

TEMPORAL INTERPRETATIONS OF THE CONNECTIVES¹

Abstract: *In this paper I will try to analyse some neglected aspects of the connectives. This analysis shows also that the roles of connectives regarding physical things and in language are much deeper than expected. I'll try than that the basic characteristics of the connectives in daily language are to relate the sentences each other according to their temporal specifications. Second, I will take into consideration that the different connectives set up different combinations between tense (and space) of the sentences, and each combination, as a whole, gives us a new information. If we take the sentences together with the connective as a whole, then we can speak of modality of the connectives in logic, and in daily language.*

Key words: *Connectives, togetherness, time*

Sentential connectives, like “or, and, if...then.. etc.” are thought simply as relate the sentences each other: the sentences are basic units, and the connectives set up compound expressions through these sentences. As for logic, they are thought as constants, and defined by the truth table. What we know about the connectives in logic is depend on their formal properties. However, the connectives in daily language might have very specific epistemic features, and indicate some specific ontological features, if we leave aside their logical definitions.

The spectrum of usage of the connectives in ordinary language is very large and different. For this reason they might have various characteristics. Any explanation, which would be given about them, of course, will not involve their all features.

One of the basic characteristics of the atomic sentences is to indicate a single fact. On the other hand we can indicate the compounded facts in terms of molecular sentences, which must include explicitly or implicitly some connectives. It means also that we need different connectives

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in order to speak of different compounded facts. With other words, different connectives together with the sentences may indicate different compounded facts, that is, a new group of facts. Now we can ask “what characteristics might these facts have?” and “what sort of relation are there between the compounded facts and connectives?”

First, let us demarcate our interest in some compounded facts (Tatsachen) which we perceive now. In this case we can divide compounded facts into two different groups. One of them would be consist of a simple collection of single material particulars, or the elements of other compounded facts would be in a case in which the one is depend on the other.

In the first case, the main characteristics of the compounded facts are simply be together. We can describe this situation with a sentence like ‘the pencil, and books, and a P.C., and etc. are on my table.’ Of course, the elements of the compounded facts might be in continuity too. This fact could be expressible with a sentence like ‘he is speaking and walking‘ Here again, what we perceive now is that what we see together now. Clearly we need the connective ‘and’ in order to indicate this both aspects of the compounded fact. This feature of the connective ‘and’ will be true for the compounded facts into future and past.

On the other hand, the compound facts would be in progress, in change, but the second element needs depending on the first. In order to describe this kind of facts, of the compounded facts, we use simply a cause-effect relation, that is, a relation with which we can indicate an action as depend on the other one. This relation could be expressible by some sentential, non-sentential, or temporal connectives, like ‘because of’, ‘before’, ‘after’, ‘since’, ‘until’, ‘for this reason’, etc. For instance, a single fact in progress like ‘opening the door’ can be thought as a compound fact in the manner ‘the door is opening now because of she is coming’. It is clear that it indicates also a compound fact, or facts in a progress. This case could be expressible by the molecular sentences which must have a connective, since, in order to indicate a progress and also a compounded fact we need a connective together with the sentences.

Let us take here the sentential connective ‘if... then’ as a generalisation of some connectives, if they reflect a cause-effect relationship or a causal process. A causal process means here the physical things following each other in which the second one is depend on the first one in any way. It is unnecessary to say that the meaning of ‘if... then’ is really very broad because it may indicate an inference, subjunctives, or a condition. However, in its large context there is a very specific meaning in which we interested here, is a cause-effect relationships between two actions. Of course, we can speak of different tenses of the sentences as including past and future, and subjunctives, and so speak of very different compounded facts. For these facts, as it will be pointed below, we can use different connectives.

Consequently, there are some physical situations, let us say two basic situation, or two basic compounded facts, which they may be conceived through two different relations. These relations might be a ‘togetherness of the physical things’ and a ‘cause-effect relationship of the physical things’. We can indicate them by using two different sentential connectives ‘and’ and ‘if... then’, respectively. In other words, we can use these two connectives in order to express them that are the compounded facts of the perceivable world.

