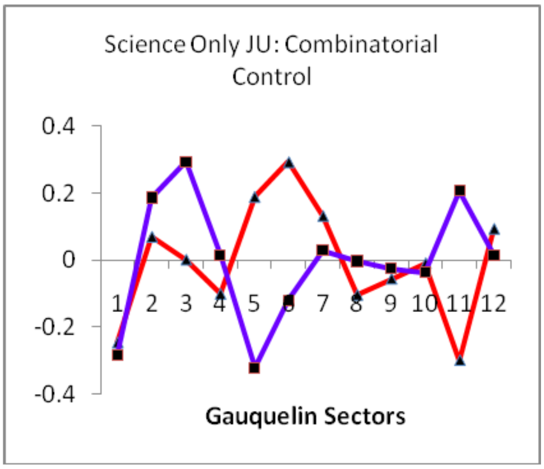
0
-0.2
-0.4
1 2 3 4 5 6 7 8 9 10 11 12
Gauquelin Sectors


Science Only JU: Combinatorial Control
0.4
0.2
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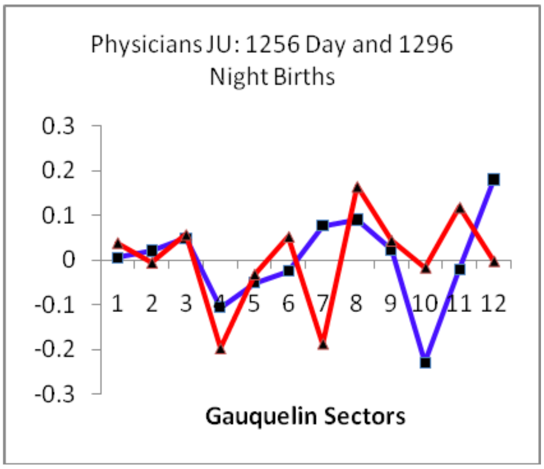
-0.4
1 2 3 4 5 6 7 8 9 10 11 12
Gauquelin Sectors


Physicians JU: 1256 Day and 1296 Night Births
0.3
0.2
0.1
0
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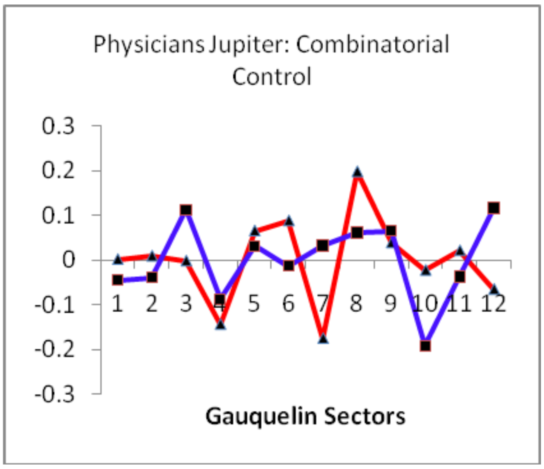
1 2 3 4 5 6 7 8 9 10 11 12
Gauquelin Sectors


Physicians Jupiter: Combinatorial Control
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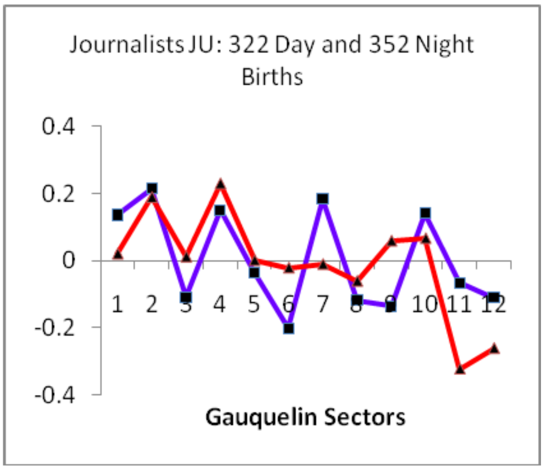
Gauquelin Sectors


