RUSSELL'S LEIBNIZ NOTEBOOK

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In preparation for his lectures on Leibniz delivered in Cambridge in Lent Term 1899, Russell started in the summer of 1898 to keep notes on writings by and about Leibniz in a large notebook of the type he commonly used for notetaking at this time. This article prints, with annotation, all the material on Leibniz in that notebook.

In the summer of 1898, as Russell began to prepare his lectures on Leibniz[1] to be delivered in the Lent Term of 1899, he started to keep notes on Leibniz in a large, hardbound notebook (RA 230.030001–f1), similar to several others he used for notetaking in this period. The book measures approximately 215 × 270 mm. and Russell wrote "B. Russell | Trin. Coll. Cambridge | Jan. 1898." in the top, right-hand corner of the first blank leaf. Russell kept notes at both ends of the book. At the front are notes on a miscellany of sixteen mathematical papers, and at the back he turned the book upside down and wrote his notes on Leibniz which are printed here; in both cases using right-hand pages only (all the versos are blank). The leaves on which Russell wrote have been stamped with folio numbers, using odd numbers only, starting at the front with the mathematical notes; these

[1] Subsequently revised and published as *A Critical Exposition of the Philosophy of Leibniz* (1900).

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leaves are numbered 1–61. The sequence of folio numbers then continues with the Leibniz notes at the back, where the leaves are numbered 63–155. The numbering was done in the Russell Archives.

None of the notes is dated, but the content of the mathematical notes indicates they were started around the same time as, or maybe slightly before, the Leibniz notes. There are, for example, notes on two papers by Joseph Larmor on the aether,[2] a topic which would have been of interest to Russell in 1897–98 as he struggled to develop a plenal theory of matter, but not for very much longer. Most of the mathematical notes, however, were written after the Leibniz notes, in some cases several years after. The fifth of the mathematical papers on which Russell makes notes is Peirce's "On the Algebra of Logic" (1880), and in doing so he makes use of Peano's notation which he didn't adopt until 1900. The last three entries cover papers by G. H. Hardy and Philip Jourdain published in 1903–04.[3]

As regards the Leibniz notes, which are our concern in this paper, some entries can be approximately dated by reference to Russell's list of books read, "What Shall I Read?" (*Papers* 1: App. II). Thus the notes on Leibniz's *New Essays Concerning Human Understanding*[4] were written in June 1898, and the notes on Duncan's *The Philosophical Works of Leibnitz* (1890) in August. Russell's notes on the *Théodicée*, taken from the sixth volume of Gerhardt's *Die philosophische Schriften von Gottfried Wilhelm Leibniz*, were written before he acquired his own copy of Gerhardt's edition in December 1898. Once he had his own copy, he marked it up quite extensively.[5]

Russell's "Notes on Leibniz" begin with two brief notes: the first a very general comparison of Leibniz's philosophy with Spinoza's based on his reading of Hermann Cohen's *Das Princip der Infinitesimal-Methode* (1883), and the second a specific comment on Erdmann's account of the identity of indiscernibles.[6] It is perhaps surprising to

[2] LARMOR, "On the Equations of Propagation and Disturbance in Gyrostatically Loaded Media" (1891) and "A Dynamical Theory of the Electric and Luminiferous Medium" (1893).

[3] HARDY, "A Theorem Concerning the Infinite Cardinal Numbers" (1903), and JOURDAIN, "On the Transfinite Cardinal Numbers of Well-Ordered Aggregates" (1904) and "On the Transfinite Cardinal Numbers of Number-Classes in General" (1904).

[4] LANGLEY's translation, 1896.

[5] GERHARDT, 1875–90. A record of his marginalia can be found in ARTHUR, GALAUGHER AND GRIFFIN (2017).

[6] ERDMANN, *Grundriss der Geschichte der Philosophie* (1878), 2: 155.

find Russell expressing such judgments on Leibniz's philosophy before beginning his serious study of it. This suggests that he had already formed judgments on Leibniz's philosophy on the basis of his reading of Cohen and Erdmann (among others) prior to having undertaken a study of what Leibniz actually wrote, a suggestion for which we find some circumstantial evidence below.

The second of these notes is an accurate paraphrase of the passage referred to in Volume II of Erdmann's *Grundriss der Geschichte der Philosophie* (1878). Russell raises the objection that, if Erdmann's account is correct, and Leibniz held that "exactly similar beings are thinkable", he would also have to have held, on account of the principle of sufficient reason, that "as regards any existent being, no exactly similar being is conceivable." The paradox is only apparent: Leibniz held that the concepts we have of things are finite, and being thus limited we could think two distinct things had the same individual concept. In reality, however, existing things have infinitely complex concepts that only God can know; accordingly God can readily distinguish the individual concepts of things which seem indiscernible to us.

It is harder to make out exactly what Russell was driving at in his first note, with his claim that Leibniz's philosophy was arithmetical while Spinoza's was geometrical. He was certainly not referring to Spinoza's use of the geometrical, or axiomatic, method in presenting his *Ethics*. His point connects rather to the contrast between Leibniz's monadism, where all that exists are discrete substances or monads, and Spinoza's monism, where the world is one extended substance that can be viewed under the aspect of its geometrical extension (a theme that is frequently referenced by Russell in his book on Leibniz, albeit in a quite different context). In 1896 and 1897 Russell worked on the philosophy of matter and in the course of doing so had abandoned a point-atom theory rather like Boscovich's in favour of a plenal theory inspired by Faraday and Maxwell. In *My Philosophical Development* he says he gave this a "Hegelian dress" as "a dialectical transition from Leibniz to Spinoza, thus permitting myself to allow what I considered the logical order to prevail over that of chronology" (*MPD*, p. 43). With point-atomism thus linked to Leibniz and a plenal theory to Spinoza, one can link Leibniz's theory to arithmetic, traditionally taken to be the science of discrete quantity, and Spinoza's to geometry, the science of continuous quantity. Leibniz's theory, Russell says, "rested on the manifold", Spinoza's "on the continuum". Although

Russell was still more than two years away from his own set-theoretic definition of numbers as sets of equinumerous sets, he was already aware (but by no means uncritical) of attempts to base arithmetic on sets (or manifolds). But Russell's views were changing rapidly and radically in 1898, and by the time he gave the lectures on Leibniz he had abandoned the neo-Hegelian philosophy with which he started work on them, and nothing of the dialectic between Leibniz and Spinoza remained.

The bulk of the note, however, is concerned with the interpretation of the differential calculus, and here Russell's remarks are informed by his reading of Cohen's *Das Princip der Infinitesimal-Methode*. In Russell's copy of this work, inscribed "B. Russell April 1898" at its head (though Russell reports reading it in March 1898), many passages are marked by a line in the margin. These are mainly in Part II, *Geschichte* (History), where Cohen discusses Leibniz on the differential calculus, including the passages on pages 52 and 78 referenced in this note. Russell takes on faith Cohen's description of Leibniz as having assigned number an "eminently metaphysical significance", and as having failed to reconcile the arithmetical aspect of his infinitesimals with their geometrical interpretation as successfully as had Newton. Particularly interesting is Russell's remark that for Leibniz the intensive continuum "was indeed a fundamental principle … but not the extensive." This relates to Cohen's reinterpretation of Kant's Anticipations of Perception, where Kant writes that the real has "magnitude, but not extensive magnitude", since it is rather an intensive magnitude that is instantaneous (*Kritik*, A166–9, B208–12). Cohen interprets this as saying that continuous, extended magnitudes are generated from intensive magnitudes, the differentials of Leibniz's calculus. In early 1898 Russell was still deeply influenced by Kant, and seriously concerned with the interpretation of the calculus, so it is not surprising to find him turning to this pioneering work by the most distinguished of the Marburg neo-Kantians. It may even have been his study of Cohen that led Russell to undertake the lectures on Leibniz, something which is not otherwise easily explained,[7] for in many respects Leibniz is the hero of Cohen's book.

The bulk of the notes, however, is on writings by Leibniz himself:

[7] See GRIFFIN, "Russell and Leibniz on the Classification of Propositions" (2012), pp. 85–6.

the *New Essays*, Duncan's selection, and the *Théodicée*. After finishing Duncan's book, Russell drew up a very brief general outline of his lecture course—so general, in fact, that one is surprised he bothered to write it down. The only point on which he goes into any detail is on the premisses of Leibniz's philosophy, a topic which looms large in his published book on Leibniz, where a completely different set of premisses is identified. The notebook ends with brief notes on Ueberweg's standard and much-reprinted *Grundriss der Geschichte der Philosophie* (1883) and Zeller's *Geschichte der deutschen Philosophie seit Leibniz* (1875). The Leibniz material in the notebook is listed below (with the leaves it occupies given in brackets). This material is transcribed in its entirety in the present article.

Notes on Leibnitz [fol. 63]
Notes on the *New Essays* [65–95]
Philosophical Works of Leibnitz, translated by G. M. Duncan [97–143]
Leibnitz Lectures [145]
Théodicée (Gerhardt, Vol. VI.) [147–51]
Ueberweg's *Geschichte der Philosophie*, Dritter Theil (1883) [153]
Zeller, *Geschichte der deutschen Philosophie* [155]

Russell's notes are written in the idiosyncratic shorthand he developed for keeping lecture notes as a student.[8] In transcribing the notes, these abbreviations (which are frequent) have been silently expanded (except in the odd case where the abbreviation is too amusing to be ignored). We have not preserved Russell's line breaks except where he wrote continuous prose across a number of pages of the text he was making notes on and added page numbers in the left-hand margin (presumably subsequently to writing the note). In these cases, we have preserved his line breaks in order to show where he marked the transition from one page of his source text to another. Folio numbers in the Leibniz notebook are given against the right-hand margin. Russell usually underlined foreign phrases, but where he failed to do so we have silently added italics. Russell used both round and square brackets in his notes, the latter typically to enclose a comment of his

[8] See BLACKWELL, "Russell's Personal Shorthand" (2015), where a comprehensive list of his abbreviations is given.

own. These are, of course, retained in the transcription. Editorial insertions are enclosed in angle brackets.

Russell's notes are, not surprisingly, quite compressed and do not always read easily or clearly. Nonetheless, they are for the most part adept, sometimes very adept, summaries of the texts he was reading, with only occasional comments of his own. Their main interest lies in Russell's selection of points of interest as he begins to study Leibniz's philosophy, and in the problems of interpretation that first occur to him. Almost all the obscurities in his notes, apart from the genuine complexities of Leibniz exegesis, arise from the concision of his notetaking and can be removed by consulting the text he is summarizing. It would be impossible, in the space available, to attempt to eliminate them all by means of annotation. Nonetheless, we have identified the works he refers to and his cross-references as well as supplying explanations for his occasional comments and on other points which are not adequately explained in the text he is summarizing. In dealing with the *Nouveaux Essais* various obscurities arise as a result of Langley's often defective translation. In dealing with these we have made use of Remnant and Bennett's much superior translation.[9]

NOTES ON LEIBNITZ.[10]

fol. 63

Leibnitz occupied with two problems: substance and cause. As far as first concerned, his philosophy is *arithmetical*, as opposed to Spinoza's, which is *geometrical*. Arithmetic as enlarged by Differential Calculus. Differential Calculus so far as arithmetically interpretable, gives key to his philosophy. The Dedekind school carries out his traditions.[11] And thus Differential Calculus

[9] We are grateful to the two referees for many suggested improvements and to Brigitte Sassen and Nadia Moro for very helpful suggestions about Herbart.

[10] It is interesting that Russell starts by spelling "Leibnitz" with a t, as he had done as a student and as LANGLEY and DUNCAN do. In the course of keeping these notes he adopts the more modern spelling, presumably following LATTA.

[11] Russell had read DEDEKIND's *Was sind und was sollen die Zahlen?* (1888) in April 1898. In it Dedekind develops arithmetic on the basis of set theory. The idea of most relevance to Russell's point here was Dedekind's treatment of the continuity of the real number line by defining real numbers in terms of sets of rational numbers—a definition already given in his *Stetigkeit und irrationale Zahlen* (1872) (which Russell had read in December 1896). Among mathematicians whom Russell would have thought of as constituting "the Dedekind school" the most prominent was Georg

was obtained by him through number. Cf. Cohen, *Infinitesimale-methode* p. 52 and p. 78. He rested on the *manifold*, Spinoza on the *continuum*. The problem is to get a philosophy fitting both. Leibnitz ought to have seen Differential Calculus requires both. Newton understood Differential Calculus better. The intensive continuum, as in "Natura non facit saltum",[12] is indeed a fundamental principle with him, but not the extensive.

Erdmann, *Geschichte* p. 155. Exactly similar beings are thinkable. But if both created, no reason why one here, the other there; if only one created, no reason why this and not the other. Hence, by principle of sufficient reason, neither is realized by God, and no similar beings exist.—*Observe.* This argument proves, that the mere fact that a being exactly like any supposed being is conceivable shows the supposed being not to exist. It should follow that, as regards any existent being, no exactly similar being is conceivable. If Erdmann has stated Leibnitz's argument rightly, this seems to be an awkward deduction.

Notes on the New Essays. *fol.* 65

Preface.

p. 47. Substance cannot exist without action, therefore no absolute rest.

p. 50. My great maxim is that nature makes no leaps: this is the law of continuity.

p. 51. In virtue of these insensible variations, two individual things can't be quite alike, but always differ more than *numero*. This doctrine destroys the vacuum, the soul without thought, etc.

p. 53. Locke thinks plenum impossible because he thinks matter rigid, but

p. 54. I hold matter to be actually subdivided infinitely, though not equally everywhere; thus matter everywhere more or less fluid, and motion in a plenum therefore possible. I agree with Locke in reducing all action between matters to impulsions, instead of action at a distance.

p. 55. But Locke gives cover to poor philosophers in admitting that God may bring about Newton's gravitation, though to us it be inconceivable.[13]

Book I. Innate Ideas. Chap. I. Are there innate principles?

p. 75. Innate ideas and truths learnt either in considering their source, or in verifying them through experience. Can't admit whatever one learns to be not innate.

