Together, time and space have a ***primary quality*** that we call '*local*' as opposed to '*global*'.
The *outer local event* can be learned and may be remembered in the *inner local memory*.
The global is valid for all times and all over space and can be categorised as a *secondary quality*.[10]

1.2. Quantity

- The ***quantity*** of time is the result of counting 1, 2, 3, ... how far have we counted.
- The ***quantity*** of space has different ***qualities*** as volume, area, distance, and action.
  All these with ***directions***.

The properties of space will be explored later below in chapters II. p.123 →.

1.3. The Causal Action

1.3.1. Logic and Numbers

All human logic is based on syllogisms. An important example used very often is

		Nr.
A	All humans are fallible.	1
B	All philosophers are humans.	2
C	All philosophers are fallible.	3

This logical inference is a syllogism based on causal action.
From statement A and B to conclusion C.
If we first have phrase A and then another sentence B, we can form a third phrase C, as a causal consequence of A and B. We write $\mathrm{A}, \mathrm{B} \Rightarrow \mathrm{C}$
Sometimes in logic, the interchangeability of the two terms is allowed, we say that the commutative law applies the premises. From the example:
First sentence B, so another phrase A, which follows the third sentence C.
"All philosophers are humans. and All humans are fallible." We remove only the underlined between the concept of 'humans' and get the conclusion C.
In each sentence, the causal consequence, is not commutative, since e.g., the sentence "All fallible are humans" is different from sentence A.
In the syllogism, the sequence applies the causal consequence, one cannot from C and A conclude B, or from C and B one cannot conclude A.
A causal sequence is in principle not commutative. Normally, the A B C is different from C B A or B A C. This applies for example to the alphabetical order.

(1.1) a, b, c, d, e, f, g, h, …

A priori: To make a syllogism, one must be able to count to three in memory.

1.3.1.2. The Number Sequence

The count is a causal action. Do not swap the order of the number figures.
1 2 3 is different from 2 1 3. The count is not commutative.
In contrast, by an ordinary addition of numbers, the commutative law applies

(1.2) $2+1=3 \;\Leftrightarrow\; 1+2=3\,.$

When we count the ***causal action*** applies, so the order of the numbers is essential.
We shall always add the number 1 as follows:

$$0+1=1,\quad 1+1=2,\quad 2+1=3,\quad 3+1=4,\ldots$$

This process is not commutative, the sequence order as a ***direction*** is necessary as the reading ***direction*** in this book is a ***direction***. When we count time, a ***quantity*** appears.
(see more below 1.3.3). – How many times do you count one more?

[10] The perception of a global property is a *secondary quality*. The unlimited world cannot be measured, therefore not an object.

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The counting process is adding the number one, $+1$, to a previous number n, whereby we get

(1.3) $n+1 \xleftarrow{+1} n\,.$ I call $+1$ the counting operator.

We call the count figures the natural numbers

(1.4) $\mathbb{N} \equiv 0,1,2,3,4,\ldots$

Zero is taken into the natural numbers since the count to 1 requires that we distinguish any $\{1\}$ from non $\{0\}$. The natural counts $\mathbb{N}$ represent a sequential order

(1.5) $0<1<2<3<4<\cdots$

The sequential order: 1 precedes 2, which comes before 3, that precedes 4, etc.
Alternatively expressed by the icon $<$ for scale order: 1 less than 2, which is less than 3, etc.
I define the natural counting sequence with the symbol $\vec{\mathbb{N}} \equiv \mathbb{N} \wedge \vec{<}$. It may be, that others understand $\mathbb{N}$ implicitly as a sequential arrangement of the natural numbers, but for safety reasons, I highlight here the sequential arrangement of the natural numbers as

(1.6) $\vec{\mathbb{N}} \equiv 0,\overrightarrow{1,2,3,4,\ldots}\,.$

The natural numbers are a subset of integers.

(1.7) $\mathbb{N} \equiv \mathbb{Z}_{0+} \subset \mathbb{Z} = \{\ldots,-3,-2,-1,\;0,\;1,\;2,\;3,\ldots\}.$

$\mathbb{Z}$ also includes the negative numbers. We can start counting integers sequentially from a negative integer, for example $i_0 = -4$. Then the first number $i_1 = -3 = 1-4$, the second number $i_2 = -2 = 2-4$, and so onwards. $i_n = n - i_0$, $i_n \in \mathbb{Z}$, $n \in \vec{\mathbb{N}}$.
The very act of counting always takes place after the natural representation sequence.
A sequential ***direction***.

1.3.2. Time, Action, and Sequence

Time as a logical process has a serial order of events in sequence. A serial order is always a ***causal action***, otherwise, the series is not following as a sequence.
Think once again about count numbers; 1 cause 2, which causes 3 etc. ($+1$ As above).
Around logic, Aristotle was aware of the rule of time:

> Any sentence statement must contain a verb or a verbal modification.
> The expression that defines 'humans' is not a phrase statement unless adding 'was', 'is' or 'will' or a similar verb.

Using verbs, one introduces the concepts of past, present, and future.[11]
I draw judgments A B C:
A. There is something we call PAST. From this, we can remember events.
B. There is something we call NOW. This cannot be learned. Only events can be experienced.
C. There is something we call FUTURE. This of which we can only dream.
We can never return to the past and experience the same event again.[12]
We cannot remember events from the future. We can only hope for new experiences in the future.
In the now moment, we can only experience as a *secondary quality* and remember the past event.
The idea of the past toward the future is the ***causal action***.[13] The ***cause*** is built on the past.
Time has a ***direction***, *FORWARD*. - From the memory of the experience of past events → to the hope of future events.
The fact that we can remember past events, one after the other arranged in sequential order, makes us feel that time has an extension quality (as secondary).

[11] Danish article: (Peter Øhrstrøm, Tid og logik historisk set) [27], that quote a Danish book; Stigen, Anfinn: *Aristoteles*, Berlingske Filosofi Bibliotek, 1964.
[12] Here I remember someone quoting Thales of Miletus "One cannot bathe in the same river twice". Anyway, water is the archetype.
[13] The human hunger for the future has reminiscent of the final cause by Aristotle.