The P vs. NP problem

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Abstract: *A different approach to understanding Artificial Intelligence is to examine to solve the problem. At a high level Artificial Intelligence generally considered a subfield of computer science. In mathematics and computer science, an algorithm is a sequence of instructions, typically to solve a class of problems or perform a computation. Algorithms are unambiguous specifications for performing calculations, data processing, automated reasoning, and other tasks. The idea of VBA editor is a very powerful tool to solve this millennium problem by a macro recording in computer science.*
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I. Introduction

NP – complete is a subset of NP, the set of all decision problems whose solutions can be verified in polynomial time; NP may be equivalently defined as the set of decision problems solved in polynomial time on a machine.

The P v NP problem is a major unsolved problem in computer science; it asks whether every problem in computer science whose solution can be quickly verified can also be solved quickly.

The Problem – The P v NP problem asks whether every problem whose solution can be quickly verified by a computer can also be quickly solved by a computer.

So let's figure out what we mean by P and NP.

P problems are easily solved by computers and NP problems are not easily solvable, but if you present a potential solution it's easy to verify whether it's correct or not.

Let's consider, how many lines of code are in the Google program? What are the principles of Data Breach? What kind of this no. is document type? Forensic Science – How to identify Finger Prints, Special Identification Number, Crypto Currency, just to make breakfast, bake, go to the park.

If you really look today at the laws we have to protect the environment.

ALGORITHM – In mathematics and computer science, an algorithm is a sequence of instructions, typically to solve a class of problems or perform a computation. Algorithms are unambiguous specifications for performing calculation, data processing, automated reasoning, and other tasks.

AMBIGUITY is a type of meaning in which a phrase statement or resolution is not explicitly defined, making several interpretation plausible. A common aspect of ambiguity is uncertainty. It is thus an attribute of any idea or statement whose intended meaning cannot be definitively resolved according to a rule or process with a finite number of steps.

LAMBDA CALCULUS represents mathematical logic – The idea of functions accepting functions as arguments comes from Lambda Calculus.
✓   The Lambda Calculus is the formal foundation on which functional programming is built.
✓   The Lambda calculus is a term rewriting system, and a reduction means following a rewrite run
✓   The Lambda Calculus does not dictate a specific order of evaluation, so given a Lambda expression where multiple reductions are possible, the **Church – Roser theorem** says that you can pick either one. This gives functional programming language designers quite a lot of freedom to design their evaluation semantics.
For Example, in f(g,x), assuming both are pure functions, whether you reduce f or g first are equivalent.

LOGIC GATES (Digital Circuits) are the basic building blocks of any digital system. It is an electronic circuit having one or more than one input and the output is based on certain logic. Based on this, logic gates are named as And gate, OR gate, NOT gate etc.

II. Proof

A macro in computer science is a rule or pattern that specifies how a certain input sequence should be mapped to a replacement output sequence according to a defined procedure. The mapping process that instantiates a macro use into a specific sequence is known as macro expansion. Put NP to add the numerator, and then count of NP. Take a test on AI, Smart Phones, etc.

We can solve this equation by
✓   **VBA**
✓   **DIGITAL INTELLIGENCE,**
✓   **E-MAIL AUTOMATION,**

     ✓ **ARTIFICIAL INTELLIGENCE,**
     ✓ **CYBER SECURITY,**
     ✓ **DATA PRIVACY**
     ✓ **AND ROBOTICS**

VBA – Excel's Visual Basic for application (VBA) editor is a very powerful tool. It lets you write and edit custom scripts that automate actions in Excel. In fact, when you record a macro it is stored in VBA code in the VBA editor. The P v NP problem is a major unsolved problem can solved in computer science by VBA automate actions in Excel, whose solution can be quickly verified can also be solved quickly.

A macro in computer science is a rule or pattern that specifies how a certain input sequence should be mapped to a replacement output sequence according to a defined procedure. The mapping process that instantiates a macro use into a specific sequence is known as macro expansion.

✓ A Macro a piece of code.
✓ Macros are written in programming language i.e. VBA
✓ VBA is Visual Basic for applications (Excel, Word, PowerPoint)
✓ VBA is editor in Excel, Word.

     For Example, assume you wanted to place your name and your company's information in the upper left cell of a worksheet. You could record a macro in Excel to save your keystrokes as you create it once and then run the macro in the future to repeat the exact same keystrokes you entered. This lets you instantaneously repeat the same process again. While you can see advanced options for creating macros on the "Developer" tab in the Ribbon if it is enabled, you can also use the "Macros" button group on the "View" tab in Ribbon to record a macro in Excel and playback basic macros.

✓ In mathematics and computer science, an algorithm is a sequence of instructions, typically to solve a class of problems or perform a computation. Algorithm is unambiguous specification for performing calculation, data processing, automated reasoning, and other tasks.
✓ Basic Excel formulas and functions Auto Sum, Trim, Proper, delaminate all are helpful to understand this.
✓ A Universally Unique Identifier is a 128-bit number used to identify information in computer systems. The term globally unique identifier (GUID) is also used, typically in software created by Microsoft. A UUID is generated by an algorithm with values that are based on a machine's network address. UUIDs are also part of the Tmodel data structure, which is a service type in the Universal Description Discovery and Integration (UDDI) registry used for Web service discovery.
✓ UUIDs also known as GUIDs. A UUID is 128 bits long, and can guarantee uniqueness across space and time. UUIDs were originally used in the Apollo Network Computing System and later in the Open Software Foundations (OSF) distributed computing environment, and then in Microsoft Windows Platforms.