Cantor, whose work Russell was also coming to grips with at this time.

[12] "Nature does not make leaps."

[13] Leibniz is quoting a passage from Locke's third reply (not the second as LANGLEY claims) to Stillingfleet, May 1698 (LOCKE, *Works* 4: 193–498 at 467).

p. 76. Ideas do not all come from without: those of reflection and of being do not. We could not have the idea of being if we were not beings ourselves. The ideas in arithmetical and geometrical propositions are all innate.

p. 80. There may be innate truths in the soul which the soul never knows; though till we know them, we cannot know they were always there.

p. 81. If the mind were a blank tablet, it could not be the source of necessary truths: but there are such truths, and the senses cannot show their necessity.

p. 82. The ideas which are the source of necessary truths do not come from the senses; ideas derived from sense are obscure, while intellectual ideas are distinct.

p. 84. "The sweet is not the bitter" is not innate, but hybrid: an axiom is applied to a sensible truth. But "the square is not the circle" is innate, for square and circle are innate. All such propositions presuppose the law of contradiction.

p. 84. Locke's notion, that truths cannot be in us unless we know them, proves too much; for then we know no truth of which we are not actually thinking. *fol.* 67

Chap. II. No Innate Practical Principles.

p. 86. No other principles as evident as those which are identical. That we ought to pursue joy is indemonstrable, but is not known by pure reason, since joy and sorrow are known by internal experience. This maxim appears known not by reason, but by *instinct*.

p. 87. The inclination to joy, expressed by the understanding, becomes a *precept* or practical truth; and if the inclination is innate, the corresponding truth is so also.

p. 88. Thus there are no innate practical *principles*, since practical *truths* are derived from innate instincts; but such truths *are* innate practical *truths*.

p. 93. If Geometry were as much opposed to our passions as Ethics, we should contest it no less, despite all demonstrations.

p. 99.[14] The majority of received doctrines may bear a good sense.—Euclid's axioms should be proved. With the exception of instincts, whose reason is unknown, innate truths should be reduced to principles, i.e. to axioms identical or immediate by means of definitions, which are only distinct exposition of ideas. [i.e. innate principles analytic.]

Chap. III. Other considerations concerning ditto.

p. 100. Law of contradiction innate, and therefore ideas of being, possibility

[14] To the left of this page number (and the following page numbers in his notes on the *New Essays*: 100, 403, 404, 406, 410, 464, 473, 499, 515, 516, 577), Russell placed a small tick in the margin, the significance of which is unknown. More ticks are noted in notes 46, 51, 54, 61 and 63.

and identity ditto. We are innate to ourselves, and being beings, it is innate that we are ourselves.

p. 102. I rather believe extension posterior to whole and part.

p. 105. Reflection discovers substance in ourselves, being substances.

Book II. Ideas. Chap. I. Ideas in General. *fol.* 69

p. 109. Idea is immediate internal object of thought. If it were *form* of thought, would perish with the actual thought; but being *object*, may exist previous to and after thoughts. External sensible objects mediate because can't act directly on soul. God alone immediate external object. Such is its own immediate internal object only so far as it contains ideas.

p. 110. *Tabula rasa* only a fiction, like whatever contains no variety—space and time, etc. Every substantial thing must differ from every other by some intrinsic connotation. Can't say *tabula rasa* means faculties bare, for faculties without some action impossible.

p. 111. *Nisi ipse intellectus* must be added to maxim.[15] The soul comprises Being, substance, unity, identity, cause, perception, reason, and many other notions which the senses cannot give. To say, all ideas come by sensation or reflection, is only true if you mean their actual perception, for ideas are in us before they are perceived. The soul always thinks, and bodies always move, for a substance once in action will be so always.

p. 113. The only difficulty is that we are often not conscious of thinking, but this is due to confusion caused by many impressions.

p. 116. To deny infinitesimal perceptions, is like denying insensible corpuscles in Physics. There must be insensible perceptions in the soul,

p. 118. for whatever is perceivable must be composed of imperceptible parts. We cannot reflect expressly upon all our thoughts, for if we did,

p. 119. we should have to reflect on our reflection, and so *ad infinitum*. I distinguish between ideas and thoughts; for pure and distinct ideas are independent of senses, but thoughts always correspond to some sensation.

Chapter II. Simple Ideas.

p. 120. Sense-ideas, as *hot* and *soft*, simple in appearance, because, being confused, we can't distinguish their contents.

Chapter IV. Solidity. *fol.* 71

p. 124. Impenetrability is really absolute: all condensation or rarefaction is

[15] Langley: "You oppose to me this axiom received by the philosophers, *that there is nothing in the soul which does not come from the senses*. But you must except the soul itself and its affectations. *Nihil est in intellectu, quod non fuerit in sensu*, excipe: *nisi ipse intellectus*." [There is nothing in the intellect that does not come from the senses, excepting the intellect itself.]

p. 125. only apparent. Solidity as a distinct idea is due to pure reason, though senses show that it is in nature.
p. 127. There are not two extensions, one abstract of space, and one concrete, of body.
p. 128. Space and time are only kinds of order. I distinguish extension and matter.

Chap. V. Simple Ideas which come by different senses.

p. 129. Such ideas come rather from common sense, i.e. from mind itself: they are ideas of pure understanding (space, motion etc.), but related to externality, and perceivable through the senses.

Chap. VII. Ideas which come by Sensation and Reflection.

p. 130. *Existence* can't be found in sensible objects without the aid of the reason. Thus idea of existence from reflection, and ditto power and unity. Pleasure and pain different.

Chap. IX. Perception.

p. 138. Molyneux's query. If one known to be cube, the other sphere, patient could distinguish.[16]
p. 141. I attribute some perception and appetition to plants; but I attribute to mechanism all that happens in plants and animals, except their first formation.

Chap. XI. Discernment, or distinguishing ideas.

p. 144. *Relation* more general than comparison: relations either of *comparison* or *concurrence*. First concern *congruity*, as resemblance, equality or inequality. Second comprise *connection*, as cause and effect, whole and parts, position, order etc.

Chap. XII. Complex Ideas.

p. 147. Locke compares mind to darkened room with chinks.[17] Leibnitz says, rather a canvas with folds, representing innate ideas. Canvas must be elastic. But this illustrates *brain*, rather than *mind*: mind a simple substance, monad.
p. 148. *Substance* not so obscure as Locke thinks.—There is a unity of aggregates,
p. 149. but the unity is merely mental.

[16] Molyneux's query, in a letter to Locke, was whether a man blind from birth who had learnt to distinguish by touch a cube from a globe would be able, were he to gain his sight, to tell which was which by sight alone.

[17] Actually at *Essay*, II.xi.17, rather than in Chap. xii. LANGLEY puts these remarks in the wrong chapter.

Chap. XIII. Simple Modes, and First that of Space.

p. 153. Space and time are not substances: they have no activity, and having parts, cannot be God. Space is a relation, an order, not only between existences, but also between possibilities as they may exist.

p. 154. Consideration of substance one of the most important and fruitful points of philosophy.

p. 155. Motion does not involve a vacuum, since matter originally fluid.

Chap. XIV. Duration and its simple modes. *fol.* 73

p. 156. Point and instant not parts of space and time, nor do they contain parts. They are only extremities.—Succession of perceptions awakes the idea of duration but does not make it. Succession of time uniform and simple and regular. Time is the measure of motion, i.e. uniform (intelligible) motion of non-uniform.

p. 157. The vacuum which can be conceived in time, as in space, shows that both have to do with the possible as well as the actual.

Chap. XV. Duration and Expansion together.

p. 159. Vacuum in space could be measured, but not in time. Therefore may refute the view that two bodies, with vacuum between, touch; but not the view that two worlds, one of which succeeds the other, touch as to duration. If space were only a line, and body were immovable, same would hold of space.

Chap. XVI. Number.

p. 160. Number, when not confined to integers, has as little a minimum as length, to which it corresponds. Thus only integers can be defined as

a multitude of units. Size measured by integers: therefore continuous quantity measured by discrete ditto.

Chap. XVII. Infinity.

p. 161. There are an infinite number of things, i.e. more than can be assigned. But there is no infinite number, if this means a veritable whole. True infinite exists only in the

p. 162. absolute, which is not composed of parts. Infinite wholes, with their opposed

p. 163. infinitesimals, are only used by mathematics, like imaginary roots.—Can sometimes go to infinity, not only as regards extension, but also as regards degrees:

p. 164. e.g. velocity. We have an idea of the infinite, but it cannot be a true whole.

Chap. XIX. Of the Modes of Thinking.

p. 166. We are never without perceptions, but often without *apperceptions*, namely, when there are no distinct perceptions.

Chap. XX. Modes of Pleasure and pain.

p. 167. No perceptions wholly indifferent to us, but so spoken of if corresponding pleasure and pain not noticeable.[18] I agree that the good is what produces pleasure.

p. 173. Envy sometimes only desires another's loss, without thought of corresponding advantage to Self.

Chap. XXI. Of Power and Freedom. *fol.* 75

p. 175. Agree with Locke that reflection gives clearer idea of power than sensation.

p. 176. Erroneous to suppose bodies lose as much motion as they give to others. Is it maintained that the same motion (*idem numero*) is transferred? A body does always lose as much *force* [*vis viva*?] as is transferred.[19]

p. 177. To perceive is not to understand: understanding involves distinct ideas.

p. 179. It is not faculties which act, but substances by means of faculties.—*Freedom* has many meanings. Freedom of law[20] and of fact. Latter is power to will as one ought, or do what one wills. Last is what you speak of. *Freedom of will* has two senses: first opposed to slavery to passion—in this sense God alone perfectly free: this concerns understanding. Second, opposed to necessity, concerns the

p. 180. naked will. This consists in the fact that no reasons can prevent the volition from being contingent, or can give it absolute metaphysical necessity.—"If the ball is moving horizontally without hindrance, it will so continue", is more or less necessary; but "the ball is moving so" is contingent.

p. 181. Those who oppose freedom to necessity, think not of external acts, but of volition. There is order and connection of ideas as of bodily movements. Interdependence of

p. 182. soul and body only metaphysical, through God; not a physical dependence, or immediate influence.

p. 183. Necessity opposed, not to volition, but to contingency. Necessity not to be confounded with determinism—latter exists equally in thoughts and movements. Thoughts could be foreseen by perfect knowledge as well as motions. Connections in contingent matter not all necessary: thus geometrical and metaphysical consequences necessitate, but physical and moral incline without necessitating: the physical

[18] LANGLEY (along with REMNANT AND BENNETT) has the word "notable", rather than "noticeable".

[19] Russell surmises that the "force" that Leibniz claims is always conserved is *vis viva*, living force. Actually, it is *active force*, which may be either a dead force (roughly what we would call "potential energy") or living force (roughly what we would call "kinetic energy").

[20] LANGLEY has "freedom of right". REMNANT AND BENNETT give "freedom in law".

even have something of the moral, being chosen by God as the best.[21]—Freedom to

p. 184. will against all impressions coming from the understanding is impossible, and would destroy true freedom.

p. 186. The fact that anything must exist or not exist does not interfere with freedom, for we may suspend our decision.

p. 187. We do not will to will, but we will to do.

p. 191. We pursue the greatest good we perceive, but our thoughts are for the most part *surd*,[22] i.e. mere empty symbols, and this knowledge cannot move us. I call such thoughts *psittacism*.[23]

p. 193. Must make a rule to follow reason, though perceived only by surd thoughts.

p. 194. Uneasiness essential to happiness of created beings, which never consists in complete possession.

p. 199. Desire always involves uneasiness, but not vice-versa.

p. 200. Motives produce a compound direction, almost like that of Mechanics.

p. 201. No upper limit to happiness. Pleasure feeling of perfection, pain of imperfection.

p. 205. God cannot choose what is not good; his freedom therefore does not prevent his being determined.

p. 220. Senses give material for reflection. We should not think of thought if we did not think of something else.

Chap. XXII. Mixed Modes. *fol.* 77

p. 224. *Power*, as source of action, more than mere aptitude, which was its meaning in Chap. xxi; for it includes tendency. I call it, in this sense, *entelechy*. Don't know whether to say same being is action in agent and passion in patient, and is in two subjects at once like a relation, or not.

Chap. XXIII. Complex ideas of substances.

p. 225. There is reason to assume substance, since we conceive several predicates in one and the same subject. The concretes, wise, warm,

[21] This concerns Locke's claim that motion "comes under our idea of necessary", which Leibniz interprets as the claim that an object not acted on by an external force must *necessarily* continue with the same quantity of motion in a straight line (by the Law of Inertia). Leibniz objects that this necessity is not a geometrical one, since "it is founded on the wisdom of God, who does not change his influence unless he has some reason to do so."

[22] "Surd" is LANGLEY's translation of Leibniz's "sourdes" (literally "deaf", but also meaning "hollow"). REMNANT AND BENNETT use "blind" (p. 186). See also their note on p. xxviii.

[23] "Psittacisme" is Leibniz's word, which Langley renders as "psittacism". REMNANT AND BENNETT translate it "parroting".

shining, arise in our minds before knowledge, heat, light etc. We may doubt whether these accidents are existences: they are often only relations. Scholastic difficulties are banished by refusing to admit

p. 226. abstract existence, and allowing no terms in science except substantial subjects. By the very supposition, this pure *subject in general* can have only what is necessary to make it be the same thing.

p. 229. Agree that existence of spirit *more* certain than that of sensible objects.

p. 230. The schools have three kinds of *ubiety*[24]: *circumscriptive*, belonging to bodies, which are in a place *punctatim*; *definitive*, of souls, which are in a certain volume, without our being able to assign a precise point in that volume; and *repletive*, of God, who fills all space and acts everywhere.

p. 231. We can thus assign some sort of motion to souls, at least in relation to bodies.—Cohesion not necessary to explain an extended whole, since a perfectly fluid matter would constitute an extension. Perfect fluidity belongs only to primary matter, i.e. matter in the abstract; actual matter, secondary matter, has always more or less connection and cohesion.

p. 233. Mustn't, to explain motion, suppose anything so absurd as passage of accident from subject to subject.

p. 234. Idea of infinite not formed by extension of finite ideas.

