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## Some peculiarities of synthetic components of (meaning) postulates\*

As the title of this lecture already makes clear, I shall be talking about such things as meaning postulates and their synthetic components; however, I shall also be mentioning various things analytic, synthetic, *a priori* and *a posteriori*. While analyticity and apriority are classical topics of both Kantianism and analytic philosophy, the language of meaning postulates is more characteristic of philosophy of science: in non-scientific and generally non-technical discourse there does not seem to be any well-delimited class of meaning postulates, much less a well-delimited class of explicit definitions. However, I wish to explain that this talk will not be a piece of philosophy of science. I shall be trying, instead, to derive morals from philosophy of science for general analytic philosophy. Within philosophy of science my major point of reference will be the rich tradition of Polish formal methodology. As a representative sample thereof I take, first of all, the article by Przełęcki and Wójcicki entitled ‘The Problem of Analyticity’ (*Synthese*, 19 (1968/69)) but also the classical work by Przełęcki, *Logic of Empirical Theories*, and a number of other pieces. My major interest is in the dichotomy analytic-synthetic; the splitting-up of meaning postulates into synthetic and analytic components is, as we know, a technique invented by Carnap and very well explained by Przełęcki and Wójcicki in their ‘Problem of Analyticity’ for dealing with the problem of the border between analytic and synthetic. I shall explain all of this in great detail.

Let me first say a few words on why I think the problem of the analytic-synthetic is still worth dwelling on. I disagree with van Benthem (1984), Turquette

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(1950), DeLong (1970, pp. 222f.), and a host of other philosophers, who claim that the dichotomy is quite uninteresting, as distinct from such dichotomies as ‘recursively solvable’ vs. ‘not recursively solvable’. In order to make the dichotomy (appear) interesting, one has only to put the dichotomy into the right perspective. Now, the right perspective, I should like to maintain, is that of analytic philosophy in its very essence. For analytic philosophy, especially where it takes up classical philosophical topics anew, can be justly characterised as a gigantic effort to revolutionise and re-write all philosophy hitherto existing. The re-writing consists in the fact that where traditional philosophy saw problems and advanced statements concerning the world as it presumed it to be, analytical philosophy invites us to see merely linguistic conventions or their logical consequences, briefly: analytic sentences in a vaguely Fregean sense of the expression ‘analytic’. Such linguistic conventions are, once made explicit, amenable to formal treatment. Analytic philosophy sees its proper task in both making the conventions explicit and treating them formally, so as to derive as many interesting-looking consequences as possible. A philosopher trying to keep a balance between the analytic and non-analytic part of his philosophical heart is, therefore, challenged to ask himself whether it is really true that all substantial assertions of traditional philosophy are ‘nothing but’ linguistic conventions—conventions that are, to be sure, more or less useful, but no more ‘true’ or ‘false’ than driving on the right or on the left is ‘correct’ or ‘incorrect’ in itself if everyone else does the same.

All this said, I hasten to explain that I shall be dealing as little with problems of genuine hard science here as with those of genuine hard traditional philosophy. Instead, I shall be using simple innocuous examples from the domain of common sense; most of such examples can, at best, be regarded as parts of prototheories or inchoate theories of their subject-matter, never worked out into real theories, probably due to their lack of wider relevance. For example, all Humean propositions expressing what Hume calls ‘relations of ideas’ belong here. One of them is the proposition ‘blue resembles green more than it resembles scarlet’, and *this* proposition will be the main hero of my talk. Propositions like this *sound* scarcely less true than propositions such as ‘no bachelor is married’. This has been the occasion for the assumption—extremely common in analytic philosophy, and criticised by some, except that the criticism has been rarely heard—that propositions expressing ‘relations of ideas’ are all ‘analytic’ in a vaguely Fregean sense, namely that of being true in virtue of meaning and logic alone.

As we all very well know, this vague notion of the analytic was nearly demolished by Quine, in ‘Two Dogmas’ and a number of other papers. Carnap, however, undertook an effort to salvage it, and proposed the idea of a *meaning postulate*. A meaning postulate is an arbitrary sentence, stipulated, as Carnap says in ‘Meaning Postulates’, an appendix to *Meaning and Necessity*, not ‘as a matter of knowledge but of decision’ (Carnap 1956, 225). If a given sentence is logically entailed by such postulates, that is, model-theoretically speaking, if it holds in all state-descriptions in which the postulates hold, then it is analytically true. Carnap thinks that this is a good ‘explication’, in his terminology, of the phrase ‘analytically

true', i.e. that it formulates in an exact way what was only vaguely adumbrated in that vague Fregean sense of 'analytic' I mentioned before.