DIGITAL INTELLIGENCE - Technology behind the Remote Connections, video calling, WhatsApp Messenger, Router, Domain, The MSN Messenger code displays a "thumbs up" emotion in the form of graphical representation, either in the form of an image or made cep of text characters of a particular face expression, all are good examples.

Let's take one example of Screen Sharing – HOW TO CONNECT WITH PC will be best example.

    I.   Allow remote connections
    II.   Enable server to accept remote connection
    III. Connect remotely desktop by chit chat app
    IV. Share screen with the sub- ordinate employees to ask and solve the queries instead of going on desk.
    V.   It can save time cost effectively.

EMAIL AUTOMATION - **What is email automation? Automated email, also referred to as triggered email or behavior-driven email, is any message automatically sent from your email service provider (ESP) in direct response to an individual user's specific actions made (or not made) on your website or web app.**

    IMAP & POP3 Server –

    IMAP – Internet Messaging Access Protocol. You can use multiple computers and devices to check your mail. Your mails are stored on the server. Sent mail stays on the server so you can see it from any device. POP3 – Post Office Protocol – You can use only one computer to check your email (no other devices). Your mails are stored on the computer that you use. Sent mail is stored locally on your PC, not on a mail server

ROBOTIC PROCESS AUTOMATION – **Robotic Process Automation** is the technology that allows anyone today to configure computer software, or a "robot" to emulate and integrate the actions of a human interacting within digital systems to execute a business process. RPA robots utilize the user interface to capture data and manipulate applications just like humans do. They interpret, trigger responses and communicate with other systems in order to perform on a vast variety of repetitive tasks. Only substantially better: an RPA software robot never sleeps, makes zero mistakes and costs a lot less than an employee. **Email Automation (IMAP & POP3 Server) – Automation Anywhere11.X ROBOTICS ARTIFICIAL INTELLIGENCE is the best example.**

Robotic – Mimic of human action, Process – Sequence of meaningful activity, Automation – Task happen without human action

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RPA can be applied for the automation of transactional rule based task where structure data and clear predefined rules and parameters are defined. RPA can be used to create invoice. It's advantage – Cost and time saving

Automation – Interaction with the host application uses OLE Automation – OLE Automation – In Microsoft Windows applications programming. OLE Automation (Later renamed to simply Automation is an inter – process communication mechanics created by Microsoft. It is based on a subset of component object model (COM) that was intended for use by scripting languages. Component object model is a binary interface standard for software component introduced by Microsoft in 1993.

INTEGRATED AUTOMATION PLATFORMS
RELATIVITY is the best example of **INTEGRATED AUTOMATION PLATFORM**
- For Ex - Integreon Managed Solutions, a LPO are WORKING on paralegal SOLUTIONS where they are doing document review using PLATFORM RELATIVITY - Button, Check button, Entry, Label, Frame, etc. in "Relativity" Platform.

FIRST LEVEL DOCUMENT REVIEW – The primary purpose of first level document review is to review documents and determine whether or not they have "responsive" or "non responsive" as they pertain to a specific legal case or issue. In essence, first level document review forms part of the discovery phase of litigation. It is performed prior to producing and after receiving documents pursuant to a legal "Request for production of documents". It is the initial review phase that helps narrow the document set to responsive and workable data for later, more senior review. The process and procedures of first level document review following by LPO in India. Typically in litigation, vast amounts – often numbering in the millions – of documents are routinely being reviewed by teams of law firm associates, contract attorneys and paralegal, in an effort to identify whether or not documents are:

- a. Relevant to the case at hand
- b. Confidential
- c. Privileged/protected, and
- d. Key or hot
- e. Confidential

First Level Document Review based on GUI Applications. GUI stands for Graphical User Interface. A GUI Application consists of many GUI components such as windows, dialogs, menus, text boxes, input fields, and other controls etc. While using a GUI application, when you perform an action, an event is generated. In event – driven programming, that most GUIs follow, the program responds to the events. Some examples of events are: clicking of mouse, pressing enter key, dragging using mouse and so forth.

To create a GUI application with tkinter you should do the following:
- Import the module tkinter with command: import tkinter
- Create a blank window by using method tkinter.Tk( ) :
  Wind1=tkinter.Tk( )
  Above method will create a GUI based blank window with close, maximize and minimize buttons.
  - Rename the title of the window using method title ( ) as :
    Wind1.title("New tittle of the window")
  - Next, you need to put various GUI components called tkinter widgets as per your requirement. Following list describes some common widgets that you may add to the main window called the root window or master window.

ARTIFICIAL INTELLIGENCE –
Artificial intelligence is an area of computer science that emphasizes the creation of intelligent machines that work and reacts like humans. Some of the activities computers with artificial intelligence are designed for include: Problem Solving.

An ability to identify patterns in streams of inputs, whereas learning with adequate supervision involves classification and numerical regressions.