Chap. XXIV. Collective Ideas of Substances.

p. 235. An aggregate makes one idea, but not one substance.

Chap. XXV. Relation.

p. 235. Relations, though founded in things, derive their reality from the supreme reason.

p. 236. Relations, though they appear sometimes purely external, are never really so, owing to real connection of all things. Terms which *necessarily* lead the mind to others are relative.

Chap. XXVII. Identity or Diversity. *fol.* 79

p. 238. Between two different things there must always, besides the difference of time and space, be an internal *principle of distinction*. Although time and place distinguish things which we might otherwise confound, yet there is always some other difference too. Thus the essence of identity and diversity consists not in time and place. To make it do so, would make penetration impossible; but two rays of light are still distinguished, even where they cross.

p. 239. If two individuals were perfectly alike, there would be no principle of individuation: they would not even be different individuals. This is

[24] Russell spelt it "ubeity", as he did repeatedly in *PL*, e.g. p. 124 (but not on p. 255, where this passage is quoted).

why atoms are chimerical. (Contrast Duncan p. 260)[25]

p. 240. Organization or configuration without an existing principle of life, which I call a monad, would not suffice for the continuance of *idem numero* or the same individual, for configuration can abide specifically without abiding individually. Substances

p. 241. which are a real substantial unity remain the same individual through the soul or spirit which constitutes the ego. If vegetables and animals have no soul, their identity is only apparent: if they have, it is there, though their organized bodies don't preserve it.

p. 242. The identity of one and the same individual can be preserved only by the soul, for the body is in perpetual flux, and there is no particle invariably connected with the soul. There is not transmigration, but body changes gradually.

p. 243. Identity of substance may be preserved without memory. It is then the same individual, but not the same person.

p. 245. I distinguish *incessability* of animals from *immortality* of men. Both preserve

p. 246. real identity, but only men remain the same *persons*, or morally identical. Except to God's omnipotence, apparent identity to the person involves his real identity. Any middle bond of consciousness makes moral identity, though I have forgotten what went before. I am the same person that was in the cradle.

p. 247. The *Self* constitutes real identity, the phenomenon of self, if true, moral identity. God could change real identity, while personal ditto remained. Ego has no parts.

p. 248. Present or immediate memory can't deceive, or we shouldn't know what we are thinking of, for this is memory; we should therefore be sure of nothing.

p. 249. Can't strip any one of all *perceptions* of his past, but only of *apperceptions*.

p. 256. [Illustration showing that material identity and identity of content are different ideas.][26]

Chap. XXIX. Clear and Obscure, Distinct and Confused Ideas. *fol.* 81

p. 272. Could write metaphysics and ethics mathematically if not too much trouble.

p. 273. Have distinct *idea* of chiliagon, but not distinct *image*.

[25] The phrase printed here in parentheses was written by Russell in the left margin. Russell refers to §26 of Leibniz's Fifth Letter to Clarke, where Leibniz admits that if, *per impossibile*, two perfectly indiscernible things did exist they would be two.

[26] Leibniz supposes that there is a twin earth, not sensibly different from the actual one, and that God transfers spirits, alone or with their bodies, from one to the other without their perceiving it. The beings interchanged remain numerically distinct, two distinct persons, despite the identity of content.

p. 275. Same is true as regards infinitesimal pieces of matter.[27]

Chap. XXXI. Adequate and Inadequate Ideas.

p. 279. When there is only an imperfect idea, same subject susceptible of many definitions which cannot be derived from each other, or seen to belong necessarily to same subject, and then experience alone shows that they do all belong together.

Chap. XXXII. True and False Ideas.

p. 281. Possible ideas true, impossible false.

Book III. Words. Chap. I. Words in General.

p. 288. General terms essentially necessary to language. Proper names originally appellative.

p. 289. Owing to practical needs, we have not, in language, followed the natural order of ideas, which would be the same for all spirits. Philology gives history of discoveries.

Chap. III. Of General Terms.

p. 309. Impossible to have knowledge of individuals, and to *determine* exactly the individuality of anything; so that abstraction proceeds from species to genus, rather than from individual to species. All the circumstances may reappear, and the smallest differences are insensible; place or time do not determine themselves, but are determined by the things they contain. Most important factor is that individuality includes infinity, and only one who understands infinity can know principle of individuation of this or that thing. This arises from influence of everything on everything: would be the case if only atoms of Democritus existed, but in that case there would be no *difference* between *different* similar individuals.

p. 310. That we have no precise idea of the individual, appears since resemblance may deceive us.

p. 316. Essence of gold is what constitutes it and gives it the sensible qualities which make its nominal definition, while real and causal definition would explain this internal constitution. Distinction between substances and predicates does not consist in the fact that real essence of

[27] "Infinitesimal" is Russell's word, and he may have meant it loosely to mean "exceedingly small". Strictly, there are no "infinitesimal pieces of matter" for Leibniz, since matter is divided without limit, and does not issue in smallest parts. He is responding to Locke's question "whether a man taking the smallest atom of dust he ever saw has any distinct idea of the difference between the one hundred thousandth and the millionth part of that atom?"; to which he replies that "Size has no images in itself, and those which it has depend only upon comparison with the organs and other objects, and it is useless here to employ imagination."

p. 317. predicates can be known, for this is possible with some substances, e.g. God and soul; and some predicates, e.g. yellow, bitter, are as little known as contexture of bodies. In Mathematics also, one and the same mode may have a real as well as a nominal definition. *Real* definition shows possibility of thing defined, *nominal* does not.

p. 318. Essences are perpetual, because they concern only the possible.

Chap. IV. Names of Simple Ideas. *fol.* 83

p. 318. No need to suppose simple ideas and names of substances signify a real existence. God has ideas before creating their objects, and may communicate those ideas to us. Also no proof that objects of sense are outside us, especially when, like Locke and

p. 319. Cartesians, we hold sensible qualities to have no resemblance to what is outside. Simple terms cannot have nominal definitions; but when simple only as regards us, may have real definition explaining their cause; e.g. green is mixture of blue and yellow.

p. 322. Difficult to indicate limits between blue and green, while precise notions in Arithmetic and Geometry are possible.

p. 323. That sensible qualities have so little subordination, arises only from our want of knowledge.

p. 325. Ideas refer only to the possible, and are real when their objects are possible.

Chap. V. Names of Mixed Modes and Relations.

p. 328. Nature of things generally gives limits of species, but not always, e.g. as regards lengths. In such cases, nature has not determined the

notion, and there are people concerning whom it is doubtful whether they are bald or not.

p. 329. The patterns of the ideas of mixed modes—e.g. justice—are as real as those of substances. You don't see justice, but it is in acts. Roman jurists call such ideas incorporeal *things*.

Chap. VI. Names of Substances.

p. 331. Essence is not related only to sorts: some things are essential to individuals. It is essential to substances to act, to created substances to suffer, to minds to think, to bodies to have extension and motion. Thus when a substance has once belonged to such a sort, it cannot naturally cease to do so.

p. 332. God alone among spirits has no body.

p. 334. Not all possible species are compossible, so that some species cannot exist. The law of continuity says nature leaves no gap in the order; but every species is not the whole order.

p. 335. Ambiguity as to species: in mathematical strictness, the smallest difference makes a different species: thus, though all circles are one species, ellipses are of many species. In this sense, no two

p. 336. physical individuals are of the same species, and one individual passes from species to species. But in physical science, we don't adhere to this strictness, but choose some attribute by
p. 337. which a species is defined. Whenever we truthfully distinguish or compare, nature does ditto, though her distinctions and comparisons may be unknown to us.
p. 338. Reason is a fixed attribute of every human being, never lost, though sometimes imperceptible.
p. 339. The fact that we doubt whether monsters are human, shows the species to be defined by internal, not external, marks: if external, there could be no doubt.
p. 344. Generation gives a presumption, or provisional proof, of identity of species.
p. 347. But species may have been, or be hereafter, more changeable than now.
p. 353. I admit the limits of species to be sometimes indeterminate, but that does not prevent things from having real essences independent of the understanding, nor us from knowing them.
p. 356. Though genera as such do not exist, they are not merely signs.
p. 357. Men determine only the name, not the species. If something had all the properties of gold except malleability, that would only show malleability to be not necessarily connected with the other properties. *fol.* 85
p. 360. Besides specific purely *logical* differences, for which any variation will suffice, and specific purely *physical* differences, which are based upon the essential and immutable, there is an intermediate class of specific *civil* differences, which do not change easily, but whose limits cannot be precisely fixed.
p. 362. Bodies are not a *unum per se* unless they are animated. Organic bodies are natural machines, as imperishable as their souls: the animal with the soul subsists always.

Chap. VIII. Abstract and Concrete Terms.

p. 368. Two abstract terms may be stated one of another: we may say justice is a virtue. There are abstract *real* terms, which are essences or parts of essences; and abstract
p. 369. *logical* terms, which are predications reduced to terms, as, *to be a man*. The latter can be stated of each other, as "to be a man is to be an animal"; the former cannot, as we cannot say "humanity is animality". Yet the beings signified by such terms have also genera and species.

Chap. X. Of the Abuse of Words.

p. 380. Predicaments[28] useful, and to be completed rather than rejected.

[28] "Predicaments" is used here by LANGLEY (following Locke) in its now obsolete sense of "categories", which is the word REMNANT AND BENNETT use.

Substances, quantities, qualities, actions or passions, and relations, with their compounds, suffice.

p. 382. There is no Platonic soul of the world, for God is beyond the world.

p. 383. *Materia Prima* not useless in general Physics: I have shown (after Kepler) that, besides impenetrability, it has *inertia*.

Chap. XI. Remedies for Imperfections of Words.

p. 392. One subject may have many definitions, but the knowledge that they agree must be learnt by reason, or by experience that they constantly go together.

p. 394. The name gold signifies not only what the speaker may happen to know about gold, but also a certain internal constitution.

Book IV. Of Knowledge. *fol.* 87

Chap. I. Knowledge in general.

p. 397. Not only propositions contain knowledge, but also ideas.

p. 400. Knowledge of *truth* is always grounded in agreement or disagreement of ideas, but does not in general consist of perception of this. Moreover this definition seems to apply only to categorical propositions, not to hypothetical. Every relation

p. 401. is either comparison or concurrence. Former gives identity or diversity, latter what Locke calls coexistence. When we say a thing exists, existence itself is the predicate. Thus only comparison and concurrence: existence may be conceived as concurrence with the Ego.

p. 402. Proof depends upon memory, and therefore belief is not within our will.

p. 403. It is not the figures in Euclid which make the proof, but the definitions and axioms.

Chap. II. Of the Degrees of our Knowledge.

p. 404. Primitive truths, like the derivative, are of two kinds, those of reason and those of fact, necessary and contingent. Primitive truths of reason are *identical*, i.e. they seem only to repeat the same thing without giving us any information.

p. 406. Such propositions are required in the deductions of logic and in a *reductio ad absurdum*.

p. 410. $3 = 2 + 1$ is the definition of 3, not intuitive knowledge. Intuitive knowledge is involved in the definition, however, in that 3 so defined is seen to be possible. Primitive truths of *fact* are immediate internal experiences of an immediateness of feeling. Here *Cogito ergo sum* holds good. But it is equally certain that I have different thoughts, so that Cartesian principle not unique of its kind.

p. 417. Investigation of degrees of probability very important omission in our Logics.

p. 420. Two sorts of knowledge, one producing certitude, the other ending in probability.

p. 422. Connection of phenomena is criterion of existence of objects of sense, but does not give certainty.

Chap. III. Of the Extent of Human Knowledge. *fol.* 89

p. 427. Can a purely material being think or not?

p. 428. Matter taken as a complete being, i.e. secondary matter, as opposed to primary which is purely passive and therefore incomplete, is only *mass*, and every mass presupposes *simple substances* or *real unities*. These involve perception, and transfer us into the intelligible world of substances, while before we were among phenomena of sense. Matter cannot subsist without immaterial substances, i.e. without the unities: what reasons is an immaterial substance.

p. 430. The difficulty is to imagine what is only intelligible, as if we would deny existence to whatever is not extended.

p. 431. Matter cannot produce pleasure and pain, but the soul produces them in conformity with what takes place in matter. As for God, he is ruled by the natures of things.

p. 432. Ideas of sensible qualities are confused: their connections therefore can be known only by experience, except where reduced to the distinct ideas which accompany them, as in rainbow or colours in prisms.

p. 439. Agree with Locke that we have intuitive knowledge of our own existence, demonstrative of that of God, and sensitive of other things.

p. 440. Infinitesimal analysis has given means of uniting Geometry with Physics.

Chap. IV. Reality of our Knowledge.

p. 445. Certainty would be nothing, if simple ideas all came from sense. Ground of certainty in universal truths lies in the ideas themselves. Ideas of sensible qualities—which are only phantoms—come from the senses, i.e. from confused perceptions. Basis of truth, in contingent and singular things, is in succession which unites these phenomena as the intelligible truths demand.

Chap. V. Truth in General.

p. 450. Truth consists not merely in union of ideas: *the wise man* is not a truth. Also

p. 451. truth does not consist in words or signs, but in a certain relation.

p. 452. Truth consists of correspondence of propositions with things: when attributed to ideas, it implies the proposition that these ideas are possible.