Should someone, for example, lay down this—Carnapian—meaning postulate: 'All individuals, if they are bachelors, then they are not married', the sentence quoted above, namely: 'no bachelor is married' would turn out, by contraposition, to be logically entailed by the postulate in question, and thereby it would turn out to be analytic.

So far so good. However, if laying down meaning postulates is 'not a matter of knowledge but of decision' then it is easily seen that not all systems which contain meaning postulates, be they systems of science, protoscience, or whatever, can consist of meaning postulates only. Because if they did, they would not contain or express *any* knowledge—which would be an extremely unwelcome consequence. This implies that the meaning of *not all* of their extralogical expressions may be postulated by means of Carnapian postulates—the meaning of some must be given by other means. Przełęcki and Wójcicki, but also Janina Kotarbińska, another Polish methodologist, insist that at least some expressions must be defined ostensively (Przełęcki and Wójcicki 1977, 592); otherwise, they think, the necessity of contemplating 'queer' models, consisting only of linguistic items, on a par with 'real life' models will be unavoidable.

Suppose then, to make matters in this study simple, that the meaning of the expression whose meaning is not fixed by meaning postulates is determined by ostensive definitions only. Then the question arises: how do those ostensive definitions 'enmesh' with meaning postulates? How do these two ways of endowing expressions with meaning co-operate with each other to render a well-knit-together system of knowledge which contains analytic as well as synthetic truths?

Let us ponder this question on the example of the Carnapian postulate 'All individuals, if they are bachelors, then they are not married'. To make it a stand-alone meaning postulate, let us assume that it endows only one of its extralogical terms with meaning, and let this term be '... is a bachelor'. Let us, further, assume, that '... is married' has been defined ostensively, with reference to a certain type of ceremony, or to the possession of a certain type of certificate. Now what happens once we have introduced the Carnapian postulate into our system? We have one expression of our language more, whatever that language might have been, maybe the language of a prototheory of civil status or something like that. In addition, our universe of discourse has been carved up into two classes more: the class of individuals that are bachelors and the class of individuals that are not. This carving-up *has*, in a way, been a matter of knowledge, for we had to know where the border between the married ones and the not married ones lies. But within this limit, we were free to draw a border dividing bachelors from non-bachelors, as we pleased, as long as it was within the area assigned at the stage of ostensive definitions to the not married ones.

Let us now call the operation as a result of which we have one expression more in our language an *enlargement* of the original language. Following Przełęcki and Wójcicki (1977, 591) we shall establish that the Carnapian meaning postulate for the sake of which the enlargement was effected is *non-creative*, as they call it, with

respect to the original language. What does this mean? It means that, no matter which universe we should have taken as a model of the original language, we shall always find a universe that is different from the former only in that it contains a class of bachelors and a class of non-bachelors—and is thereby a model for the enlarged language, in which the meaning postulate in question is true. In other words, the postulate is non-creative if *any* model of the original, non-enlarged language can be enriched in such a way as to make the postulate true. The expression ‘non-creative’ in this sense is a new name for the a priori, claims van Benthem. And it is with good reason that he makes such a claim. For *prior* to any knowledge of what the model for the expression ‘... is married’ looks like, we know that the meaning postulate *will* be true, because we will make it so: by carving out a class for bachelors within the complement of the class assigned to ‘... is married’, whatever it, I repeat, might turn out to be. This carving out will be the convention-forging part of our job.

In symbols (Formula 1):

$$\begin{aligned} & \text{if } L' \in \text{Enlarg}(L), \text{ mp} \in \text{Sent}(L'), \\ & \text{then mp is non-creative with respect to } L \\ & \qquad \qquad \qquad \text{iff} \\ & \forall M \in \text{Mod}(L) \exists M' \in \text{Mod}(L') (M' \upharpoonright_L = M \& \text{ mp} \in \text{Ver}(M')). \end{aligned}$$

Most of the symbolism is self-explanatory; ‘ $M' \upharpoonright_L$ ’ stands for this part of the model  $M'$  which provides an interpretation for all extralogical expressions of  $L$  and only for them.

