MECHANISTIC DETERMINISM AND FORECASTING OF THE FUTURE

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I. Forecasts of astrologers – advertising and failures.

Predictions of the future – what advantage we may have of them? If unequivocal forecasts is possible, they sometimes may be very useful. For example, if it is known precisely when a car will be stealed, it is possible to call the insurance agent in advance. So a lot of time is saved. If a date of death may be predicted, it is possible to call in advance friends on funeral … Actually usual predictions are not so definite. The majority of forecasts sound approximately so: «in March you are waited with change on your work, in private life, etc.». But how it can be used, even if it really will occur? It is not told here, what kind of changes will occur, what will be their results and, the main thing - WHAT we have to do? Symbolical, inconcrete forecasts do not give an opportunity to use them for planning the future.

People often wait from astrologers forecasts and astrologers respond to these demands. Some of them informs about 100% accuracy of their forecasts, some astrologers are hardly more modest – they tell, that accuracy of their forecasts is only 70-80 percent. However, publicly ANYBODY does not gives ANY concrete data from whom such statements evidently would follow. Also the same astrologers or others, belonging to similar astrological schools, publish forecasts for month, for year – in the Internet and even in books. Well, how with accuracy of forecasts there? In any way - there are no forecasts which ON A REGULAR BASIS would prove to be true. Therefore, also it is necessary for astrologers to dodge – to adjust the forecasts under the occurred events.

There is such standard service of the practical astrologers (not everything, but many – I do not from their number) – the forecast for the nearest 5 years (and even for 10!). Something sometimes will be true, but ALWAYS in a real life occurs a lot of such (and important!) events, that HAS NOT been predicted. But if we are going to predict – it is necessary to predict ALL important events or it is better to concretize absolutely NOTHING and be limited to the general words. Partial forecasts are a sort of a deceit.

In newspaper we read forecasts at a level of Zodiacal signs – but are absolutely senseless for several reasons. First, theoretically cannot such be (and is not present actually – check up, who doubts) that all, whose Sun is in the same sign of the Zodiac, will have were identical (or even symbolically similar) events for the future month, week or year.

Secondly. Newspaper horoscopes read by women mainly. However, in fact the Zodiac sign is a sign where there is a Sun. The Sun symbolizes the man first of all. For women it would be more natural to be interested in forecasts for that sign on the Zodiac where their Moon is located. However, a position of the Moon will not calculate so simple by date of a birth as a position of the Sun. So poor women read forecasts about the Sun’s sign – which is connected mainly not with them, but with theyr ideal image of the man.

Now there are a lot of pseudoscientific and pompous terms and names of methods of forecasting – but they will not rescue forecasts from failures. Supercomputers – is not a panacea too. Using asteroids and neural networks for forecasting will not provide 100% of accuracy of the forecast, and more likely only will stir up consciousness of the astrologers.

It is possible to reveal astrologically a predisposition of a person to those or other events, it is possible to specify the periods when these events are probable, but to name unequivocally events and dates - it is impossible to do neither theoretically, nor practically. The future can be GUESSED (without any astrology too),

but is a mistake to try to predict the future – correctly naming the future events - astrologers (responsibly concerning the work) should not do it.

II. On what forecasts are based: a theoretical possibility + good methods.

If some person undertakes to give exact forecasts, it is supposed, that:

1. There is a theoretical possibility to give such forecasts. In other words, the future is predictable.

2. The given person is able to give such forecasts (he/she knows the necessary methods and is able to apply them).

Till now in the Astrology only the second item is discussed. Books on Astrology are full of descriptions of methods of forecasting and stories by authors of these books how successfully they manage to give exact forecasts. Moreover, I almost do not remember that someone has interested in substantiation of the opportunity of forecasting. For some reason it is considered in such books, that to predict precisely events is quite probably and it is necessary only to learn how to do it well. Actually the situation is not so simple here. In fact anybody, as seems to me, is not going to approve that he is able to predict ALL events. For example, anybody, I think, will not undertake to predict, what exactly I shall tell exactly on 10-th minute of conversation with him. Anybody, I am sure, understand that it is not possible to predict ASTROLOGICALLY to some girl a name of its future husband. Therefore, everybody, including the most abrupt divinators, understand, that absolute, universal forecasting is impossible.