Journalists JU: 322 Day and 352 Night Births
0.4
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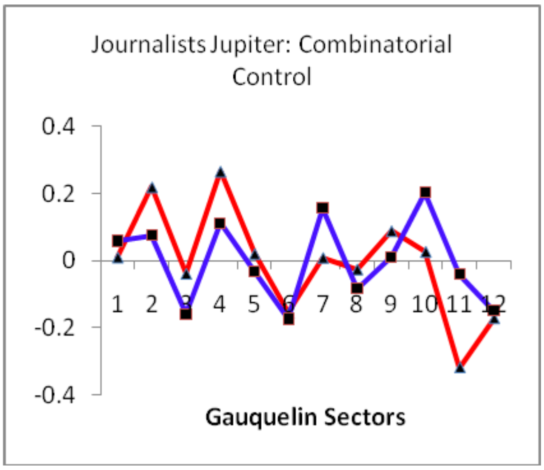
1 2 3 4 5 6 7 8 9 10 11 12
Gauquelin Sectors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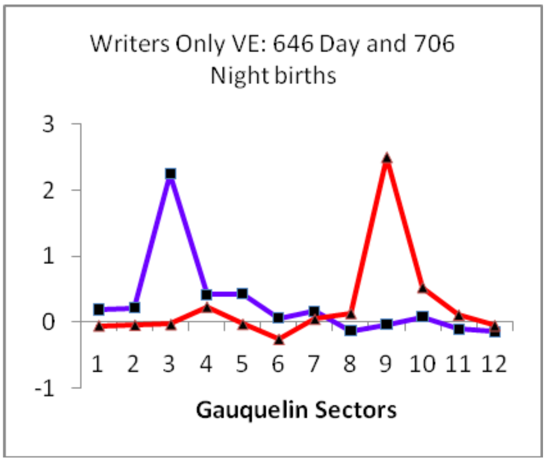
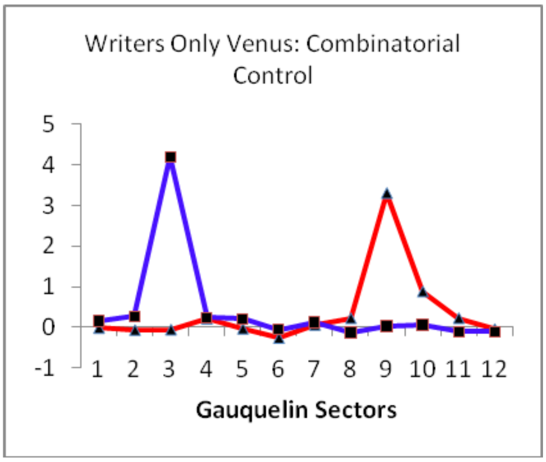
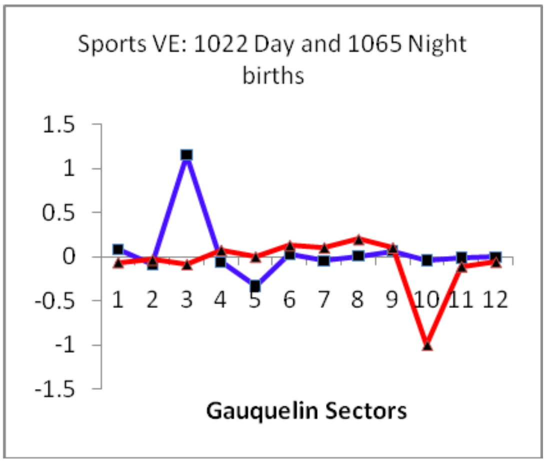
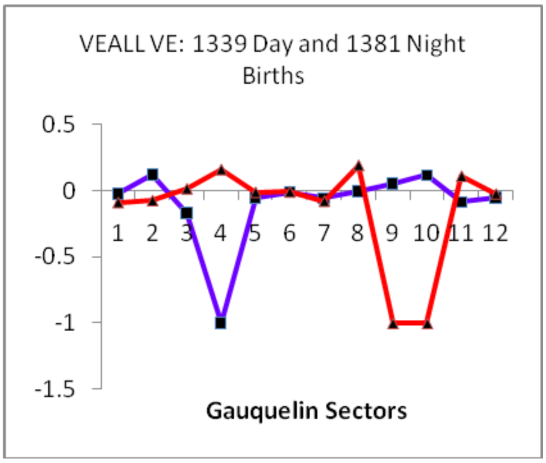
Gauquelin Sectors