Machine learning is also a core part of Artificial Intelligence. Mathematical analysis of machine learning algorithms and their performance is a well – defined branch of theoretical computer science often referred to as computational learning theory.

Robotics is also a major field related to AI. Robots require intelligence to handle tasks such as object manipulation and navigation, along with sub – problems of localization, motion planning and mapping.

The ideal characteristics of artificial intelligence are its ability to rationalize and take actions that have the best chance of achieving a specific goal.

The applications for intelligence are endless. The technology can be applied to many different sectors and industries.

Artificial Intelligence can be divided into two different categories: weak and strong. Weak artificial intelligence embodies a system designed to carry out one particular job. Weak AI systems include video games such as the chess example,

According to architect Christopher Alexander, the father of the pattern language movement in computer science, a pattern is a proven solution to a common problem in a specified context. Thus, each pattern is a three part – rule, which expresses a relation between a certain context, a problem and a solution.

WHAT IS DESIGN PATTERN?

Design patterns serve as tools to communicate ideas, solution and knowledge about commonly recurring design problems. User interface design patterns help designers and developers create the most effective and usable interface for a particular situation.

What is Communication Purpose?

The traditional grammar book provides information on accidence and syntax. Its sets out and describe the various parts of speech. It is often concerned with the historical development of the language. It teaches a good deal about the language but does not help the student in his efforts to use the language as a pattern. An analysis is given much attention towards the selections of vocabulary for use in their meanings. A little attention has been paid to the patterns or structures of the language. A knowledge of how to put words together is as important as, perhaps more important than, a knowledge of their meanings.

LET'S ASSUME GOD IS PLAYING GAME WITH ME AND THESE SEVEN PEOPLE

Pattern as a Role – Model

"A Light or Music in a New Life can be protected by Meditation and Prayer to reach the Star for Pride in King's Kingdom".

Provide one or more AI agents for the player to behave similarly to.

For Example above pattern based on below given names

1.	Swati	Star
2.	Guard	Protect
3.	Narinder	King, King's Kingdom
4.	Nabaneeta	A NEW LIFE
5.	Mala	Meditation and Prayer
6.	Gaurav	Pride
7.	Deepika -	Light, Music

Explanation – Artificial Intelligence techniques to date often demonstrate strongly patterned behavior that players come to predict: e.g. finite state machines follow fixed routines that can often be easily noticed. Rather than attempt to make agent behavior more unpredictable, this pattern leverages the behavioral rigidity of a technique to set a stage for the player to act on. Example: - Spy Party is a game where one player is a spy at a party populated by FSM agents and the opposing player is a sniper watching the party with a single shot to kill the spy.

PATTERN AS AI IS VISUALIZED

Let's take numbers KEY ID 74350905 from CICADA 3301.
1. **Here 7 means reality is often hidden behind the illusions.**
2. **Here 4 means with the energies of four direction.**
3. **Here 3 means a heart romantically involved each other.**
4. **Here 5 means when temptation is strong one will cheat another.**
5. **Here 0 means in central role.**
6. **Here 9 means perfect movement of God.**
7. **Here 0 means same as above.**
8. **Here 5 means divine will in dynamic way.**

Correct sequence of sentence will be –

A heart romantically involved with the energy of four directions but the reality is hidden behind the illusions, one will cheat another to accomplish divine will when temptation is strong in perfect movement of God in dynamic way. Provide a visual representation of the underlying AI state, making game play revolve around explicit manipulation of the AI state. Explanation – Many AI techniques revolve around an estimation of the value of actions or game states. Typically these values are hidden from players to promote the sense that an opposing AI agent possesses an intelligence motivating its actions. Visualizing the state of a system or agent enables game play as the system is now exposed as a potential obstacle to player progress.

Example – Third Eye Crime is a stealth game that illustrates this pattern by visualizing the guard AI position tracking and estimation system. Game involves avoiding guards or throwing distractions to manipulate the guard's predictions of player location. The direct visualization of AI state allows a designer to build a game around manipulating, understanding, and mentally modeling how the AI state changes.

Pattern as AI is guided as a Characters "6EQUJ5", distinguishing them from all the other 1s and 2s on the field of data.

6 E Q U J 5

Message behind these characters will be -

A priest of very high rank transfer the electronic data for information exchange via the Internet. The hypothetical source of the passages shared by the gospels united in names an organization of people with a common purpose or interest, who meet regularly and take part in shared activities. Energy, equal to the work done by a force of one

Newton when its point of application moves one meter in the direction of action of the force, equivalent to one 3600th of a watt-hour. A message from priest that huge changes are about to unfold in people's life. An elemental symbol within an agreed set of symbols, intended to represent a readable character for the purposes of writing.

Pattern: The player assists a simple or brittle AI agent that is threatened with self destruction.

Explanation: Many AI algorithms are brittle and likely to break unless constrained to highly limited environment rather than avoid exposing the AI to situations where its behavior would be detrimental, build game play around the player acting to avoid those situations. Game play then emphasizes players acting around the AI to protect it or directly acting to continually maintain the AI in the face of gradual degradation.

Example: The Sims addressed the problem of "human-like" agents in a social world by making game play revolve around the player addressing the needs of simple agents. By having players care for the AI, players come to at least indirectly.

