# Writing Tools of English Language: Syntax for Programming Languages of Computer Science

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## ABSTRACT

This paper explains the importance of writing tools, syntax, and punctuation in both English language and computer programming languages. It highlights how syntax helps in arranging words, phrases, and symbols in a meaningful and systematic order. In English, punctuation marks such as commas, full stops, semicolons, quotation marks, and parentheses improve clarity, readability, and effective communication. Similarly, in computer programming languages, punctuation symbols play a vital role in defining the structure and execution of programs correctly. The study discusses the functional meanings of various writing mechanics and compares their uses in natural language and programming languages like Python, Java, C, and JavaScript. It explains how writing tools help programmers write accurate and efficient code while also helping language users communicate clearly. The paper further describes the role of punctuation in functions, variables, statements, arrays, and object-oriented programming. It emphasizes that proper syntax is essential for understanding semantics in both linguistic and technical communication. Without syntax and writing mechanics, communication in English and coding in computer languages become difficult and unclear. The study concludes that writing tools are fundamental for improving communication skills, coding accuracy, and logical expression in both human and machine-oriented languages.

**Keywords**: Syntax, Writing Mechanics, English Language, Computer Language, Punctuation Marks, Programming Languages, Grammar, Communication, Coding, Semantics

## THE ESSENCE OF WRITING TOOLS IN ENGLISH LANGUAGE

Human languages have syntax rules which specify word order, punctuation and sentence structure. Without these rules, it would be impossible to communicate in a given language. While learning a foreign language, a rudimentary thing is to learn its syntax in the form a code. Syntax in Linguistics is the analysis, study or statement of the arrangements and interrelationship exhibited by words, phrases and clauses in sentences. It is the order of the elements in a sentence. For example; he does want to do it. (*full-stop* as a writing tool) does he want to do it? (*question mark* as a writing tool), he is after all, a good boy (*comma* as a writing tool), I don't relish coffee; I prefer tea (*semi-colon* as writing tool), you have good news: Your son got the selection in the interview (*colon* as writing tool), Keats says, "A thing of beauty is joy forever" (*inverted commas* as writing tools)

Hence, syntax in English language is the indication of grammatical relationships by the positioning of words and phrases in a sentence rather than by inflection. It expresses a quality or character of a langua8ge because English is a language that relies on word order more that Latin does. (Richard A. Spears: NCT's Dictionary of Grammar Terminology)

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The word 'Syntax' origins from Greek and it means 'arrangement' or 'putting together' which studies the structure of a language following certain rules as cited above sentences. Syntax of a linguist is to study the structure of English language and its rules that govern its formation how its sentences are formed, words are combined to create meaning and relate to different parts of sentences. It governs the relationship between words to get order of a sentence. In order to work with an apt improvement of communication of a language; of its clarity as well as accuracy, Syntax inevitable either in English or Computer languages.

In computer science, the syntax of a computer language is the rules that define the combinations of symbols that are considered to be correctly structured statements or expressions in that language. Coming to the programming languages, syntax is predominant that conveys a set of rules defining a computer programme in the form of a written structure to read as in Python, Java and in other scientific and technical languages. For instance, in Python to create a function, the programme writer must have this specific arrangement as per the meaning of Syntax in Greek. The writer put the keyword def before the names of a function is hardly followed by parentheses () and colon: as in a computer language script – def greet(): print("Hello")

Therefore, Syntax is the foundation of any natural and programming languages, and it is essential to make out how to write a programming or a natural language correctly. Particularly in programming languages, Syntax includes elements; such as keywords, data types, variables, functions and operators and their arrangement. To have intelligibility at the syntax of a programming language, it is needy for writing and executing a program exactly. Without syntax, the meaning or semantics of a language, either natural or technical, is impossible to understand. Unless it is not followed syntax of a language, the code never be clear to compile.

**How Important are the Mechanics of Writing in both the Languages?**

Writing mechanics concerns rules and conventions for using the building blocks of communication within a language that are organized by English grammar. Punctuation is one of the writing mechanics that helps to write the English and Computer language to write persuasively and accurately. Correct use of grammar and punctuation is an apt attitude to write academically, because, it allows writers to get their message or story to their readers in a clear and understandable way to express a right intention of the author precisely and systematically. These mechanics technically assist to get readability and clarity for a flow of writing. It helps the audience to receive the message according to the writer's intension.

In Computer science, basically, writing is used in two ways: to design and implement a programme and to provide specifications for it. Punctuation in Computer programming refers to the symbols which are used to structure code and convey meaning. But different programming languages use various punctuation marks that are varied in their meaning. Hence, the role of punctuation marks is crucial for writing correct and efficient code in order to define the structure and flow of the program. However, each programming language may have its own specific rules regarding punctuation.

