

# Logical Sense



A Pinku and Dadaji  
Series

## Logical conclusion is the best conclusion

Pinku: Hello Dadaji Good Morning what are you doing?

Dadaji: I am trying to solve this puzzle given in today's newspaper.

Pinku: Good...Good... try and try and you might succeed.

Dadaji: I can solve this but I am somewhere missing the logic.

Pinku: Why are you searching for logic in puzzle? What do you mean by logic Dadaji?

Dadaji: Logic is a thought a reason based thought. I am trying to understand the pattern in this puzzle which will ultimately help me to break this puzzle.

Pinku: Hmm... what do you mean by a reason based thought Dadaji?

Dadaji: Well! Logic is a systematic thinking backed by a reason or a proven method that you might know already but sometimes you are unable to apply it. What I mean is that, we get input from our five senses; all five senses are equally contributing to the brain to come to a common conclusion which we call logic. My

Anything in this world  
starts with a logic

personal opinion, logic is always pattern based; meaning it follow some steps may be haphazardly or in some sequence. When we are applying reasons to each of these steps the encrypted pattern gets decrypted and you understand the reason behind which we call logic.

Pinku: Hmm... Dadaji you are trying to explain me or you are trying to confuse me? I am lost.

Dadaji: Ok... logic is coming to a conclusion which is appropriate and makes a total sense to you as well as anyone who is listening to you. What I was trying to explain is how you come to a conclusion i.e. step by step reason based thinking giving sense in each step to you and lastly coming to an overall conclusion which is rational.

Pinku: Understood Dadaji. Can you give me any example of Logic Dadaji?



## Logical thinking follows a pattern

Dadaji: Sure. This is a very old question but very apt example to understand logic. Two men came down from the same chimney one after the other following the same path. Both did not wear face masks. One comes out with a clean face and one comes out with a dirty face. Which one washes his face?

Pinku: The one with clean face looks at the one with dirty face and thinks that his face is dirty and hence, cleans his face first.

Dadaji: Are you sure Pinku?

Pinku: Yes Dadaji.

Dadaji: There is a twist in the question. The question itself is wrong. Think logically, how can two men coming down from the same chimney one after another following the same path and one can have a dirty face and another cannot.

Pinku: Hmm... Logic. Good example Dadaji. You said that logical thinking is following a pattern. What kind of pattern were you talking Dadaji?

Dadaji: Well! Pinku, god has created this world so uniquely that there is logic everywhere. An

**Logical conclusions are the best conclusions**

event happening will also have a corresponding event and so on and so forth. To give you an example, "It snowed today and hence outside its cold". From what I know most of the events happening in this world will have two way affect or a pattern; one antecedent and another consequent. In the above sentence, the antecedent is "it snowed today" and the consequent is "Outside its cold". Antecedent say's "since its snowed" the consequent followed "there is cold outside". You can find the antecedent for every consequent in this world hence, logic follows a particular pattern.

Pinku: Hmm. Makes sense. Give me some examples to understand better Dadaji.

Dadaji: Let me think. Ok! Here you go a question for you. Two girls ate dinner together. They both ordered iced tea. One girl drank them very fast and had finished five in the time it took the other to drink just one.



## Logical thinking follows a pattern

The girl who drank one died while the other survived. All of the drinks were poisoned. What is the logic in this story? Why do you think girl who had a single drink died?

Pinku: I cannot think so far Dadaji. Sorry! But I don't know the answer.

Dadaji: Oh! It's simple. The poison was in the ice and not in the drink. The girl who drank five did not allow ice to melt and hence survived. However, the girl who only drank one allowed ice to melt and hence poison in the ice melted in the tea. Hope now you understand what logic is? Logic is sequentially deriving at a conclusion that makes sense. But you should be careful Pinku. All conclusions are not logical conclusions.

Pinku: Yes Dadaji very clear. But, what do you mean when you say all conclusions are not logical conclusions?

Dadaji: To understand this, I will share a well-known example in the world of logic. Here it goes: Look at the two statements below:

⇒ All birds have feathers.

⇒ Turkeys have feathers.

### Logical patterns resolve problems

There can be two conclusions

- All the birds are Turkeys or
- All Turkeys are birds

What do you think Pinku which conclusion is logical?

Pinku: Ah! It's so easy Dadaji "All Turkeys are birds".

Dadaji: Why not the other option it is also conclusion right?

Pinku: Yes Dadaji but the second conclusion does not make sense to me. Oh! I understood Dadaji. With this example, you are trying to prove me that all conclusions are not logical conclusions. Understood Dadaji... That was a great example.

Dadaji: Very good Pinku. Studying logic will:

- Enhance problem solving ability
- Enhance reasoning ability
- Enhance critical thinking



## Logic brings a meaning to any discussion

- Enhance conceptual ability

Pinku: How is logic related to critical thinking  
Dadaji?

