Discover what it means to know!

Cogito

Cogito Ergo Sum!

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We have heard the word “Know” several times in our lives, but what does it truly mean to know something? We have a natural instinct to understand what we and others “know” or “don’t know”. For example, we may know that it is true that earth is round and that it revolves around the sun.

But how do we know if this is the truth? What is the difference between knowing that something is true from just thinking that it is true. We often encounter claims made by people for which we may or may not have evidence for; how do we differentiate between what is true and what is not in these cases.

Cogito is our journey where I and Ankit end up writing this book on our conversations when we were exploring how do we know the truth of something.

-Cogito
- Ankit and Ankita
Cogito Ergo Sum!  Cogito Ergo Sum!
Hey Ankit, I was thinking something!

Do you ever stop thinking Ankit? Why are you so brainy?

hahaha! Well Ankit, we think all the time. Even when we are asleep, we are thinking!

Does everyone think equally intelligently?

Well, a well trained mind can definitely think better!

And how does one do that?

We will have to train our mind to think more intelligently!

More scientifically, logically, analytically and critically

I have an idea!

Let's write a book on it!

What?

It could be called - "COGITO," which means Thinking in Latin language! Cool right?

Sounds interesting! Perfect to explain how and why thinking is important! Shall we begin?

But I don't know where to start from!

You know what!....

...I have a puzzle for you. Let's see how you think about this puzzle!

!!

Look at this....
If all of the statements are true, where is the gold?

Chest 1: The gold is not in 2
Chest 2: The gold is in 1 or 3
Chest 3: The gold is not in here

hmmm....

Is the gold in chest no 1 ??

Yes! But how did you come to this answer?

See! If statement 1 is true, then gold can not be in chest 2.

Similarly, if the statement 2 is right, the gold can not be in chest 3!

Hence, the gold must be in chest 3!
What you just did is called analysis!

You took a problem and broke it into multiple steps!

hmmm... broke into multiple steps! Interesting.

Then looked at all the evidences, presented arguments and came to a conclusion!

hmmm...

You know what! I should write down all that you are saying.

Sure!

1. breaking into steps
2. analysing all the evidence
3. presenting arguments
4. coming to a conclusion

Hey, I think I know what should be your first chapter!

It should be called - Arguments!

Interesting!
The walk
Do you want to go for a walk? I think better when I walk and think...

Sure thing! So I was saying...

... Hey... Not that way! Are you not paying attention?

Oh sorry, I got lost in my thinking...

You were saying something about our first chapter - Fake news...

Yes... You know there was this newspaper article I read once...

... which claims that Wright brothers were not the first one to fly the plane

What?

And what is... "Claim"

I know it is a little shocking....

... And I did not question if it is true or not and told some of my friends

Hey! Wait!

Phew... Oh! God. I should start exercising, I used to run at one point of time... and now I am panting after a short run...

... And they thought... I was lying... So they started asking me questions...

WRIGHT BROS NOT FIRST TO FLY
WRIGHT BROS NOT FIRST TO FLY

Wilbur and Orville Wright make history at Kitty Hawk, USA, December 1903. Or did they?

Many aviation experts and historians now believe that German-born Gustave Whitehead – seen here with his aeroplane ‘No. 21’ – beat the Wright brothers into the sky by as much as two or even three years.

In a 1935 article in the magazine Popular Aviation, and a book published two years later, author and historian Stella Randolf tells of a steam-powered flight made by Whitehead in 1899, in Pittsburg, and of signed affidavits from 20 witnesses. One was Louis Daravich, stating that he was present and accompanied Whitehead on his flight. Randolf tells of two more flights, in 1901 in a plane that Whitehead named ‘No. 21’, and another in the following year in ‘No. 22’.

A headline from the New York Herald, dated August 19, 1901 read: ‘Gustave Whitehead travels half a mile in flying machine . . .’, and quoted a witness who affirmed: ‘The machine worked perfectly, and the operator had no problem handling it.’