The opportunity of forecasting is connected with a question of a degree of determinancy (predefiniteness) of events in our life. Here there is a full disorder of opinions - from idea of strict predefiniteness (in Heavens or somewhere else) of each of our step up to full voluntarism.

Determinism – it is a doctrine about conditionality (in some form) of all event in the

World. A physical determinism – it is an aspiration to find the reason of all events in the physical phenomena. A mechanistic determinism – in its most vulgar form – speaks about unequivocal, rigid determination of all events in the World. There is a theoretical basis of such determinism – it is the Newton's equation in the mechanic: ma = F. There are experimental acknowledgement of this equation – predictions of eclipses, movements of astronomical objects etc. The most extremist determinism we can find in mathematical mechanic, where the confidence of an opportunity to describe position of a mechanical system in the future, if a position of a system in some fixed moment of time and all forces acting on this system are known. Why? They refer to the theorem from the mathematical theory of the differential equations (such equations describe mechanical systems) – the theorem of uniqueness of the solution of Cauchy problem. Here I have surprising news even for mathematically informed people – this theorem in part of uniqueness is true only under some additional conditions, which in a real life are broken by presence of "freedom of will »! In detail about it I speak in the mathematical Appendix – see below. By virtue of this news, it is not possible to put into practice a determinism in some important areas of knowledge, especially connected with the person (medicine, psychology, sociology).

III. Why sometimes forecasting is possible?

There are some well-known cases, when quite concrete forecasts were given and subsequently they were fulfilled (sometimes partially, but sometimes – with frightening accuracy). If such it is possible, what prevents to improve quality of forecasting and to reach desirable (instead of simply declared) 100% trueness of EACH forecast?

For example, a Gipsy-fortuneteller somehow catches a present situation of the client and predicts a natural (i.e. the most probable, though and not unique) development of this situation. The forecast only of the most probable variant is given here. If a person forgets about this prediction of the fortuneteller for a while, then the probability of its performance (in future) will increase.

Sometimes the qualified astrologers apply interesting maneuver to increase an accuracy of their forecasts. They usually predict those events that directly continues an event at present, predicting only the most probable way of succession of events (but this way is not unique – this is an explanation of mistakes in predictions).

Individual unequivocal forecasts are impossible not only in people's life, but also for mechanical systems (see the Appendix below). The strong-willed effort can change a direction of development of events. But political, mundane forecasts can be more exact because an inert "mass" here much more and consequently is less a subject to casual fluctuations. The probability of influence of strong-willed intervention here is much less, than in a life of the separate person. But political forecasts presupposed from the astrologers some special qualification – and consequently to do such forecasts is very difficult.

When some person speaks «I shall make it», whether this is a prediction of the future? In some sense – yes, because in fact it declares something about future. However, actually, it not the forecast, it is a plan, a program (so he does not predict, but he programs the future). Moreover, if the person is able to realize this plan, it will be very difficult to prevent him. If a teacher knows his subject well, then even retrograde Mercury (as theorists frightened us) will not prevent him to give a good lecture. If an astrologer himself do not understand that he speaks, in such situation even the fastest and direct Mercury will not rescue his lecture - it will be not clear.

A true astrological (and not only astrological) forecasting should be only symbolical. Unethically, and even theoretically it is incorrect, to name concrete events. There is a freedom of will of a person. It is not boundless; it, in particular, is limited sometimes by some external circumstances, including by forces of the highest level.