DISCUSSION

The results presented in Table 1 are for the sums of frequencies in the above- and below-horizon sectors, and are based only on the graphs on the left of each pair. They show an impressive qualitative agreement with Sect theory for MA, VE, SA, and MO, as indicated by the number of comments in green, but much less agreement for the case of JU. It is worth noting here that although JU was considered more diurnal than SA by the classical astrologers, a nocturnal JU was seen as less damaging than a nocturnal SA or a diurnal MA, (Hand 1995: 22-23). This would not imply that it was actually stronger at night of course, so there is a question mark over the character of JU among eminent professionals, in relation to Sect. As the ancients recognised in the cases of MA and SA, efficacy is not necessarily equivalent to intensity of a planetary influence, and it may be that eminent professionals also require some moderation of the JU effect to avoid failures caused by over-confidence.

It is also worth noting that the two biggest failures of Sect theory according to the analysis of sectors in Table 1 are JU for the Military and SA for Physicians, both professions which are also characterized by clear positive nocturnal deviations for the nocturnal planet MA. The possibility arises that this alters the distribution of birth times by solar hour in such a way that the diurnal planets JU and SA are weakened by sect.

Examining all of the graphs it is soon apparent that the claims of Sect theory are less well supported in the right hand graphs which were derived using Combinatorial controls, so it is necessary to consider the differences between the two techniques.

In their first investigations on the planetary effect the Gauquelins used their heredity data to provide expected sector frequencies, but it was realized that this was not ideal since the heredity data consisted of births within a narrow period which hardly overlapped at all with that of the professional data. Even so, it is interesting to note that Francoise Gauquelin only advises use of the combinatorial method when large deviations from normal hourly birth curves are expected, such as when births are frequently induced artificially to fit hospital routine, (Gauquelin 1985: 22), a situation which does not apply to the professional data which consists entirely of births before 1950. On the face of it the Combinatorial method, which derives its expectations from each set of professional data under analysis seems to be preferable, but on considering the details of this method it appears that this may not always be so.

The combinatorial method is to derive a 12 x 12 table by counting the frequencies of births with the planet of interest in each of the 12 sectors, but in each case restricting the sun to one sector for each of the 12 rows of the table. From this the total number of times the angle between the sun and the planet was equal to a given number of sectors could be calculated. The expected chance frequency of the planet in each sector was then found as a weighted mean of the products of the frequencies of the *sun* in each sector times the fraction of times the sun-planet distance was equal to that necessary to place the planet in the sector being considered. By obtaining the frequency of each sun-planet distance as a sum over all examples in the table and using this value each time in the second part of the calculation it was therefore being assumed that the frequency of occurrence of each sun-planet angle was not correlated with the solar sector.

Two things follow from this:

1 The deviations which characterize the Gauquelin Effect are in part related to cases in which there are correlations between the frequency of a given sun-planet angle and the sector position of the sun , or in other words the hour of birth.

2 If there are also certain sun-planet angles which are more frequent than expected on purely astronomical criteria, *and vary between day and night,* then these tendencies will be compensated out of the final graphs of differences of planetary frequencies by sector.

There is evidence that the phase of the sun-planet synodic cycle does play a part as Michel Gauquelin (1988) noted for MA and VE, saying it needed further investigation. I have shown elsewhere how it is possible to synthesize a Gauquelin Effect using a hypothetical preference for certain sun-planet phases, in combination with lunar phases and solar hour (Douglas 2008). The concept of Sect is of course partly dependent on implied preferences for different sun-planet phases for diurnal and nocturnal births. However it must also be noted that the FDs for the total Gauquelin Effects (not separated into Day and Night) are not very different for the same profession when analysed using the two different control methods. This suggests that the Gauquelin Effect is not *wholly* mediated by the phase of the sun-planet angle of the Gauquelin planet, but the way it is distributed between day and nighttime births may be so affected.