Dadaji: Well! Critical thinking is scientific, in that it relies upon both logic and empirical evidence. Critical thinking is a means for separating truth from falsehood which require logical thinking; why? Because, logical thinking is based on a particular pattern or sequence which gives a strong base to differentiate between what is truth and what is not.

Pinku: Hmm... tell me Dadaji then how logic enhances conceptual ability?

Dadaji: People with conceptual abilities are usually creative. They are able to devise creative solutions to abstract problems involving thinking “outside of the box”. And to think outside of the box, they need to crack several patterns, and only thing that can crack patterns is logic.

Pinku: From where the word logic comes from  
Dadaji:

Dadaji: The term logic comes from the Greek word logos meaning “sentence,” “discourse,”

Logic always is backed up  
by reasoning

“reason,” “rule,” “ratio,” “account”, “rational principle,” and “definition.” In short logic has been said to be the “laws of thought,” “the rules of right reasoning,” “the principles of valid argumentation”.

Pinku: Understood Dadaji. Can you let me know then what is the difference between logic and commonsense?

Dadaji: I will explain it with an example. Common sense say’s “heavier objects fall faster than lighter objects.” But, logic thinks beyond and brings in conditions like heavier objects will fall faster than lighter objects only due to factors such as air and gravitation. If both are absent, would the answer be same?

Pinku: I know this Dadaji. In the absence of air and gravity both heavier object say a rock and a lighter object say a feather will fall on the ground simultaneously.

Dadaji: Exactly. Now you know the difference between logic and commonsense right.



## Logic models are pictorial in nature

Pinku: Yes Dadaji. Tell me; is there a difference between reasoning and logic?

Dadaji: Well! Reasoning is an ability to think, to produce an argument that leads to a certain conclusion. Reasoning may or may not use logic and logic is a method of reasoning that guarantees a correct conclusion, given the correctness of the assumptions and applying correct reasoning steps. In short logic is used to avoid myths or fallacies.

Pinku: Fantastic! I got the difference Dadaji. Is there any way that one can use logic successfully?

Dadaji: Well there are models built in called “logic models” which presents a picture of how your effort or initiative is supposed to work. It explains why your strategy is a good solution to the problem at hand. Effective logic models make an explicit, often visual, statement of the activities that will bring about perfect conclusions leading to effective solutions. Logical models generally have road maps, conceptual maps, or pathways maps along with a blueprint for change and a framework for action underpinning rationale.

### Logic depends on correctness of assumptions

Pinku: Hmm...by using these models, one can pave success. I heard a term called logical positivism what is the meaning Dadaji?

Dadaji: Logical positivism, also called logical empiricism, a philosophical movement that arose in Vienna in the 1920s and was characterized by the view that scientific knowledge is the only kind of factual knowledge and that all traditional metaphysical doctrines are to be rejected as meaningless.

Pinku: What do you mean by metaphysics Dadaji?

Dadaji: Well! Meta means over and beyond. Hence, metaphysics mean over and beyond physics. Hence, I can conclude that those theories which may be true but not scientifically proven are called metaphysics.

Pinku: Ah! Now I understood so as per logical positivism, those that cannot be proved scientifically needs to be discarded is what this movement tried to prove correct Dadaji.



## Logic and assumptions go hand-in-hand

Dadaji: Exactly Pinku. This theory was not so famous and failed as this theory restricted exploration which is basis of our existence.

Pinku: Hmm... I understood Dadaji. Tell me one thing Dadaji: "How to develop logic?"

Dadaji: Well! Intelligence is a concept that involves logic. In order to develop logic we need to develop the logical part of our intelligence meaning you develop the power to perceive, interpret, record, and deduct of any kind of information in a particular pattern or sequence in order to "reach the right conclusion" which we call logic.

Pinku: What about solving puzzles or playing riddle Dadaji?

Dadaji: Absolutely, puzzles and riddles make your mind sharper and enhance your logical thinking. Good point there Dadaji.

Pinku: Thank you Dadaji. I heard my teachers talking about logical framework. What is that Dadaji?

Dadaji: I am sure they are doing some great project as this is the word used by those who are doing some sort of project. The logical

### Logical sense enhance Intelligence

framework or log frame is a document that gives an overview of the objectives, activities and resources of a project. It also provides information about external elements that may influence the project, called assumptions. Finally, it tells you how the project will be monitored, through the use of contents or indicators. I would not go into details but for your understanding I will make the framework simpler to you:

- ⇒ Step 1: Write the Goal: Write the goal of the project and how will you measure the performance.
- ⇒ Step 2: What is the Purpose: The purpose is expected outcome of project components.
- ⇒ Step 3: List the activities: The project tasks that deliver outputs.



## Logic cannot be the same for all

Step 4: What will be the components of objectives: The components of objectives are expected outcome from each output

Step 5: What outputs are you expecting:  
The direct results

Pinku: Oh you are trying to explain here that building a sequence through a project plan builds in logic of the project to reach specific objectives of the project.

Dadaji: You understood it correct. I also could not have explained you more better Pinku.

