FROM ANALYTICITY TO COGNITIVE SYNONYMY ON QUINE'S PATH

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Abstract

In this paper the problem of analyticity and cognitive synonymy will be scrutinised following Quine's path. The analysis will differ in two essential points from the usual analysis. First, not only one sentence but set of sentences will be taken into consideration. Second, the language will be studied not in a static state but in a dynamic process. I am going to examine also the change of the truth value, when a linguistic system has to incorporate a new fact of the extralinguistic world. This will suggest us that the language can be pictured rather as a net than as a tree.

Keywords: interchangeability, extensional language, language of science, meaning and empirical analysis.

1. Introduction

Quine in his famous essay 'Two Dogmas of Empiricism' which was decisive in the philosophy of science rejects that there is difference between truths which are analytic, or grounded in meanings independently of matters of fact, and truths which are synthetic, or grounded in fact (QUINE 1961a. p. 20). Quine accepts that truth in general depends on both language and extralinguistic facts, but he also refuses that the truth of a statement is somehow analyzable into a linguistic component and a factual component (QUINE 1961a. p. 36). Accordingly he denies that the statements can be separated into two classes, such as that of analytic statements and that of synthetic ones. Due to Quine's analysis it is quite plausible that a statement, like 'No bachelor is married' cannot be accepted as an analytic one without understanding and presupposing its 'meaning'. But if this is the case the problem of analyticity is not solved only reduced to the notion of meaning. Starting with meaning to solve the problem of analyticity it seems to be unavoidable to refer to the synonymy of two terms: 'bachelor' and 'married man'. They are synonymous and it is why their meanings are the same helping us to reduce analytic statements to logical truth.

Then Quine scrutinises the assumption that synonymy of two linguistic terms consists only in their interchangeability in all contexts without change of truths value (QUINE 1961a. p. 27). But interchangeability is senseless until relativized to a language whose extent is specified in relevant respects. However, in some

kinds of language – called extensional language – the extensions of two terms like 'bachelor' and 'married man' correspond to each other, as e.g. 'creature with a heart' and 'creature with kidneys'. But we would consider as synonyms only the former pair of terms, while we think the latter pair consists of heteronymous expressions. Quine argues that in an extensional language, therefore, interchangeability *salva veritate* is no assurance of cognitive synonymy of the desired type (QUINE 1961b. p. 51), because it allows heteronym expressions to be interchanged. Note that giving the extensions of terms in advance is nothing else than taking extralinguistic facts into consideration, or, otherwise, examination of the relationship between a language and a presupposed extralinguistic reality. This examination is cognition or observation itself. Extensionality guaranteed this way makes both the meaning and the analyticity senseless again. We can agree with Quine that the sameness of extensions of two terms in an extensional language inform us about this observation or cognitive synonymy recognised this way. This shows clearly why and from what a view the presupposed extensional language of science cannot be adequate. This presupposed extensionality leads to typical problems of philosophy of science, concerning observation. More explicitly states it Quine later (QUINE 1961b. p. 60) that 'the problem of finding relevant respects is, if we think of the matter in a sufficiently oversimplified way, a problem typical of empirical science'. This is why HEMPEL's (1952) assumption that 'empirical analysis and meaning analysis differ from each other and from nominal definition' is not right. Hempel claims that empirical analysis is concerned not with linguistic expressions and their meanings but with empirical phenomena, while nominal definition and meaning analysis deal with the meanings of linguistic expressions (HEMPEL 1952 p. 11–12). Now let us spend some time to examine it in order to shed light on their connections with cognitive synonymy.

Nominal definition introduces a new expression and gives its meaning by stipulation, while analytic definition is concerned with an expression which is already in use (HEMPEL 1952 p. 11). HEMPEL's own example is the following:

Let the 'tiglon' be short for (i.e. synonymous with) the phrase 'offspring of a male tiger and a female lion'.