A possible basis for the idea that sun-planet phase effects differ between day and night, might be that the foetus is responding to a geophysical factor which is affected in similar ways by the phase of a planetary synodic cycle and by ionospheric variations between day and night. The electron density of the ionosphere changes greatly within an hour of sunrise and sunset because solar illumination is the dominant source of ionisation, and when it is removed recombination rapidly depletes the electron density so that at midnight it is only about 3% of its midday level. As cited above, evidence that the solar cycle is timed by the periods of planetary orbits is accumulating, and a consequence of varying levels of solar eruptions is a variation in magnetospheric storms around the earth which are also linked, *via* field-aligned currents in the polar regions, to ionospheric disturbances closer to the ground.

It is thus possible to conceive of a situation in which planetary synodic cycles, cause a certain background level of change in the ionosphere which is also open to influence by the day or night variations, so that if a certain range of ionospheric conditions is required for the foetus to synchronize with its particular genetic programming (Gauquelin's Midwife Planet hypothesis), then certain times of day may be preferred for birth, as well as a background of certain synodic cycle phases. The Earth is of prime interest here of course, and the heliocentric conjunctions and oppositions of the ER-JU cycle, for example, transform respectively into the opposition and conjunction phases of the geocentric SO-JU cycle. This latter would connect time of birth with the traditional astrological factors of both Sect and Orientality, which I have also discussed in earlier work (Douglas, 2006b, 2007, 2008b).

It is now time to examine the graphs in more detail. In each case the total day and nighttime births are given in the captions, and it can easily be seen that the differences are small, suggesting that the diurnal or nocturnal nature *of the chart* is not very important in professional eminence, except for writers where a nocturnal birth is more common. We can now pay attention to the placings of the planets.

Moon with Diurnal and Nocturnal birth times.

The graphs for Writers [7] show a marked increase in the frequency of MO in Gauquelin key sector 4 and a small decrease in KS1 for nighttime births. Sect theory predicts that that the Moon is stronger when above the horizon at night or below in the daytime, without reference to key sectors, and the overall frequency of births with MO above the horizon at night is also higher, as shown in Table 1, but only when the control is derived from the total professional data shuffled by day and month. When the Combinatorial method is used to create a control the overall difference is not as predicted. It is clear that both methods show that sectors 1 and 4 are affected differently, and it is interesting that in both sports champions and military men the patterns shown by the Moon in Writers are reversed. The latter can be taken as confirmation that the MO does vary by Sect at least in KS4, in opposite fashion for professions which are respectively Lunar and anti-Lunar according to the original Gauquelin research. Thus for sector 4 among writers the moon is more frequent at night whereas it is more frequent by day for the sportsmen and soldiers, as predicted if strength of moon was related to its position in the houses.

The Goodnes-of-Fit analysis based on the first control method shows a Xi^2 value of 1.58 by day and 1.46 by night with deviations in the predicted direction, but not statistically significant.

The Moon data for writers is the only case where there is more than a very slight difference between the total numbers of births by Day (N = 646) and Night (N = 706). In this respect we can say that there is little evidence that the sect of the chart is more important than the placing by sect of a planet, except for the Moon where night births are more frequent. Thus in general the placement of a planet by sect should be given more weight in estimating its strength regardless of the diurnal or nocturnal time of birth.

Mars

Shuffle Control.

In all three professions the deviations in KS4 are more positive at night as predicted, but only one set , Physicians (N=2552) reached significance by the Goodness-of-Fit Test, so it was decided to amalgamate the three sets. When this was done the value of Xi^2 (Df = 1) was 8.69 corresponding to p

[7] Journalists are treated separately as they do not show a strong MO effect in key sectors.

about 0.002 since this is a one-tailed test. For KS1 the Physicians showed a negative deviation, but this was outweighed by positive deviations for the other two professions so that the combined Xi^2 value was 4.55 and a probability of about $p = 0.02$ one-tailed. The Science graphs show the opposite pattern but they do not have a strong Gauquelin Mars Effect.

Among the professions characterized by a negative Gauquelin Effect for MA, Writers also show a stronger MA effect in KS4 which logically is contrary to the prediction of Sect theory; but small and variable differences in KS1 and for both key sectors with the VEALL set made up of Painters and Musicians.