Pattern as AI "Try to be an old angry man!" Facial expression recognition

Speaker,

"I exist" is logically true – 3814 – Exodus 3:14. Denoting the hypothetical source of the passages shared by the gospels of Matthew and Luke, but not found in mark. We should bring back people in describing card games and recording moves in a little internal rhyme from which people feels love and affection such as addressing their children and lovers addressing each other.

Explanation: In games developed around players overcoming opposition the AI agents. AI being a character in the game world, it is an actor attempting to create an experience for the player while maintaining a façade of being a character.

Example: Alien: Isolation is a first-person survival horror game where the opposing alien was designated to harass the player without using an optimal strategy that would always kill the player directly.

1. Let's take numbers like 74350905 from CICADA 3301
2. Here 7 means reality is often hidden behind the illusions.
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A heart romantically involved with the energy of four directions but the reality is hidden behind the illusions, one will cheat another to accomplish divine will when temptation is strong in perfect movement of God in dynamic way.

INTEGER (INT) – An integer, in the context of computer programming, is a data type used to represent real numbers that do not have fractional values. The use of integers as variables supports programming in various ways, For instance, a common strategy is to create an integer variable and store some value in it that will influence computations or calculations made within the program. Another core use of an integer data type is represented in code loops such as "while" statements. For Example, a programmer can set up an integer value named "int" where int=1. Code can include the command "int = int+1", which will increase the value incrementally. The programmer can add additional commands for outcomes where the value reaches a certain critical point.

✓ Rule: The sum of any integer and its opposite is equal to zero. Summary: Adding two positive integers always yields a positive sum; adding two negative integers always yields a negative sum. To find the sum of a positive and a negative integer, take the absolute value of each integer and then subtract these values.

✓ An integer is a whole number (not a fraction) that can be positive, negative or zero.

✓ When two integers are added, subtracted, or multiplied, the result is also an integer. However, when one integer is divided into another, the result may be an integer or a fraction. For example, 6 divided by 3 equals 2, which is an integer, but 6 divided by 4 equals 1.5, which contains a fraction. Decimal numbers may either be rounded or truncated to produce an integer result.

✓ Integers can be thought of as discrete, equally spaced points on an infinitely long number line. In the above, non-negative integers are shown in blue and negative integers in red.

✓ -9 -8 -7 -6 -5 -4 -3 -2 -1 0 1 2 3 4 5 6 7 8 9
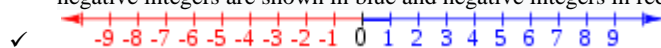
Python Strings

What is String in Python? A string is a sequence of characters. A character is simply a symbol. For example, the English language has 26 characters. Computers do not deal with characters; they deal with numbers (binary). Even though you may see characters on your screen, internally it is stored and manipulated as a combination of 0's and 1's.This conversion of character to a number is called encoding, and the reverse process is decoding. ASCII and Unicode are some of the popular encoding used.

In Python, string is a sequence of Unicode character. Unicode was introduced to include every character in all languages and bring uniformity in encoding. Strings can be created by enclosing characters inside a single quote or double quotes. Even triple quotes can be used in Python but generally used to represent multiline strings and docstrings.

```
1.  # all of the following are equivalent
2.  my_string = 'Hello'
3.  print(my_string)
4.  my_string = "Hello"
5.  print(my_string)
6.  my_string = '''Hello'''
7.  print(my_string)
8.  # triple quotes string can extend multiple lines
9.  my_string = """Hello, welcome to the world of Python"""
10. print(my_string)
```

When you run the program, the output will be:

```
Hello
Hello
Hello
Hello, welcome to
the world of Python
```

We can access individual characters using indexing and a range of characters using slicing. Index starts from 0. Trying to access a character out of index range will raise an IndexError. The index must be an integer. We can't use float or other types, this will result into TypeError.

Python allows negative indexing for its sequences. The index of -1 refers to the last item, -2 to the second last item and so on. We can access a range of items in a string by using the slicing operator (colon).

```
1.  str = 'programiz'
2.  print('str = ', str)
3.  #first character
4.  print('str[0] = ', str[0])
5.  #last character
6.  print('str[-1] = ', str[-1])
7.  #slicing 2nd to 5th character
8.  print('str[1:5] = ', str[1:5])
9.  #slicing 6th to 2nd last character
10. print('str[5:-2] = ', str[5:-2])
```

If we try to access index out of the range or use decimal number, we will get errors.

```
1.  # index must be in range
2.  >>> my_string[15]
3.  ...
4.  IndexError: string index out of range
5.
6.  # index must be an integer
7.  >>> my_string[1.5]
8.  ...
9.  TypeError: string indices must be integers
```

Python String Operations

There are many operations that can be performed with string which makes it one of the most used datatypes in Python.
Concatenation of Two or More Strings

Joining of two or more strings into a single one is called concatenation.

The + operator does this in Python. Simply writing two string literals together also concatenates them.
The ***** operator can be used to repeat the string for a given number of times.