**How Writing tools convey their meaning both in English Language and Computer Language**

| **English Language** | **Computer Language** |
|---|---|
| **Full stop (.)** is used at the end of a sentence, after abbreviations and initials. For example;<br>1. He is a gentleman.<br>2. R.M.S<br>3. Dr. Rao | In computer programming, the **full stop (.)** or **period** is used in a variety of ways, depending on the language. Here are some common uses:<br>1. **Accessing Object Properties or Methods (Dot Notation)**:<br>o In object-oriented languages (like JavaScript, Python, Java), the period is often used to access properties or methods of an object. |

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|---|---|
| | 2. **Module or Package Imports**:<br>o In some languages, the period is used to refer to modules, classes, or namespaces.<br>3. **File Path Separator**:<br>o The period is used in file paths to separate file names and their extensions.<br>o In some contexts, the period is also used to denote the current directory (./) or parent directory (../).<br>4. **Floating-Point Numbers**:<br>o In many languages, the period is used to separate the integer and fractional parts of floating-point numbers.<br>5. **Regular Expressions**:<br>o In regular expressions, a period is a special character that matches any single character (except for line breaks).<br>6. **Method Chaining**:<br>o In languages that support method chaining (like JavaScript), the period is used to call multiple methods on the same object.<br>7. **Version Numbers**:<br>o In some contexts, the period is used to separate different components of version numbers (e.g., 1.0.0, 2.3.4).<br>Each language may have specific rules for how the period is used, but these are some of the most common uses across many programming languages. |
| **Comma (,)** is the shortest pause between words. It is used:<br>• **To mark off nouns, pronouns or phrases in opposition.**<br>Ex; *Kalidasa, the greatest Sanskrit dramatist, died long ago.*<br>• **To mark off each one of a series of words belonging to the same part of Speech; as**<br>*The child laughed, danced, jumped and cried for joy.*<br>• **To mark off a Nominative of Address;** | In computer programming languages, the comma (,) is used for various purposes depending on the specific language and its syntax. Here are some common ways it is used:<br>**1. Separation of Elements in Lists or Arrays:**<br>• In many programming languages (such as Python, Java, C, and JavaScript), the comma is used to separate items within a list, array, or other similar data structures.<br>python<br>Copy<br># Example in Python |

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*Doctor, the patient is very well.*

- **To separate a participial phrase provided that the phrase might be expanded into a sentence and is not used in a qualifying sense;** as

*Ex: Kiran, having finished his task, returned home*

- **After a Nominative Absolute;** as

Usage: *Weather permitting, I shall see you at your house.*

- **To mark off a direct quotation from the rest of the sentence**; as

*Usage: "I cannot part with such a good cake," said the greedy man.*

- **To separate each pair of words connected by 'and'** as,

*Usage: young and old, high and low, rich and poor…etc.*

- **Before and after words, phrases or clauses used in the body of a sentence; as at least, indeed, well, all the same, however, of course, on the whole, in short, in particular, etc.**

*Usage: His conduct, to say at least, was praiseworthy.*

- **The date of the month is separated from the year by a comma; as**

*The earthquake of January 15, 1934.*

- **To show the omission of a word;** as,

*Usage: The husband is a Punjabi; the wife, a Bengali.*

- **To separate short co-ordinate clauses; as,**

*Usage: She made a third cake and put it in the oven to bake, but it was all burnt.*

- **To separate a clause beginning with a relative pronoun used in a continuative sense;** as,

*Usage: Shambu, who is a fruit seller in our school, comes from Gaya district.*

my list = [1, 2, 3, 4, 5]

**2. Separation of Function Parameters:**

- In most languages, commas are used to separate arguments passed to a function.

python

Copy

# Example in Python

def add (a, b):

return a + b

result = add (5, 3) # a = 5, b = 3

**3. Multiple Variable Declarations:**

- In languages like C, C++, Java, and JavaScript, a comma is used to declare multiple variables on the same line.

c

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int x = 10, y = 20, z = 30;

**4. Multiple Statements in a Single Expression:**

- Some languages (like C, C++, and JavaScript) allow multiple expressions to be evaluated in a single statement using the comma operator. The expressions are evaluated from left to right, but only the value of the last expression is returned.

c

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int a = (1, 2, 3); // 'a' will be assigned 3 (the last value)

**5. Tuple Definition:**

- In languages like Python, commas are used to define tuples (ordered collections of elements).

python

Copy

my_tuple = (1, 2, 3)

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Note: When the relative pronoun is restrictive in meaning, the comma should not be used; as,

This is the fan which Mohan repaired.