Yet, unfortunately, not all enlargements of a given language are non-creative in the above sense. Consider the Humean proposition I introduced earlier on: ‘blue and green resemble more each other than blue resembles scarlet’ (more exactly, it is ‘blue and green are different simple ideas, but are more resembling than blue and scarlet’, *Treatise on Human Nature*, Vol. I, bk. I, part I, sect. VII, note added in the Appendix to the 3rd volume, p. 637 in the Selby-Bigge edition of 1978), which can be regarded as part of a kind of prototheory of colours. As Hume points out, the ‘ideas’ of colours involved in this proposition are simple, so there is nothing we could discern within them and say that *it* constitutes the resemblance and the difference in degree in both cases of resemblance. This I take to mean that the Humean proposition does not follow logically from any set of propositions formulated in a purely observational language containing ‘blue’, ‘green’, ‘scarlet’ and some more extra-logical terms. It would have so followed, for instance, if ‘...resembles...’ had been defined by recourse to some such thing as, for instance, having a common part, and if blue and green had had more common parts than blue and scarlet. Yet nothing of this sort is the case here. On the other hand, Hume also notes, there is no possibility of ‘thinking away’ the above proposition from the very ‘ideas’ of green, blue, scarlet, and the relation of resemblance. Because of this, the Humean proposition, despite the happy irrelevance of its subject-matter, can be fairly said to belong to the same family as most ‘first truths’, *primae veritates*, of traditional philosophy. Of these, Wolfgang Stegmüller once said that they have to

be synthetic *a priori* if philosophy is to survive; now, analytic philosophy would like, as I mentioned before, to ‘unmask’ them as merely linguistic conventions.

Let us now, then, go ahead and try to unmask the Humean proposition as a mere linguistic convention, i. e. an analytic sentence, in the above vaguely Fregean sense made precise by means of the Carnapian concept of a meaning postulate.

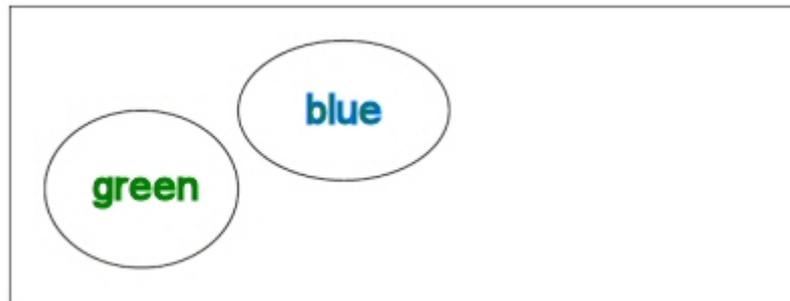
The matter is now to find a suitable meaning postulate. This is not so easy. Polish methodologists are never tired of reminding us that there are no easy solutions available here. Strictly speaking, there are no solutions here at all, only decisions motivated by pragmatic considerations. In an established body of knowledge, such as a scientific or a philosophical theory, there usually *are* meaning postulates flagged as such, in the optimal case, as explicit definitions, but these are as a rule not the only meaning postulates, in the given body of knowledge. What are the others? This we do not know: and hence the eternal controversies about the status of, for example, Newtonian laws as meaning postulates or as synthetic statements. In inchoate prototheories, such as the Humean prototheory of colours, not even *some* from amongst its meaning postulates are marked as such.

Here is, however, a short pragmatic consideration that will help to make a decision possible: Suppose we have already a meaning postulate stating that ‘scarlet is a kind of red’. In addition to this, we adopt another meaning postulate to the effect that ‘Blue and green resemble more each other than blue resembles red’. From both meaning postulates taken jointly the Humean sentence easily follows, thereby turning out to be analytic. Let us stipulate, to make things simpler, that the second meaning postulate postulates a meaning for the expression ‘red’ only. This postulate expresses, as befits a meaning postulate, not our knowledge, but our decision not to call ‘red’ various reddish-pinkish-purplish shades to which certain purplish shades of blue could be seen as have equally much, or even more, resemblance than certain other shades of blue have to green. We simply refuse to call such chromatic tones ‘red’ however close they might be to some other chromatic tones which we do call ‘red’—and *that* is the decision that our meaning postulate embodies.

Now the question arises: Is this meaning postulate really *a priori*? i. e., is it ‘non-creative’ in Przełęcki and Wójcicki’s sense, just as was the Carnapian meaning postulate ‘all individuals, if they are bachelors, then they are not married’? If it is not, then we are faced with the portentous alternative of either acknowledging the existence of analytic non-*a priori* sentences (oxymoronic though this syntagma sounds), for the Humean proposition would then be one, or of denying that the Humean proposition is analytic, despite its apparent obviousness and despite our incapability of thinking up a state of affairs that would make it false. The first horn of this alternative was embraced by another Polish methodologist, Maria Kokoszyńska, who elaborated a sophisticated theory of the analytic (see her ‘Illusions of Apriorism’ for instance). Professor Woleński holds that this theory—which he calls the ‘Polish theory of the analytic’—deserves much more attention than it has so far attracted in the discussions on the analytic held world-wide. I, for my part, shall explain the reasons why I think the second horn of the alternative—i. e., that the Humean proposition is not really analytic—is worth considering.