It means also that we should speak of temporality of the sentential connectives for these compounded facts. Since ‘to be together’ clearly is nothing else than ‘to be at the same time (and at the same place also)’.

Temporality will be true for ‘cause-effect’ relation too. For this kind of relation of the physical things, in a certain time interval, cause must be first before the effect.

Since the usage of the sentential connectives in the daily talk is very different. On the other hand, there is a certain physical situation to which a certain connective corresponds. For instance, ‘a pencil, **and** books, **and** my computer, **and** etc. are on my table’ mean ‘they are together on my table.’ This usage of the connective ‘and’ clearly imply being together at **the same place and the same time**. This is one reason why we have to consider connectives as relations between sentences according to tense. And thus, we can say that the connectives regulate the tense of sentences, and so relate facts to each other.

On the other hand, the connective ‘and’ can indicate ‘separateness’ too. In fact, we can say that ‘stars out of our galaxy and the pencil on my table occupy different space’. Clearly this usage of ‘and’ do not express togetherness, but a difference according to their place. This is just because of the meaning of ‘and’ in the daily language is very different, and the spectrum of usage of this connection, like the others of course, is very broad. But if we want to indicate ‘togetherness’, we need the connective ‘and’. Of course, it is possible to use the concept of ‘togetherness’ in a different manner. But I will use it only into certain sense partly explained above.

As usually accepted the syntactical connectives are syncategorematic. But it seems possible to take them as terms indicating ‘togetherness’, ‘dependence’, and so on, and therefore they might have ontological significance.

It has ontological significance, since ‘togetherness’ for instance, may indicate a physical situation. This situation tells us that there are things coordinated in a certain time and place, that is, things which are together according to their place and to a time interval, or at a moment.

We can indicate or express this situation through the connective ‘and’. For this reason, we can say that the connectives together with sentences may indicate some specific physical situations. In other words, the connectives regulate and co-ordinate the tense of sentences, and so they reflect some specific physical situations.

The basic idea behind this thought is that we co-ordinate, image, and regulate things into different situations. These situations are expressible with concepts like ‘together’, ‘it depends on’, etc. There is a correlation between these concepts and the connectives. If this is correct, then the connectives are not merely syncategorematic terms, but have ontological and epistemological features. They might have ontological significance because they indicate a physical situation, a compounded fact, and they might have epistemological features because they regulate the tenses of the sentences and so give us information.

The spectrum of usage of the connectives is very large and diverse, and so they could have various characteristics. However, their some features might be common, that is, they regulate the tenses of the sentences.

This is why we also could not say, for instance, “if the door will open, then she came.” For these situations, the main principle to which we must obey will be constructed on the ‘before and after relation between actions.’ Hence this would be possible iff one action follows the other one in time, and as depend on it. In short, the time of these kinds of actions, and so the tenses of the sentences should be in accord with each other.

It also explains why we can not count ‘and’ or ‘if... then’ solely as a syncategorematic term, and their meaning can not be explained and defined from the logical point of view only. Since its role in language is deeper than it is expected. There might be, let us say ‘ontological implications’ behind of their symbolic representations in logic. We have to take into consideration this ontological side, if we want to understand the meaning of connectives completely and exactly.

It would be interesting to say that especially the concept of ‘and’, as well as ‘togetherness’ has a very basic role describing not only compounded facts, but the single facts too. For a physical thing (or in one sense, a single fact) imply implicitly or explicitly the some physical things as a part of itself. Second, it would have a role, I believe, in explaining some features of the indexicals (see Ural 1999, P.315-335)

Consequently, the meaning of togetherness can be defined according to temporality and spatiality. This thought will be true for the connective ‘and’ (and for its variations). For, as it explained above ‘and’ implies and indicates ‘togetherness’. Since, ‘a **and** b **and** c **and**....’ means in a certain sense ‘a,b,c,... are together’. With other words, if a,b,c indicate a physical situation, then it means that they are together at the same time and place. On the other hand, if ‘a and b’ is taken as a compound sentence, then there must be tense (and sometime space) relation between these sentences.