There is a very ancient prognostic branch of Astrology - Horary Astrology, where categorical answers are usually given: YES or NO. I am sure that it is an erroneous approach to the analysis of the future (though its adherents can refer on classics of the Astrology – but they could be mistaken too…). The detailed criticism of this approach to the Horary Astrology and comprehensible alternatives I assume to publish in the near future (here I give a the forecast of the future? No, it is a plan!). If we accept, that such categorical approach it right, then WITHOUT DEPENDENCE what the person will do, the result of its actions is predetermined by a Horary chart. But it is wrong! Actually classics of the Horary Astrology, as I think, implicitly assumed, that the person in the further will do that, what it has already conceived, and provided that they gave the answer. However, in fact the person is free in his actions. The Astrology can prompt us, by what actions a person can achieve a result which is more suitable for him.

IV. A call for "prophets"

I have to all, who wish to prove a possibility of unequivocal forecasting, such OFFER:

Please, publish in advance a forecast for ALL essential events for a year of a life of ANY known person, say, for Prince Charles (for it a time of a birth is known very precisely – in England they are care about it). But all events to name here are necessary to be concrete, not as «something bad will occur» (such forecast cannot be used on its purpose – for orientation in the future). For example, «on such date … a car will be stealed» (it would be desirable also to publish an address of a stealer too, but for the beginning we will not demand much from "prophets"). If in a prescribed day the car will be really stolen – we put “plus” to this item of the forecast, but if will not stolen – we shall not refer on esoteric subtleties and we recognize here this forecast as erroneous. If ALL in this prediction will meet – we shall shout all over the world HURRAH to the author of this forecast, and I should reconsider many statements containing in this article. But something prompts me (again the forecast?), that

hardly it threatens me. If something will meet in the forecast with a reality, and something – will not meet, it will be necessary for a «prophet» TO EXPLAIN astrologically, why so it has turned out, WHY those or other events are missed. Who will undertake? I am a pass (for the reasons, for which description this paper is devoted).

V. THE APPENDIX

It is a «MATHEMATICAL APPENDIX» (a reading «not for all»). Here it is shown, that even for MECHANICAL movement there is no possibility of unequivocal forecasting and that there is an possibility of a choice (for people here it would be possible to speak about freedom to will). In other words, all these mathematical facts can be understood as a mathematical substantiation of an possibility of strong-willed or magic influence on destiny.

The THESIS: sometimes a mechanical movement of a material point under influence of unequivocally set forces is not defined unequivocally by its initial position. In a movement of this point some moments of bifurcation - branchings of a trajectory - are possible.

I pass to a PROOF of this THESIS.

The Newton’ equation for a material point is ma = F. The same equation can describe a movement of system of several material points if the position of this system can be unequivocally characterized by one coordinate x.

A movement of a point is described by changing of its coordinate x, depending on time t: x = x (t). Then we have:

A speed v = x’ is a derivative of the function x(t).

An acceleration a = x" – is the second derivative of x(t) or, that is equivalent, a = v’ – is the first derivative of the speed.

A force F may be variable – it may depends both on time, and on a position of a point x(t) and

even of its speed x’(t) (that will be, for example, at presence of forces of friction or forces of other nature, if they dissipating energy):

$$F = F(t, x, x')$$

The Newton’s equation can be written down now in such kind:

$$mx'' = F(t, x, x')$$

It is a differential equation of the second order. To find a concrete movement of a material point, it is necessary to set an initial position of a point for some starting moment of time t_0 (we shall take $t_0 = 0$), and to set also a speed of a point for this moment of time. These conditions may be written as

$$x(0) = x_0,$$
$$x'(0) = v_0.$$

Two these initial conditions together with the initial differential equation form a «Cauchy problem» – a problem of a finding of the solution of the differential equation (for example, the Newton’s equation) with the prescribed initial conditions. It is well known, that Cauchy problem has the unique solution, IF dependence of function F on $v = x'$ is regular enough (differentible or satisfying to weaker Lipshits’s condition). But in the general case the solution of Cauchy problem MAY be nonunique even if the external influence, described by function F, varies continuously (without jumps). It is an essence of nonuniqueness of possible movements of a point. I’ll give some details.

Let's put for brevity $F(t, x, v)/m = f(t, x, v)$.