Chap. VI. Universal Propositions, their Truth and Certitude. *fol.* 91

p. 460. "All gold is fixed" is almost a⟨s⟩ certain as tomorrow's sunrise: experimental certainty, of fact, though we don't know bond between fixity and other qualities.

p. 461. I think necessary connexions of secondary qualities possible: e.g. every palpable body is visible, every body struck in air makes a noise. These
p. 462. propositions are not necessary in the metaphysical sense, but are morally certain.

Chap. VII. Maxims or Axioms.

p. 464. All secondary axioms ought to be reduced to primary, which I call *identicals*.[29]
p. 466. That two bodies can't occupy the same place, may be denied, if real condensation admitted; unless body defined as impenetrable mass, in which case proposition is identical or nearly so.

p. 467. Maxims have the convenience that you observe a rule once for all, and afterwards subsumptions suffice.
p. 469. My own existence may reasonably be excluded from axioms, though it is an immediate truth, not provable by others. For it is a proposition of fact, not a necessary proposition. Only God sees how *I* and *existence* are united, i.e. *why* I exist. But if axioms be defined as non-provable truths, *I am* is an axiom.
p. 470. The statement that a thing is what it is is prior to the denial that it is another.
p. 471. $2 + 1 = 3$ is a definition, and (p. 472) $2 + 2 = 4$ is demonstrable.
p. 473. Geometry is based upon axioms: areas of curvilinears e.g. determined by axiom that two homogenous magnitudes are equal when one is neither less nor greater than the other.
p. 474. Revelation can't get on without natural theology: depends e.g. upon veracity of God, which is a maxim of natural theology.
p. 484. Maxims can give knowledge of substances outside us: e.g., that Nature proceeds by the shortest paths, or at least the most definite, suffices for the whole of Optics.
p. 486. Maxims are as useful in jurisprudence as in mathematics.

[29] Locke's heading for this chapter was simply "Of Maxims", which Coste, Locke's French editor and translator, in his translation of the *Essay* changed to "Of the propositions which are named maxims or axioms" (in Remnant and Bennett's translation of his French). Locke equates axioms and maxims; Leibniz distinguishes them, noting that maxims are often "established propositions", as in moral philosophy. The context is a discussion of Roberval's ambition to reduce the number of axioms in Euclid's *Elements* by proving some in terms of others. By "secondary axioms" Leibniz means those "which we ordinarily use". An example would be the part–whole axiom, that "the whole is greater than its proper part". Leibniz offered a demonstration of this axiom by substituting definitions for "whole" and "part", thereby reducing it to an identity. An axiom in this context is something assumed as self-evidently true for the purposes of demonstration.

Chap. IX. Knowledge of our own existence.

p. 499. Agree that nothing is more certain than our own existence. This is the source of à posteriori truths, as identicals are of à priori. Both incapable of proof and both immediate, former between understanding and its object, latter between subject and predicate.

Chap. X. Knowledge of Existence of God. *fol.* 93

p. 500. (Locke gives cosmological argument, concluding from present existence some thing eternal).

p. 501. Though present existence proves that there never was a time when nothing existed, it does not prove that there must be some eternal thing, nor that, if there be one, it must be the source of all others.

p. 502. Don't think Cartesian ontological argument perfect. But it is not a

p. 504. paralogism, only it requires completion by showing idea of God to be possible. The argument as it stands proves, what is only true of God, that if he is possible, he exists. The other argument, that we have the idea of God, and it must have come from him, is still more faulty. DesCartes does not prove that we have the idea, and if we had, it would not follow it

p. 505. came from God. But I hold there are other proofs of possibility and existence of idea of God; especially preëstablished harmony. Almost all proofs suggested are good, and only need to be perfected.

p. 506. Agree with Locke that eternal Being can't be matter, since matter can't produce thought.

p. 507. Agree that matter not a unity or monad. All monads must have their source in one being, otherwise, being independent, they couldn't produce the order and harmony which is seen in nature. Preestablished harmony makes this certain.

Chap. XI. Knowledge of Existence of other things.

p. 515. Eternal truths all conditional: If so-and-so, then such-and-such.

p. 516. Such truths are true even if the hypothetical subject does not exist; their truth lies in the connection of ideas. If no one has these ideas, at least God has them.

Chap. XII. Improvement of our Knowledge.

p. 518. Examples of an axiom derive their truth from it: it is not grounded on them.

p. 527. That everything takes place mechanically, can only be rendered certain by reason, not by experiment.

Chap. XVI. Degrees of Assent.

p. 552. Everything in nature goes by degrees, not by leaps: but beauty demands apparent leaps.

Chap. XVII. Of Reason. *fol.* 95

p. 559. Syllogism one of the most important of human inventions: kind of universal Mathematics.

p. 560. There are good asyllogistic conclusions too: Jesus Christ is God, therefore B.V.M.[30] is mother of God, or *A* is father of *B*, therefore *B* son of *A*. Such conclusions are demonstrable by the truths on which syllogism itself rests.

p. 565. (Remarks on induction in Physics).

p. 567. Always at least one universal premiss in syllogism. Similarity involves always something more, which is universality.

p. 568. Aristotle's reason for order of premisses was, that he said, not all *A* is *B*, but *B* is in *A*. [i.e. syllogism in intension].[31]

p. 573. [References for differential calculus, in footnote][32]

p. 574. God alone has only intuitive knowledge.

p. 575. I conceive all things unknown or confusedly known after the manner of those which are distinctly known to us. This gives infinity of modes. Thus I hold no genius so sublime but that there are an infinite number above him.

[30] Blessed Virgin Mary.

[31] Leibniz's point is merely that the validity of a syllogism like "All humans are mortal. All Greeks are humans. Therefore, all Greeks are mortal" is easier to see if the order of the premisses is reversed. But he explains the traditional order as being due to the fact that Aristotle, to whom the theory of the syllogism is primarily due, was apt to formulate syllogisms, not in terms of the inclusion of one class in another, but in terms of what might be called content-inclusion: "Mortality is in humanity. Humanity is in Greeks. Therefore, mortality is in Greeks." That Russell should seize on this as the "syllogism in intension" relates directly to his own work on logic in the summer of 1898. Inspired by WHITEHEAD's treatment of syllogistic in *Universal Algebra* as an application of Boolean algebra, Russell, in "An Analysis of Mathematical Reasoning", his most important work that summer, was attempting a transcendental deduction of Boolean algebra from the possibility of judgment. The problem was that, while Boolean algebra was easily interpreted extensionally, judgment, as Russell recognized, involved intensions. Undeterred, Russell invoked the familiar duality between intension and extension, namely that, in general, intension and extension vary inversely; but the conditions Russell felt obliged to impose for philosophical reasons on the Boolean meet and join operations on intensions undermined the duality, and the project ended in confusion. If anything, it showed that Boolean algebra was not a suitable formalism for the treatment of judgment (at least as Russell conceived it) and made him more sympathetic to the radically different approach of Peano when he discovered it two years later. (See GRIFFIN, *Russell's Idealist Apprenticeship* [1991], pp. 275ff.)

[32] LANGLEY's footnote cites Volume 5 of GERHARDT's edition (**GM**) of Leibniz's *Mathematische Schriften* (1849–63) for Leibniz's writings on the calculus and DUTENS' edition of Leibniz's *Opera Omnia* (1768), Vol. 3, for material on Leibniz's priority dispute with Newton, as well as some secondary literature.

p. 577. There is an argument *ad vertiginem*,[33] thus: If this proof is not received, we have no means of obtaining certainty on the point in question. This is valid in some cases, e.g. as regards immediate truths. But we must distinguish between what is necessary for maintaining knowledge, and what only for received doctrines.

p. 580. Agree strongly that faith should be grounded in reason.

Chap. XX. Of Error.

p. 618. I believe truly ecumenical councils have not erred against wholesome doctrine.[34]

Chap. XXI. Division of Sciences.

p. 624. Each of your three divisions, Physics, Ethics, Logic, may be made coextensive with all truth.

Philosophical Works of Leibnitz *fol.* 97
translated by
G. M. Duncan.

I. Philosophy of Descartes (1679–80).

p. 5. Descartes's laws of motion wrong; quantity of motion not constant.

p. 9. Immortality without memory useless, viewed ethically, for it destroys reward and punishment.

II. Notes on Spinoza's Ethics.

p. 16. We can conceive what is conceived through itself. For in what is conceived through another there is nothing except what belongs to the other; hence an infinite regress, unless something can be conceived through itself.

p. 17. Not true that the more reality a thing has the greater the number of its attributes; it may merely have more of some attribute, e.g. circle has more reality[35] than inscribed square (cf. *Antizipation der Wahrnehmung*).[36]

[33] *Argumentum ad vertiginem*: literally, argument to dizziness; i.e., if the claim were not accepted nothing would make sense, one's head would spin.

[34] This remark of Leibniz's has little relevance to his philosophical views, but Russell no doubt cites it as evidence of Leibniz's generally conservative attitude to religious matters. The context is a discussion of the role of authority in the formation of opinion. Leibniz says that we should not "despise antiquity in the matter of religion".

[35] I.e. more extension.

[36] Russell's reference is to KANT's "Anticipations of Perception" in *The Critique of Pure Reason* (A166–76, B207–18), namely that all real things in perception have degree. Thus one thing may, in Leibniz's terms, have greater reality than another since it has some perceptible attribute to a greater degree than the other.

III. Thoughts on Knowledge, Truth, and Ideas.

p. 27. Knowledge is {obscure / clear} {confused / distinct} {inadequate / adequate} or again, {symbolical / intuitive}

When it is both symbolical and intuitive it is perfect.

A notion is *obscure* when it does not enable us to recognize the thing represented, or distinguish it from similar things: otherwise it is *clear*. Clear knowledge is *confused* when I cannot enumerate separately the *marks* necessary to distinguish one thing from others. Thus colours, smells, etc. can be distinguished *inter se*, but we can't tell the marks by which we distinguish them. These notions however are certainly

p. 28. complex and may be analyzed, because they have their causes. *Distinct* notions we have always where there is a *nominal definition*. We have also a distinct notion of indefinable things when they are primitive and only understood through themselves; they are then marks of themselves.

p. 28. A composite notion, such as gold, is *distinct*, when all its marks are *clearly* known; it is *adequate* when the marks are also known *distinctly*, otherwise it is *inadequate*. I don't know whether there is a perfect example of adequate knowledge, but that of numbers approaches it very nearly. When we don't perceive the whole nature of the object at one time, but substitute *fol.* 99

p. 29. signs for the thing, our thought is *blind* or *symbolical*; as in Algebra and Arithmetic.[37] When we embrace in thought at once all the elementary notions which compose an idea, our thought is *intuitive*. Of distinct primitive notions we can only have an intuitive knowledge, as most often we have only a symbolical knowledge of composite ideas.[38] To deduce anything from the definition of an idea, we must

[37] Russell's summary here slightly distorts what Leibniz says, aligning it rather closely with what WHITEHEAD had said about algebraic symbolism in his *Universal Algebra* (1898). What Leibniz actually says is this: "when I think a chiliagon, or polygon with a thousand equal sides, I do not always consider the nature of a side, of equality, and of the number thousand (or of the cube of ten); but these words, the sense of which presents itself to my mind in an obscure, or at least imperfect manner, take the place to me of the ideas which I have of them, because my memory attests to me that I know the signification of these words, and that their explanation is not now necessary for any judgment." Russell's summary of this is closer to what Whitehead says about "substitutive signs" which are used in algebra (p. 3). Russell had read Whitehead in March 1898, a few months before writing these notes, and Whitehead's broadly formalist approach to mathematics, as the manipulation of systems of substitutive signs according to rules without regard to their meaning, informed Russell's attempts to axiomatize projective geometry in 1898–99 (*cf.* RUSSELL, "Notes on Geometry" [1899] and "The Axioms of Geometry" [1899]).

[38] In Leibniz's distinction between intuitive and symbolical ideas, one can detect a forerunner of Russell's much later distinction between knowledge by acquaintance

know that the idea is *possible*, i.e. does not involve a contradiction. Thus the ontological argument proves that if God is possible, he exists. Thus e.g. we seem to have an

p. 30. idea of the quickest motion, which however is absurd. Similarly the most perfect being might be absurd. *Nominal* definitions only contain the marks distinguishing a thing, *real* definitions show also that the thing is possible. This is why truths are not arbitrary, as Hobbes pretended.[39] Possibility may be known à priori or à posteriori. *A priori*, when the elements of a notion are known to be separately possible, and not incompatible; this happens when we have *causal* definitions, showing how a thing may be produced. *A posteriori* when experience shows us the thing actually existing; for what exists is necessarily possible. An adequate knowledge shows possibility à priori; for since complete analysis shows no contradiction, the notion is necessarily possible. The maxim: "What I conceive clearly and distinctly of a thing is true", is useless without criteria of clearness and distinctness.[40]—If we see all things in

p. 31.[41] God, we must yet have ideas of our own; i.e. affections of our minds answering to what we see in God.—When we perceive green by mixing yellow and blue, we really perceive the yellow and blue minutely mixed, though we imagine we see some new entity.

IV. Letter to Bayle about general principle useful in explaining laws of nature. 1687. *fol.* 101

p. 33. General principle: When the difference of two cases diminishes without limit, the difference of their results must do so likewise. Thus rest

p. 34. may be considered as infinitely small velocity and thus what is true of velocity is true of rest; equality is infinitely small inequality.

p. 35. The better nature is known, the more it is found to be geometrical.—True physics must be derived from the source of the divine perfections.

V. Letter to Arnauld, stating personal views of Metaphysics. 1690.

p. 38. Body is an aggregate of substances, and not properly one substance. Therefore there must be in body indivisible and ingenerable substances having something corresponding to souls. These are always united to organic bodies differently transformable. Each contains in itself the law of all the series of its states. All its actions come from

and knowledge by description.