Therefore, if ‘a’ and ‘b’ are any two sentences, then to know also what ‘a and b means requires implicitly or explicitly knowing tense relation (and sometimes the relations between

spaces) indicated by the sentences. According to this point of view, it is not necessary to define 'and' according to the truth table. Its *meaning*, in a restricted area, like the other connectives, will depend on knowing how we can verify it, is nothing else than *to how to use the tense*. It will refer also to what the concept of 'togetherness' indicates. So, the meaning of different connectives will depend on knowing different operations and different relations between times, or tenses.

We can think of the meaning of the sentences into similar way. It will be true that the meaning of a sentence is to know to use the tenses of a sentence. In fact, in Reichenbach's sense, we can speak of the tenses of verb of a sentence. Undoubtedly, in order to understand Reichenbach's differentiation (see Reichenbach 1980, P.287-299) of the *reference time*, *speaker time* and *event time* we have to know first of all the features the tenses, or the relations between different times. A simple sentence like, as Reichenbach put it, 'I saw John' implies three different tenses in a series together. Since, a sentence like 'I saw John', according to Reichenbach, do not imply only one time, but time sequence, i.e., different tenses together, and thus the relation like 'before, after and together'. It means also, in order to understand a sentence we have to know what kind of relation there are between past, present and future, or in other words, 'before', 'after' and 'togetherness' relations between the tenses. In fact, the difference of meaning between two sentences like 'I saw John' and 'I see John' is exactly depends on their tenses. In order to understand the meaning of these sentences, first of all, we must pay attention not their truth values, but to 'when this fact happened', or to the time sequence in Reichenbach's sense, or shortly to their tenses. By the way, we can indicate the relationship between Reichenbach's differentiation of the *reference time*, *speaker time* and *event time* by the temporal connectives, or in one sense, by the connectives, since, this relation between concepts will be closely connected with the connectives in any way as it explained above. It means also that to understand any sentence implies to know not the meaning of the elements of the sentences, but the relations between different tenses.

For this reason, truthfulness and meaning of a sentence would be taken as depend on the togetherness and the time (and space) relationship, respectively. What a single sentence (i.e. a sentence which have only one predicate and one subject) express would be true, iff two things,

which are indicated by subject and predicate, co-exist. This kind of existence, or togetherness, means to be at the same place and same time interval. Knowing the *meaning of a sentence* is nothing more than to know whether this togetherness is really exist. Similarly, the same thought would be true for terms. Terms, like sentences, indicate togetherness. In other words, *the meaning of a term should be taken as depending on 'togetherness'*. Since togetherness in regard to the terms is also a becoming of some qualities, parts, some unities, etc. at the certain time interval and same place of a physical object, and therefore togetherness implies to know the coordination of the time in which these parts of a physical object exist.

So it is possible to say that our knowledge about the co-ordinations of time and place is basic, primitive and formative elements of the meaning of our terms, and of the meaning of the single sentences as well. According to this point of view, the *meaning of a sentences* is not its truth-value, but depends on whether we know the togetherness of the subject and the object really exists in a certain time interval and a place demanded by a sentence. The *reference of a term* is the object it stands for, or *of sentence* is the fact it stands for, and thus a term or a sentence refers to thing which consist of togetherness because of an object and a fact consisting of qualities, things, etc.

Just at this point we can speak of negative existential sentences like 'Pegasus does not exist'. First of all, their meaning will depend on togetherness and time, in such a manner that what the tense of these sentences can tell us. For, we know that this sentence is true because of togetherness of its subject and its predicate is always true, i.e., it is true in past, present and future. So, we can think of this sentence as "it is true that we can imagine that 'Pegasus and its non-existence are being always together'." This sentence refer that the coordination of the bundle of qualities of a thing like 'Pegasus' and the bundle of a thing which is known 'non-existence'. Togetherness, or the coordination of the 'bundle of qualities' in a time, of course, would be interpreted as ontologically or linguistically, or epistemologically. However a sentence like 'the present king of France is bald' or 'the present king of France is not bald' will be false, since the elements of these sentence does not refer now any real things *together*. But first of all, anybody who hear or read this sentence thinks or asks probably whether it's about 'the present king of

France', there is not any king today. In other words, the meaning of this sentence depends on its tense; afterwards we can decide that togetherness of object and predicate of this sentence do not indicate, at a certain time, i.e., now, anything else, and therefore is false.