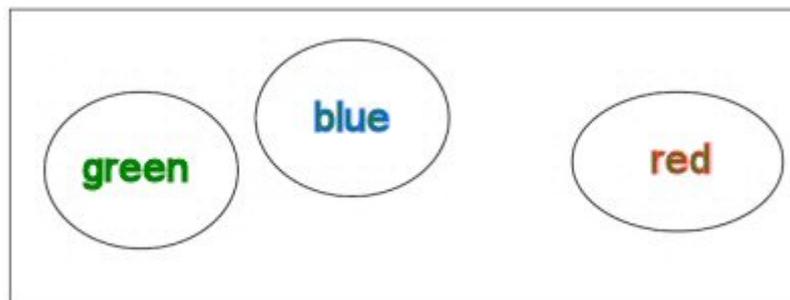
Let us return to the question: Given the meaning postulate ‘blue and green resemble more each other than blue resembles red’, taken as introducing a meaning for ‘red’ into our original language, i. e. a language where ‘blue’, ‘green’ and ‘...resembles...’—or maybe rather ‘...resembles...more than...’—are already defined, namely, by ostension—is this postulate non-creative with respect to this original language? Traditionally formulated: is this meaning postulate *a priori*?

It does not take much work to discover that it is not. For non-creativity demands that *every* model of the original language should be extendable to a model making the meaning postulate true. That is, we should *a priori* know that whatever the world in which the terms of the original language are defined looks like, we shall be able to impose upon it a new structural element—in our case, carve out a new class—which in co-operation with the elements hitherto existing will make the meaning postulate true. This was the case with the Carnapian meaning postulate ‘All individuals, if they are bachelors, then they are not married’, due to its simple logical structure. But with the meaning postulate currently under discussion, matters are quite different. Suppose that for ‘blue’, ‘green’ and ‘... resembles ...’ we have a simple model like this (Figure 1):



where the relation of resemblance is represented by the geometrical distance between the ellipses standing for ‘green’ and ‘blue’.

In this model there is, of course, plenty of room—in our case, that of the graphical representation, ‘room’ in the literal sense—to carve out a class for ‘red’ in such a way that the meaning postulate in question will be true. For instance, like this (Figure 2):



But there are also other models for ‘green’, ‘blue’ and ‘... resembles ...’; for instance one like this (Figure 3):



Here, there is quite literally no room at all for ‘red’ to be squeezed in in such a way that the meaning postulate would be true. Unless, of course, we should admit that the class for ‘red’ could be a subclass of ‘green’, which I think we may safely assume to be disposed of by another meaning postulate. This means that the meaning postulate under consideration is not non-creative (i.e. that it is creative), unless we know *a priori* that such universes as the above one are not amongst the models for ‘green’, ‘blue’ and ‘... resembles ...’. But unfortunately, we can know this neither *a priori* nor *a posteriori*, because there obviously *are* uncomfortable models for our original language (the one containing ‘blue’, ‘green’ and ‘...resembles...’ but not ‘red’)—we just constructed one!

Now if there are such ‘uncomfortable’ models upon which a meaning postulate cannot be imposed, then all analytical sentences derivable from the postulate are non-*a priori* in the sense that in order to assert them one has to check if one is talking about, or rather within, the right—not ‘uncomfortable’—kind of model. If so, then the analytic sentence is true. If not, then the analytic sentence is not false but senseless; it cannot be false: that is the difference from empirical sentences. For this reason, calling ‘analytic non-*a priori*’ sentences following from meaning postulates faced with ‘uncomfortable models’ need not commit us to calling them ‘analytic *a posteriori*’, which would have been a truly scandalous name. This is the gist of Kokoszyńska’s theory of the analytic, mentioned above.

Now the question arises: How to deal with the claim that no meaning postulates are a ‘matter of knowledge but [rather] of decision’, if some of them plainly are creative? (The problem goes back, beyond Przełęcki and Wójcicki, to Ajdukiewicz (1958)). On the face of it, for creative meaning postulates this claim is false. They *are* a matter of knowledge, to wit: the knowledge that the world is such that in it, they *can* be true and *will* be true if within this world a reference class is demarcated for the term they postulate meaning for. More precisely, in order to put a creative meaning postulate to work, one has to know that such a class can be demarcated in the model one is dealing with—otherwise, the meaning postulate will remain a useless tool. For example: I can of course, if I so choose, introduce the sentence ‘dragons spit fire’ as a meaning postulate for ‘dragon’, but this will not in the least concern our fire brigades, as in our world as we know it, fire-spitting creatures (which ‘dragon’ could, via the meaning postulate, designate) just happen not to exist.