1.   str1 = 'Hello'
2.   str2 ='World!'
3.   # using +
4.   print('str1 + str2 = ', str1 + str2)
5.   # using *
6.   print('str1 * 3 =', str1 * 3)

Writing two string literals together also concatenates them like + operator. If we want to concatenate strings in different lines, we can use parentheses.
1.   >>> # two string literals together
2.   >>> 'Hello "World!'
3.   'Hello World!'
4.
5.   >>> # using parentheses
6.   >>> s = ('Hello '
7.   ...   'World')
8.   >>> s
9.   'Hello World'

Iterating Through String

Using <u>for loop</u> we can iterate through a string. Here is an example to count the number of 'l' in a string.

1.   count = 0
2.   for letter in 'Hello World':
3.   if(letter == 'l'):
4.   count += 1
5.   print(count,'letters found')

Artificial Intelligence is generally considered a subfield of computer science. However, Artificial Intelligence is truly an interdisciplinary enterprise that incorporates ideas and techniques, and researchers from multiple fields, including statistics, linguistics, robotics, electrical engineering, mathematics, neuroscience, economics, logic, etc.
✓ Today most successful artificial Intelligence techniques approaches fall into two broad categories (1) Machine Learning and (2) Logical Rules and knowledge representation.
✓ Consider a typical e-mail spam filter. Most e-mail software uses machine learning to automatically detect incoming spam e-mails (i.e. unwanted, unsolicited commercial e.mails) and divert them into a separate spam filter.
✓ The machine learning system can now use this pattern to make reasonable, automated, decision in spam – filtering.
✓ Knowledge Representation – In order to solve complex problems in AI, we need
➢ Large amount of knowledge
➢ Mechanism to manipulate knowledge to create solutions to new problems.
➢ Propositional Logic
➢ Predicate
➢ Semantic
➢ Proposition is a statement of fact.

For Example – Gagan is an honest Employee. Here honest is propositional logic. Propositional symbol/variables can be A, B, C, P, Q, R…
Gagan is an honest boy and lawyer is hard working- this is called propositional value.
Connectives – v -- or
                 ∧   and
But here is a drawback that propositional knowledge have no symbol to represent "All"
Predicate Logic (Calculus) – Predicate logic is an extension of propositional Logic.
➢   The Balls color is Red = a
➢   Color (Ball, Red) – here color is relation and red ball is arguments.
➢   All students are intelligent,
 Rohan is a student. Obect, relation and properties. We need quantifiers to express English words including (All) and some
➢   Everybody loves somebody /.. (x, y) = Loves (Everybody, Somebody)
➢   N v np ∧ ∨ vnp
7 n v np ∧ (7 n v np)
a implies b implies (a ➔ b) ∧
Eliminate Implication
Apply distributive law

Conjunction of this

P/\ (q/\r) = (p v q /\ (p v r)

(N v P) /\ (P v N)

Confirm.

Logical Equivalence – The compound propositions P and q are said to be logically equivalence if P←→q is a tautology. Converse, in logic, the proposition resulting from an interchange of subject and predicate with each other. Thus, the converse of "No man is a pencil" is "No pencil is a man." In traditional syllogistics, generally only *E* (universal negative) and *I* (particular affirmative) propositions yield a valid converse. The converse of a relation R is the relation S such that *x*S*y* (*y* has the relation S to *x*) if, and only if, *y*R*x* (*x* has the relation R to *y*). If a relation is identical to its converse, it is symmetric.

The research paper – titled, Black Hole and Soft Hair – says that information is stored in the event horizon

We can retrieve information by quantity equal to the square root of minus 1 in computer oriented language.

✓ The Unicode value will be U+0042, U+0062

Language will be Energy Oriented

Everyone is familiar with words and phrases in which they entered popular awareness. This is pattern recognition from perceptual data using tools from statistics, probability, and computer in figurative language.

"A Light or Music in a New Life can be protected by Meditation and Prayer to reach the Star for Pride in King's Kingdom".

1) **Swati**   **Star**
2) **Guard**   **Protect**
3) **Narinder**   **King, King's Kingdom**
4) **Nabaneeta**   **A NEW LIFE**
5) **Mala**   **Meditation and Prayer**
6) **Gaurav**   **Pride**
7) **Deepika -**   **Light, Music**

Information behind this message retrieve from"SriRamcharitmanas", "Srimad Bhagwat Gita" and Holy Bible" and the information hidden behind this pattern is –

This message is a secret beautiful gospel

A Light or Music in a New Life can be protected by Meditation and Prayer to reach the Star for Pride in King's Kingdom.

In Bhagwat Gita

idaṁtenātapaskyāyanābhaktāyakadāchana
nachāśhuśhruṣhavevāchyaṁna cha māṁyo 'bhyasūtayi

This secret gospel of the Gita should never be imparted to a man who lacks in austerity, nor to him who is wanting in devotion, nor even to him who is not willing to hear; and in no case to him who finds fault with me.The demonstrative pronoun "Idam" in this verse covers the entire range of the Lord's teaching's imparted to Arjuna from verse 11 of chapter 2nd to the preceding verse with a view to expounding the truth of his own virtues, glory, mystery, and essential character.In order to determine the eligibility for receiving this gospel the Lord forbids Arjuna to repeat it to those who labour under the four disqualifications mentioned in this verse.