We can devise different relations among facts, so coordinate them as different compounded facts by means of sentences related each other with the connectives. It is clear that this can be accomplished temporally and spatially. The way of expressing these different relations would be through different connectives. In other words, we can **coordinate** temporal (and sometimes spatial) relations between facts, actions, situations, etc., and use the different connectives, which correspond this co-ordination. It means also, we can use different relations between the sentences, so we can express different facts. For this reason, knowing the meaning of an expression, which may include different connectives, is nothing other than knowing how we use the tenses of the components of this expression. So, the reference of the different relations will be the different co-ordinations.

In other words, the relations between (actually or potentially) perceivable, or mentally devisable physical things and also events, facts, etc. imply, their co-ordination in time and place. These co-ordinations are expressible by means of different connectives. It means that the co-ordinations constructed between things by means of different connectives imply the regulations of the tenses of the sentences. Different connectives regulate the tense of sentences and also different relations or combinations between different kind of physical things, events, facts, etc. indicated by these sentences. So connectives together with the sentences describe different compounded facts. It means also that in order to describe a compounded fact we use a certain connective.

It is possible to think the natural language connectives into four groups. In the first *group* there are different connectives, which express different togetherness of the actions, facts, situations, or shortly, properties. Connectives in the *second group* express alternative relations between properties. The *third group* consists of those connectives, which emphasise the dependence of a definite property on a 'pre-existing property' like causation. If the properties depend on each other mutually, like equality, we can express this dependency with connectives in the *fourth group*. Of course in these groups the tenses of the sentences must be compatible.

In the first group, we can speak of two different kind of ‘togetherness’. First, actions, situations, physical things, etc. may be simply together at the same time. These things, which are not causally related and not depend on each other, must be at the same time (and sometimes at the same space) or at the certain time interval at least, since to be together imply, by definition, to be at the same time and the same space, as it explained above. These actions or situation may be realised in the past or present or future; in this kind of togetherness, the tenses of the sentences must indicate the same time. However we can say only linguistically, for instance, ‘I’ll go and the pencil was on the table’. But this sentence will be meaningless, since we can not speak of any compounded fact, and first of all, not imagine any -physical- relation between these two things because of their difference of the tenses, and there is not any common space between them which we can say that they share. So, its reference will be empty, and for this reason, this sentence will be not have any truth value for us.

Within the other kind of ‘togetherness’, things may be in order. Two actions, like ‘I have just come and I will go in few minutes’, are set up in order. The tenses of these sentences are different. In fact one action may follow another one without any causal relationship, and so the tenses of these sentences may be different; but in this case, there must be continuity between actions *according to certain time interval*. In this example, the act of ‘coming’ and ‘going’ are related each other according to a reference point, viz, to a certain time interval. In this case, we can speak of continuity of the actions, that is, togetherness of the actions into certain time interval. Here, the role of the connective ‘and’ is to indicate an interval, and to express togetherness in this interval. For this reason we don’t say, for example, ‘I have just come and I went in few minutes ago’.

However, it is possible to think this sentence as ‘I have just come, I wait, and I went in few minutes ago’. Here, there is a time interval between coming and going. Since, ‘the act of coming’ is before than ‘the act of going’ in this interval. On the other hand, when we can interpret the meaning of the sentence ‘I have just come and I went in few minutes ago’ as ‘the act of coming is before than the act of coming’, we could not think of two acts together. Hence, there is

not any concordance between the tense of sentences (and the time of actions) according to a reference point, or to the same time interval, or between the times of these actions.