Whitehead was a poor German immigrant to the United States, whose voice was easy to drown out in the debates that followed. The Wrights, by comparison, had influential friends and supporters. The prestigious Smithsonian Institute for Science, in return for ownership of the Flyer, agreed not to publish or exhibit anything referring to flights before 1903. The question we should be asking is: Why?

The jury is not so much out. The jury has gone home, and the case is closed. History suggests it is time to reopen it.

Jacey Dare

Gustave Whitehead, pictured with his aeroplane ‘No. 21’, and his daughter and assistants
You asked what a claim is?

You see, newspaper articles, WhatsApp messages and news are all created by authors.

The case that author is building is called - Claim.

For example, in the article about Wright brothers... Author claims that - “Wright Brothers were not the first humans to fly an aeroplane, someone else was!”

Exactly! Now to analyse if the article, text message or any other material is a claim...

...you first need to find what the author is saying!

And then look for evidence, supporting arguments and data if there are any!

For example, in this article...

Wright Bros NOT First to Fly!

Wilbur and Orville Wright make history at Kitty Hawk, USA, December 1903. Or did they?

Many aviation experts and historians now believe that German-born Gustave Whitehead - seen here with his aeroplane ‘No. 21’ - beat the Wright brothers into the sky by as much as two or even three years.

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The jury is not so sure. The jury has gone home. The case is closed. His lordship suggests it is time to reopen it.
First argument: There are people who believe that Whitehead flew planes successfully before 1903.

German-born Gustave Whitehead — seen here with his aeroplane 'No. 21' — beat the Wright brothers into the sky by as much as two or even three years.

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For example,...

Second argument: It is also true that Stella Randolf wrote books and articles in which she refers to numerous witnesses giving signed statements that they saw Whitehead flying.

Third argument: There is another magazine article which mentions a steam powered flight by him.

If all these claims are so believable, is the headline believable too?

Fourth argument: There really was a story in the New York Herald in 1901, reporting a half-mile flight by Whitehead, and quoting a witness as saying that the plane 'worked perfectly'.

Fifth argument: The photograph of Whitehead with his 'No. 21' is understood to be genuine, and no one disputes that Whitehead built this aircraft.

Umm... Yes?!
No!

You see, first argument itself doesn't tell us that Whitehead was the first person to fly an aeroplane.

Neither does second argument nor third or fourth or fifth. No single argument supports the claim.

But together they all seems to carry some weight!

However, that is an illusion! Even together the evidence is not sufficient.

Not one of the claims is a first-hand record of a confirmed and dated Whitehead flight pre-1903. All the evidence consists of is a list of people who said that Whitehead flew.

And all that second argument tells us is that Louis Daravich said that he flew with Whitehead.

Exactly! So what is the conclusion here?

Any one can make that claim!

That this article is likely to be a fake news!
And how did you think about that?

I read the claim... analysed the arguments... looked at all the evidences and formed a conclusion.

Yes. You just learned how to think critically... at least a little bit of it!

You see! once you start thinking critically, you just cannot think any other way!!

... This is thinking like a lawyer!... My lord!!

... all the evidences suggest that my client is not guilty!

Hahahaha...

I am sure!

But I want to think like a lawyer!

How can I do that?

Hahahaha...

Hahahaha...

Meanwhile, Why don't you try this problem? And then let's talk about the second chapter of your book - 'Problem Solving'. One of the best thinking skills to learn!

Lol... You know how to think much more than I do! This is our book.

Also... where do you want to go tomorrow?

.... Let's go to Africa!
Let’s go anywhere
You know who is the best teacher? Experience!

How so?

My father travels a lot for work. I go to new places, meet a lot of people and these experiences have taught me so much!

Let me take you to the park in Africa where my father took me to, once this plane lands...

This is the park in Africa that my father took me to!

That is so cool!

He once told me that, A mind that is stretched by a new experience...

... can never go back to its old dimensions.

Coming back to our discussion, What you just said about mind is called a claim.

Yes! a claim or assertion is an expression that is supposedly true.

Claim?

Supposedly true?

Yes! Yes! Supposedly true because not all claims or assertions are true!

Yes! Supposedly true because not all claims or assertions are true!