This nominal definition fulfils its function only in this special form presented above. It must be stated again and again for every person entering into the language-using community, which repeating is a permanent re-naming. Two actors of the community who have not met yet and are aware of the nominal definition of 'tiglon' cannot use it immediately, otherwise it would be a word in use and following from this an analytic definition or meaning analysis would be possible. When one of them would use the word 'tiglon' he cannot lean on what the other has in mind by the same nominal definition. But checking the nominal definition against another is nothing else than claiming it again. The nominal definition can only capture the moment of introducing a new word, but without its special form any word introduced in this manner is as problematic as any other word. But, we must not forget that Hempel assumes there are undefined and unproblematic elements of a language. At this moment Quine's argument can be brought up again, namely who defined them thus, and when? At the bottom of a language the same question appears.

Let us suppose a language-using community whose every actor is aware of the definition of the word 'tiglon'. Now let a new actor enter into the linguistic community, but the nominal definition of tiglon is not yet introduced to him. He can observe other actors of community using the word 'tiglon', and let us allow him to understand the expression of 'offspring of a male tiger and a female lion'. Suppose that the new actor claiming that not only in relevant, but in all respects, in all linguistic and extralinguistic contexts has observed, has found an extensional coincidence of the expressions. This agreement has been discovered in this ideal case as cognitive synonymy. But these assumptions, ideal observational possibilities and good abilities of the new actor do not allow him to claim that 'tiglon' has been introduced with nominal definition. Its status cannot be restored. The new actor has had a finite observational basis, so he cannot be sure that it does not exist a situation in which he would find differences in using the examined expressions. This is why empirical analysis does not differ from meaning analysis.

If we cannot restrict ourselves to using an extensional language, then there is no guarantee that extensional agreement of 'bachelor' and 'unmarried man' rests on meaning rather than merely accidental matters of fact (QUINE 1961a. p. 30). Quine does not explain in detail this 'merely accidental matters of fact' in the case of 'bachelor' and 'unmarried man'. However, it seems to be difficult to imagine what could be accidental in their extensional agreement and it is worth giving an example when terms considered as synonyms are not synonyms anymore. Now my aim is to show what are contingent matters of fact in the extensional agreement of 'bachelor' and 'unmarried man'.

2. Has Science a Special Language?

Quine in his essay studies some sentences taken from natural language to throw light on the problem of analyticity. Why could these statements be relevant in the philosophy of science at all? Now we are at an important question which often occurs explicitly or implicitly in the philosophy of science: does the language of science differ from natural language? If it does then in what degree and from what a point of view? Quine implicitly refuses that there are differences between everyday and scientific language. It was a common opinion that the difficulty in separating analytic statements from synthetic ones in ordinary language is due to the vagueness of ordinary language and the distinction is clear when we have a precise artificial language (QUINE 1961a. p. 32). This artificial language would be the language of science. The language of science, be of natural science or of mathematics, was often opposed to ordinary language. The latter is accused not only with vagueness, but with ambiguity and inconsistency of usage. Let us turn again to Hempel to see in details in what the opposition consists. He admits that 'the conception of analytic definition or statement presupposes a language whose expressions have precisely determined meanings – so that any two of its expressions can be said either to be, or not to be, synonymous'. As he assumes this condition is met at

best by certain artificial languages and surely is not satisfied by ordinary ones. He overlooks this presupposition and does not try to verify or give an argument why he thinks the meanings of expressions of the language of science precisely determined. Hempel disregards ambiguity because he probably thinks it not to be relevant in the language of science at all. Ambiguity of a word for him is 'having several distinct meanings'. Presumably what he has in mind is the following: in ordinary language we use the same term for different things, for example 'light' may mean now the opposite of 'dark', then the opposite of 'heavy'. But this never can happen in science according to Hempel. So disregarding the ambiguity there remains the problem of vagueness – lack of determinacy – and inconsistency of usage. He assumes that the language of science satisfies these presuppositions. Maybe in physics it is no problem to decide what is electron and what is not. But not so easy to tell in everyday language what is a hat and what is not. This problem was characterised by him as the notion of everyday language has no sharp, well-defined boundary opposite to language of science. But I hope we can see at the end of our studies why Hempel's characterisation is not right.