In other words, if the sentences indicate actions, physical objects or situations, then we can speak of agreeableness between the time of these actions, objects, and situations. However, a sentence may give an information about non-physical things, for instance, mathematical things. In this case, we can speak of only the tense of the sentences. For this case, first of all, we ought to think of 'agreeableness' between the tense of sentences. For example, when the sentence 'three is an element of the set of natural numbers, and is odd' is uttered, we think implicitly that these two properties always exist conjugationally. Since, this sentence articulates the fact that these two properties that belong to the number three must be co-exist. In exactly the same way, it is clear at the first glance that the sentence 'three was an element of the set of natural numbers and will become an odd number' does not express the 'conjugateness' which is required by the connective 'and'. Here, the connective 'and' is used to express the conjugation of the properties within the same tense of the sentences.

Some words like 'because of', 'then', 'before', 'after', 'since', 'until', 'for this reason', etc. relate sentences, regulate the time of the events and the actions, indicate temporal events or actions, and they can be used like sentential connectives too. Also, these non-truth functional, or temporal connectives may express a condition and an 'if...then' sentence, or a togetherness as depend on context or utterance. For instance, 'they have a baby and they have married' would mean 'they have married because of they have a baby'. This sentence, in this sense, indicates a condition. But, the same sentence would mean also 'they have a baby and then married'. This sentence gives an information that says only 'two situations follow each other in a time interval', so it expresses a togetherness in this interval. To say, for instance, 'I'll go before (after) he come' means that two action will happen together, but in sequence. *Symbolisation of these words, semantic analysis, meanings, etc. from temporal logic point of view is will be out of my concern.* In any case, if we use non-truth functional connectives for to express togetherness, then we can treat them like sentential connective.

Consequently, ‘togetherness’ implies sometimes a moment, but sometimes a certain time interval. In the first case, two actions or events must be together at same time; in the second case they must be together in sequence, but of course in a certain time interval.

It is possible to speak of different indications of togetherness as depend on features of the sentences, that is, of the affirmative or negative properties. For instance, ‘the pencil is made of metal, but is not heavy’ gives us information about the conjugateness of two properties, which is affirmative and observable whereas the other is not. The second part of this statement express that the property of heaviness do not belong to the this pencil. In other word, they do not exist together, at the same time and place. The whole of statement means that to be made of metal and heaviness do not belong to the same object at the same time.

Togetherness may be devised negatively when also the absence of two or more properties, actions, qualities, etc. needs to be expressed. For instance, the statement ‘it will neither rain nor snow tomorrow’ also gives us information negatively about the conjugateness of two acts. In fact, this very last example is the expression of ‘joint denial’. This example also appears as a variation of the connective ‘and’, since it states that two properties do not (or cannot) coexist, or togetherness of the two properties at the same time will be not true or not real. In other words, this sentence tells us that ‘we will not observe tomorrow these two facts together’.

In second group, the connectives are used for the expression of the alternative relations (known as strong disjunction) between properties. This connective is needed when only one out of two properties is intended to be chosen. These alternative relations may appear between the sentences, which would be as both positive, both negative, or one positive and one negative (weak disjunction).

Relations of this sort must also within definite time interval. As a matter of course, it is obvious that the statement ‘the lights were on or will be off’ is without sense because of the tenses of the sentences. Especially when action-indicating sentences are considered, appropriateness not only with regard to time but to place as well must hold between the sentences. Otherwise, a senseless statement like ‘I shall go to school, or the blackboard shall be pointed green’ which violates the usage of the connective ‘or’ shall arise.

