

# Improved Indicators of Analytic Function

Dr. M. Kavitha<sup>1</sup>

<sup>1</sup> Associate Professor, Department of Mathematics, KPR Institute of Engineering and Technology, Coimbatore, Tamil Nadu, India.

## Abstract

Many familiar functions of real variables become multivalued when extended to complex variables. This article is a study of the biggest blow of analytic function and its consequences in an engineering field. Satellite images of several regions of earth are the fundamental research tools. We focus on only analytic regions to find a balance between conservation and development.

**Keywords:** Analytic function, Analytical region, Integrator, poles.

## 1. Introduction

Analytic function means “Keep adapting”. If a hall is air-conditioned, then every things inside the hall will be chilled. Let  $z$  be a complex variable. The function is considered as the chillness observed by each element inside the closed region.

There are many advanced engineering problems with the theory of complex analytic function. The problems in heat conduction, fluid flow and electro statics have the real and imaginary parts of analytic function by its powerful and elegant methods. The new problems in a digital world placed more emphasis on qualitative methods and applications. There is a slight reduction of formal manipulations in favor of problems that require mathematical thinking and understanding. In this paper, among all the real life problems are taken in an analytical background.

## 2. Car Manufacturing

A country can have plans to shift its car manufacturing plant by identifying its poles of the analytical region. The people will be happy with the support extended by the Government and that it is bound to grow at a faster pace. If a state of the country has a favorable investment climate, then several blue chip companies are keen on foraying into the state and to defame the Government.

## 3. Minimizing Waiting Time

The theory of functions of a complex variable minimizes the time taken for doing the newly proposed projects. The holy places have been witnessing a heavy rush as hundreds of devotees from different parts of the country undertake their annual pilgrimage. If we assume busiest the area of these holy places as an analytic function, then the derivative of the analytic function decreases the waiting time of the pilgrims. The forest department restricts the movement of pilgrims at night across thick forests..

## 4. Localization of Helicopters

By properties of analytic function, the constant modulus of an analytical function  $f(z)$  is constant. This concept is applied in the manufacturing of helicopters by the defense ministry.

We can submit the fresh details of localization of the helicopters. The localization plan would be spread over the country in four phases. The two governments of the distinct countries have decided to collaborate in the development of helicopter productions. Let  $\mathcal{C}$  be the open sets which are considered as two governments. Then is also analytic that generates the production of helicopters. The Cartesian co-ordinates are used to represent the multimode formulation for helicopter non-linear structural dynamic analysis with  $x = \text{Re}(z)$  and  $y = \text{Im}(z)$ , the elastic blades (chord wise blade stiffness  $2.52 \times 10^3 \text{ Nm}^2$ ) of a helicopter resembles open disk of the complex plane.

## 5. Real Time Example

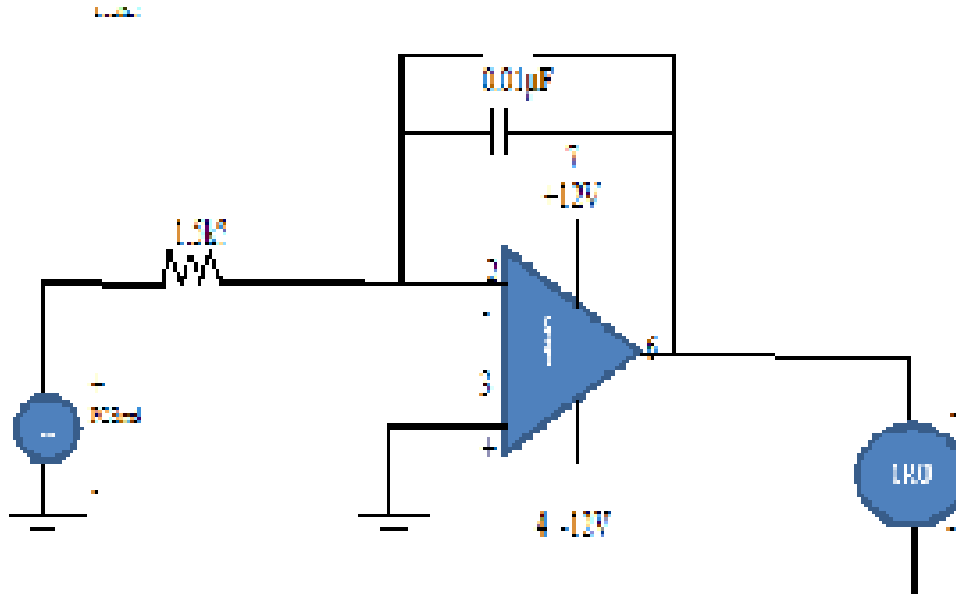


Fig. 1 Example of Integrator.

Integrator is an application of operational amplifier. The name integrator came from the operation it performs. It simply integrates a continuous signal to another form of signal. For instance if square wave is fed into the amplifier it integrates the signal and gives out saw tooth wave form. This is similar to a function of an analytic function. In an analytic function the whole system depends on a function, same here in integrator the whole system depends on the amplifier to integrate the signal. If one removes the amplifier from the system the output will be the same as the input. So literally the whole system depends on the operational amplifier. From this we can state that Integrator is a best example for an analytic function.