Out of the four types of unqualified person referred to above the Lord mentions first of all him who lacks austerity. By shutting out such a man from the portals of the Gita, the Lord seeks to impress upon Arjuna that the gospel of the Gita is an extremely profound secret that Arjuna was His most loving devotee and endowed with divine virtues, hence He had confided it to him in his own interest, recognizing him as qualified to receive it. Therefore He warns Arjuna not to repeat the Gita, replete as it is with an exposition of His virtues, glory and reality, to a man who is not given to austerity in the form of discharging his own sacred obligations, who having abandoned his duty has given himself over to sinful ways out of greed for worldly pleasure due to attachment for sensuous enjoyments. For such a man would be incapable of assimilating this teaching and would thereby bring dishonor to the same as well as to the Lord Himself.The compound word "Abhaktya" stands for the unbeliever who has no faith in God, much less love or reverence for Him, and who regards himself as everything. The most esoteric gospel of the Gita should not be delivered to such a man either, for being incapable of grasping its secret he would be unable to assimilate it.

Even if a man practices austerity in the shape of performing his sacred duties, but having no reverence and love for teaching of the Gita does not care to lend his ear to it, this most esoteric gospel should not be delivered to him. For a man of this type would get disgusted with it, and would not be able to appreciate it. Thereby he would only belittle the teaching as well as the Lord.

In no case should this teaching be related to a man who cavils at the Lord, - who has assumed a form with attributes for redeeming the world, who paints His virtues as a vice and vilifies Him.

For being jealous of the Lord's virtues, glory and divinity, he would treat the Lord with even greater contempt and thereby aggravate his sin.

He who is free from all the four disqualifications mentioned in this verse is unquestionably fully qualified to receive this gospel. Next to him, he who lacks penance in the form of devotion to his duty, but is free from the other three disqualifications is also eligible for it. And he too who is neither given to austerity nor fully devoted to the Lord, but who is willing to hear the Gita, is qualified to a certain extent. He, however, who looks on the Lord with a carping eye or vilifies Him as absolutely unqualified.

<div align="center">

यइदंपरमंगुह्यमंमद्धक्तेष्वभिधास्यति |

भक्तिंमयिपरांकृत्वामामेवैष्यत्यसंशयः || 68||

</div>

yaidaṁparamaṁguhyaṁ mad-bhakteṣvabhidhāsyati
bhaktiṁmayiparāṁkṛitvāmāmevaiṣhyatyasanśhayaḥ

He who, offering the highest love to Me, preaches the most profound gospel of the Gita among My devotees, shall come to Me alone, there is no doubt it. Possessed of extreme reverence for the Lord Himself or His utterances. A devotee of God is overwhelmed with love by the thought of His name, virtues, sports, glory and essential character and preaches the gospel of the Gita among His devotees in a disinterested spirit for the sake of His pleasure alone.

Space – time symmetry - Specific features of space and time symmetry following from the uniformity of time and uniformity and isotropy of space are used for finding geometric images possessing their symmetry. Space is ascribed the symmetry of a scalar, an axial vector, time, the symmetry of a pseudo scalar and a polar vector. The possibility of the representation of the reality as existing in two types of systems---those of space and time---is discussed. In the first system it is the rectilinear motion which is taken to be inertial and in second system it is the rotational motion. Real physical phenomena of our (space) reality meet the requirements of both operations---time reversal R (t ~- t) and time inversion T which corresponds to the special inversion, I = c. The phenomena occurring in the time system meet the requirements of the operation inversion of space P = I = c. In the space system, space has only one sign (the expanding universe) and time has two signs. In the time system the situation is reverse---time has one sign and space has two signs. **A Lewis structure** is a graphic representation of the electron distribution around atoms. The reason for learning to draw Lewis structures is to predict the number and type of bonds that may be formed around an atom. A Lewis structure also helps to make a prediction about the geometry of a molecule. Chemistry students are often confused by the models, but drawing Lewis structures can be a straightforward process if the proper steps are followed. Be aware there are several different strategies for constructing Lewis structures. These instructions outline the Kelter strategy to draw Lewis structures for molecules. **Step 1: Find the Total Number of Valence Electrons.** In this step, add up the total number of valence electrons from all the atoms in the molecule. **Step 2: Find the Number of Electrons Needed to Make the Atoms "Happy** "An atom is considered "happy" if the atom's outer electron shell is filled. Elements up to period four on the periodic table need eight electrons to fill their outer electron shell. This property is often known as the "octet rule". **Step 3: Determine the number of bonds in the molecule.** Covalent bonds are formed when one electron from each atom forms an electron pair. Step 2 tells how many electrons are needed and Step 1 is how many electrons you have. Subtracting the number in Step 1 from the number in Step 2 gives you the number of electrons needed to complete the octets. Each bond formed requires two electrons, so the number of bonds is half the number of electrons needed, or:

(Step 2 - Step 1)/2
Step 4: Choose a Central Atom

The central atom of a molecule is usually the least electronegative atom or the atom with the highest valence. To find electro negativity, either relies on periodic table trends or else consults a table that lists electro negativity values. Electro negativity decreases moving down a group on the periodic table and tends to increase moving from left to right across a period. Hydrogen and halogen atoms tend to appear on the outside of the molecule and are rarely the central atom.