We have to take into consideration the relations between ‘p or q’ and ‘p v q’, like the other connectives and their symbolic representations in logic. ‘p or q’ is simply a linguistic expression of the alternative relation, whereas ‘p v q’ is a symbolically shortened expression of the same relation in logic. In other words, the idea of ‘alternative relation’, for instance, can be **expressed linguistically** or **represented symbolically**. For this reason, we should not to think the sentence like ‘either Caesar died, or the moon is made of green cheese’ as alternative relation (and also we should not to symbolise as ‘p v q’), since, there is not any real disjunctive relation between the sentences of this expression. First of all, a real disjunctive relation should be established linguistically between sentences according to their temporal (and spatial) concordance. For this reason, the sentence ‘either Caesar died, or the moon is made of green cheese’ does not satisfy a real alternative relation. So, we can say that while a symbolic representation ‘p v q’ indicates in fact a real alternative relation by definition, this sentence does not indicate the same relation. Therefore, ‘p v q’ can not symbolically represent a sentence like ‘either Caesar died, or the moon is made of green cheese’. Hence, we can not define any alternative relation between the components (i.e. ‘Caesar died’ and ‘the moon is made of green cheese’) of this expression. For this reason, this expression could be taken as a meaningless sentence, like ‘I am spoken’.

The symbols used in logic are usually thought as a meta-language of sentential connectives. This may be true in some extend. But, in fact, it is possible to think that the logical symbols do not represent the sentential connectives, but together they indicate to same idea or concept. So we can say that they are two different aspects of the same concept, namely, linguistic and symbolic aspect. According to this perspective, ‘p or q’ will be a linguistic expression, but ‘p v q’ be a symbolic representation of the alternative relation. For this reason, there is not a strict correspondence between the symbolic and linguistic representations of an alternative relation because they are two different languages, or say, systems. Since we can construct different symbolic systems which represent same idea in different manner.

An alternative relation says ‘choose one between two different things’. If we take this relation linguistically, we must consider some special conditions, which require temporal and spatial features. So, the main role of the linguistic representations will be to regulate and co-

ordinate the facts, actions, situations, etc. according to their temporal and spatial relations, whereas for the symbolic systems this kind of relation will not be necessary. Symbolic representation, that is, 'p v q' says choose one. For this reason, we have to think the sentential connectives as operators, which regulate tense, but symbolic representation does not. However, we can define symbols in temporal logic as represent the time, of course, if it is necessary. But we know that one aim of this representation in temporal logic is to show truthfulness of the sentences as depend on time, which will be not concerned us here.

We can define four different disjunctive relations. One of them is the relation with two positive sentences. The others have two negative components, or one components negative, but the other positive. Of course, like the other connectives, there must be temporal and spatial concordance between the components of all kinds of linguistic expressions of the alternative relations, whereas logical symbolism of this relation will not be need any more this requirement.

The third possible relation between sentences (and also between properties) is cause-effect relation. This relation constructed with the aid of the connective "if...then", requires an appropriateness with regard to time and space too. Another property of cause-effect relation which holds between sentence is that it expresses a priority-posteriority (clearly this relation holds also temporality) relation. For, the effect can not be prior to the cause, to which it gives rise to; or in a conditional relation we have to think before the premise and after the consequence as depend on it.

Within the actual usage of the language, the antecedent of the connective "if...then" may be interchanged with consequent. In fact, we can say "in order to give a lecture, I must go to school". Nevertheless, in such a modification the relation of conditionality and the connection of priority-posteriority with regard to time are still preserved. For, a closer outlook will reveal the fact that the act of "given a lecture" in this statement manifests, as a prior condition, the realisation of yet another act, i.e. the act of "going to school".

As in the alternative relation, we must separate from each other the linguistic and symbolic representation of the 'cause-effect' relationship. For, strict implication must obey the rule of temporal (and sometimes spatial) concordance, which is indicated above, whereas formal rules need only logical features.

The fourth group express equality and mutual implication between sentences. This case is expressed by the connective “if and only if”. There must be, of course, a concordance between the tense of sentences as explained before.

To sum up, relating sentences each other with the various connectives means also to co-ordinate facts, actions, situations, etc. For these things, the co-ordination should happen in time (and in space sometimes). So, in order to relate sentences by means of sentential connectives we take into consideration always a temporal (and sometimes spatial) concordance between facts. The tense of sentences, of course, must represent this concordance at the linguistic level.

It should be remarked that this consideration does not mean omitting the well known relation between sentential connectives and truth table. It means only, that if we think the connectives as depend on the tense of sentences, we can define the connectives from different point of view.