- **To separate an Adverb Clause from its Principal Clause;** as,

*Usage: As time went on, the wounds healed up.*

- **To separate an Adverb Clause from its Principal Clause; as**

*Usage: As time went on, the wounds healed up.*

- **When the Adverb Clause follows the principal clause or it's very short or it is closely connected with the Principal Clause, the comma is often omitted;** as,

*Usage: I like him because he's honest.*

*Usage: He likes you better than me.*

- **To mark off noun clauses only when there are two or more of them or when they are subjects or objects to the same verb;** as,

**Usage:** No one knows where he is, what he is doing, or how long he will be away.

**Usage:** Who he is, what he intends to do, or why he has come, will all be found out soon.

- **To mark off Adjective Clauses only when there are two or more of them or one may be lengthy; as**

**Usage:** This is the book which Shakespeare wrote, which the whole world admires, and which thousands read every day.

- **To separate Noun Clause preceding the verb of the Principal Clause; as,**

Usage: Whatever is, is right.

How to catch him, is the question

- **To mark off a clause which is not restrictive in meaning but is coordinate with the Principal Clause; as,**

**Usage:** Some people, who are superstitious, don't sail on Friday.

**6. DE structuring Assignments:**

- In languages like JavaScript and Python, commas are used in DE structuring assignments, where values are extracted from objects or arrays and assigned to variables.

javascript

Copy

// Example in JavaScript

const [a, b, c] = [1, 2, 3]; // a=1, b=2, c=3

**7. Control Flow (Comma Operator in C and C++):**

- The comma operator in C and C++ is used to separate two expressions in contexts where only one expression is expected. It evaluates each expression from left to right, but the result of the entire operation is the result of the second expression.

c

Copy

int x = (1, 2, 3); // x will be assigned 3

**8. Lambda Functions (in some languages like Python):**

- In some languages, commas can be used within lambda functions to define multiple parameters or arguments.

python

Copy

# Example of multiple parameters in Python lambda function

add = lambda x, y: x +

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| **Note: When the clause is restrictive in meaning, it becomes an adjective Clause and then no comma is used:**<br><br>Usage: This is the house which I built last year. | |
| Semicolon (;) marks a somewhat longer pause than that denoted by the comma. It's used :<br><br>**1. To separate Coordinate Clauses if they are joined by such conjunctions as and, but, for, or, either, neither, therefore, else, otherwise; as**<br><br>**Usage**: I have no money; therefore, I cannot afford a servant.<br><br>**Usage**: Help me now; otherwise, he will be ruined<br><br>**2. To separate lengthy Coordinate Clauses where the Coordinate conjunction is omitted; as**<br><br>**Usage:** The rain fell in torrents; the sky was dark; the road was deep in mud; the way was long; the weary travellers plodded on in silence.<br><br>**3. To separate clauses for the sake of emphasis; as**<br><br>**Usage:** He wants money to spend; friends to talk to; cars to drive about; a house to live in.<br><br>**Usage:** So many lands; so many fashions.<br><br>**4. To separate a series of loosely related clauses; as**<br><br>**Usage:** Today we love what tomorrow we hate: today we seek what tomorrow we shun; today we desire what tomorrow we fear | n most computer programming languages, the **semicolon (;)** acts as a **statement terminator** — it tells the compiler or interpreter,<br>*"This is the end of one instruction, now you can expect the next one."*<br><br> **Separates or ends statements** so the compiler knows where one command stops and the next begins.<br><br> It's **not the same as a period in English**, but it plays a similar "end of thought" role for code.<br><br> Without it (in languages where it's required), the compiler may throw an error or merge statements incorrectly.<br><br>**Examples:**<br><br>**C, C++, Java, JavaScript**<br><br>c<br><br>CopyEdit<br><br>int x = 5;// statement ends here<br><br>x = x + 1;// next statement<br><br>Here; marks the end of each statement.<br><br>**JavaScript (optional in some cases)**<br><br>javascript<br><br>CopyEdit<br><br>let name = "Ruthwika";<br><br>console.log(name);<br><br>JavaScript can often insert semicolons automatically (ASI - Automatic Semicolon Insertion),<br>but omitting them in complex cases can cause unexpected bugs.<br><br>**Python**<br><br>• Python **does not require** semicolons — it uses **newlines** to separate statements. |

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- But you *can* use ; to put multiple statements on one line:

python

CopyEdit

x = 10; y = 20; print(x + y)

**Summary Table**

| Language | Semicolon Use | Required? |
|---|---|---|
| **C / C++ / Java** | End of statement | Yes |
| **JavaScript** | End of statement (ASI available) | No (but recommended) |
| **Python** | Statement separator on same line | No |
| **Go** | Inserted automatically, but syntactically required | No (explicit writing rare) |
| **PHP** | End of statement | Yes |

If you like, I can give you a **quick mnemonic** to remember semicolons' meaning in coding — kind of like a "grammar rule" for computers. Would you like me to make that?