With the Combinatorial Control the deviations were much smaller. The combined data still showed a positive deviation for KS4 but with a Xi^2 = 3.8 this is only significant at $p = 0.025$ one-tailed. The KS1 data showed no significant deviations.

For the three MA professions there is evidence in the left hand graphs of a sect effect across more of the above- and below-horizon sectors than just KS1 and KS4, and this is shown by the probabilities in Table 1. When a Goodness-of-Fit Xi^2 Test was carried out by the same method used for KS1 and KS4, but now summing the observed and expected frequencies across sectors 1 to 6 and 7 to 12 respectively, the Xi^2 values (Df = 1) were: Sports not significant; Military Daytime 2.90, $p < 0.05$, Nighttime 2.95 and $p < 0.05$; Physicians 1.39, not significant; all one-tailed as deviations in predicted direction. When all 3 sets are combined the Xi^2 (Df = 1) is 3.27 Daytime,

$p < 0.05$, and 4.05 Nighttime, $p < 0.025$.

It is interesting that the red and blue lines cross between sectors 12 and 1 in many cases including for other planets, which is what would be expected from the definition of Sect.

Saturn

Shuffle Control.

Here there are two data sets with a strong SA Gauquelin Effect the Scientists (N = 1094), and Physicians (N = 2552). For the Scientists although the deviations in both KS1 and KS4 are more positive by day than by night, as predicted, the Xi^2 value is only 2.0 , too low to reach $p = 0.05$, even one-tailed. In the case of the Physicians the prediction fails completely, for both key sectors using the shuffle control, and for KS4 with the combinatorial control. It is worth pointing out that in this case there is a strong MA effect which follows the nocturnal behaviour of MA, as described above. Perhaps the nocturnal MA effect is outweighing the diurnal SA in this sample.

However there is another interesting pattern in the professions which are characterized by a *low* SA Gauquelin Effect, and these are more numerous: Military, JUALL and Journalists, (N = 6129). When all three are combined Xi^2 for a stronger *nocturnal* KS4 was 2.74 equivalent to $p = 0.05$ one-tailed. For KS1 only the Military sample showed a significant deviation and Xi^2 = 3.04 in the direction predicted,

so $p < 0.05$.

The graphs for Scientists also show that other positive deviations occur by day across the above-horizon sectors with a dip in sector 2. This time the Goodness-of-Fit test Xi^2 value is only 1.3, which is > 0.1 one-tailed, but still in the predicted direction. The graphs for SA in professions which are typically SA -, JU + also show significant goodness of fit deviations for above and below horizon sectors, but in the opposite direction as predicted. The JUALL graph shown in Fig. 2 below has Xi^2 = 4.27, $p < 0.025$ 1-tailed. For the Military data SA shows a striking change of polarity of FD between day and night, and the Xi^2 Goodness-of-Fit test has 4.79 daytime and 4.87 nighttime, $p < 0.025$.

Combinatorial Control: No significant Deviations.

Jupiter.

Here the results are again different for key sectors, but even for KS4 there is little sign of the predicted diurnal preference. There are very small effects in the cases of Military and Journalists while the JUALL set shows a striking preference for nocturnal JU in KS4, contrary to predictions. The KS1 effects are small, and none of the deviations are significant by the GoF test for either sector. It is worth pointing out here too that the military data are also characterized by a Gauquelin Effect for MA which is a nocturnal planet, but this is not the case for JUALL which actually shows more of a nocturnal JU preference in KS4. However the data in Table 1 shows that the above-horizon sectors as a whole show a stronger diurnal effect, although the nocturnal deviation is also positive.

Venus.

