WITTGENSTEIN'S SOLUTIONS TO THE
COLOR EXCLUSION PROBLEM

The substance and importance of Wittgenstein's treatment of the issues now known as the color exclusion problem have been frequently if not thoroughly examined.[1] However, Wittgenstein put forth two incompatible solutions to the problem: one in the short essay "Some Remarks on Logical Form" (RLF), and the other in his notes published as *Philosophical Remarks* (PR).[2] The differences between these two solutions have not been dealt with sufficiently to date. Consequently an important insight into the origins of his later philosophy has been overlooked. To rectify this oversight is the task of the present essay.

The reason this task needs to be accomplished should be obvious. Wittgenstein was wholly dissatisfied with his RLF "solution" to the point of refusing to read the paper at the Aristotelian Society meeting for which it was written.[3] But the PR solution has been treated almost as if it is only an elaboration of the RLF one.[4] If the two are not essentially different then there is no reason to feel that the PR solution is really any sounder than the RLF one. This would lead us to conclude that his treatment of the problem was never adequate since there are no additional solutions to be examined.

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[1] Perhaps the best discussion of the issues is to be found in P. M. S. Hacker's *Insight and Illusion* (Oxford: University Press, 1972), pp. 86-94. Other notable treatments are: Malcolm's review of *Philosophische Bermerkungen* in *Philosophical Review* lxxvi (1967), pp. 220-222; Anthony Kenny's *Wittgenstein* (Harmondsworth; Penguin, 1973), pp. 103-119; E. B. Allaire's "*Tractus* 6.3751" *Analysis*, vol. 19 (1958), pp. 100-105; and Waismann's *The Principles of Linguistic Philosophy* (London: Macmillan, 1965), pp. 57-67 and *passim*.

[2] RLF is reprinted in *Essays on Wittgenstein's Tractatus*, Copi and Beard eds. (London: Routledge and Kegan Paul, 1966), pp. 31-37. The PR is edited by Rhees and translated by Hargreaves and White, (Oxford: Blackwell, 1975), esp. pp. 105-114, and 317. Reference to RLF will be incorporated into the text and will cite page numbers; those to the PR will cite page numbers and in many cases paragraph number in brackets.

[3] See the Anscombe note on the title page of RLF in the Copi and Beard reprint, *op. cit.*

[4] Especially Kenny's treatment is guilty of ignoring the differences between the two.

But surely this cannot be, for the appearance of the color exclu-sion problem marked the turning point of Wittgenstein's later philosophy (PR 111 (4)).[5] "Wittgenstein's first philosophy collapsed over its inability to solve one problem — color exclusion."[6] If his solu-tions were never adequate, then perhaps he abandoned his Trac-tarian foundations prematurely. Thus it is important to see why the PR remarks are, while the RLF ones are not, adequate.

In the *Tractatus* (TLP)[7] Wittgenstein held the world to be con-stituted by facts (1.11) and facts were a subset of states of affairs which in turn were combinations of objects or "things" (2.01). States of affairs were aserted to be independent of one another (2.061, 4.21). Language was seen to serve the general purpose of attempting to state how things are (4.5), and did this by propositions either com-posite or elementary, to which the composite are truth functionally reducible (5.5). These elementary propositions were the necessary posits of the program of analysis (4.221), and consisted of concatena-tions of names (4.22, 3.202) which had the objects as their meanings (3.203). Thus language and the world had a point of contact in which the name and the object linked up.

Since the states of affairs were independent of one another, the elementary propositions clearly must also be independent of one another. This meant that no two elementary propositions could con-tradict each other, despite appearances to the contrary (4.211). It also meant that there could be no logical relevance between any two of them; e.g., one cannot be deduced from another (5.134). And since the only necessity was logical necessity (6.375), it followed that the truth value of one elementary proposition could in no way deter-mine that of another.