There is a background assumption that science has already a special language free from the problems mentioned. If it were yet not the case then it can be hoped it will have. An artificial language can be given to science or the science would reach this special condition not inheriting the troubled features of ordinary language. But a tacit supposition lurks here again. It is supposed that all the linguistic features of an artificial language such as analyticity can be understood within that language, not given from outside, in the everyday language. The notion of analyticity is a relation between statements and languages, and this relation has to be given universally and independently of any particular language, otherwise, interpreting and separating analytic statements is not within that language, but outside of it in an everyday language. In this latter case all the sentences of an everyday language which are used in advance to separate analytic statements should count rather as those of the scientific language than of the everyday one. This shows the presupposed but not cleared up notion of analyticity is used. Anyway, if it is impossible to give a good, clear argument or solution to the problem of meaning, analyticity, synonymy and definition for a natural language we cannot hope or assume that it can be given to a scientific one. This is why in this paper I am going to use the same illustrative sentences as were by Quine. – 'No bachelor is married' and 'No unmarried man is married'.

3. Showing Contingency

In the following part of my paper I will scrutinise the problem of analyticity and extensional coincidence starting with interchangeability and cognitive synonymy.

I will apply a simplification in order that the set of men can be divided into two disjunctive and exhaustive subsets unambiguously, a subset of bachelors and a subset of married men. With this simplification my aim is to disregard such problems

as that whether a widow, a divorced or a young man is a bachelor or not. Sharpening the boundaries of the notions and making the model simple enough we can eliminate the charges brought up by Hempel. Since in my model the borderline of the notion is well-defined and clear-cut, Hempel's argument concerning the lack of determinacy and inconsistency of usage can be rejected. This model helps us to see that problems occurring without vagueness show another sort of inadequacy of the traditional idea of language. I will argue that there are some background assumptions or facts that are fixed or built in the language. One of these assumptions will be a social one in our case. The changing presupposed extralinguistic facts are to show what is this assumption and how the language really works. The problem and the connections amongst analyticity, meaning, cognitive synonymy and definition can be seen in a dynamic process not in a static state of a language. This analysis will confirm Quine's numerous findings and some can be specified or modified.

Let us examine Quine's illustrative sentence further. The married-unmarried conceptual counterpart can be or is related to the following concepts: husband-wife conceptual counterpart and bachelor. At the present state of the European community the following concepts are cognitive synonyms and interchangeable without changing the truth values: husband = married man = a man having a wife = not bachelor. Some of the expressions sound strange at this moment because they are rarely used in this way or mean the same. This is grounded on the tacit and socially determined fact that marriage is taken to be possible only between a man and a woman. This is the contingent matter of fact that causes the coincidences of extensions mentioned above. Then at this state of a European society we can claim the following sentences with their truth values (*Fig. 1*)

(1)	No bachelor is married man.	True
(2)	No bachelor is husband.	True
(3)	All married men are husbands.	True
(4)	All married men have wife.	True
(5)	All husbands have wife.	True
(6)	There is a man not bachelor and not husband.	False

I have taken full advantage of the simplification mentioned above to divide the set of men into two disjunctive and exhaustive subsets. One of them is a subset of bachelors or set of unmarried men, while the other is a set of married men or set of husbands. Sentences (1), (2) and (6) are about bachelors, while statements (1), (3) and (4) are about married men. Till now it would be very difficult to deny any of them. Accepting cognitive synonymy or interchangeability this allows us to verify the truth value of the sentences. I think, if there are analytic statements we have no reason to deny sentences (1)–(6) as analytic ones. Note, however, that some of the sentences are not only about the synonymy of terms studied by Quine, but others which are connected with these ones.