I am a little confused...

Yes! a claim or assertion is an expression that is supposedly true.

Yes! Supposedly true because not all claims or assertions are true!

I am a little confused...

Okay! Let's think about this problem!
All the three sentences below are claims. How are they different?

1. Angola shares a border with Namibia
2. The dinosaurs were cold-blooded
3. Top bankers earn too much money

What do you think! What are these sentences?
Well they are statements.

Yes! But do they express something? mmm... I think yes!
The first sentence says - “Angola shares a border with Namibia”

Which means that whoever wrote these sentences wants to say that Angola and Namibia are side by side and...

there is a border common to both the countries

Exactly! So each of the three things that you read, are called Sentences

And each of these sentences ‘Claim’ something

For example, the first sentence claims that Angola shares a border with Namibia! Now that could be true or that could be false

These sentences are called statements
But how do you know if a statement is true or not?

If you just look at this map you can see that Angola shares a border with Namibia.

Which means that first statement is - True.

And such statements are called facts.

Like earth is round!

Yes! Hence, you can say that Angola shares a border with Namibia... is a fact.

Now look at the other sentence!

Do you mean statement?

Good catch! I mean Statements.

Now look at other statements and think what do they claim?

Well... this statement that "Angola shares a border with Namibia" claims that both the countries are immediate neighbours.

Correct... What about: The dinosaurs were cold-blooded!

I think it claims that dinosaurs couldn't control their body temperature?

I don't know! I guess I will read some books?

Yes! But how do we check if this is true or not?
Yes! That's a good start... But let me end the surprise for you.

You see, dinosaurs lived thousands of years ago on earth...

... it is not possible to conduct any experiment and find if dinosaurs were cold-blooded animals or not...

... So there are some scientists who claim that dinosaurs were cold-blooded.

Some scientists say that dinosaurs were not cold-blooded...

Huh!

Since, there is no way to really know what is the truth...

the best we can say about claim is that it is a belief (or judgement or opinion).

Yes! Let's talk about belief judgements and opinions in sometime.

A belief?

Okay...

What about statement 3?

Well...

To me it looks like a fact!

My uncle is a bank manager...

...and he is very rich!
It can be ‘true’ in your opinion at the same time as being ‘false’ in someone else’s opinion.

Interesting!

There is another kind of claim called Prediction.

Oh yes! I have seen some people on TV and in real life who claim to predict your future.

Yes. Now if I say — "There’s going to be a storm in the next 24 hours"...

I don’t know for sure if it will happen... but I am predicting it...

So how do we know if a prediction is true or not before it happens?

You cannot. For example, if we wait for 24 hours and there is a storm, then you can say that prediction was right!

So should I believe in the prediction or not?

Okay, let’s take a simple example... Suppose we both are playing ludo and I say — "I am going to win"...

You see even when a claim cannot be made with 100% guarantee you can always calculate its chance.

I am confused!

Do you think my claim is right?

Of course not! I am the undefeated champion of Ludo.
Who do you think will win the game?

Well... I don't lose and hence I must win!

hahaha... and how did you come to that conclusion?

Not really! You see, I need to get 5 on my dice to win...

And I need just 4 on my dice to win.

hmmm... and I thought probability was useless...

Probability of me getting 5 on my dice...

... is really the same as probability of you getting 4 on your dice!

P (getting 5 on dice) = 1/6

P (getting 4 on dice) = 1/6

Oh! WOW! So your claim is neither true nor false, but it's an opinion

Hahaha... Yes! It is my opinion that I will win.

Even when a claim cannot be made with certainty, it can often be made with some degree of probability.

Strictly speaking, many of the claims that scientists treat as fact....

Got it!
But even if these claims sound very accurate predictions...

they should be treated as probabilities...

Such claims are called hypotheses...

For example, think about a dart and a can...

I claim that if dart and a soda can are dropped simultaneously from an equal height...

the dart will land first!!

But gravity??

We know that air resistance will be lower on the dart and hence it will land first...

Now this experiment has been repeated so many times that we know the outcome for sure...

Even then it is more accurate to say that it is a hypothesis and not a fact!

