manches geändert werden müssen. Warum gebrauchst Du als Definition der Klassen nicht diese:

$$F[\hat{x}\,\varphi(x)]. = :\varphi z \equiv_z \psi z. \supset_\psi . F(\psi)\ \text{Def?}$$

– Zu Weihnachten werde ich LEIDER nach Wien fahren müssen.

Meine Mutter nämlich wünscht es sich so sehr, daß sie schwer gekränkt wäre, wenn ich nicht käme; und sie hat vom vorigen Jahr gerade an diese Zeit so böse Erinnerungen, daß ich es nicht über's Herz bringen kann wegzubleiben. Ich werde aber sehr bald wieder hierher zurückkehren. Meine Stimmung ist mittelmäßig, weil meine Arbeit nicht rasch vorwärts geht und weil mir der Gedanke an meine Heimfahrt entsetzlich ist. Die Einsamkeit hier tut mir unendlich wohl und ich glaube, daß ich das Leben unter Menschen jetzt nicht vertrüge. In mir gärt alles! Die große Frage ist jetzt: Wie muß ein Zeichensystem beschaffen sein, damit es jede Tautologie AUF EINE UND DIESELBE WEISE als Tautologie erkennen läßt? Dies ist das Grundproblem der Logik! – Ich bin überzeugt, ich werde in meinem Leben nie etwas veröffentlichen. Aber nach meinem Tod mußt Du den Band meines Tagebuchs, worin die ganze Geschichte steht, drucken lassen. *Schreib bald hierher* und versuche aus meinen verwirrten Erklärungen klar zu werden.

Immer Dein

L.W.

böse Erinnerungen/bad memories. – Refers to the illness and death of Wittgenstein's father in January 1913. See 7–11.

Band meines Tagebuchs/volume of my journal. – This is probably the manuscript, or part of the manuscript, which Wittgenstein in a later letter (46.) says that he showed to Moore, when Moore visited him in Norway in April 1914. It was in all likelihood a notebook of the same character as those which he wrote during the war-years, three of which have been preserved and published. Cf. G. H. v. W's essay in his *Wittgenstein.*

P.S. Deine Briefe sind mir eine große Wohltat; laß es Dich nicht reuen, mir so oft zu schreiben. Ich will nur noch sagen, daß Deine Theorie der "Descriptions" *ganz* ZWEIFELLOS richtig ist, selbst wenn die einzelnen Urzeichen darin ganz andere sind als Du glaubtest.

– Ich glaube oft daß ich verrückt werde.

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English Translation

DEAR RUSSELL,

Many thanks for your kind letter. I want to repeat again, in a different form, what I wrote about logic in my last letter. All the propositions of logic are generalizations of tautologies and all generalizations of tautologies are propositions of logic. There are no other logical propositions. (I regard this as definitive.) A proposition such as "$(\exists x) . x = x$", for example, is really a proposition of *physics.* The proposition

$$\text{“}(x) : x = x . \supset . (\exists y) . y = y\text{”}$$

is a proposition of logic and it is then for *physics* to say *whether any thing exists.* The same holds for the axiom of infinity: whether there exist $\aleph_0$ things is a matter for experience to determine (and one which experience cannot decide). But now, as to your Axiom of Reducibility: imagine we lived in a world in which nothing existed except $\aleph_0$ *things* and, over and above them, ONLY a *single* relation holding between infinitely many of the things and in such a way that it did not hold between each thing and every other thing and further never held between a finite number of things. It is clear that the axiom of reducibility would certainly *not* hold good in such a world. But it is also clear to me that whether or not the world in which we live is really of this kind is not a matter for logic to decide. As to what tautologies really are, however, I myself am not yet able

to say quite clearly but I will try to give a rough explanation. It is the peculiar (and *most* important) mark of *non*-logical propositions that one is *not* able to recognize their truth from the propositional sign alone. If I say, for example, 'Meier is stupid', you cannot tell by looking at this proposition whether it is true or false. But the propositions of logic – and only they – have the property that their truth or falsity, as the case may be, finds its expression in the very sign for the proposition. I have not yet succeeded in finding a notation for identity that satisfies this condition; but *I have* NO *doubt* that it must be possible to find such a notation. For compound propositions ("elementary propositions") the ab-notation is sufficient. It distresses me that you did not understand the rule dealing with signs in my last letter because it bores me BEYOND WORDS to explain it. If you thought about it for a bit you could discover it for yourself!

The diagram [see the German text on previous pages] is the sign for $p \equiv p$; it is tautological because *b* is connected only with those pairs of poles that consist of opposite poles of a single proposition (namely p). Apply this to propositions with more than two arguments and you will obtain the general rule for the construction of tautologies. I beg you to think about these matters for yourself: it is INTOLERABLE for me, to repeat a written explanation which even the first time I gave only with the *utmost repugnance*. I find identity, as I say, still far from clear. So I will deal with that another time. If your axiom of reducibility fails, then probably a lot of things will have to be changed. Why do not you use the following as the definition of a class

$$F[\hat{x}\,(\varphi x)] .= : \varphi z \equiv {}_{z}\psi z \,.\, \supset_{\psi} .F(\psi) \quad \text{Def?}$$

– At Christmas I must UNFORTUNATELY go to Vienna.

The fact is, my mother very much wants me to, so much so that she would be grievously offended if I did not come; and she has such bad memories of just this time last year that I have not the heart to stay away. But I shall return here very early. I am in mediocre spirits because my work is not progressing rapidly and because the thought of going back home appals me. Being alone

here does me no end of good and I do not think I could now bear life among people. Inside me, everything is in a state of ferment. The big question now is, how must a system of signs be constituted in order to make every tautology recognizable as such IN ONE AND THE SAME WAY? This is the fundamental problem of logic! – I am convinced I shall never publish anything in my lifetime. But after my death you must see to the printing of the volume of my journal with the whole story in it. *Write here soon* and try to understand my muddled explanations.

Yours ever,

L.W.

P.S. Your letters are a great boon to me. Do not feel sorry for writing to me so often. I only want to add that your "Theory of Descriptions" is *quite* CERTAINLY correct, even though the individual primitive signs in it are not at all the ones you thought.

– I often think I am going mad.