Different relations, set up by different connectives between sentences, give us a new information. In fact, settings up of relations between sentences by means of connectives are due to the need of obtaining a new knowledge in addition to that contained in particular sentences. For, the knowledge which is stated by means of a single sentence may not be sufficient in describing a situation. It means that every connective in language gives us a new information, which we can not express, with one or two separate sentences. To express togetherness by means of ‘and’, for example, means simply that at least two things are being together. This is, in fact, a new knowledge just because of “togetherness”. Togetherness imply two things (actions, situations, etc.) which should (would, will, etc.) be at the same time and same place. To be at the same time and same place means new information, which will be not depending on each sentences separately.

Taking the connectives and sentences as a unit, it leads us to speak of modalities of the connectives too.

Modality is thought as depend on the sentence, viz. as their features into manner, for instance, ‘it is possible that p’. However modality is a feature which can be thought as depend on the locality and temporality expressed by any sentence between subject and predicate, or by the connectives between subject and predicate, or by the connectives between the sentences. So, to say ‘it is possible that p’ means also ‘the subject and the object of a sentence p are possible being

together at certain place and time'. For instance, 'it is possible that the pencil is green' means that 'the subject and object of this sentence are possible be together, at the same time and at the same space of the object'. Berkeley's famous sentence 'esse est percipi' says clearly that 'it is necessary that essence and perception are (or must be) together at the same time and at the same object, or at the same space of an abject'.

For this reason, to say that 'it is possible that p and q' means 'p and q are possible together here and at a certain time'. For this reason, togetherness itself, for instance, may be necessary, probable, etc. as independent of the components of an expression. Just to say 'it is not possible that it is here now and it is there now' would be taken as an example of the modality of the connectives because the modality do not belong to the components of this expression 'being here' and 'being there', but to their togetherness. For, this expression clearly means 'it is not possible to be here and there at the same time'. A sentence like 'I'm sure that I put my glasses and cigarette in the bag' could be taken in the manner 'they must be in the bag' or 'it is necessary that my glass and cigarette are together in the bag'. Clearly, the modality of these sentences are not depend upon the components, each sentences, but their wholeness, namely, togetherness of the locality and temporality of the components. So, the modality of each sentence may indicate a possibility, but they together may express impossibility. Say for instance, 'x is a prime number' and 'x is a even number' would be separately possible, but not together. In fact, if x is a rational number, then it will be necessarily true that 'x is prime or even number'. Here again the possibility or necessity does not belong to the sentences, but to the connective too. This also means a new information comes from the connectives. So we can express the symbolic representation of the modality of connectives as fallow:

$$\wedge, \vee, \diamond\wedge, \diamond\vee, \dots$$

instead of:

$$\square (... \wedge ...), \diamond (... \wedge ...), \dots$$

Since, in the second representation the modality can be thought as depend on the sentences.

So, we can drop the well known equality, and write this inequality,

$$(p \wedge q) \neq p \wedge q$$

However, distributivity of the modality upon the sentences is true, of course, for some special cases (for some logical frames).

I hope we can understand and explain, for instance, complementarity, uncertainty, etc. by means of the modality of connectives. For example, uncertainty principle about the impossibility of the measurements of momentum and place of a particle at the same time (or together), but the possibility of measuring them separately could be shown with the following symbolisation.

$$‘\diamond p’ \text{ and } ‘\diamond q’; \text{ but they can not be together, viz, } (\diamond p \sim \diamond \wedge \diamond q).$$

Since, p and q would be separately true, or possibly true; but not together. For this reason, we can not write:

$$\sim \diamond (p \wedge q)$$

Because of the rule of distribution has been dropped for the example above indicated.

This thought about modality and connectives above mentioned is clearly against to Montague’s principle, which says ‘the meaning of an expression is determined by its parts’. Since, the meaning as well as modality of an expression depends on the connective, not its components, viz, on the sentences or on the elements of a sentence.

This kind of thought means a different logical frame. Through this frame we can get new perspective ‘about the physical world’. Since, we can say that ‘what we see is nothing else then how we see’.

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