Okay, so you are saying that....

A sentence, could be a statement...
A statement could be either a fact or a claim...

Claims can be true, false, justified or unjustified.

Another kind of claim is prediction which could be calculated as probabilities.

That marks the end of second section of our book!

Hahaha... Well, that is a justified claim.

But what if some claims are true and people don’t accept it? What about that?

Well! Let’s go to the museum and I will show you how to judge a claim!

Sounds like a plan!
Hold your judgement
Ankita, why do people not believe in the correct claims all the time?

Do you remember the story where a wolf comes to a village and a boy shouts that there is a wolf?

But no one comes to his help and he dies! No question that he lied a few times earlier by shouting "Wolf! Wolf!" to scare the villagers but this time he was right!

You see, the boy lost his credibility and hence no one believed him!

Credibility??

Yes... How much you can trust something or someone is called credibility...

The boy would cry "Wolf!!" everyday when there was no Wolf...

Once people lost their faith in what he is saying, people did not believe him when the wolf actually came!

So moral of the story is that we should speak the truth.

Infact more than that...

You see, people need to be able to rely on what they are told most of the time...

...and people who speak the truth need others to believe them most of the time.

But that does not mean we should accept everything we read and hear blindly!

Are you saying people are generally bad?

That they want to lie to people?
No! See, sometimes we make wrong claims out of carelessness in our thinking nothing else...

If I should neither doubt, nor rely blindly, I will have to judge all the claims!

So how do I judge arguments?

Okay, let’s take an example...

There are two facts that is often cited in support of the claim that...

...pre-historic dinosaurs were cold-blooded...

One, that dinosaurs were reptiles

Second, modern day reptiles e.g. snakes and lizards are all cold-blooded.

But doesn't that seem logical?

Dinosaurs were reptiles and modern day reptiles are cold blooded. Hence, dinosaurs must be cold blooded!

Well, if you know nothing about dinosaurs, or reptiles or evolution, this may look fine... but this is at best a hypothesis.

For example, if you say this statement is true, it would mean, what is true for reptiles must be true of reptiles 70 million years ago, and earlier.
It is not impossible that there actually were some warm-blooded dinosaurs...

... and they existed with cold-blooded dinosaurs

and that these reptiles became extinct, leaving only the cold-blooded species surviving today...

Because this is a possibility, we cannot assume that it is false! And we must question the assumptions of the claim. Although, that would not make it necessarily false!

What?! But weren't we supposed to find the truth?

Yes, yes! But when you can't know for sure what the truth is, you must judge the claim and see if it is justified or not.

Let us suppose that Ketan just returned from a training run of 42 km and announced to his friends:

"I just ran a marathon"

Do you think his claim is justified given that it is so close to the truth?

Now think about this...

Strictly speaking, it is untrue...

But isn't 42 km the length of a marathon run? So he must be true!

Strictly speaking, a marathon is 42.2 km so Ketan wasn't right!
What do you think about these claims?

1. Ketan just ran a marathon and completed the distance in under four hours.
2. The dinosaurs were reptiles, yet they were warm-blooded.
3. Sea levels are rising around the world because global warming is melting the polar ice caps.
4. Many parts of the world will soon be submerged if nothing is done to reverse climate change.

For one! I think there are two claims in each claim... they are a little complicated!

Lol...These are actually called complex claims

I think the first one is true, second one is false...

Wait a second, are you just taking a guess?

Hey! wait! She caught me!
It is not as difficult to judge as it may seem.

In complex claims, you have to look at what is connecting the sentence.

For example, in the first claim, the two claims are connected with 'and'.

What do you think about these claims?

1. Ketan just ran a marathon and completed the distance in under four hours.

2. The dinosaurs were reptiles, yet they were warm-blooded.

3. Sea levels are rising around the world because global warming is melting the polar ice caps.

4. Many parts of the world will soon be submerged if nothing is done to reverse climate change.

Similarly, second claim has connectives - 'yet', for third claim has 'because' and forth claim has - 4?

Oh yes! I can see that.

Yes. Now let's take the first one...