Let us suppose now the society to make marriage possible between men, which, I think, is not quite inconceivable. We have a possibility to create a sub-set inside the set of married men but apart from the set of bachelors. Choosing this possibility not every uncertainty can be eliminated and in consequence, the
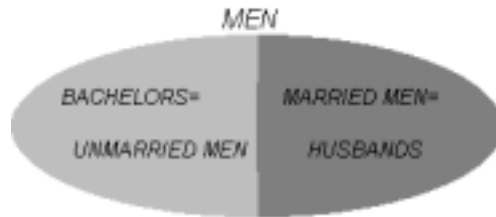
Fig. 1. The starting condition in the present state of the community

incorporation of a new fact cannot be made in one step. As it can be seen the extensional agreement of 'married men' and 'husbands' has got into trouble. The meaning of them have to be reinterpreted. Since having made a decision once to choose this possibility was not enough to eliminate every uncertainties, we must decide again whether mostly the synonymy of 'married man' and 'husband' should remain the same (in Case#3) or the definition of 'husband' (a man in marriage with a woman) should be kept true (in Case#2). It is shown on *Fig. 2* and *Fig. 3*, with their interpretations in *Table 1*. If we look at *Table 1*, the truth values of the first two statements remain unchanged, sentence (4) has changed in both Case#2 and Case#3, while sentences (3), (5) and (6) have changed in the opposite direction to each other in Case#2 and Case#3. But as it can be seen not only one truth value has changed in any case. If it is important for us that sentence (3) or the component of the meaning captured in this statement must be true, then we should choose Case#3, but if sentence (5) should be taken to be true then Case#2. (I asked some of my friends and they gave different answers that should be kept true.) Extensions of two terms formerly considered as synonyms have come apart. This supports Quine's argument namely extensional agreement of two terms does not guarantee that it depends on their meaning rather than grounded in the accidental matters of fact.
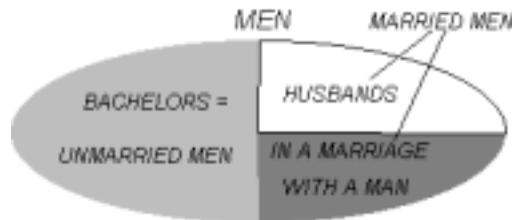

Fig. 2. The new subset created in order to save the meaning of 'bachelors' and 'husbands'

Contrary to the previous case there is another possibility to create a subset but not apart from the set of bachelors. Inasmuch as sentence (1) is taken alone as definition or analytic statement, it does not claim anything about the connection between 'bachelor' and 'man living in a marriage with another man'. Statement (1)

Table 1. Distribution and change of the truth values in the examined cases

	Case#1	Case#2	Case#3	Case#4	Case#5
No bachelor is married.	1	1	1	0	0
No bachelor is a husband.	1	1	1	1	0
All married men are husbands.	1	0	1	0	1
All married men have wife.	1	0	0	0	0
All husbands have wife.	1	1	0	1	0
There is a man not bachelor and not husband.	0	1	0	0	0
Change of truth values compared to the starting condition (Case#1)	–	3	2	3	4

or any other statement itself does not govern the meaning of bachelor in a dynamic process. So we should turn to other statements to get the whole meaning of a term or accept vagueness or uncertainty of a term concerning a new situation. But this is not the traditional picture of language. What sort of arguments can be brought up for the sake of this case will be studied later. As above there are two possibilities again to choose the synonymy to remain untouched, but one of them has to be given up. Now let us see as Case#4 and Case#5 on *Fig. 4* and *Fig. 5* with their truth values in *Table 1*.
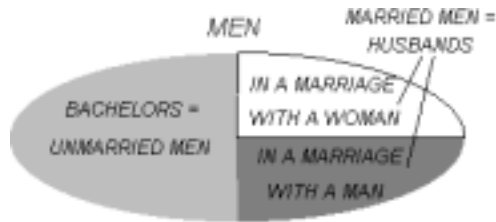

Fig. 3. The new subset created in order to save the synonymy of 'husbands' and 'married men'

Note that, first of all, we do not have one and only one possibility to handle this problematic situation.