[39] *Cf.* HOBBES, *De Corpore*, I.iii.8: "The first truths were arbitrarily made by those that first of all imposed names on things" and I.v.1: "Men pronounce falsely … in departing from such appellations of things as are agreed upon."

[40] The material covered by this sentence actually occurs on p. 31 of DUNCAN.

[41] This material is actually on p. 32 of DUNCAN.

itself, except dependence on God. Each substance expresses the whole universe, but some more distinctly than others. Union of soul and body, and operation of one substance on another, consists only in that perfect mutual accord established at the creation. For intelligences, or souls capable of reflection and of knowledge of God and eternal truths, moral laws must be added to physical.

p. 39. For physics, must understand force, which is less relative than motion. Force measured by quantity of effect. [But isn't motion the effect?] There is absolute force, directive force, and respective force, each of which is conserved in the universe or any self-contained system. But quantity of motion not preserved.[42]

p. 40. Shall say nothing of Calculus of increments etc.

VI. Whether the Essence of Body consists in Extension. 1691. *fol.* 103

p. 41. Extension can't account for all the properties of body, e.g. inertia.

p. 43. If extension were essence of body, we should incline to conservation of motion, which is false. Must join to extension some metaphysical notion, substance, action and force; which shows that whatever acts suffers, and vice versa. But I admit every body is extended, and there is no extension without body. But substance involves, besides extension, action and passion.

p. 44. "Besides extension, there must be a subject which is extended, i.e. a substance which is repeated or continued.[43] For *extension* signifies only a repetition or continued multiplication of that which is extended; a *plurality*, *continuity and coexistence of parts*; and hence extension is not sufficient to explain the nature of the extended or repeated substance, the notion of which is anterior to that of its repetition."

[42] "Force is measured by the quantity of effect." But, Russell asks, isn't motion the effect? The answer is that it is one such effect. The force necessary to raise a pendulum bob through a certain height can have as its effect the motion of the bob at the bottom of its swing; but the living force of the bob at that point will also have the effect of being able to raise the bob through an equivalent height (discounting friction), giving it an equivalent dead force at that point, but with no motion of the bob. LEIBNIZ explains the distinction he makes here between absolute force, directive force and respective force in Part I of his "Specimen Dynamicum" (published in the *Acta Eruditorum* of 1695): *respective* or *individual* force is the living force "by which the bodies which make up an aggregate can act on each other; *directive* or *common* force is that by which the aggregate itself can act on something else"; and *absolute force* "consists of respective and directive force taken together" (**GM.VI.239–40**). Thus in an inelastic collision, some of the directive force is lost to the individual forces of the particles contained in the body, but in such a way that the total or absolute force is conserved.

[43] The passage in DUNCAN reads: "that is, a substance to which it belongs to be repeated or continued".

[This passage is important, as showing the arithmetical nature of Leibnitz's theory of space.][44]

VII. Animadversions on Descartes's Principles of Philosophy. 1692. *fol.* 105

p. 48. *Cogito ergo sum* is among first truths; but Descartes shouldn't have neglected others equal to this. Truths are either of fact or of reason. First of the truths of reason is the law of contradiction or of identity. First truths of fact are as many as the immediate perceptions: these two are equally immediate, "I think" and "various things are thought by me".—

p. 50. Ontological argument valid when God has been proved possible.

p. 51. That there is some necessary thing is evident from the fact that contingent things exist.—From our duration we cannot infer the existence of God, unless it be proved that we can't even exist but by God's favour. For, from the fact that we now are, it follows that we shall hereafter be, unless a reason of change exists.

p. 52. Don't admit errors depend on will more than on intellect.

p. 54. To ask if there is liberty in our will is the same as to ask if there is choice in it: free and voluntary mean the same.

p. 55. Don't think it appropriate to define substance as "that which needs the concurrence of God alone to exist."[45] For we need not only other substances (for existence of created substances) but also accidents. There is this difference between substance and accident, that an accident needs, for its existence, the particular substance in which it is, whereas a substance needs only some accident, and can change its accidents.

p. 56. Extension not primitive but resolvable. It requires a whole continuum, in which many things exist at once; and it requires something extended. Mobility can't be understood of mere extension, but of subject of extension, by which place not only constituted, but filled.

p. 57. Descartes did well to deny that heat, colour, etc. are something outside of us.

p. 58. Descartes's argument for existence of material things weak. Argument is this: Reason, why we believe their existence, is external to us, and hence from God, or another, or from things. Not from God, or he would be a deceiver; not from another, this Descartes has forgotten to prove; hence from things.—Might be from another, since God may have reasons for deception. *fol.* 107

p. 59. Those who maintain a vacuum often regard space as a substance, nor

[44] It is unusual for Russell to abandon his practice of paraphrase and summary for a few lines of direct quotation. His comment suggests that he may have been looking for hard textual evidence to support his initial assumption about the arithmetical nature of Leibniz's philosophy (see above, p. 7).

[45] This is DESCARTES' definition: *Principles of Philosophy*, Pt. I, §51 (1985 edn., I: 210).

can Cartesian principles refute them. (Good account of the arguments for the view that space is a substance).

p. 60. If motion nothing but change of contact or immediate vicinity, follows that can't tell which body moves. To say a thing is moved,

p. 61. we require not only change of relative situation, but also that the cause of change, the force or action, be in the thing itself.

p. 63. Nature has a double kingdom, of reason and of necessity, for just as all things are full of spirits, so they are full of organized bodies.

VIII. Reply to a letter of M. Foucher.

p. 64. As regards *indivisibles*, when that word means extremities of time or of a line, new extremities can't be conceived in them, nor parts. Thus points are neither large nor small, and no leap is needed to pass them. But though there are such indivisibles everywhere, continuity is not composed of them. Even with infinite divisibility,

p. 65. can show where Achilles ought to overtake the tortoise. I am so much in favour of the actual infinite, that I hold that nature affects it everywhere. Thus every part of matter is not only divisible, but divided; the least particle is a world full of an infinity of different creatures.

X. Reform of Metaphysics and Notion of Substance. *fol.* 109

p. 69. From my notion of substance follow first truths, even those that concern God and souls and bodies. Notion of *energy* or virtue, for which I have designed the science of Dynamics, adds much to notion of substance. Active force is

p. 70. midway between act and faculty of acting; it involves an effort, and thus of itself passes into operation. Corporeal substance, like spiritual, never ceases to act.

XI. New System of Nature and of interaction of Substances.

p. 71. Had penetrated well into scholasticism when mathematics and modern authors induced me to withdraw from it.

p. 72. Impossible to find a true unity in mere matter, or in what is only passive, because everything only collection of parts *ad infinitum*. But multiplicity can only have its reality from *real unities*, which originate otherwise and are quite different from the points of which the continuum could not be composed. To find real unities, I had recourse to the formal atom, since a material being could not be perfectly indivisible. I therefore reinstated the *substantial forms*. I found their nature to be force, which involves something like sensation or desire, so that they become similar to souls. These forms are

p. 73. indivisible, like our minds. The constitutive forms of substances must, apart from creation, be coeval with the world and exist always. But spirits and *rational* souls must not be confounded with the above. Spirits have peculiar laws, and all other things are made only for them.—There is no metempsychosis: what appears as the generation

of animals is only development.

p. 74. Any animal has always been alive and organized, and will always remain so. Instead of a transmigration of souls, there is a gradual transformation of one and the same animal. *Rational* souls can't lose the moral qualities of their personality by changes in matter. *fol.* 111

p. 75. Natural machines have an infinite number of organs, and are machines even into their smallest parts. A natural machine remains always the same machine through transformations, sometimes expanded, sometimes compressed.

p. 76. If there were not real substantial unities, there would be nothing substantial or real in the mass.—Atoms of matter are contrary to reason. Only *atoms of substance* are sources of things, and last elements in analysis of substances. They might be called *metaphysical points*; they possess a certain vitality and a kind of perception. *Mathematical points* are their *points of view* to express the universe. When corporeal substances are compressed, all their organs form only a *physical point*, which is indivisible only in appearance. Mathematical points are really indivisible, but they are mere modalities; only metaphysical points are exact and real, and without them there would be nothing real, for without true unities there would be no multiplicity.

p. 77. Metaphysically, there is no real influence of one substance on another, but all things with all their realities are continually produced by God's power. (Explanation of pre-established harmony). Internal perceptions come to the soul by its representative nature, which has been given it at the creation, and constitutes its individual character. Each substance exactly represents the whole universe according to a certain point of view.

p. 78. The organized mass, within which is the point of view of the soul, is ready to act of itself, at the moment when the soul wills it. This produces what we call the union between soul and body.

p. 79. This view makes us completely *free* from outside influence. Every spirit is as durable and stable as the universe. This harmony of so many creatures also proves existence of God as the common cause. Can still popularly speak of substances acting on each other, when change in one explains change in another.

XIII. Explanation of the New System (Reply to M. Foucher). 1696. *fol.* 113

p. 85. To explain, not extension, but *effective* extension or corporeal mass, we require real unities, i.e. substances having a true unity. This is different from that of a clock, which is a mere assemblage: it is a unity like that of the *ego*.

p. 86. I won't admit the soul doesn't know the body, though this knowledge is gained without the influence of one on the other.

p. 88. I have discovered not only the conservation of moving force, but of momentum in any direction—both unknown to Descartes.

XIV. Second Explanation. 1696.

p. 90. (Good example of the comparison of two clocks).[46]

XVI. Reflections on Locke. 1696.

p. 94. Nothing ought to be taken as primitive principles except experiences, and law of identity (or contradiction), without which latter there would be no difference between truth and falsehood.

p. 95. Question as to origin of ideas and maxims not preliminary in philosophy.

p. 96. I am against Aristotle's *tabula rasa*: there is something to be said for Plato's reminiscence,[47] and even for presentiment of future.

p. 97. Sensible qualities can receive a real but not a nominal definition.

p. 98. Agree with Locke as to demonstrability of moral truths.

XVII. On the Ultimate Origin of Things. *fol.* 115

p. 100. In addition to the world, or aggregate of finite things, there is some unique Being who governs, not like the ego in my body, but in a much higher relation. He not only rules the world, but creates and fashions it; he is extra-mundane, and therefore the ultimate reason of things.—Causality, which connects one state of the world with another, never shows why there is any world at all, even if you suppose the world eternal. In eternal things, even where there is no cause, there is a reason, which, in perduring things, is necessity or essence; but in changing things, it is the prevalence of inclinations, where the reasons are

p. 101. not necessitating, but inclining. Hence by supposing the eternity of the world we cannot escape an extramundane reason of things. We must therefore pass from physical or hypothetical to absolute or metaphysical necessity. The present world is necessary hypothetically but not absolutely. Given that the world is such as it is, it follows that it will be what it will be. But as the ultimate origin must be something metaphysically necessary, and as the reason of the existing can only be from the existing, [how about ontological argument?][48] there must

[46] This is Leibniz's famous clock analogy for pre-established harmony. Two clocks keep perfect time with each other, without any causal connection between the two, because each was so well constructed that they would always agree.

[47] PLATO's doctrine of reminiscence, expounded most fully in the *Meno*, according to which we are born with knowledge that we acquired in a previous existence and subsequently forgot but which, nonetheless, can be recollected under the right conditions.

[48] Russell offers the ontological argument as an objection to Leibniz's claim that "the reason of the existing can only be from the existing". But Leibniz makes this claim precisely as a premiss in an argument for the necessity of God's existence: given this premiss, "there must be one being that is metaphysically necessary, or whose essence implies existence." The reason for God's existence derives from itself, he argues, otherwise we have an infinite regress of contingent reasons for existence.

exist some one Being metaphysically necessary, or whose essence is existence.

p. 102. Just as, if a triangle is to be made, without further specification, an equilateral triangle usually results, or if we have to go from one point to another, we shall choose the easiest and shortest path; so, it being once posited that being is better than non-being, it follows that, in the absence of any other determination, the quantity of existence is as great as possible. Thus in the origin of things, a divine mathematics or metaphysical mechanism was employed to determine the greatest quantity of existence, regard being had to the capacity of time and place (or to the possible order of existence). Thus physical necessity is deduced from metaphysical: for though the world is not metaphysically necessary (i.e. its contrary does not imply a contradiction), it is physically necessary, i.e. its contrary implies imperfection or moral absurdity.

p. 103. It may be objected to the above that possibilities and essences prior to existence are fictions, in which the reason of existence cannot be sought. I reply, that these essences and eternal truths are not fictions, but exist in a certain region of ideas,[49] i.e. in God's mind. [This is weak: not the truths, but the knowledge of them, is in God's mind, and this implies that the truths are true independently of God. A truth, in any case, cannot exist.[50]] The existence of the actual series of things shows that my assertion is not gratuitous. For the reason of the series is not found within the series, but must be sought in metaphysical necessities or eternal truths. Also, the reason of what exists must exist. Therefore eternal truths must have their existence in an absolutely and metaphysically necessary subject, i.e. God.—Descending to particulars, we see the metaphysical laws of cause, power and action holding in all nature, and prevailing even over the purely geometrical laws of matter; so much that I have been compelled *fol.* 117

p. 104. to abandon the law of geometrical composition of forces, which I defended in my youth.—The world has not only metaphysical perfection, or greatness, but also moral perfection, or goodness. For not

[49] Against this remark Russell put a small tick in the left margin.