If Ketan just ran a marathon and that Ketan did ran it in under 4 hours, the claim is justified.

But...if any part of the claim is not true, then the whole claim is unjustified.

Why don't you try others?

Okay, I have a claim to make here!

Analysis of these arguments are given at the end of book.
"Women are better at making arguments than men."

Thank you so much. Although, this is a strong claim because you are claiming about all men and women.

It is especially strong if it is taken literally to mean that.

All women are better at problem solving than all men.

This is a weak claim because all I need is one man who is better than another woman to prove that this claim is false.

Those kind of claims are called generalizations.

Similarly, one can have a particular claim… opposite of generalisation.

This would be a particular claim because we are talking very specifically about the women in that team and no other woman.

Wow! You just blew my mind!!!

hahaha… Ankit, wait for the final chapter of our book and you will be amazed!

We will see some more complicated sentences!
Out of the world
Look how beautiful earth looks from above!

Yes Ankita, this space simulation looks so real!

You know Ankita... a few hundred years ago, it was believed that the world was flat.

What?? But Ankita couldn't they look at the images of earth?

There were no images of earth! But some people did argue that earth was not flat!

How did they guess that?

Well, they were very observant...

... and based on their experience they created a hypothesis.

You see a major mode of transportation in earlier times was through ships...

... and they observed how ships looked like when the ship sailed far away.

and some people argued that....

If earth was flat, then one would see the ship getting smaller and smaller would not be seen after sometime.

But instead what they noticed is that ships appeared to sink after instead of getting smaller.
This is the argument they proposed.

Oh! That makes sense.

hmm.. Arguments are really powerful.

Yes! can you explain a little more about arguments?

Absolutely!

Arguments are easier to find if the reason is given in the sentence...

How do I find if reason is mentioned in the sentence?

You have to look for words like 'therefore', 'so', 'since', 'because'.

Take this for example...

Do you think the statement below is an argument?

Photographs from space show the Earth’s surface as curved. The curvature does not show when a photograph is taken from ground level.

I think it is!

It may look like, but it is not!

Then how do I test if something is an argument or not?

You could apply a 'therefore/so' test to see if a sentence is an argument.
and see if that sentence is actually an argument or not.

It is called the "therefore/so" test...

You can put a 'therefore' or 'so' between the two claims in the sentence and see if it makes sense.

If I apply the test, photographs from space show the Earth's surface as curved. Therefore the curvature does not show when a photograph is taken from ground level. So photographs from space show the Earth's surface as curved.

Neither of the two makes sense!

Yes, and hence, it is not an argument!

We can apply the same method as many logicians have applied for centuries.

For example, look at this argument...

...and we will try to analyse this.

Analyse this argument and see if this is justified?

The train doesn't leave until 4.24, but it can take up to 40 minutes to get to the station, if the traffic's bad. It's 3.30 now. We need to leave for the station within ten minutes to be sure of catching the train.

If you read this carefully, you can break this into multiple arguments.
Here there are two reasons mentioned:

- The time of the train's departure and the possibility of a 40-min journey to the station
- If they both are true then clearly they justify the conclusion

The structure of the argument look like this... since the whole argument depends on these 3 reasons... they are called premise.

In the case of R3, for instance, the inference that rail travel makes more sense is made on the grounds that trains take passengers right into a city center unlike planes...

nor other two premise on this...

So, even if one of the premise is wrong... you can argue that rail travels makes more sense on the basis of lower emission (R1) and less stress (R2)

to think arguments clearly, you can break it down the arguments in to reasons and conclusions

it's standard form can be represented as R1, R2, R3, R4 / C.

Oh wow! I can think very clearly now and must question everything that I see in this structure.

Yes! Although, don't start from being sceptical.
If we use ‘R’ for reason and ‘C’ conclusion we can say that all arguments have the form:

\[ R_1, R_2, R_3, \ldots, R_n / C \]

The reason and conclusion in a standard argument are all \textit{claims}. In theory there is no limit to the number of reasons that can be given for a conclusion.