Pinku: Is everyone's logic unique?

Dadaji: Well! If you want to reach USA from here, do you think there is a unique route available?

Pinku: No Dadaji there are several routes to reach USA.

Dadaji: Exactly, I call each of the routes as interpretations. Each person has one's own interpretation and hence, logic cannot be unique to all. But there are certain routes which are unique e.g. a tunnel or a subway built connecting two places. Similarly, to

### Situations gets changed by applying logic

understand, interpret and draw conclusions for certain tasks/problems, you will have unique route/solution too.

Pinku: Ah! So application of logic depends on the situation correct Dadaji?

Dadaji: Yes you can say so but not always. What I mean to say is you can even change a situation by applying logic.

Pinku: Can you give an example Dadaji where you can change a situation by applying logic?

Dadaji: There is a very old and famous story around it. The story of two pebbles... Here it goes:

Many years ago in a small Indian village, a farmer had the misfortune of owing a large sum of money to a village moneylender. The moneylender, who was old and ugly, fancied the farmer's beautiful daughter. So he proposed a bargain. He said he would forgo the farmer's debt if he could marry his daughter.



## Logic can win challenges

Both the farmer and his daughter were horrified by the proposal. So the cunning moneylender suggested that they let providence decide the matter. He told them that he would put a black pebble and a white pebble into an empty money bag. Then the girl would have to pick one pebble from the bag. If she picked the black pebble, she would become his wife and her father's debt would be forgiven. If she picked the white pebble she need not marry him and her father's debt would still be forgiven. If she refused to pick a pebble, her father would be thrown into jail. They were standing on a pebble strewn path in the farmer's field. As they talked, the moneylender bent over to pick up two pebbles. As he picked them up, the sharp-eyed girl noticed that he had picked up two black pebbles and put them into the bag. He then asked the girl to pick a pebble from the bag. What the girl must have done it will astonish you Pinku.

Pinku: Hmm... interesting. What did the girl do?

Dadaji: The girl put her hand into the money bag and drew out a pebble. Without looking at

### Logic can beat any disadvantageous situation

it, she fumbled and let it fall onto the pebble-strewn path where it immediately became lost among all the other pebbles. "Oh, how clumsy of me!" she said. "But never mind, if you look into the bag for the one that is left, you will be able to tell which pebble I picked." The moneylender dared not admit his dishonesty. The girl changed what seemed an impossible situation into an extremely advantageous one using the power of logic.

Pinku: That was a good story Dadaji. What do you mean by propositional logic and how it can help us Dadaji?

Dadaji: A proposition is a statement that can be either true or false; it must be one or the other, and it cannot be both. We use propositions to arrive at logic especially in the field of Information Technology (/IT).

Pinku: Can you give me an example Dadaji?



## Logic brings completeness

Dadaji: Well! I am also not so expert at it but still let's see a proposition statement:

⇒ The generator is on

⇒ Ron secured first in class.

These statements are propositions meaning either they are true or false and cannot be both. Now let's check few statements which are not propositions:

" $x = x$ "

The above statement is not a proposition because we don't know what "x" represents. It is like telling air is equal to air where we don't know what exactly it mean whether we are talking just of the mass of air or "air in atmosphere" or "air in a jar".

As you have now understood what is proposition statement let's try and understand propositional logic. Based on propositions; logical structures are built which can work a code in programming for computers. In mathematics also it has relevance for example, a statement is not accepted as valid or correct unless it is accompanied by a proof. A proof is an argument from hypotheses (assumptions) to a

Logical sense is always approaching perfection

conclusion. Each step of the argument follows the laws of propositional logic. Logic doesn't study whether propositions are true; it only studies whether conclusions derived from certain propositions are true if the propositions themselves are true. It's a bit complex to understand but I think I made some sense to you at least Pinku.

Pinku: Yes Dadaji it did! Tell me what is the measure Logic Dadaji?

Dadaji: Well! There is no measure of logic. However, logic should have three things: consistency (which means that none of the theorems contradict one another); soundness (which means that the rules of proof will never allow a false inference from a true premise); and completeness (No other argument can prove that the truth in an argument is not a truth). In short, logic is a conclusion which cannot be false.



## Logic provides added advantage

Pinku: I like the closing note Dadaji “logic is a conclusion which cannot be false”. Can you test anyone's logical powers they possess?

Dadaji: Yes you can they are called logical reasoning tests (also known as critical reasoning tests) designed to assess one’s ability and skills such as how to interpret patterns, number sequences or the relationships between shapes, diagrammatic tests, abstract reasoning tests and inductive reasoning tests. There are also verbal versions of logical reasoning tests.

Pinku: Hmm... got it Dadaji. It’s time for me to get ready to school. See you in the evening and thanks for all your knowledge sharing with me.

Dadaji: Ok! Go get ready to school. I will see in the evening bye.

Logic and Life  
Goes hand in hand

Logic is science of  
reasoning

Thank You