Step 5: Draw a Skeletal Structure **Connect the atoms to the central atom with a straight line representing a bond between the two atoms. The central atom can have up to four other atoms connected to it.**

Step 6: Place Electrons around outside Atoms **complete the octets around each of the outer atoms. If there are not enough electrons to complete the octets, the skeletal structure from step 5 is incorrect. Try a different arrangement. Initially, this may require some trial an error. As you gain experience, it will become easier to predict skeletal structures.**

Step 7: Place Remaining Electrons around the Central Atom

DATA PRIVACY AND CYBER SECURITY –
ISO 27001 – The 27001 standard does not mandate specific information security controls, generally accepted good practice security controls. Just a tip -
Malware Creator Sentenced – The developer of a malicious piece of software called NanoCore Rat – which allowed hackers to steal sensitive information and even access the webcam of infected computers will be spending time behind bars.

UNDEFINED BEHAVIOR – We can understand by how many levels in the Chakravyuha were in the Mahabharat. Chakravyuha refers to military formation narrated in the Hindu Epic Mahabharat.

The various vyuhas (military formation) were studies by the Kauravas and Pandavas alike. Most of them can beaten using a counter – measure targeted specifically against that formation. It is important to observe that in the form of battle described in Mahabharata. It was important to place the powerful fighter in those positions where they could inflict the maximum damage to the opposing force, or defend their own side. As per this military strategy, a specific stationary object or person can be captured and surrounded and rendered fully secured during time of military conflict.

The pattern is of two soldiers following them at a distance of three hands, drawing up seven circles and culminating in the end which is the place where the captured person or object is to be kept.

In GEOMETRY, the objects are said to be concentric, when they share the common center. Circles, spheres, regular polyhedra, regular polygons are concentric as they share the same center point. In <u>Euclidean Geometry</u>, two circles that are concentric should have different radii from each other.

Concentric Circle Equations

Let the equation of the circle with centre (-g, -f) and radius $\sqrt{[g^2+f^2-c]}$ be

$$x^2 + y^2 + 2gx + 2fy + c = 0$$

Therefore, the equation of the circle concentric with the other circle be

$$x^2 + y^2 + 2gx + 2fy + c' = 0$$

It is observed that both the equations have the same centre (-g, -f), but they have different radii, where $c \neq c'$

Similarly, a circle with centre (h, k), and the radius is equal to r, then the equation becomes

$$(x - h)^2 + (y - k)^2 = r^2$$

Therefore, the **equation of a circle** concentric with the circle is

$$(x - h)^2 + (y - k)^2 = r_1^2$$

Where $r \neq r_1$

CONGRUENT CIRCLE –
Definition of congruence in analytic geometry
In a Euclidean system, congruence is fundamental; it is the counterpart of equality for numbers. In analytic geometry, congruence may be defined intuitively thus: two mappings of figures onto one Cartesian coordinate system are congruent if and only if, for any two points in the first mapping, the Euclidean distance between them is equal to the Euclidean distance between the corresponding points in the second mapping. A more formal definition states that two subsets A and B of Euclidean space $\mathbf{R}^n$ are called congruent if there exists an isometry f : $\mathbf{R}^n \rightarrow \mathbf{R}^n$ (an element of the Euclidean group E(n)) with f(A) = B. Congruence is an equivalence relation.

SET THEORY – In naive set theory, a set is a collection of objects (called members or elements) that is regarded as being a single object. To indicate that an object *x* is a member of a set *A* one writes $x \in A$, while $x \notin A$ indicates that *x* is not a member of *A*. A set may be defined by a membership rule (formula) or by listing its members within braces. For example, the set given by the rule "prime numbers less than 10" can also be given by {2, 3, 5, 7}. In principle, any finite set can be defined by an explicit list of its members, but specifying infinite sets requires a rule or pattern to indicate membership; for example, the ellipsis in {0, 1, 2, 3, 4, 5, 6, 7, …} indicates that the list of natural numbers ℕ goes on forever. The empty (or void, or null) set, symbolized by { } or Ø, contains no elements at all. Nonetheless, it has the status of being a set.
A set *A* is called a subset of a set *B* (symbolized by $A \subseteq B$) if all the members of *A* are also members of *B*. For example, any set is a subset of itself, and Ø is a subset of any set. If both $A \subseteq B$ and $B \subseteq A$, then *A* and *B* have exactly the same members. Part of the set concept is that in this case *A* = *B*; that is, *A* and *B* are the same set.
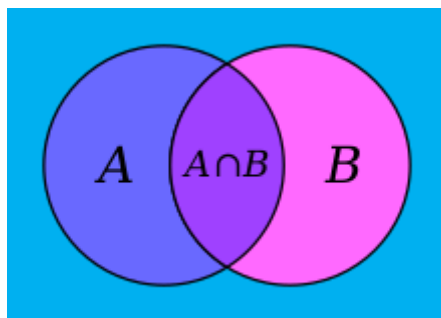
Musical Set Theory

A set in music theory, as in mathematics and general parlance, is a collection of objects. In musical contexts the term is traditionally applied most often to collections of pitches or pitch-classes, but theorists have extended its use to other types of musical entities, so that one may speak of sets of durations or timbres, for example.[2]