Take for example

The train doesn’t leave until 4.24, but it can take up to 40 minutes to get to the station, if the traffic’s bad. It’s 3.30 now. We need to leave for the station within ten minutes to be sure of catching the train.

It would look like this in its standard form

\begin{align*}
R_1 & \quad \text{The train leaves at 4.24.} \\
R_2 & \quad \text{It can take 40 minutes to get to the station.} \\
R_3 & \quad \text{It’s 3.30 now.} \\
\hline
C & \quad \text{We need to set off within ten minutes to be sure of catching the train}
\end{align*}
Shapes and structure
But rest assured, you will know where we are going!

You know, I have been thinking for a while about that story...

WRIGHT BROS NOT FIRST TO FLY

And I was thinking if there is a better way to analyse the arguments

... of Wright brothers...

Of course there is!

You see the Logicians, who are professional mathematicians...

... They have been using these techniques

Short-range flights may have become cheap, but rail travel makes a lot more sense. Flying is responsible for ten times the carbon emissions of rail travel per passenger/Km, and twice as much stress. What is more, trains take you to the heart of a city, not to some far-flung airport.
A more formal way of analysing these arguments is... ...is to breakdown all the arguments as reasons and conclusions.

You remember what argument and reason are from previous sections?

Yes! Argument is a set of reasons given to support an idea!

While reasons are explanations of an action or support to an idea!

So in a formal analysis, we breakdown all the arguments as symbols and analyze the argument!

If we use 'R' for reasons and 'C' for conclusions then standard form of any argument will be

R1, R2, R3.../ C

If you draw connections, you will see the shape of the argument.

This shape of the argument also called the structure of argument, shows relationship between reasons and conclusions.

R1 Flying is responsible for ten times the carbon emissions of rail travel.

R2 Flying is twice as stressful (as rail travel).

R3 Trains take you to the heart of a city, not to some far-flung airport.

C Rail travel makes a lot more sense than short-range flights.
If you want to represent the structure of the argument diagrammatically it would look like this:

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R1  R2  R3
  
C
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Think of it as a series of cues that add up to an argument.

Sometimes a single reason can be sufficient and sometimes you need more reasons to arrive at a conclusion!

You can have intermediate conclusions which can support final conclusion as well. All this will be clear if you understand the structure. For example,

Do you think, R1, flying is responsible for 10 times carbon emission that of railway

and R2, flying is twice as stressful as rail travel... depend on each other?

I don't think so. But it lends support to conclusion

Yes! That's why the shape of the argument is like this...

You know! I never thought you can look at written piece of text in such a way!
Rajinder cannot be trusted to keep a secret. He was the only person apart from me who knew about Jai and Jheel getting engaged. I haven’t said a word to anyone, yet now the news is all round the college. And he spread another story about Jheel that I told him in confidence.

R1
R2
R3
R4

C

Try to draw the structure of the argument and see if you find the structure to be like this

R1 & R2 & R3

R4 → C
Consider the following report in a local newspaper:

Doctors investigating an outbreak of suspected virus discovered that four of the people who had reported sick had eaten at the fish restaurant the day before; and all had eaten fish. Any establishment that is found to be responsible for food-related sickness will be closed by the authorities and not permitted to reopen until it has been given a certificate of fitness from hygiene inspectors. Today the fish restaurant is closed.

Can any of the following claims safely or reliably be inferred from the passage above?

A) The source of the outbreak of food poisoning was the fish restaurant.

B) Fish was the cause of the outbreak.

C) The has been closed down by the inspectors.
According to the passage we have three facts:

1. Four people who reported sick had recently eaten at the restaurant.
2. Any establishment responsible for food-related sickness is closed by the authorities.
3. The restaurant is closed (today).

Yes! You are absolutely correct!

So between them, do they justify any claim?

Although, there is a suspected link between restaurant and people getting sick

I can not say for sure if restaurant was responsible for sickness

I can not say for sure if restaurant was responsible for sickness

Other than that they ate at the restaurant

Yes!!

And why you can't conclude that?

Well, its possible that there were other connections between them

They could be friends who shared food and drinks besides the meal at restaurant

Nor we are told if there were others who were sick besides the four mentioned!