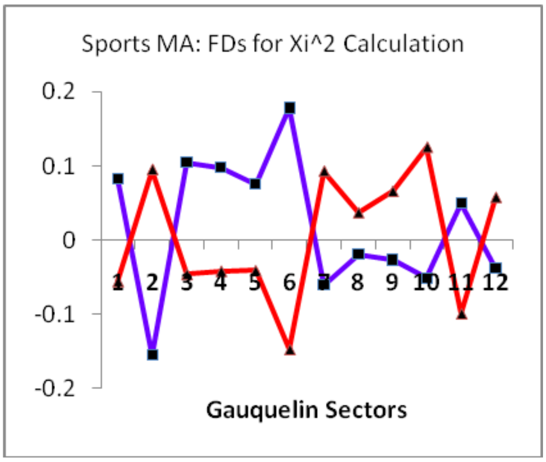
Two illustrative graphs are shown but the spectacular peaks in FD are just due to the extremely small expectation values for those sectors far from the sun, which are used in the denominator in calculating FD values. In these cases the only way to examine the data is by combining all six sectors above or below the horizon. The results are significant in the direction for a nocturnal planet and those for Writers are significant when the first control method is used, with Xi^2 (Df = 1) = 4.81, and $p < 0.05$.

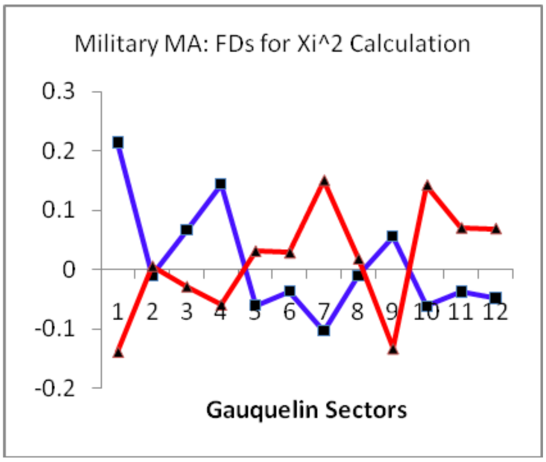
The Goodness-of-Fit test still delivers significant deviations in the predicted direction using the first control method but only by night, Xi^2 = 4.79, $p < 0.025$, not significant by day , (Df = 1, 1-tailed).

Deviations from the GoF Expected Values.

It is interesting now to look at a selection of the graphs of FD values as used in the Xi^2 GoF Test calculation, in which a new set of expected frequencies was calculated as described above. Only the data and controls from the left hand graphs of Fig. 1 was employed. Comparing these graphs (Fig. 2) with those for the same planets in Fig.1 it is clear that the above and below horizon frequencies are influenced more widely than just in the key sectors, and in the predicted directions for MA and SA for their typical professions, while SA presents a striking reversal in JUALL between day and night, in line with predictions for SA (-) professions.

A general observation can be made here. This method of calculating the new expected frequencies apportions the total frequencies in each sector individually, including those which carry the Gauquelin Effect, on the basis of a control which did not show the effect. Therefore the re-appearance in these graphs of stronger positive deviations in KS1 and KS4 as a function of the diurnal or nocturnal nature of the planet is itself confirmation that such effects described in the theory of Sect are real. If the Gauquelin effect was unaffected by time of day, then the only reason for the FDs to vary is the astronomical correlation between the planet and the sun which is a consequence of using geocentric coordinates. But this, along with the Gauquelin Effect as a whole, has been compensated by taking, for example, in KS4 the total birth frequency of MA for Military, *including* the Gauquelin Effect and apportioning it as for the distribution of MA in KS4 in a control set by day and night; so if this sector still shows positive deviations from this new expected value at night it strongly suggests that MA does behave as a nocturnal planet. And similarly for SA by day and VE by night.