But consider these two sentences: R, "this patch is red at place p_1 at time t_1"; and G, "this (same) patch is green at p_1 at t_1." Surely R • G is a contradiction. And surely the falsity of G follows logically from the truth of R. In the TLP Wittgenstein agreed that R • G is a con-tradiction but, he argued, the independence of elementary proposi-tions is not defeated by this example since R and G are not elemen-tary propositions in the first place. R • G is "ruled out" due to the

[5] Also see *Philosophical Grammar* (PG), Rhees ed. and Kenny trans. (Oxford: Blackwell, 1974) pp. 210-211. References by page number.

[6] Hacker, *Insight*, p. 86.

[7] *Tractatus Logico-Philosophicus* (TLP), Pears and McGuiness trans. (Lon-don: Routledge and Kegan Paul, 1961). References in text by section number.

"logical structure of color" (6.3751). That is, a more diligent analysis of red and green would show them not to be simples at all, but to mask a multiplicity which, when set out clearly, would account for the fact that R • G is a contradiction.

Such a program of developing the logical structure of color and, more generally, of all statements of degree was absurd. Wittgenstein noticed this in his 1929 paper RLF. There he tells us that in the TLP he had felt that the contradiction (R • G) could be explained by showing how red contains "all degrees of" red and none of green and vice versa (pp, 35-36).

By far the most important contribution of the RLF is a destructive one; namely, that of exposing the incoherency of this Tractarian solution. There he had wanted to treat statements of degree truth functionally, as analyzable into logical products. To use his own example (RLF p. 35), suppose we wished to reduce a statement of brightness to its logical product. Thus, "entity, E, has a unit brightness, b," would be expressed by E(b); and a composite statement E(2b) would be reducible to the product "E(b) and E(b) and nothing else." The problem here is confusing the logical connective "and" with the additive "and." In a logical product "E(b) and E(b)" is not "E(b) *plus* E(b)"; therefore "E(b) and E(b)" "equals" E(b), not E(2b). "And nothing else" is likewise not an elementary assertion (". . . plus zero"), but a general statement. Neither will the alternative attempt succeed, of distinguishing between the units, b′ and b″, etc. Our original problem of exclusion and deducibility clearly arises at this deeper level amongst the different units. Result: the mutual independence of elementary propositions had to be abandoned.

The attempt at a positive contribution in the RLF was less successful though it has yet to be clearly stated why. Elementary propositions from the same logical type may exclude one another—though they cannot really contradict one another (RLF p. 35). The explanation of this was to be syntactical. "By syntax . . . I mean the rules which tell us in which connections only a word gives sense, plus excluding nonsensical structures" (RLF p. 31). (Syntax was the forerunner of grammar in the later writings.) Some syntactical rules are on the surface, but others are buried under mountains of misunderstandings created by the inadequate symbolism of ordinary language (RLF p. 32). But how are we to carry on this deeper syntactical investigation and divest ourselves of the misunderstandings? Only "by inspecting the phenomena which we want to describe, thus trying to

understand their logical multiplicity. That is to say, we can only arrive at a correct analysis by . . . the logical investigation of the phenomena themselves, i.e. in a certain sense *a posteriori* . . ." (RLF p. 32).

Wittgenstein apparently felt no need to explain the nature of a philosophical investigation which was simultaneously "*a posteriori*" and "logical." Yet he offered an example. If we turn our investigation away from ordinary language usage to the actual colors themselves, we will find a certain general form or function of, e.g., color ascription. This function possesses a logical multiplicity which must be reflected in the elementary propositions ascribing colors to patches. This is what is behind the statement that "numbers must enter the forms of atomic propositions" (RLF p. 35; cf. TLP 5.453). Investigation of the logical multiplicity of color ascriptions reveals the "internal relation" that precludes two colors being predicated of the same point simultaneously, "*in the same sense*, in fact, in which we say that there is room for one person only in a chair" (RLF p. 36, my emphasis).