[50] This is an interesting criticism, which highlights a fundamental difference between Russell's metaphysics and Leibniz's. For Leibniz truths are propositions, and these are relations between concepts. Thus, since relations and concepts exist in the divine mind, so do truths. They are therefore not true independently of God's intellect, but are constitutive of it. Whether they are known by anyone, they are still real, with their reality deriving from their existence in the divine mind. For Russell, truths are independent of being known; he interprets Leibniz as saying that truths are true because God knows them, which in his eyes smacks of psychologism. Russell at this time was already drawing a distinction (made much clearer slightly later in *The Principles of Mathematics*, esp. pp. 449, 467) between existence and being. For Russell, though propositions, the bearers of truth-values, were real in the sense of having being and being the genuine bearers of properties, no proposition exists.

only is that series of things produced in which there is most reality in action, but also that which is most perfect morally, because really moral perfection is physical perfection for souls.

XIX. On Nature in itself: or, On the force residing in created things, and their actions. 1698.[51]

p. 116. A certain force is impressed on things, whence proceeds the series of phenomena. This indwelling force may be conceived distinctly, but not explained by images; for force is one of those things which must be grasped by the understanding, not the imagination.

p. 117. The very substance of things consists in their power of acting and suffering. Therefore durable things can't be produced unless the divine power imprints upon them a force of some duration. Without this, no created substance, no soul, would remain numerically the same: all things would be only modifications of one divine substance: nature itself would be God.

p. 119. This spontaneity we feel in ourselves, and infer in other substances.—That bodies are inert, is true in a sense: they have a passive force of resistance to motion, in which I make the notion of *materia prima* consist.

p. 120. But body perseveres in a motion once begun, i.e. makes an effort to *fol.* 119
continue a series of changes once entered upon. This activity cannot be a modification of primary matter or mass, which is essentially passive. Therefore there is in corporeal substance a *first entelechy* for activity, a primitive motor force which, joined to extension (which is purely geometrical) and to mass (which is purely material), always acts, but is variously modified through effort and impetus. This same substantial principle is called soul in living beings, and substantial form in others. So far as by its union with matter it forms a substance

[51] Leibniz wrote this article, "On Nature Itself, or on the Inherent Force and Actions in Created Things", for the *Acta Eruditorum*, in which it was published in September 1698. It was occasioned by a controversy over the status of the term "nature" between two prominent German thinkers, Günther Christoph Schelhammer of Kiel, and Johann Christoph Sturm of Altdorf. Schelhammer had defended the use of the concept of nature in natural philosophy against the objection of Robert Boyle, who had proposed in 1682 that attributing powers to "nature" smacked of paganism. Sturm had taken Boyle's side, arguing (like the Occasionalists) that God is the only source of motion and that Nature has no energy or source of motion in itself. This prompted Leibniz to give one of the most eloquent expositions of his natural philosophy, arguing for the necessity of inherent force in all created things, and for the inadequacy of the Occasionalist view of motion as "merely the successive existence of the thing moved in different places". He argued that without a differing internal force at each instant, the differing parts of matter (as depicted by Sturm) would be wholly indistinguishable at different moments. This point of view is thus also diametrically opposed to the "at-at" theory of motion that Russell was to propose in his *Principles of Mathematics* of 1903.

truly one, or one *per se*, it is a *monad*.

p. 121. Matter is secondary or primary: the secondary is a complete but not purely passive substance; the primary is passive, but not complete, for there must be added to it a soul, or form analogous to a soul. In this sense body is composed of matter and spirit, if spirit not ≡[52] intelligence.

p. 122. Nothing hinders souls, or forms analogous to them, from being everywhere; though dominant souls, as the human, can't be everywhere.—If matter were merely passive and geometrical, there would be no difference between one piece and another, and hence no change in motion, which merely substitutes one piece for another in any place. [Assumes a plenum.][53] (From this and

p. 123. other absurdities) it is certain that there is nowhere any perfect similarity. This condemns atoms, homogenous fluid etc.

p. 124. Those who hold atoms and vacuum diversify matter to some extent: but both are false.

XX. Ethical Definitions 1697–8.

p. 127. Justice is charity conformed to wisdom, charity is universal benevolence, benevolence is disposition to love, and love is the state that finds pleasure in others' happiness.

p. 128. Divine love is infinitely above love of creatures, for God's felicity composes not a part of our happiness only, but the whole. He is its source, not its accessory.

p. 129. Love has properly for its object substances capable of felicity.

p. 130. Pleasure is a sense of perfection, i.e. of what sustains any power. He is perfected whose power is augmented or helped. Perfection of universe does not allow all minds to be equally perfect. Why God has made some better, is a senseless question.

p. 131. To think God does some things from mere good pleasure, or indifferent liberty, is to think him imperfect.—Who loves God loves all.

XXI. On the Cartesian Demonstration of the Existence of God. 1700–1 *fol.* 121

p. 135. Ontological argument proves that if necessary being is possible, it exists.

p. 137. Necessary being is being of itself; and other beings exist only through being of itself. Hence if this were not possible, no being would be possible.

[52] Russell's use of "≡" (unique, to our knowledge, in this period) is to replace DUNCAN's "taken to be".

[53] Johann Christoph Sturm assumes a Cartesian plenum, and Leibniz's argument is directed at his view. But Leibniz's argument does not depend on assuming that matter forms a plenum and it would apply equally to atomism.

XXII. Considerations on the Doctrine of a Universal Spirit. 1702.
(Popular refutation of Pantheism).

XXIII. Supersensible Element in Knowledge, and immaterial in Nature. 1702.

p. 149. Sensible qualities are occult qualities, and are what we understand least.

p. 150. Senses furnish also other qualities more distinct, as those ascribed to common sense because they are not attached to any particular external sense. Such are the ideas of numbers and figures.

p. 151. I conceive substance in general through the Ego; also action, similarity, etc.

p. 152. Three kinds of notions: sensible only, sensible and intelligible, intelligible only.

p. 155. The knowledge of truths which are universal and necessary must be innate, since it can't be derived from senses or induction.

p. 156. Souls are not necessarily outside matter, but more than matter. But there is substance separated from matter also; for the reason why things are as they are, and not otherwise, must be outside of matter. This is God.

XXV. Principles of Life, and Plastic Natures.

p. 163. There are principles of life diffused all through nature, immortal since they are indivisible substances or *units*: they have perception or desire. Admit substantial forms in sense in which soul is substantial form of man, but not that there is a substantial form of a piece of stone: principles of life belong only to organic body. There is no portion of matter in which there are not numberless organic bodies, but not each portion of matter is animated, just as a pond is not animated though full of fish.

p. 164. If Descartes had known $\sum m\dot{x}$ = constant, would probably have discovered pre-established harmony.[54]

[54] Russell condenses Leibniz's argument to the point of unintelligibility. Leibniz understood Descartes to believe that although the quantity of motion Σmv (equivalently, $\Sigma m\dot{x}$) is conserved in collisions, the direction was not, leaving the soul the power to change the direction of motion of bodies "by changing the course of the animal spirits" in the pineal gland. Had Descartes instead recognized (as was shown in 1669 by Wallis, Wren, Huygens, and Mariotte) that in any collision what is conserved is the total quanity of motion *in a given direction* (what we now call the momentum, a vector quantity $\Sigma m\vec{v}$), he would have been obliged to seek a different explanation for apparent mind–matter interaction. Leibniz implies that had Descartes also recognized that things contain within themselves the power necessary to bring about effects—since it is the total quantity of (active) force, not (scalar) motion that is conserved in an isolated system—"he would probably have discovered my system of pre-established harmony."

p. 165. Pre-established Harmony gives new proof of God, since we require a general cause having infinite power and wisdom.

p. 167. Don't believe transmigration of souls, because not only soul, but same animal, subsists. I believe animals exist before conception.—Laws of Mechanics alone could not form an animal where nothing is yet organized.

p. 169. My system, unlike others, has no exceptions to its general laws.—God alone is above all matter: creatures free from matter would be deserters.

XXVI. Necessity and Contingency. 1707. *fol.* 123

p. 170. A truth is necessary when the opposite involves contradiction: a truth not necessary is contingent. That God exists, or that all right angles[55] are equal, are necessary; that I exist, or that there are bodies showing actual right angles, are contingent. For the whole Universe might be otherwise, time space and matter being absolutely indifferent to motions and forms. [This suggests that time space and matter were to be the same in all Leibnitz's possible worlds.][56] When God has chosen a possible world, everything (in it) is comprised in his choice, and has that sort of necessity which can now be ascribed to things future, which is *hypothetical* or *consequent* necessity. This does not destroy the contingency of things, or produce that absolute necessity which contingency does not allow. [Leibnitz means, by *consequent* necessity, the necessity of what follows from a contingent truth—i.e. the kind of necessity alone recognized by Bradley.[57]]

p. 171. Though all the facts of the Universe are now certain in relation to God, i.e. are determined in themselves and connected together, it does not follow that their connection is always truly necessary. This[58] must be applied particularly to voluntary actions. That, in all these circumstances together, I shall choose to go out, is contingent, for no one can show that its opposite involves a contradiction. Our action,

[55] Russell made a small tick in the left margin against the line which ends with this word.

[56] Leibniz holds that space and time are orders of all possibles, so that they must order any possible world. Russell therefore seems right in maintaining that they are the same in all possible worlds. Regarding matter being the same in all possible worlds, this must here be understood as matter in the abstract, prior to all divisions. This is primary matter, as opposed to secondary matter, which has divisions in it effected by the entelechies in all its parts, and which consequently would differ in every possible world, and indeed in every part of each possible world.

[57] *Cf.* F. H. Bradley, *The Principles of Logic* (1883), Bk. I, Ch. 7: "A thing is not necessary when it simply *is*; it is necessary when it is, or is said to be *because of* something else" (§7). "A necessary truth is a truth which results from assumed conditions" (§12).

[58] Russell made a small tick in the left margin against the line which ends with this word.

like God's, is exempt from absolute necessity, though not from determination and certainty. But there is no indifference of equilibrium. God or the perfect sage would always choose the best, or, if both equally good, neither.

XXVII. Refutation of Spinoza. c.1708. *fol.* 125

p. 175. Essences can in a certain way be conceived of without God, but not existences. Essences are coeternal with God, and he cannot be perfectly conceived without them.—Individuals cannot be distinctly conceived [i.e. we cannot enumerate separately the marks necessary to distinguish them one from another], hence they have no necessary connection with God, but are produced freely.

p. 176. Extension, or primary matter, is nothing but a certain repetition of things so far as they are similar or indiscernible. But this supposes things which are repeated, and have, in addition to common characteristics, others which are peculiar.

p. 177. Mind and body not the same. Corporeal substance has a soul and an organic body, i.e. a mass made up of other substances. The same substance, it is true, thinks, and has an extended mass joined to it, but it does not consist of this mass, since the mass can be taken away without altering the substance. Thought belongs to all monads, but extension only to compounds. God and the things known by God are as different as the mind and the things it knows.—The power of things is received from God, but things themselves operate.

p. 178. Everything is in God, as place in that which is placed.

p. 179. Soul is not an idea, but something containing active force.

p. 182. Affirmation or negation is not volition, since volition involves the reason of the Good.

p. 184. God produces substances and not their actions, in which he only concurs.

XXVIII. On Malebranche's Opinion that we see all things in God. 1708. *fol.* 127

p. 186. Locke objects that sun useless if we see it in God.[59] This applies against me also, who hold we see it in ourselves. I reply, sun not made solely for us, and that God wishes to show us truth as to what is without us. [But Leibnitz holds everything is done only for spirits. cf. p. 73][60]

[59] Leibniz's text is a commentary on Locke's posthumously published "An Examination of P. Malebranche's Opinion of Seeing All Things in God" (LOCKE, 9: 211–55). Locke's remark here cited is at p. 221.

[60] Russell's parenthetical remark is squeezed in between two lines. The passage in DUNCAN, p. 73, from the "New System" reads: "Thus spirits have peculiar laws which place them above the changes which matter undergoes, and indeed it may be said that all other things are made only for them, the changes being adapted to the

p. 187. Locke oughtn't to object to Malebranche that he can't understand how the variety of ideas is compatible with the simplicity of God; for no system can make this intelligible.

p. 189. The idea of the angle nearest to a right angle, or the fraction nearest to unity, or the least of all numbers, is a fiction, which the nature of continuity does not permit.

XXIX. Active Force of Body, Soul, and Soul of Brutes. 1710.

p. 190. I admit active principles superadded everywhere in matter, and also, everywhere disseminated through it, vital percipient principles or monads.

p. 191. Not all perception is feeling: there is also insensible perception.—Can't be sure that the smallest particle of matter received by us at birth remains in our body: the same machine is by degrees completely transformed. Not only is the soul everlasting, but there is always some animal, though not always the same. Thus no natural machine is completely destructible: some small part always remains.

p. 192. Souls are not rational until, by conception, they become destined for human life: but once having become rational, they remain so.

p. 193. Death renders perceptions confused, but can't entirely destroy memory.

XXX. Syllogistic Abridgement of Theodicy. 1710.

p. 194. God has made a world containing evil, but has chosen the best. For the evil may be accompanied by a so much greater good as to be better than a faultless world.

p. 196. God is infinite, devil limited: good advances *ad infinitum,* evil has its bounds.

p. 197. Sin, though predetermined, is not necessary.

p. 202. He who can't fail to choose the best has perfect liberty.

p. 203. The evil which God rejects is possible: only moral necessity leads God to choose the good.

XXXII.[61] Principles of Nature and of Grace. 1714. *fol.* 129

p. 208.[62] Substance is being, capable of action. Compound substance is collection of simple substances or monads. Compounds, or bodies, are multitudes; simple substances, lives, souls are unities. There must be simple substances everywhere, since there are compounds: therefore all nature is full of life. Monads have no shapes, because no parts. Consequently one monad can be distinguished from another only by its internal state, i.e. its perceptions and appetitions. Everything in

felicity of the good and the punishment of the bad."

[61] Russell mistakenly wrote the chapter number as "XXII".