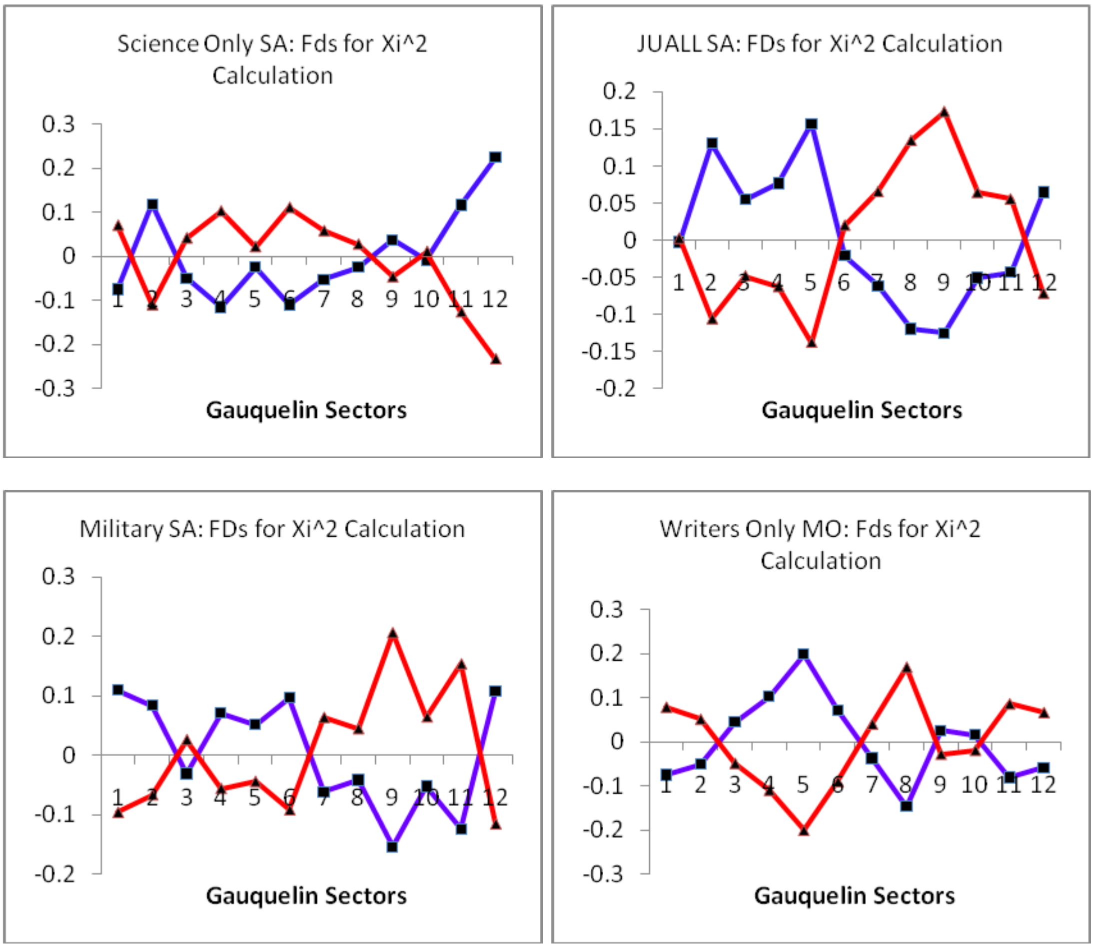


Fig.2. A selection of graphs of FD values, this time using the method described in the text to derive new expectation values from the professional data and the shuffled control which neutralize both the Gauquelin Effect and astronomical correlations of the planetary longitudes with the sun.

GENERAL CONCLUSIONS

The study of the two features of Sect identified in the introduction can be summarized as follows:

1. The deviations from expected frequencies are smaller in all cases when the Combinatorial Method is used to generate controls, and it remains to be ascertained whether this is due to the technique removing part of the variance on which the Gauquelin Effect depends: that due to non-astronomical correlations of solar with planetary longitudes.
2. The deviations in sectors 1 and 4 vary independently in many cases, as Urban-Lurain found.

3. The most consistent effects in line with Sect theory are found with MA and SA both in their characteristic professions and in those which display avoidance of these planets in key sectors. MO and VE also show deviations in the predicted direction, while JU seems to behave quite differently from its supposed nocturnal nature

4. The placing of planets seems to exert more influence than the diurnal or nocturnal nature of the chart, contrary to traditional claims, except for MO which is nocturnal in this respect as well.

5. When a new set of controls was calculated, designed to neutralize the deviations due to the total Gauquelin Effect in key sectors, there were still clear signs that the planets displayed their predicted diurnal or nocturnal character, except for JU.

6. It is believed that the possible influence of sun-planet synodic phases originally noted by Michel Gauquelin requires more investigation, in the light of recent geophysical evidence that they may be involved in the timing of solar activity cycles.

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Graham Douglas: Sect and the Gauquelin Database

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