Table 1 shows well the distribution and the change of truth values in all cases compared to the starting condition. The least radical changes occur in Case#2 and

Case#3, when a new subset is apart from bachelors, and Case#3 seems to be the best currently. In Case#3 the truth values of statements concerning mainly 'bachelor' remained the same, whereas it cannot be said for statements concerning 'married man' or 'husband'. Now there could be an opinion that there is a best case, and in the best case there is a term (bachelor) the meaning of which seized in sentence (1) or (2) is unchanged. But this is an illusion, and it does not save analyticity at all. If we had started the consideration with choosing sentences out concerning the term 'husband', then Case#3 would not have been as good as in case of 'bachelor'. In Case#3 the synonymy of 'unmarried man' and 'bachelor' is saved in the first step, and after that for the sake of saving the synonymy and extensional agreement of 'husband' and 'married man', but at the expense of giving up the component of meaning of husband (a man having a wife). It is uncertain that how many and which sentences should be taken into consideration in order to see and be able to choose the best solution. It is also uncertain which term remains untouched, and it depends on our decision which meaning is given up for the sake of other terms.
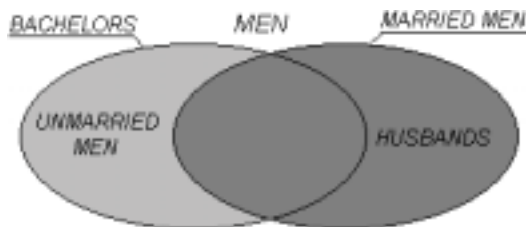

Fig. 4. The new subset created not apart from bachelors and saving the meaning of 'husbands'

The words or terms are not connected only to the extralinguistic world, but to each other and they have further connections. Altering the truth value of one sentence it seems to be unavoidable to modify the truth values of some other statements. It suggests a picture of the language as not a tree rather more as a net or a web.

Now it was an open question where to create the new subset of 'man living in a marriage with another man'. Having at least four cases to deal with this problem, it seems plausible that the meaning does not govern this dynamic process. There is no such an essence of the meaning that can guide us managing a new situation. The lack of determinacy of meaning is not a question of vagueness, rather the question and degree of lack of knowledge. The problem of statements is not that they claim explicitly rather that they cannot. But this inability is not the question of vagueness.

Fig.5.

Having led up the alternative of Case#4 and Case#5 it could have seemed to be difficult to defend it, because the truth value of statement (1) has to be altered immediately. It was because we concentrated on the illustrative sentence (1), taken from Quine. But it is also quite occasional that which sentence is in the centre of
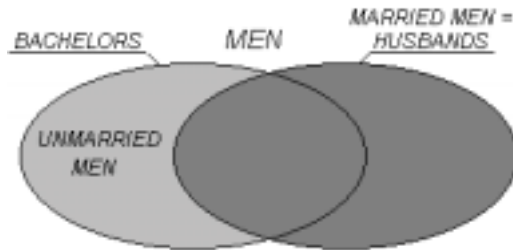
Fig. 5. The new subset created not apart from bachelors and the synonymy of 'husbands' and 'married men' is saved

our attention. Now let us turn our attention to the Hungarian translation of Quine's essay. F. Szabó István translated the sentence 'No bachelor is married' into the sentence 'Egyetlen agglegény sem nős'. I mean he did not give a bad solution, but he took full advantage of the cognitive synonymy of terms of 'nős' and 'married man'. But there are differences between Hungarian and English. In English there is not a word like 'wifed' (nős) or something else similar, so its negation (unwifed = nőtlen) cannot be formed either. But there is a pair of words in English (married, unmarried) from which one can be translated into Hungarian, namely 'married man' into 'házas', but not 'unmarried man' into 'házatlan'. Therefore in different languages different sets of statements can be declared. Following the Hungarian illustrative sentence and considering the problem in Hungarian we would have faced different problems. In such a case there is a sentence which remains true for all examined cases. Considering the statement in Hungarian given by F. Szabó, there is no reason to refuse Case#4 and Case#5 immediately at the moment of introducing this alternative. The whole meaning of a term cannot be captured in one statement: it is quite contingent that we have a sentence which does not alter its truth value in every transformation or we have an ability to select it out from a set of statements in advance. Although the last problem does not concern synonymy in a language only concerns synonymy of terms between different languages it confirms that the language is a system. The words or terms get their meanings in linguistic or conceptual net. A case or a solution which are the best for a language cannot be absolutely the same or even construed in another one. Different linguistic systems can incorporate the same knowledge, but they have different problems handling such a dynamic process scrutinised above.

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