[62] Russell mistook the page number here. The "Principles of Nature and Grace" in fact begins on p. 209 in DUNCAN's edition.

nature is full. There are simple substances everywhere, separated in reality by activities of their own which continually change their mutual relations. Each monad which forms the centre of a compound substance is surrounded by a mass composed of an infinity of other monads, which constitute the body proper of this central monad.[63] In accordance with the affections of this, it represents, as a centre, the things outside

p. 209.[64] itself. The body is organic when it forms an automaton or natural machine, not only in its entirety, but in its smallest perceptible parts. Because of the plenitude of the universe, bodies all interact; therefore every monad mirrors the world from its point of view. Perceptions in the monad spring one from another, according to the law of appetites, or by the final causes of good and evil; just as the changes of bodies spring one from another, by the law of efficient causes. Hence harmony. There is an infinity of degrees in monads, some dominating more or less over others.

p. 211. *Perception* is the internal condition of the monad representing external things, and *apperception* is the consciousness of this state. Spirits are souls which know

p. 212. necessary truths. To advance to metaphysics, must use principle of sufficient reason.

p. 213. Why is there something rather than nothing? Final reason of things is God. A spirit mirrors

p. 215. not only the Universe of creatures, but also God.

p. 216. Love of God gives already a foretaste of future felicity.

XXIII. The Monadology. 1714. *fol.* 131

p. 218. There must be simple substances, since there are compounds.—A monad cannot be altered or changed internally by any other creature, for nothing can be transposed within it. Monads have no windows through which anything can enter or depart, whether substance or accident. The monads must have qualities, and these must be different for different

p. 219. monads: otherwise, in a plenum, motion would make no perceptible change. Each monad must differ from every other, for no two beings are without internal difference. Monads also are always changing, and there must be a detail of that which changes. In the change, something changes and something remains: therefore there is multitude in the monad, i.e. plurality of affections and relations, though not of parts. The action of the internal principle causing change of perception may be called

p. 220. *appetition*. Perception and its consequences are inexplicable by mechanical causes: the explanation must be sought in the simple

[63] Against this sentence Russell wrote "Definition of monad's body" in the left margin.
[64] This should be "p. 210".

substance, not in the machine. Perceptions and desires in the above sense belong to all monads: *souls* have more distinct perceptions, accompanied by memory.

p. 222. Our reasonings rest on two great principles: *contradiction*, and *sufficient reason*. By the latter, no fact can be real or existent, no statement true, unless a sufficient reason exists why it is so and not otherwise.

p. 223. There are also two kinds of *truths*, those of reasoning and those of fact. The reason of a necessary truth can be found by analyzing till we reach ideas and truths which are primitive. Primitive ideas cannot be defined, and[65] primary principles cannot be proved: the latter are *identical* propositions, whose opposite contains an express contradiction.—Every contingent involves other contingents for its explanation, and so on: thus final reason of the whole must be outside the series of contingents: it is a necessary substance, i.e. God.

p. 224. It follows that God is absolutely perfect, perfection being only the magnitude of positive reality, setting aside the bounds in that which is limited.—God is the source of essences also, so far as they are real, i.e. of what is real in the possible. The reality of the possible must be founded in an existent, and therefore in the necessary existent, whose possibility insures his actuality. God alone must exist if he be possible; and his possibility follows from his having no limitations, no negation, and therefore no contradiction. Also from reality of eternal truths, or à posteriori from that of contingent beings. But eternal truths, though dependent on God, are not dependent on his will.

p. 225. Only contingent truths, whose reason is fitness, or the best, depend *fol.* 133
on God's will. Necessary truths depend solely on his understanding, and are its internal object.—God alone is the primitive unity, or the original simple substance, of which all monads are the products, and are born from moment to moment by continual fulgurations of God. In God is power, which is source of all; then knowledge, which contains the detail of ideas; then will, which effects changes or products for the best. These correspond to the perceptive and appetitive faculty in monads, but are infinite and perfect in God.—The creature is said to *act* externally so far as it is perfect, and to *suffer* from another in so far as it is imperfect. Action is therefore attributed where perceptions distinct, passion where perceptions indistinct. One creature is more perfect than another when it contains what accounts à priori for what happens in another, and in this way it is said to act on another [Important]. The influence of one monad upon another is purely ideal, through God, who takes notice of it in regulating other monads.

p. 228. Matter is not only infinitely divisible, but every part is infinitely divided: otherwise it could not express the universe.

[65] Russell made a small tick in the left margin against the line which ends with this word.

p. 229. The soul has not a portion of matter appropriated to it forever: bodies are in perpetual flux. The soul changes its body gradually. God alone has no body.

p. 230. Bodies act as if no souls, souls as if no bodies, and both as if each influenced the other. Animals and souls begin and end only with the world.

p. 231. Souls mirror the universe of creatures, but spirits mirror also God, and thus compose the City of God. It is only in relation to the City of God that God properly possesses goodness, while his wisdom and power are everywhere manifest.

XXXIV. On the doctrine of Malebranche. 1715.

p. 233. Matter is a subject endowed with extension and therefore different from space.

p. 234. *Primary* matter is purely passive and therefore not a substance, but something incomplete: *secondary* matter is not a substance, but a collection of substances: a true substance is a soul and an organized body.

p. 236. God alone is the immediate external object of souls, exercising a real influence upon them.

XXXV. Letters to Samuel Clarke. 1715. Second Paper. *fol.* 135

p. 239. Not mathematical but metaphysical principles ought to be opposed to the materialists. The principle of contradiction is sufficient to found all mathematics: but to proceed to natural philosophy we need also sufficient reason.[66]

p. 240. The more matter there is, the more occasion God has to exercise his wisdom and power, which is one reason against a vacuum.

p. 241. The bare production of things would show God's power, but not his wisdom: this is shown by the fact that his machine goes longer and better than other people's. I don't say universe is like a watch which never needs God's interposition: the creation is continually influenced by the Creator. But it goes without needing to be *emended*.

p. 242. If God interfered supernaturally, we should have to explain natural things by miracles, which would be a *reductio ad absurdum*: if naturally, he would not be supramundane,

p. 243. but would be comprehended under the nature of things, and be the soul of the world.

Third Paper.

p. 243. If space is a real absolute being, it must be eternal and infinite. We can't make it God, or one of his attributes, because it has parts. I

[66] Russell made a small tick in the left margin against this sentence.

hold space, like time, to be merely relative: it is the order of coexistences, as time is the order of successions. Many demonstrations against absolute space: one is derived from *sufficient reason*. For
p. 244. space is absolutely uniform: one part of space, apart from the things in it, is just like another. Thus we might inquire why God placed things exactly in the order he has chosen, and not just the opposite way, e.g. by changing East into West. For this there could be no sufficient reason. But if space is a mere order among things, the two arrangements, being indiscernible, would be one and the same. Similarly as regards time. If we ask why God did not create the world a year sooner, no reason could be given if time were absolute. But since instants are nothing apart from things, the two supposed orders would not differ or be different at all. The sufficient reason of anything can never be the mere will of God; for
p. 245. God's will requires always itself a sufficient reason.—God is not present to things by situation, but by essence: his presence is manifested by his operation. Presence of the soul is different. Mustn't say it is diffused over the body, for that makes it extended and divisible. Nor yet is the whole of it in every
p. 246. part, in one part, or in many parts.—God is above the world, but yet in it.—The supernatural is what exceeds the powers of creatures. Thus e.g. attraction, properly so-called, would be miraculous.

Fourth Paper. *fol.* 137

p. 247. A will without motive is not only contrary to God's perfection, but contradictory and inconsistent with the definition of will. No motive could be found for placing three perfectly equal and similar bodies in any order; hence God will never place them in any order, or produce any such things. Hence there are no such things.—The principles of sufficient reason and the identity of indiscernibles render metaphysics demonstrative. To suppose two things indiscernible, is to suppose the same thing under two names. Hence the universe as a whole cannot have different (absolute) positions in time and
p. 248. space with the same order among its parts.—The same argument which proves extramundane space imaginary, proves empty space imaginary. If space is an attribute, of what can empty space be an attribute? By making space a property, it becomes a mere order of things. If space be an absolute reality, it will have a greater reality than substances themselves: God cannot destroy it or change it.—To suppose God could make the whole universe move in a straight line is absurd: there could be no reason for it, and nothing would be
p. 249. happening, because of the indiscernibility. It is a like fiction to suppose God might have created the world sooner. If we suppose so, since no reason can be given for one moment rather than another, world must be eternal. But when it has been shown that the begin-

ning, *whenever* it was, the same thing, the question becomes insignificant.

p. 250. When two things which can't coexist are equally good, God will produce neither. [This shows that nothing exactly like any existent can be conceived. For we have seen that two similar things can't coexist, and two such things are equally good. Therefore neither will be created.][67]—There is no possible reason for limiting the quantity of matter: therefore the quantity is not limited.

p. 251. God perceives things in himself. Space is the place of things, not of God's ideas.—The soul knows things because God has put into it a principle representative of things without; God knows them because he produces them continually.

p. 252. Space does not depend upon such and such a situation of bodies: it is that order which renders bodies capable of being situated. If there were no creatures, space and time would be only in the mind of God.

p. 253. Every perfection which God could impart to things has been imparted to them. If there were any empty space, God could have placed matter in it, without derogating from all other things: therefore he has done so, and there is no empty space.—Again there is no principle to determine what proportion should be vacuum: therefore there is no vacuum. *fol.* 139

Fifth Paper.

p. 255. God was moved by his supreme wisdom to choose that world in which free creatures should take such and such resolutions, though not without his concourse: thus every event is pre-determined, without derogating from the liberty of the creatures: his decree merely actualizes, without changing, their free natures, which he saw in his ideas.

p. 257. To say the mind may have reasons to act, when it has no motives, is a contradiction.

p. 258. A sufficient reason to act is ditto to act in a particular manner.—I infer,

p. 259. from principle of sufficient reason, that there are not two indiscernible real absolute beings: for if there were, God and nature would act without reason, in ordering the two differently. The supposition of indiscernibles is possible in abstract terms, but is inconsistent with the order of things and the divine wisdom. It is a great objection to indiscernibles that no instance of them is to be found.

p. 260. There are no simple bodies: monads alone are simple, which have neither parts nor extension.—I own that if there were two things

[67] This repeats the criticism Russell had raised earlier based on ERDMANN; see the Introduction, p. 7. Against the passage in parentheses Russell wrote "cf p. 273." in the left margin. For his cross-reference, see below.

exactly alike, they would be two: but there are no such things.[68] The vulgar philosophers erred in thinking there were things different *solo numero*, and hence sprang their perplexities as to the *principle of individuation*. The parts of time or space in themselves are ideal, and therefore exactly alike; but this is not so of concrete ones, i.e. those that are filled.

p. 261. Not every finite is movable. My adversaries hold a finite space immovable. A movable finite must be part of another finite, or change can't be observed.—Since space is ideal, space out of the world, or empty space in it, is imaginary.

p. 262. Matter is really equally dense everywhere: where it seems not so, there is a subtle fluid

p. 263. in the pores. Gravitation of sensible bodies must be due to motion of some fluid.

p. 262.[69] Finite space is not a property of bodies: for if it were, the space taken up by a body would be its extension. But this absurd, since a body can change its space, but not its extension. *fol.* 141

p. 263. There is therefore no reason to suppose infinite space a property of an infinite thing. This follows also from the fact that space has parts, and is therefore not of God's essence.

p. 265. Mustn't confound immensity, or the extension of things, with space. Infinite space is not the extension of God, nor finite space of bodies. Everything has its own extension and duration, but not its own space or time.

p. 266. Difference between *place* and *relation of situation*: If B comes into A's place, the place of A and B is the *same*, but relation of A to fixed bodies is not individually the same as that of B to the same bodies, but these relations agree only. For two different bodies, A and B, can't have the same individual affection. But the mind, not content with agreement, looks for identity, for something truly the same, and conceives this as extrinsic to the subject; and this is what we call *place* and *space*. But this can only be an ideal thing, containing a certain order, wherein the mind conceives the application of relations.—Similarly ratio $L : M$ may be conceived as accident of

p. 267. L or of M, or as something abstracted from both. In the last case, we can't say both L and M are the subject of such an accident, for an accident must be in one subject. Hence the relation, being neither subject nor accident, must be a purely ideal thing.[70]—To define ratio

[68] Against this sentence Russell wrote "Contrast N.E. p. 239" in the left margin. See n. 25.

[69] Russell wrote "p. 262" here though it is really a continuation of p. 263. Likewise the next entry, marked "p. 263", is really for p. 264.

[70] Against this passage Russell wrote "Cp. New Essays p. 224" in the left margin. He refers back to Leibniz's remark (noted above at fol. 77, p. 17): "I do not know whether we can say that the same being is called action in the agent and passion in

or place, must only define *same* ratio and *same* place.

p. 268. Mustn't say a *duration* is eternal, but *things* which continue always are eternal, by gaining continually new duration. Whatever exists of time and duration perishes continually: and how can that be eternal which, properly, never exists at all? Nothing of time exists but instants, and they are not parts of time.

p. 269. Motion does not depend upon being *observed*, but upon being *possible to observe*. Where not possible, there is no motion. I admit a difference between absolute motion and a mere relative change of situation: there is absolute motion when the immediate cause of the change is in the body.

p. 270. That space and time are quantities does not prove they are not orders: in orders we have distance.

p. 273. God will never choose among indiscernibles.

p. 274. Can't infer unlimited duration of Universe from unlimited extension. If it is the nature of things to grow in perfection, universe must have had a beginning; but no corresponding reason for limited extension.

p. 281. Don't say space an order or situation, but an order *of* situations: abstract space is that order of situations when they are conceived as being possible.—Quantity of time can't become greater or less, while temporal order remains the same; for time is a plenum, in which there is no condensation or penetration.—The immensity and eternity of God would subsist though there were no creatures: but in that case there would be no time or space. These divine attributes are more transcendent than duration and extension. *fol.* 143

p. 285. The principle of sufficient reason needs no proof.—Without it, we can't prove existence of God.

p. 286. The principle is justified à priori, but may be made evident by an infinite number of instances where it succeeds.