One Newton’s equation can be rewrite in the form of two equations (it is a system of two differential equations of the first order) and two initial conditions:

$$x' = v$$
$$v' = f(t, x, v)$$

$x(0) = x_0$ - initial position
$v(0) = v_0$ – initial speed

So we get a Cauchy problem for the system of differential equations (which is equivalent to the Newton's equation), describing a movement of a material point along some axis (= a movement along a straight line).

Change of a speed (= acceleration) usually (but not always) varies proportionally to some degree of the speed. Acceleration may not depends on speed at all (for example it may depends only on position of a point – so happens for a movement of a pendulum and for other usual oscillatory systems without friction and forces of resistance), and it can be proportional to the speed (for example, in the first degree – so happens at presence of force of friction) and so on. Generally, sometimes it is possible to write function f as a series by degrees of the speed v:

$$f(t, x, v) = f_0(t, x) + v \cdot f_1(t, x) + v^2 \cdot f_2(t, x) + \ldots$$

But it may appears, that for small speed its change (its derivative!) grows quickly, that it is faster than the first degree of speed v. For small values v it means, that speed of this change is some "fractional" degree of speed (here the exponent is less than 1).

For example, if we take an equation for $v' = \sqrt{v}$, so:

for $v = 0.01$ we have $f(t, x, v) = v' = 0.1$
0.0001 0.01
and so on …

Here force f(t,x,v) (as well as corresponding acceleration a= v') appears to be very sensitive to value of v if v is small. So happens in case when a certain process already has slightly moved from an initial position and «has gone itself» - i.e. small initial effort (strong-willed, magic, etc.) has allowed to begin a process of changes for the given system in the important direction. Why it is spoken here about some "important" direction of change? Because the system starts to move in a direction,

which is new to it, it is considered as a disproportionate effect (concerning a spent visible efforts).

SO WE HAVE A CONCLUSION: under some conditions there is PROBABLE an ESSENTIAL change of character of movement of system when some small effort allows to move system into some essentially other mode of functioning.

Let's consider a concrete mathematical example (we shall take only one of two differential equations for the movement of a point):

$v' = v^{1/2}$ - it is the differential equation,

$v(0)=0$ - the initial condition.

We get a Cauchy problem (a special case more the general Cauchy problem described above). Here there are TWO VARIOUS solutions of this problem:

$v_1(t) = 0$,

$v_2(t) = t^2/2$

You can check it up (if you remember some mathematics)!

The first solution is zero (here the point does not move at all, and here it is nothing occurs – nothing ventured, nothing gained). The second solution – here a point moves, and it is fast enough. We get an example of nonuniqueness of the solutions and it is an illustration of impossibility of formal forecasting of movement even for mechanical system, without taking into account
«strong-willed efforts» (of some kind).

Such branchings in destiny (turning points) really meet not so often (these moments astrologers can find, analyzing transits, progressions, etc.). During other periods, the life flows on a regular basis, that corresponds to smoothness – except for these fatal moments – of the dependence of coordinate x, describing system, from time t.

The general form of function f in a neighborhood of the fatal moment of time may be usually written as

$$f(t,x,v) = f_0(t, x) + (v-v_0)^d \cdot f_1(t, x) + \ldots$$

where d is some parameter with values between 0 and 1 (above we have $d = 0.5$), and a dependence from t and x supposed to be smooth. Here a nonuniqueness of the solutions is possible too. For $d \geq 1$ a nonuniquenesses of the solution of Cauchy problem is impossible – we have here the classical mechanical determinism. If the value of d varies, then when its values get in an interval (0, 1), here arises a real OPPORTUNITY of change of a mode of a process. "Most interesting" situations occurs during the moment of transition from values $d>1$ or $d<0$ to values $0<d<1$ – here a nonuniqueness is possible.

In this general case for $f_0 = 0$ it is possible to prove, that if $0<d<1$, then ALWAYS there are no less than TWO solutions (in fact, infinitely many! So there are an infinite variants of the future here!) of Cauchy problem and, consequently, here uniqueness is NEVER presents here. The same is true actually and for any function f_0.