This observation allows us, I claim, to understand why certain propositions, even if obviously analytic, are informative, although we are used to thinking, at least since Kant’s times, that whatever is analytic, cannot be informative, for it is

true ‘come what may’ and does not exclude anything, that is to say, does not carry information. For example: We often hear such injunctions as ‘don’t eat too many sweets; too much sugar is bad for your health’. This is—or at least seems—clearly analytic, for how is ‘too much’ to be understood if not as ‘being bad for one’s health’? And yet, the proposition is informative, for it tells us that there is a measure of the in-take of the respective stuff, sugar in this case, that is excessive, i.e. ‘bad for our health’. It is clearly for this reason why we never hear that too much water or too much fresh air is bad for our health. To take a different example, recall the Latin inscription on old tower-clocks: ‘*vulnerant omnes, ultima necat*’ (all of them [hours] wound, the last one kills). This is clearly analytic too, at least as far as the ‘*ultima necat*’ part is concerned, for which hour is the last one if not the one that kills? Yes; but the information conveyed by this analytic proposition is exactly that there *is* an hour that is the last one (and kills).

But instead of accepting the existence of non-apriori analytic sentences (a monstrous idea!), we can follow the way opened up by Carnap in his ‘*Beobachtungssprache und theoretische Sprache*’ of 1958. It consists in splitting up meaning postulates into an analytic and a synthetic part. This is also the way taken by Przełęcki and Wójcicki. Professor Woleński once appraised it as ‘going in the right direction’ as far as the problem of analyticity is concerned (Woleński 1993, 165f.) According to Przełęcki and Wójcicki only consequences of analytic components of meaning postulates should count as analytic sentences.

This is not what I am interested in in this talk, however. I am interested in synthetic components, instead, so let me proceed to them. Roughly speaking, the synthetic component of a meaning postulate states that, as a matter of fact, the world is such that the meaning postulate can be made true in it—for instance, that there is a measure of the substance that is excessive, in the sense of being harmful to your health or that there is an hour that is the last one and kills. The analytic component of a meaning postulate states that if the world actually is that way then the expressions that the meaning postulate stipulates meanings for have such meanings as to make the meaning postulates true. Note that the analytic components of meaning postulates, as distinct from the meaning postulates themselves, are always true, truly ‘come what may’, however uncomfortable a model of the original language may be.

Let us make the part concerning the synthetic components of meaning postulates more precise. Let us assume that we have only one—creative—meaning postulate; call it P. According to Przełęcki and Wójcicki (1977, 602), the synthetic component of P—Ps, as I shall call it—ought to satisfy two conditions:

1. It must not presuppose anything about, or contribute in any way to, the meanings of the expressions for which P is a meaning postulate, i. e. about the classes carved out for those expressions in various universes of discourse. More precisely, if L is our original language, and L’ the same language enriched by the expressions for which P is a meaning postulate, and if M and M’ are models for L’ differing at most in how they provide for the vocabulary of L’ enriched with respect to that of L, then Ps should be at the same time true or false in both M and M’. In symbols (Formula 2):

$\forall M, M' \in \text{Mod}(L')$   
 if  $M|_L = M'|_L$   
 then  $P_s \in \text{Ver}(M)$  iff  $P_s \in \text{Ver}(M')$

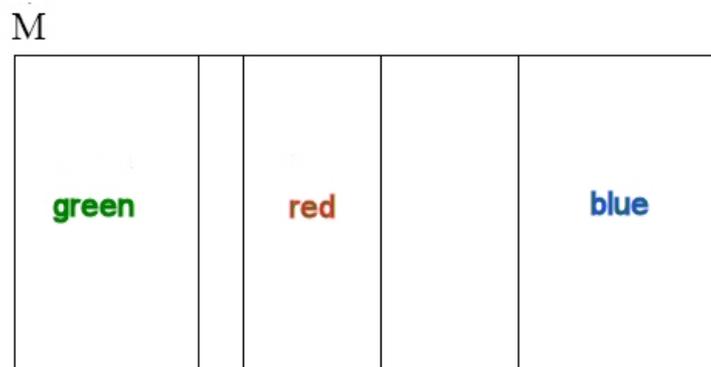
This means that, if only two models for the enriched language agree on how they differ—or that they do *not* differ—with respect to the expressions of the original language, then you cannot tell, just by looking at the synthetic component of the meaning postulate, how the models differ, if they do differ, with respect to the new class carved out in both models for the new expression, the one the meaning is being postulated for.