A set by itself does not necessarily possess any additional structure, such as an ordering or permutation. Nevertheless, it is often musically important to consider sets that are equipped with an order relation (called *segments*); in such contexts, bare sets are often referred to as "unordered", for the sake of emphasis.[4]

Two-element sets are called dyads, three-element sets trichords (occasionally "triads", though this is easily confused with the traditional meaning of the word triad). Sets of higher cardinalities are called tetrachords (or tetrads), pentachords (or pentads), hexachords (or hexads), heptachords (heptads or, sometimes, mixing Latin and Greek roots, "septachords"),[5] octachords (octads), nonachords (nonads), decachords (decads), undecachords, and, finally, the dodecachord. A time-point set is a duration set where the distance in time units between attack points, or time-points, is the distance in semitones between pitch classes. Example of Z-relation on two pitch sets analyzable as or derivable from Z17 (Schuijer 2008, 99), with intervals between pitch classes labeled for ease of comparison between the two sets and their common interval vector, 212320.

The fundamental concept of musical set theory is the (musical) set, which is an unordered collection of pitch classes (Rahn 1980, 27). More exactly, a pitch-class set is a numerical representation consisting of distinct integers (i.e., without duplicates) (Forte 1973, 3). The elements of a set may be manifested in music as simultaneous chords, successive tones (as in a melody), or both. Notational conventions vary from author to author, but sets are typically enclosed in curly braces: {} (Rahn 1980, 28), or square brackets: [] (Forte 1973, 3).

Some theorists use angle brackets [] to denote ordered sequences (Rahn 1980, 21 & 134), while others distinguish ordered sets by separating the numbers with spaces (Forte 1973, 60–61). Thus one might notate the unordered set of pitch classes 0, 1, and 2 (corresponding in this case to C, C♯, and D) as {0,1,2}. The ordered sequence C-C♯-D would be

notated   or (0,1,2). Although C is considered zero in this example, this is not always the case. For example, a piece (whether tonal or atonal) with a clear pitch center of F might be most usefully analyzed with F set to zero (in which case {0,1,2} would represent F, F♯ and G. (For the use of numbers to represent notes, see pitch class.)

Though set theorists usually consider sets of equal-tempered pitch classes, it is possible to consider sets of pitches, non-equal-tempered pitch classes, rhythmic onsets, or "beat classes" (Warburton 1988, 148; Cohn 1992, 149).

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III. Conclusion

Computation is calculation, solving, making decision or any task done by computer/calculator/any machine.

Sir John Tenniel's illustration of the Caterpillar for Lewis Carroll's Alice's Adventures in Wonderland is noted for its ambiguous central figure, whose head can be viewed as being a human male's face with a pointed nose and chin, or as being the head end of an actual caterpillar, with the first two right "true" legs visible. In logic and mathematics, or is the truth-functional operator of (inclusive) disjunction, also known as alternation; the *or* of a set of operands is true if and only if *one or more* of its operands is true. The logical connective that represents this operator is typically written as ∨ or +.

Or is usually expressed with an infix operator: in mathematics and logic, ∨; in electronics, +; and in most programming languages, |, ||,
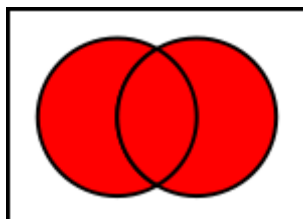
Logical disjunction is an operation on two logical values, typically the values of two propositions, that has a value of *false* if and only if both of its operands are false. More generally, a disjunction is a logical formula that can have one or more literals separated only by 'or's. A single literal is often considered to be a degenerate disjunction.

The disjunctive identity is false, which is to say that the *or* of an expression with false has the same value as the original expression. In keeping with the concept of vacuous truth, when disjunction is defined as an operator or function of arbitrary, the empty disjunction (OR-ing over an empty set of operands) is generally defined as false. Disjunction is often used for bitwise operations. Examples:

- 0 or 0 = 0
- 0 or 1 = 1
- 1 or 0 = 1
- 1 or 1 = 1
- 1010 or 1100 = 1110

The or operator can be used to set bits in a bit field to 1, by or -ing the field with a constant field with the relevant bits set to

1. For example, x = x | 0000000001 will force the final bit to 1 while leaving other bits unchanged.

Home networking is the process of interconnecting all of the devices in a home together and with the Internet in general. Home networking is used to establish a home network among the typical computing devices found in homes or for domestic use. It is similar to a standard LAN or WLAN network that is confined within a home/house.

Home networking is primarily used to provide Internet connectivity to consumers and devices. These include computers, laptops, mobile phones, tablets and/or televisions. Generally, home networking can be achieved through the modem device provided by an ISP, which may have support for multiple wired, wireless or both types of connections. All the devices can directly connect to the modem to interconnect with each other and to access the Internet.

In the case of a non-networked modem, a wired or wireless switch is attached. To enforce security, the modem/switch is configured with a user ID/SSID and password, and each connecting device must specify the correct details to gain network/Internet access. Moreover, for advanced services and centralized management, a home server can also be installed within a home network.

Author is providing easiest way to solve this problem.

ACKNOWLEDGMENT

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