## 6. Rescue from Disease

A disease spreads to all over the country, then the disease is considered as an analytic function. The aircraft from other countries had a meticulous preparations marked the operations to evacuate the affected people. The airline procures medicated suits, protective shoes, gloves, N-95 masks, glasses and caps for the crew and the support staff. A flight can be sent for the rescue along with extra fuel, spare parts and sufficient food and water. A team of doctors and four nursing staff on-board the flight measured the temperature of all the passengers posed questions from a questionnaire and taught them to wear masks before allowing them to board. The medically checked passengers will be taken to the camp by buses.

It is very difficult to predict when we are going to have an inflection point. If a disease spreads rapidly among people, the cities in the country become ghost towns. In these cities, there are virtual lockdowns, cancelled flights, closed factories and shut schools. But many white-collar employees work from home. Analytic function reports to the workers that they should return in “batches” to reduce infection risks. Some companies and industries always take these analytic functions and

deploying youth energy to prevent idle time and potential addiction which is represented as  $\lim_{z \rightarrow z_0} f(z) = l$ .

## 7. Winners' Hard work

The real happiness and satisfaction of winners of the tournaments is another representation of analytic function. If  $f(z)$  is an analytic function represents the winners' satisfaction, then the secretary of the tournament will distribute proudly their trophies and shields.

The analytic function of pollution and human health induces the plantation of trees. The nation decided to clean up and paint the walls of the dwellings. Even the public contributed money and gives their extended support. The people planted over 5000 trees and started morning and evening walks to promote health. The conservationists reported that the dumping plastic in an abandoned quarry posed a threat to the wildlife.

## 8. Railways

The analytic function plays a vital role in railways. The railways will roll out its new signaling system. It is expected to make train travel faster and safer. The railway tracks are considered as the analytical region enclosed by the curve  $C$ . gives the solution . This solution helps to fix the train timings so that no two trains cross th track at the same time, Some of the busiest routes on railways with heavy traffic, we can take this busiest route as an analytical region and consider each railway tract as a curve  $C$ , we evaluate this integration using Cauchy's integral formula. The modernization of signaling system provides the suitable train timings such that every train crosses the busiest route safely by avoiding train accidents.

The implementation of this new system will improve safety, reduce congestion, increase line capacity and improve punctuality. Maintenance of a train by the railways can be done perfectly using some of the properties of analytic function. Initially the supervisors for maintenance observe the reservation compartments. They analyzed the number of compartments fully occupied by the passengers in digital documents. By applying analyticity, they can avoid the unused compartments to clean repeatedly.

## 9. Internet Searches

A list of popular internet searches purportedly associated with the derivative of a complex function  $f$  at the point

$z_0$ . It is expressed as 
$$f'(z_0) = \lim_{\Delta z \rightarrow 0} \frac{f(z_0 + \Delta z) - f(z_0)}{\Delta z}$$
 Differentiating at  $z_0$  means that, along whatever path  $z$

approaches  $z_0$ , the quotient is always approaches a certain value and all these values are equal. Reports in some sections of media showed the trusted and valued supplier of resources and energy to meet the growing needs of industry and manufacturing.

## CONCLUSION AND FUTURE ENHANCEMENT

Thus every part of mathematics has some typical features. Analytic function is a good example of this. We have realized that complex analytic functions behave much more simply than real-valued functions of real variables. We conclude that different phenomena and systems from different areas in our real life problems can be treated by analytic functions. As a future enhancement, a plane of all possible worlds will have different analytical regions which can be branching out finitely.

## References

- [1] Bahadori, M.N. 1978, "Passive Cooling systems in Iranian Architecture", Scientific American, 238(2):144-154.
- [2] Nikravesh, P.E. Computer Aided Analysis of Mechanical systems, Prentice Hall, 1987.
- [3] Lars. V. Ahlfors, "Complex Analysis – An introduction to the theory of Analytic functions of One Complex Variable", Third Edition, Mc-Graw Hill Inc. New Delhi
- [4] Erwin Kreyszig, 1999, "Advanced Engineering Mathematics", Wiley India pvt. Ltd., New Delhi.

**First Author** Dr. M. KAVITHA is currently working as Associate Professor in Department of Mathematics at KPR Institute of Engineering and Technology, Coimbatore. She received her B. Sc., M. Sc. and Ph. D. degree in Mathematics from Manonamiam Sundaranar University, India in 1996, 2000 and 2013 respectively, M. Phil. degree in Madurai Kamaraj University, India in 2002. Her research area in Graph Theory in Mathematics and now includes applications of mathematics in other scientific areas. She has presented many research papers in National conferences. She has published two papers in the Scopus indexed journals and authored 4 books in statistics for management. She is a life member in 6 Professional bodies such as ISTE, IAENG, SSHRA, STRA, NAMLE and HKCBEEES. As she is working in engineering atmosphere, she is focusing on applications of mathematics in every complex engineering problem.