Now back to our example about red and green simultaneously occupying the same place, i.e., R • G. If we had a perfect notation we would be able to read the logical multiplicity of color ascription straight off; i.e., we would notice that the four line truth table for R • G had the wrong multiplicity, and that the top line (TTF) must not even be listed. (R • G isn't false, but nonsense.) So R and G are not independent; they *do* exclude each other; and R • G is not a contradiction (which would have to have four lines in the table (RLF p. 37)).

There are at least four related presuppositions in this positive RLF account which stand in direct contravention of the spirit of the later writings. Yet each is necessary to the argument. And thus they constitute the essential inadequacy of that account.

1. Ordinary language is not all right as it is. Its rules of syntax not only permit pseudopropositions (p. 31), but insidiously "disguise logical structure" (p. 32). It is a "deficient" notation (p. 37). Hence the stress on the Tractarian relic of reductive analysis (p. 32).

2. The rules of syntax can only be drawn up once the meaning is uncovered rather than the other way around. They "cannot be laid down until we have actually reached the ultimate analysis of the phenomena in question" (p. 37). This is just the opposite of the relation between meaning and rules in the later writings, where one must first be said to know how to act in accordance with the rules before he can be said to possess the meaning.

3. In spite of the admission that these rules of syntax are "in some sense tautologies" (p. 34), Wittgenstein still believed it was through a scrutiny of the phenomena themselves (i.e., the world) that we were able to justify these rules. But he soon realized that the rules of grammar are not justifiable with regard to reality, no more than are the rules of chess—not even in a weak sense of the term. Moore's lecture notes of 1930-33[8] reflect this as do the notes published as the *Philosophical Remarks*.[9] That the rules of grammar are non-justifiable and arbitrary is what is behind the notion that language is an autonomous activity.

4. Finally, RLF suggested that the investigation be carried out in the wrong sphere as it were. It is "the facts of reality" (p. 33), the phenomena themselves (pp. 32-37) in which the answers are hidden. Later he realizes that R • G is excluded by a rule of grammar and not by a feature of red or green.[10] His mistake in the RLF, he intimates was to confuse a physical impossibility with a logical one. The statements "two colors cannot occupy the same space," and "two men cannot fit into the same chair" are, he tells us, "of utterly different kinds, but look exactly alike" (BB p. 56). Accordingly, it is not the phenomena themselves that we must investigate, but the rules of application, the criteria for applying the terms. This latter is a "grammatical" investigation to which consideration of reality or phenomena is irrelevant.

Well of course this last is familiar fare from the most mature phase of Wittgenstein's career, the *Philosophical Investigations*. But is it present in the much earlier PR, the only other place where the color exclusion problem was treated in detail? The answer must be negative, with the qualification that the PR contains the seeds of the later thoughts on grammar. The account in the PR is sufficiently free from the mistakes of the RLF, and offers a largely different positive account from the one found there, so that it (the PR account) must be judged separately. It is neither an elaboration of nor a supplement to the RLF theory. This must now be shown.

Naturally the PR discussion contains many points of similarity with that of the RLF. The most striking one is to be found on the destructive side, viz., the proof of the inadequacy of the Tractarian

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[8] "Wittgenstein's Lectures in 1930-33," reprinted in G. E. Moore's *Philosophical Papers* (London: Allen and Unwin, 1959), pp. 277-280.

[9] PR 53, 55. Also see PG 184-187.

[10] *The Blue and Brown Books* (Oxford, Blackwell, 1958), p. 56.

dogma of the independence of elementary propositions (PR p. 105, 108).