Let us illustrate this by means of the following: Let our meaning postulate be, again, the ‘Humean’ one: ‘Blue and green resemble more each other than blue resembles red’ and let ‘red’ be the expression for which meaning is thereby being postulated. Let us consider, as a model and a starting point for our consideration the following ‘uncomfortable’ model for the original language with ‘red’, ‘green’ and ‘... resembles...’ but without ‘red’ (the distance between areas symbolising the relation of resemblance) (Figure 4):

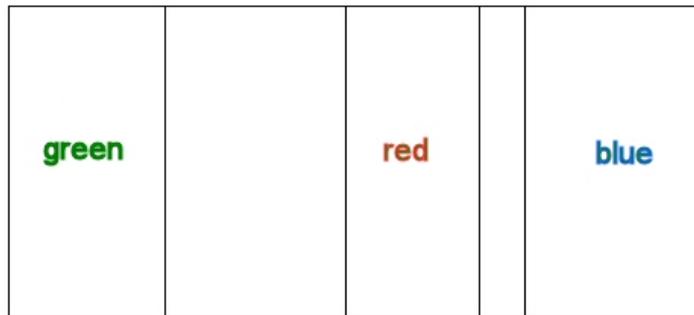


Starting from this model—let us call it ‘Mo’, the ‘o’ standing for ‘original’—we construct two pairs of models M and M’, one (a) in which the classes for the original colour-words are not, the other one (b) in which they are—uniformly—‘tampered with’, that is to say, adjusted so as to fit into it a new class to be carved out for the meaning postulate so as to make it true. (Figure 5):

a)

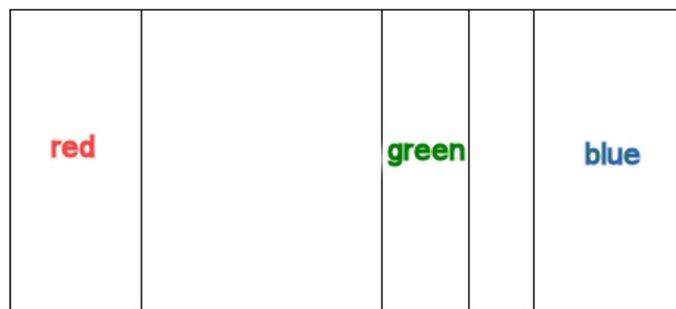


M'



b)

M



M'



Let us assume that both for a) and for b), respectively, the models M and M' do not differ as to what they carve out as classes for 'blue' and 'green' and what degree of resemblance—geometrical distance on the pictures—between both of those they lay down. In symbols, for for a) and b), respectively, we stipulate that (Formula 3)

$$M|_L = M'|_L.$$

Now, the condition for the synthetic component of the meaning postulate currently under discussion demands that the synthetic component  $P_s$  should not discriminate between  $M$  and  $M'$  in both cases. For case a) one way of discriminating would be to imply that red resembles more green than it resembles blue, for this is true for  $M$  but not for  $M'$ . Yet exactly this is forbidden, for that would contribute to the meaning of 'red' which  $P_s$  is not allowed to do. Note that for case a), the meaning postulate, and presumably any of its synthetic components is *false* with respect to both  $M$  and  $M'$ . For case b), one way of discriminating between both models would be to imply that green is closer to blue than to red, which is true for  $M$  and not for  $M'$  (in  $M'$ , green is equidistant from both). This, again, would amount to contributing to the meaning of 'red', which is forbidden. Note that in this case, b), which happens to roughly correspond to what physicists call a 'simplified radiation curve for sunlight', the meaning postulate is for both models true (while in case a) it is for both models false).

The second condition is:

2.  $P_s$  and  $P$  must agree on how they require us to tamper—or that they do not require us to tamper—with the classes carved out for the expressions of the original language. In symbols (Formula 4):

$$\begin{aligned} \forall M \in \text{Mod}(L) \\ \exists M' \in \text{Mod}(L') ( M' \upharpoonright_L = M \ \& \ P_s \in \text{Ver}(M') ) \\ \text{iff} \\ \exists M' \in \text{Mod}(L') ( M' \upharpoonright_L = M \ \& \ P \in \text{Ver}(M') ) \end{aligned}$$

Whereas condition 1) made sure that the synthetic component of the meaning postulate did not contribute at all to the meaning of the new expression introduced by the meaning postulate itself, and thus did not interfere with the job done by the latter, condition 2) makes sure that the synthetic component contributes all there is to contribute to the adjustment of the classes carved out for the expressions of the original language. The other components of the meaning postulate do not interfere with this job at all.