There may have been others who fell sick but did not report their illness
Similarly, we don't know if fish was the reason for sickness.

We are not told if all four who fell sick did not eat anything other than fish.

They could have very well eaten something else, a side dish, sauce, contaminated water, etc...

There could be many reasons other than fish that may have caused this... probably lack of hygiene in the kitchen.

Nor is it safe to infer that inspector closed the restaurant.

The statement in the newspaper that restaurants found responsible for food-related sickness have to close is actually irrelevant.

It does not mean that because a restaurant closes it is responsible for the sickness.

Many restaurants close on one or more days of the week.

Today may be the chef's day off. Many explanations for the closure are possible besides the seemingly obvious one, that it was closed because of food poisoning.

That makes perfect sense!

We are finally here!

You know why we are in France?

I actually don't!
The beginning
France has a lot of famous mathematicians.

Just like India?

Are we here to learn some math?

No! Don't assume.

Although, I have been thinking, if what we are learning is useful to me in daily life!

That's a good question!

What we are learning is "how to think."

You should use this to form opinion in your life.

Let's take an example of your favorite activity.

Video games.

Look at data! Do you think computer games contribute to violence?

Yes! I mean there are so many shooting games.

Hold on! Think for a second!

That children play! I am won't be surprised if violence is increasing due to them.
Would the data in the two graphs below support the conclusion that computer games contribute to violence?

Levels of reported assault (Police Dept)

Quarterly downloads of new computer games from one online supplier

The conclusion is very general whereas the data in the graphs concerns one city and one online supplier.

Even if we take from the graph that more the number of games more the violence...

There is no basis to say that games are causing the violence.

Now, do you want to tell me why we are here?

You must be thinking how what is the story of cogito

You see, it is based on a very famous argument made by a French mathematician!
René Descartes (1596 - 1650)

I wanted to title this book cogito based on his very famous quote

How do you know you are alive? How do I know I am alive?

We think! which is a proof that we are alive. We think, therefore we are!

Yes! Cogito Ergo Sum!
Analysis of arguments

Following is the analysis of arguments given in section “hold your judgement”

**Argument 2:** The dinosaurs were reptiles, yet they were warm-blooded.

**Analysis:** The connective is ‘yet’ and the two connected claims both have to be true for the argument to be true. Firstly that dinosaurs were reptiles, and secondly that they had warm blood. But the use of the connective ‘yet’ also suggests that there is something surprising or unusual in this: that the second claim is true despite the first being true. The implication is that reptiles are usually, or normally, cold-blooded; and if this is not the case then the use of ‘yet’ is not really justified, even if both the claims are true in themselves.

**Argument 3:** Sea levels are rising around the world because global warming is melting the polar ice caps.

**Analysis:** This argument has two claims connected by ‘because’. The author not only asserts that the seal levels are rising and that global warming is causing melting of the polar ice, but also that the sea level is rising because of polar ice cap melting. If all these three conditions are true i.e. two claims and that the first claim is causing the second claim then the argument is sound.
Analysis of arguments

Argument 4: Many parts of the world will soon be submerged if nothing is done to reverse climate change.

Analysis: The connective in this argument is 'if'. First of all it is not claiming either that parts of the world will soon be under water, or that nothing will be done about climate change. Since, the connective is 'if', it indicates that one argument is true, then the other argument also must be true. For instance, if nothing is done, about climate change, then parts of the world will be underwater. If nothing is done and the prediction turns out a false alarm, then the argument as a whole is untrue.
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We acknowledge the work done by Mr. John Butterworth and Mr. Geoff Thwaites on critical thinking through their book – Thinking Skills (Critical Thinking and Problem Solving)
This book has been a big source of inspiration for Cogito
Additional resources

Readings

1. Introduction to Logic and Critical Thinking, Matthew J. Van Cleave

2. The basic concepts of Logic, University of Massachusetts

Videos

1. TED-Ed - Riddles
2. 5 tips to improve critical thinking

We thank all the contributors for making the above resources available on the internet.