But there are similarities in the positive aspect as well. In the PR Wittgenstein is still using the "there's no room" simile for the description of mutual exclusion of two colors (p. 106 (5)). And it is still held to be a matter of an elementary "internal relation" between red and blue that accounts for exclusion (p. 108 (5)). The phenomena have not entirely dropped from the picture either since "the two propositions [R and G] collide in the object" (p. 107 (8)). Also in both discussions exclusions of (type-similar) statements of degree are partially explained in terms of the "completeness" of those statements (RLF p. 34-35; PR p. 106 (5), 108 (6)). Finally, the explanation is still felt to be one of "syntax" though the force of this term is not fully displayed (p. 113 (4)).

In spite of these similarities between the two accounts of the color exclusion problem, there is in the PR an emerging sense of Wittgenstein's radical conventionalism. The object and its ostensively defined name are no longer mentioned. His earlier repeated insistence that we must look "to the phenomena themselves" for the key to the logical multiplicity of, e.g., color ascriptions (RLF pp. 32, 37), is nowhere to be found in the PR discussion. He even decisively states that our inferences among elementary statements of degree cannot be "material" inferences (p. 107 (5)). The term "contradiction" is used freely now (p. 106 (3), 107 (2)), and the conflict is ascribed to the "senses" of the propositions rather than the features of the colors themselves (p. 106 (9), 107 (2)). No longer is there any mention of the mysterious justificatory connection between phenomena and the rules of syntax governing the names of those phenomena. The emphasis now is on the "grammatical rules" according to which the elementary propositions belonging to a single type are combinable over the different logical connectives (p. 109 (7)).

Nowhere in the PR is this incipient shift towards the grammatical more obvious than in the comparison of a system of propositions with a yardstick (p. 110, 112, 317).[11] The elementary propositions are like the individual gradation marks on a yardstick. We cannot apply one without carrying the others along. Even a measuring coincident with the zero point must carry the remainder of the yardstick with it; just as "I am not in pain" puts the conversation in "pain-space." It does not mean for example that my present condition has

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[11] Also see PR p. 76(7), 78(5, 7, 8), 85(2), 114(3).

nothing to do with pain (p. 110 (3)). Statements of degree are not therefore independent of their neighbors in their own particular space or system. If a measure is 18 inches, then it is *not* 17 inches, nor is it 19 inches.

How the yardstick metaphor works is not what I want to explain. Rather it is my purpose to argue that it is a dramatic improvement over the inadequatte answer to the color exclusion problem found in RLF. The PR discussion does not merely supplement the earlier one; instead it cuts out all reference to the source of the inadequacy of the RLF account, viz., the phenomena themselves. In the PR Wittgenstein is on the verge of articulating the conventionalist claim that the rules of grammar are autonomous. He no longer speaks of justifying the rules of grammar by reference to the world; instead he intimates that an entire system of propositions must be taken up in an application of any one of the members of the system. It is a "whole system of propositions" which is "laid up" against reality (p. 317 (1))—"laid up against," yes, but not justified by. And this is the major point of difference.

Wittgenstein was very unhappy with his essay (RLF) and never specifically addressed any remarks towards it. Yet there is one passage which can be read as a criticism (PR p. 112 (1)):

> The situation is misrepresented if we say we may not ascribe to an object
> two incompatible attributes. For seen like that, it looks as if in every case
> we must first investigate whether two determinations are incompatible
> or not. The truth is, *two* determinations of the same kind (co-ordinate)
> are impossible.[12]

The first sentence can be read as criticizing the RLF statement of the problem; the RLF was a misrepresentation of the situation. The second sentence can be interpreted as a condemnation of the proposed solution in the RLF, i.e., investigating the phenomena themselves. And the third sentence, with just a little straining, can be read as a hint of the bedrock lying in wait for investigations into the conventions of language.

If my interpretation is correct, then mention of systems of propositions or propositional "space" along with the yardstick metaphor, must be viewed as precursors of the language games of the *Blue and Brown Books* and the *Philosophical Investigations*. And if this is so, one can readily see both the radical difference in the solutions of the

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[12] Compare PR p. 113 (4, 5).

color exclusion problem in the RLF and the PR, and the importance
for the later writings of the PR solution.

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