If we consider model  $M'$  of case b) above, for example, we immediately see that it makes our meaning postulate true; so, we conclude, if there is a  $P_s$  for it, there is a model  $M''$  of the enriched language not different from  $M'$  with respect to 'green', 'blue' and '... resembles ...' for which  $P_s$  is true.

Let us now consider the question of what an actual synthetic component of a meaning postulate could look like. We shall find one for our 'Humean' meaning postulate and examine it against the background of both conditions just introduced.

Przełęcki and Wójcicki (1977, 603) claim that, if the class of the meaning postulates is a finite one, then the so-called Ramsey sentence is a synthetic component of the conjunction of all meaning postulates. This is also the line adopted by Carnap in (1958). The Ramsey sentence is very much like the conjunction of all the meaning postulates except that the terms which the meaning postulates introduce are all replaced by variables of the right type and the whole conjunction is preceded by existential quantifiers binding all of those variables.

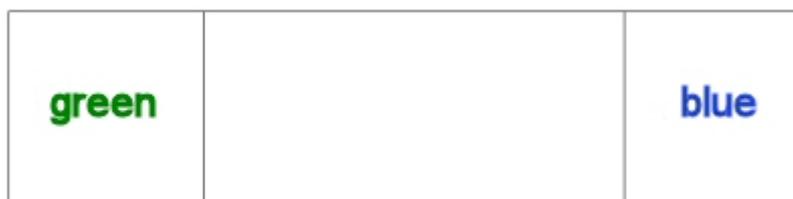
Now, if we consider our meaning postulate: ‘Blue resembles more green than it resembles red’ and regard ‘red’ as the term whose meaning this postulate postulates, we have the following Ramsey sentence:

There is something that blue resembles less than blue resembles green

Does this proposition satisfy condition 1 (formula 2)? I think it is immediately seen that it does. For if there are two models differing *only* in what they assign to the expression ‘red’, but *not* in what they assign to the expressions ‘blue’, ‘green’ and ‘...resembles...’, then there is no reason why the Ramsey sentence should be false in one of them and true in the other.

Does the above proposition, then, satisfy condition 2 (formula 4)? This, again, should not be any problem. Imagine that we have a model for ‘blue’, ‘green’ and ‘... resembles ...’, and suppose it is true that in that model there is something that blue resembles less than blue resembles green. If so, then there must be a model slightly richer than the former one, to wit: richer by one class assigned to ‘red’, which includes that something that blue resembles less than blue resembles green. Again, if there is an enriched—Przełęcki and Wójcicki say ‘prolonged’—model like that, then there *is* a universe of discourse in which there is something that blue resembles less than it resembles green, namely, the class assigned in the first model to ‘red’.

All of this is very well. However, someone might protest that the ‘uncomfortable’ model of the observational language containing only ‘blue’, ‘green’ and ‘...resembles...’ which made the creativity of the Humean meaning postulate apparent (Figure 6):



was a red herring, because in our actual prototheoretical practice (and certainly in the practice of common sense, and all the more so in real-life scientific and scholarly practice) we next to never work with such outlandish models at all; what we do work with are, by contrast, *intended* models which ply themselves to such pieces of linguistic legislature as our Humean meaning postulate, or which, in the terminology of Przełęcki and Wójcicki, are ‘admitted’ by it. Przełęcki in the final chapters of his *Logic of Empirical Theories* emphasises, too, that languages of sciences are normally not uninterpreted formal calculi at the stage where meaning postulates are introduced into them but describe a(n ostensively) given world. If a little dramatisation should be allowed here, we could say that no-one would ever dream of introducing a meaning postulate like the Humean one if confronted with a world like the above (Figure 6); such meaning postulates are introduced, out of pragmatic considerations, vis-à-vis a certain given situation, a situation in which

they make pragmatic sense. This does not imply that the splitting-up of meaning postulates into synthetic and analytic components does not serve a purpose. It does, and the purpose is to give a fully general definition of an analytic sentence, a definition that would do justice to our intuition of an analytic sentence as one that is true come what may. But the 'come what may' situation, including 'uncomfortable' models of the type just presented is beyond the scope of interest of a scientist or a protoscientist, or a traditional philosopher, for that matter. This is why, I am inclined to think, the very interest and relevance of the analytic/synthetic dichotomy for virtually anyone but an epistemologist has so often been denied.