**Verbal Meaning of Writing Mechanics in both the Languages**

Absolutely, all the signs (Punctuation marks) have verbal meanings or functional meanings in both English language (grammar) and computer languages(programming) as the slides given below:

| Sign | Name | Verbal or functional meaning of English Language |
|---|---|---|
| **,** | **Comma** | Indicates a short pause in a sentence, separates items in a list, or parts of a sentence. Example: *I bought apples, bananas, and grapes.* |
| **.** | **Full-stop/ Period** | Marks the end of a statement or a complete thought. Example: *She is a student.* |
| **-** | **Hyphen** | Joins two or more words to form a compound word or to split a word at the end of a line. Example: *well-known, twenty-one.* |
| **;** | **Semicolon** | Connects two closely related independent clauses or separates items in a complex list. Example: *I have a big test tomorrow; I can't go out tonight.* |
| **( )** | **Parentheses Brackets** | Used to insert extra information, clarification, or explanation. Example: My brother (who lives in London) *is visiting.* |

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| | | |
|---|---|---|
| “ | **Double inverted commas/ Quotation Marks** | Enclose direct speech or quotations. Example: *She said, "I’m happy."* |
| ‘ | **Single inverted commas/ apostrophes** | Used for quotes within quotes or for possession/contraction. Example: *It’s Ruth’s book.* |
| **Sign** | **Name** | **Verbal or functional meaning of Computer Language** |
| **,** | **Comma** | Separates items in a list — e.g., function arguments, array elements. **Example (C/Python):** print(a, b, c) |
| **.** | **Dot / Period** | Used for member access (object attributes, methods). **Example:** object.method() |
| **-** | **Hyphen/ Minus sign** | Used for subtraction or negative numbers. **Example:** x = a - b |
| **;** | **Semicolon** | Marks the **end of a statement** in languages like C, C++, Java, JavaScript. **Example:** int x = 5; |
| **( )** | **Parentheses brackets** | Used in **function calls**, **grouping expressions**, or defining **parameters**. **Example:** sum(a, b) or (a + b) * c |
| “ | **Double inverted commas** | Enclose **string literals**. **Example:** printf("Hello World"); |
| ‘ | **Single inverted commas/ apostrophes** | Enclose **single characters** (in C, Java) or sometimes strings (in Python, JS). **Example:** char c = 'A'; |

**Summary Comparison**

| **Symbol** | **English Purpose** | **Computer Purpose** |
|---|---|---|
| Comma ( , ) | Pause, separation in lists | Separator (parameters, items) |
| Full Stop ( . ) | End of sentence | Object/Member access |
| Hyphen ( - ) | Join words | Subtraction or negative sign |
| Semicolon ( ; ) | Link related clauses | End of statement |
| Parenthesis ( ( ) ) | Add extra info | Function calls, grouping |
| Double Quotes ( " " ) | Quotation marks | String literals |
| Single Quotes ( ' ' ) | Possession or inner quote | Character or string literal |

## CONCLUSION

In conclusion, writing tools and punctuation marks play a vital role in both English language and computer programming languages. Syntax and writing mechanics help in organizing words, symbols, and statements in a meaningful and systematic way. In English, punctuation marks improve clarity, readability, and accurate communication of ideas. Similarly, in computer languages, punctuation symbols help define the structure and execution of programs correctly. Without proper syntax and mechanics, neither human communication nor computer programming can function effectively. The study clearly shows that symbols such as commas, full stops, semicolons, quotation marks, and parentheses carry important functional meanings in both fields. Although their purposes may differ, they contribute equally to precision and understanding. Therefore, mastering

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writing mechanics is essential for both language learners and programmers. Proper use of syntax enhances communication skills, coding accuracy, and overall efficiency in expressing ideas and instructions.

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**Online Resources**


1. MDNWebDocs-JavaScript – https://developer.mozilla.org/en-US/docs/Web/JavaScript
   For detailed explanations of JavaScript syntax, including the use of commas in arrays and restructuring.