Leibnitz Lectures. *fol.* 145

A. General outline of Leibnitz's philosophy.

B. His premisses: (a) Contradiction; (b) Sufficient reason; (c)

the patient, and is thus found in two subjects at once like a relation, and, whether it is not better to say that there are two beings, one in the agent and the other in the patient." Leibniz here seems to imply, contrary to what he states in the Fifth Letter to Clarke, that relations may be found in two subjects at the same time. The passage in the letter to Clarke (which Russell was almost certainly encountering here for the first time) was of the utmost importance in shaping his interpretation of Leibniz's view of relations, which in turn was fundamental to his assessment of Leibniz's entire philosophy. He quotes it at length in *PL*, p. 13, and again in *PoM*, p. 222. Though Russell may have had doubts when he wrote this cross-reference, he became convinced that Leibniz's established views about relations were expressed in the letter to Clarke, rather than in the aside in the *New Essays*.

Identity of Indiscernibles [Not properly a premiss][71]. (d) Principle of continuity.

C. His metaphysics (monads etc.).
D. His logic and epistemology. [Clear and distinct, innate, etc.]
E. His psychology.
F. His ethics.

Théodicée. (Gerhardt, Vol. VI.) *fol.* 147

p. 29. Il y a deux Labyrinthes fameux, où notre raison s'égare bien souvent: l'un regarde la grande question du libre et du nécessaire, surtout dans la production et dans l'origine[72] du mal; l'autre consiste dans la discussion de la continuité, et des indivisibles, qui en paroissent les Elémens, et où doit entrer la considération de l'infini.[73]

p. 107. Power regards Being, wisdom regards the True, will regards the Good.

p. 115. 3 kinds of evil: metaphysical = imperfection: physical = pain: moral = sin.

p. 116. God wills the good by an antecedent will, the best by a consequent will. He does not will moral evil at all, and not absolutely physical evil: no one is absolutely predestined to damnation. The consequent will by which God

p. 117. allows sin, is only *permissive*. Moral evil is so great an evil as it is,

p. 118. only because it is a source of physical evil.

p. 123. The future is determined, since any given proposition about it is true or false, but it is none the less contingent. Not even God's foreknowledge gives necessity, for the propositions which he foreknows are not necessary truths: their contradictories are not self-contradictory: they have only *hypothetical* necessity.

p. 127. Without the principle of determining reason, we couldn't prove existence of God.

p. 128. There is never an indifference of equilibrium: some prevailing reason always exists.

[71] In claiming that the principle of Identity of Indiscernibles is "not properly a premiss", Russell presumably has in mind Leibniz's argument that if two things were indiscernible, God could not have a sufficient reason for choosing one over the other; this would make the principle a consequence of Sufficient Reason.

[72] Russell wrote "dans l'origine et dans la production". Above "l'origine" he drew a horizontal line with the numeral "2" above it, and above "dans la" he drew a similar line with the numeral "1" above it. His apparent instruction to transpose to match Gerhardt's text has been followed here.

[73] "There are two famous Labyrinths where our reason very often goes astray: one concerns the great question of the free and the necessary, above all in the production and origin of evil; the other consists in the discussion of the continuum and the indivisibles that are seemingly elements in it, where one must enter into a consideration of the infinite."

p. 130. Can't prove our liberty by our sense of it: for there are imperceptible perceptions.

p. 138. Body depends on mind in this sense, that reason of what happens in body is to be found in mind. In so far as soul is perfect, i.e. has clear perceptions, body subject to it: in so far as imperfect, it subject to body.

p. 141. There is vindictive justice: e.g. Hell: the continuance of suffering is not caused by continual fresh sins. [Leibnitz not strictly Utilitarian.]

p. 149. Aristotle calls *form* any principle of action. This form is either *substantial*, when, if it is in an organic body, it is called soul; or *accidental*, when it is called

p. 150. quality. The soul is an *entelechy* or *act*. Two kinds of act, permanent and successive. Former, if quite permanent, same as soul or substantial form.

p. 152. Preformation.

p. 153. Spermatozoon becomes rational at moment of conception, either naturally, which seems difficult to conceive, or, which is more probable, by a direct operation of God. Previously, it is a mere sensitive monad.

p. 162. God concurs both morally and physically in both moral and physical evil: so do men, and *they* are punishable for it. The chief difficulty is God's moral concurrence in moral evil. *fol.* 149

p. 167. God's goodness made him desire to create the good: his wisdom showed him the best possible: and his power enabled him to create it.

p. 168. God does not aim only at the happiness of self-conscious souls: metaphysical good, the order and beauty of nature, also count for something. Can't

p. 169. be sure that God prefers one man to the whole species of lions.

p. 172. If there were only spirits, they would be without the needful connection, the order of times and places. This demands matter and motion and their laws.

p. 226. Eternal truths would not subsist if there were no understanding, not even God's: for God's understanding makes the reality of eternal truths, though his will has no part therein.

p. 230. Can't say God *subjected* to eternal truths, since they form part of his very nature, to wit, his understanding.

p. 237. Not true that, if God has chosen the best, the world must be unchanging. Two states may be different, but equally good. [Why not two worlds?] Also possible for world to be best, though none of its states are so. Thus may have progress in a perfect world.

p. 266. Perception alone not enough for pleasure and pain: reflection also required.

p. 319. God chose the laws of motion by a *moral* necessity only. These laws can be proved, though only by the help of the principle of perfection and order.

p. 323. The three dimensions of matter are metaphysically necessary.
p. 326. If a law is not founded on reason and the nature of things, it can only be carried out by perpetual miracles.
p. 342. My continuation from moment to moment is not *necessary*, but follows naturally, if nothing prevents it. But the creature would perish if God did
p. 343. not continue to act: he preserves it continually.
p. 350. What doesn't act is not worthy the name of substance.
p. 405. Motion, matter and space do not, like God, exist necessarily.
p. 411. Liberty of indifference would destroy moral good and evil. For it implies a choice without any reason, and therefore without a good or bad reason: but it is in this that moral good and evil consist. *fol.* 151
p. 421. All substances active, but not all free: animals e.g. are not free. To be active, one needn't be self-determined: the force may come from within, the direction from without.
p. 423. Truths of Arithmetic not due to God's will, but to nature of numbers. [How about God's wisdom?]

Dialogue between Philaretes and Aristes.

p. 582. Definition of substance as what can be conceived independently of anything else won't do. At bottom this only true of God. If taken in a narrower sense, as what can be conceived without any other creature, force and life e.g. can be conceived, abstractly at least, independently of other notions.—Extension is not a concrete, but the abstract of what is extended. This is the
p. 584. essential difference between my theory of substance and that of Malebranche. Extension demands not only a subject, but also a quality: e.g. in milk there is an extension of whiteness.
p. 585. Bodies, like extension, can't be conceived independently of other things. Only monads are independent of all concrete created things. [Leibniz implies that this is an adequate definition of substance.] Bodies are not true unities: they are beings of reason or imagination, phenomena.

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p. 595. The pre-established harmony does not make a metaphysical union of soul and body.
p. 625. There is not one substance, but as many substances as monads: monads are not all minds (*Esprits*). Matter is not a mere shadow, but is a collection (*amas*), *substantiatum*, not *substantia*.
p. 629. In spite of my infinitesimal calculus, I admit no veritably infinite number, though I admit the multitude of things passes every finite number, or rather every number. [This is a direct contradiction[74]].

[74] After this claim Russell added the following note at the bottom of the leaf at (fol. 73): "But cf. *New Essays*, p. 161." It refers to the passage summarized on p. 15 above,

[This letter, according to Gerhardt, is the last thing Leibnitz wrote]. —I don't compose extension out of mathematical points.

Ueberweg's Geschichte der Philosophie, Dritter Theil (1883). *fol.* 153

p. 154. The different positions of the monads must differ either as places in intuitive space, or otherwise.[75] If otherwise, a lack of clearness is introduced: for the Monad theory presupposes spatial analogies almost always, and yet spatial relations are supposed not to hold for monads. This gives space a thorough Kantian subjectivity, and lays Leibnitz open to Herbart's objections to Kant.[76] But if the places of monads are spatial—as is suggested by Leibnitz's interpretation of the laws of motion, and by his account of points of view as mathematical points—then we must assume, with Herbart, an intelligible space similar to the phenomenal; but this Leibnitz expressly rejects, holding everything spatial to be only phenomenal.—The punctual simplicity of the monads does not fit with their internal complexity, as

asserting that while there is an infinite number of things there is no infinite number conceived as a genuine whole.

[75] These are difficulties stemming from Ueberweg's trying to read Leibniz through the distorting lens of Kant. There is no intuitive space in Leibniz; monads have situations to one another only derivatively through the bodies they inform, and these situations constitute physical space. There is no contradiction between a monad's being internally complex and its punctual simplicity: it represents (with varying degrees of clarity and confusedness) what is external to it in its point of view; but, unlike Kant, Leibniz does not conceive perception in terms of images in intuition. These Kantian criticisms were influential on Russell's own interpretation of Leibniz's theory of space, especially the charge that Leibniz's system "gives space a thorough Kantian subjectivity".

[76] Although Johann Friedrich Herbart (1776–1841) regarded himself as a neo-Kantian, he is now generally regarded as a realist critic of Kant. He proposed an ontology of absolutely simple "reals" (*Realen*), each with a single essential quality. As Leibniz held that what we take to be ordinary bodies are aggregates of monads, so Herbart held that they are aggregates of reals. The reals did not have spatial properties, but, unlike Leibniz's monads, they did have genuine causal relations (*cf.* Hatfield, *The Natural and the Normative* (1990), p. 119; citing Herbart, *Allgemeine Metaphysik*, §142). The geometrical notion of continuous space, which Herbart called "intelligible space", was required to explain these causal relations, the description of which required continuous functions; intelligible space was given neither in experience nor as an *a priori* intuition, as Kant had supposed, but was acquired through a kind of philosophical reflection that Herbart called "conceptual integration" and represented actual spatial relations between reals. Against Kant's view that space was given *a priori*, Herbart argued that the simplicity of the reals, including those reals he identified as souls, meant that they could intuit only a single quality (e.g. a colour) and thus could not represent any kind of relation, including spatial relations (*cf.* Herbart, *Psychologie als Wissenschaft* [1824–25], §§109–10). Russell read Herbart's *Synechologie*, i.e. Part III of his *Allgemeine Metaphysik* (1828)—the part which deals with continuity—in May 1896.

Bayle remarked.[77] Kant, Schelling and Herbart are implicit and unreconciled in Leibnitz.[78]

Zeller, Geschichte der deutschen Philosophie. *fol.* 155

p. 116. Remarkable that, in criticizing Cartesian theory of soul and body, Leibnitz always took Malebranche's occasionalism, never the theory of Geulincx and Spinoza, which much more nearly resembled his own.

p. 119. Leibnitz should not speak of inertia as *passive* force: it is only a different manifestation of his active force (?).—A complex of monads is a body, the compound substance is matter. But the composition of many monads into one body depends upon passivity, by means of which a metaphysical connection arises between monads. Thus passivity of

p. 120. monads is ground of material existence, and is therefore called *prima materia*. How the appearance of matter and motion emerges from this metaphysical relation of simple substances, is fundamental question for Leibnitz's natural philosophy.

p. 123. In 1671, Leibnitz boasted that he was the first to demonstrate existence of a vacuum.[79]

p. 135. Leibnitz accorded to man and rational souls a more unique position than his system would allow. If men's souls have previously been bare monads, why should they not become so again?

p. 143. Leibnitz only hit upon the law of sufficient reason after the preestablished harmony had persuaded him that only what has a purpose can exist. It is not a premiss but a consequence of his system. [Yet Leibnitz says, without it he could not prove existence of God, and in writing to Clarke expressly says it needs no proof.][80]

p. 147. Leibnitz's assertion that volitions, though determined, are not necessary, is purely verbal. The contrary volition, in itself, is not self-

[77] See BAYLE, *Dictionnaire historique et critique* (1702), 4: 83, article "Rorarius", n. 61.

[78] It is not clear why Schelling is dragged in here. It may be that Russell wants to contrast Kant's transcendental idealism and Herbart's realism with Schelling's more full-blown "absolute idealism"; or he may have had in mind Schelling's view that the essence of both matter and spirit is force, or pure activity—a view with some faint resemblance to Leibniz's dynamism. Admittedly Schelling's *Naturphilosophie* owed more to Spinoza than Leibniz, but this, perhaps, was part of Russell's point, anticipating his claim in *PL* that, pushed to its logical conclusion, Leibniz's system would have been monistic rather than monadistic.

[79] Russell commented on the same claim in his marginalia on GERHARDT's edition of Leibniz's *Philosophischen Schriften*. See "Marginalia", marginale to **G.I.58**.

[80] Russell is here a good deal more perceptive than his source; there is little basis for Zeller's claims. But the apparently conflicting things Leibniz says about the status of the Principle of Sufficient Reason—whether it is derived or is an axiom—are still discussed by scholars. One should note, however, that Leibniz held that one should try to demonstrate even axioms.

contradictory, but becomes impossible through the actual circumstances. The distinction of inclining and necessitating reasons is quite untenable.

p. 157. It is only in the distinctness of their perceptions that monads differ.

p. 160. Leibnitz's distinction of metaphysical and hypothetical necessity is a positive mistake: for it is metaphysically necessary that God should be good, and therefore should act for the best. Similarly the distinction of

p. 161. possible and compossible is a mistake.

p. 162. The pre-established harmony is impossible without complete determinism.

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