However, on closer reflection we see that this cannot be the end of the story. Certainly, at the stage where we wish to introduce a meaning postulate into our language we *are* confronted with a certain world, a certain model described in a certain observational vocabulary, and it is this world, or worlds closely similar to it that we desire to make the intended models of our theory, or, even more realistically: it is the world for which we have developed and for which we tailor, as we go, our theory. Yet still, the question arises: what must we then see in this privileged world order to realise that our decision to introduce the meaning postulate makes (pragmatic as well as epistemological) sense, that the meaning postulate can be imposed on this world? On reflection, we realise that it is nothing other than the fact that, in this world, the synthetic component of our meaning postulate is true. As I explained earlier on, by introducing the Humean meaning postulate I wished to legislate that certain purplish shades (should there be such, of course) must not be called 'red'. But, unless I am ready to accept the conclusion that nothing at all should be called 'red', I must know in advance, prior to my legislation, that there *is*, in fact, something that blue resembles less than it resembles green. And this is the Ramsey sentence for the Humean meaning postulate, proposed by Przełęcki and Wójcicki as its synthetic component.

Now why should *it* be true, in its turn? (This is very important to know, if we are to go on with imposing our meaning postulates on the world in front of us.) What is its epistemological, and what is its semantic, status? It is synthetic all right; but is it also *a posteriori*? One cannot help finding this question puzzling, because the standard methods of proving that something exists leave us in the lurch here. For one thing, we cannot say that the non-existence of something that blue resembles less than it resembles green involves a contradiction because that would imply that the meanings of 'blue', 'green' and '...resembles...' are not logically independent, which they have to be, as Przełęcki and Wójcicki correctly insist, in virtue of being purely observational terms. Then, one cannot prove the existence of that something just by pointing to an example, because an example like that does not yet exist. In default of a pointable-to, ready-made example, one still has the option of constructing one. But where do we get a guarantee that such an example is constructible at all? Should it (turn out) not (to) be constructible after all, so we are back to where we were, i. e. to our scorned outlandish uncomfortable (unadmitted) models. And with this situation a question closely related to the one currently in hand would arise, namely: how do I know *if* (not *that*, which is the current question) the world, the model that I have in front of me is 'comfortable', i. e. such that

the meaning postulate can be imposed upon it? This latter question, let me remark, we should have had to confront sooner or later anyhow.

So we must know beforehand that the construction can be carried out successfully. What does this mean? I suppose the gist of what it means is this:

To carry out a construction of the sort required we must go through a number of steps at each of which we invoke a fact about our model and skillfully make use of that fact. All of them are empirical; not all of them need be known in advance, rather, typically, we shall be learning about them as we progress. For instance, while drawing the border-line up to a certain point we might rely on facts we know, and after that point—on facts we have learned on reaching that point. What we must know *in advance*, however, in order to know in advance that our Ramsey sentence is true, is that *independently of what those facts might turn out to be*, we shall arrive at a victorious end of our construction. Thus, despite the fact that we have, by hypothesis, to do with one model only, we can imagine that there are many models, all agreeing as to what is assigned to ‘blue’ and ‘green’ in them, and differing, if at all, only concerning those other facts we shall have to learn about while carrying out our construction. And it is with respect to these virtual models that our Ramsey sentence has got to be ‘non-creative’, i. e. a priori. So it does turn out to be ‘synthetic a priori’, in a sense.

You might feel, at this point, like bringing me down from what you might think is too high a flight of epistemological fancy: you might point out that in our toy-world picture models of ‘blue’, ‘green’ and ‘...resembles...’ employed in this talk we knew indeed ‘at a glance’, without a painstaking construction process, that the Ramsey sentence was or was not true. Yes indeed, I respond, we could immediately *see* that there was or was not room for the expression ‘red’ to be carved out for in such a way as to make the Humean meaning postulate true. But, I should like to add, that was because the picture itself provided us with a certain ‘Gestalt-quality’ of the model; and the synthetico-aprioric components of the cognition of Gestalt-qualities are a well-known phenomenon. (They are due to the fact that cognising a Gestalt is like cognising an *eidos*, an essence, of a certain sort.)

Note, also, that the whole issue of substantiating the Ramsey sentence by means of a construction seems to have a distinctive affinity to the Kantian notion of ‘constructions of concepts a priori’, developed by Kant in the ‘Discipline of pure reason’ (*Methodenlehre der reinen Vernunft*), an oft-neglected appendix to the *Critique of Pure Reason*. Of this Kantian theory of construction of concepts a priori—which Kant thought was the warrant of the possibility of synthetic *a priori* axioms, i. e. immediately evident, and yet non-analytic propositions—Hintikka has made a great deal in his theory of mathematical knowledge and its non-analytical character (see his ‘Kant And The Mathematical Method’, for instance). This, however, is an affinity which I can no longer explore in this lecture.

## References

(a list for the moment far from complete!)

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