The Story of Aria and Her ARIMAS

by Ziyaad Lundell

The story begins in a galaxy filled with stardust, the space constantly expanding, the light constantly reaching further. Aria, the master of the universe, began grouping particles of stardust. She called this "indexing". Some indices had dust from sister stars and others from stars light-years apart. Aria loved to see diversities in her grouped particles, and she wondered why and how each stardust particle had found its way into her universe, so she named an index (y_1,y_2,y_3, ... y_n). She began studying the indices, exploring how the location of each dust particle could affect another, and finding what else in her universe could affect the time-location of each particle.

Her clouds had consistent weight and equidistant particles with successive expansions of stationary. Star clouds that had particles of different weights and were spaced between different lengths from each other were non-stationary.

She called these varying distances in her index's "variance"; if she compared two different indices, she called it "covariance".

She found that her indices had averages that she could expect and called them "expected values". She used the variances of different indices to determine the strength and direction of the relationship of those indices. She called this "correlation".[1]

When she checked this correlation, she noticed a terrific outcome. If a group of stardust was compared with the same group of stardust from one expansion earlier, there could be stardust patterns that would predict future expansions of star clouds. But sometimes, a star cloud could expand in a different direction, and she would find no predictable pattern.

She called this predictable pattern an "automatic correlation", because previous stardust patterns would significantly affect its expansion. She noticed that forces outside of the stars' supernova could influence stardust's expansion. She called this "gravity",[2] and it existed from the ebb and flow of her paintbrush on the fabric of her creation. It pulled her stardust in directions that she could not predict.

She liked seeing how stardust and clouds could flow and form from one expansion to the next. She thought of them as an extension of herself, a way to watch her stardust. She named her clouds after her and called these indexed particles "ARIMAs".

She understood that to witness her stardust and divine its future, she needed to be able to calculate its variance and expected value, that her supernova cluster must be stationary. She discovered that if her index of time-location particles had a mean and variance that changed over time, she could pull, sort, and alter a cluster to derive its stationarity.

Realising the power of indexing supernovas and finding patterns of ARIMAs, she sought to predict the expansion of the entire nebula sector that housed the indexed supernova blats. She studied her time-location particles and applied Brownian motion to random occurrences she saw in the scatter of certain indices.

After determining the supernova's scatter of particles, she assigned them an age along with their name. If the cluster had direct automatic correlation at exactly p expansions before, they were donned AR(k)

[1] How she was so smart, only God knows

[2] White noise moving average terms

models. If the cluster required Aria's intervention to arrive at stationarity, she donned it with an I(d) where d showed the amount of order of moulding she needed to exert on the stardust. If her stardust was being pulled by gravity as it expanded through time and space, she accounted for this independent pull of gravity by anointing the MA(q) with the expansions of time in the past, whose average of q expansions ago still affected the clusters of today.

She used methods of estimating the overall parameters by minimising the distance between time-location stardust clouds and their observed history, maximising the likelihood of predicting the position of dust particles over their observed history or minimising the mean squared prediction error on the condition of their previous values.

She used these methods to look after each of her extensions of self and to divine the universe before her. Each ARIMA could be read as an extension of the endless motion of the universe. She was able to identify the supernova's stardust and use their statistics to estimate the parametric features of the nebula system that created the supernovas.

After she had attempted to identify the time-location essence of her ARIMAs, she checked for the validity of her estimations to determine if her study of the particles in the nebula system correctly captured the nebula's movement. She checked this by determining how accurately she could predict the movement of particles accounting for the patterns and susceptibility to gravitational manipulation. If Aria could see that the identification of her supernova stardust art was correct, that she had correctly determined its automatic correlation between p direct lags ago, its potential necessity for deconstruction, and its average effect of the particles q lags ago.

Aria used these techniques to begin the ultimate goal she had set out to achieve when she first started watching the nebula systems expand endlessly as their light coursed to the ends of the universe and then, still further.