

New Essays on the Human Understanding

Book III—Words

G. W. Leibniz

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[Brackets] enclose editorial explanations. Small ·dots· enclose material that has been added, but can be read as though it were part of the original text. Occasional •bullets, and also indenting of passages that are not quotations, are meant as aids to grasping the structure of a sentence or a thought. Every four-point ellipsis. . . . indicates the omission of a brief passage that seems to present more difficulty than it is worth.—Longer omissions are [explained] as they occur. Very small bold unbracketed numerals indicate the corresponding section number in Locke’s *Essay*; most of these are provided by Leibniz. This version does not follow Leibniz’s practice of always avoiding Locke’s name in favour of ‘this author’, ‘our gifted author’, etc.

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Chapter i: Words or language in general

Philaethes: 1 God having designed man to be a sociable creature, made him not only with •an inclination and indeed a *need* to associate with those of his own kind, but also with •the ability to speak—which was to be the great instrument, and common tie of society. This is the origin of words, which serve to represent and even to explicate ideas.

Theophilus: I'm happy to find you far removed from Hobbes's view. He didn't agree that man was •designed for society, and imagined that we have merely been •forced into it by necessity and by the wickedness of the members of our species. But he didn't take into account that the best of men, free from all wickedness, would join together the better to accomplish their goal, just as birds flock together the better to travel in company. Or as beavers congregate by the hundreds to construct great dams, which couldn't be achieved by a small number of them: they need these dams to create reservoirs or ponds in which they build their lodges and catch the fish on which they feed. That is the basis of society amongst social animals, and not fear of their kind, which hardly occurs among the beasts.

Phil: Just so; and, the better to promote such society, man's organs were shaped by nature so as to be fit to make articulate sounds, which we call 'words'.

Theo: As regards organs, those of monkeys are apparently just as well adapted as ours for forming speech, yet they don't show the slightest progress in this direction. So they must lack something that doesn't appear on the surface. We should also bear in mind that one could speak—i.e. make oneself understood by sounds from one's mouth—without forming •'articulate sounds', instead employing •musical

tones for this purpose. But it would take great skill to design a language of •tones, whereas a language of •words has been able to be formed and perfected gradually by people in a state of natural simplicity. Yet there are peoples, such as the Chinese, who use tones and accents to vary their words, of which they have only a small number. This led one...authority on languages to think that the Chinese language is artificial—that is, invented all at once by some ingenious man in order to enable the many different peoples occupying the great land of China to communicate verbally, although this language might by now be changed through long usage.

Phil: Just as orang-outangs and other monkeys have the organs •for speech• but don't form words, parrots and certain other birds may be said to have words but no language. For parrots and some other birds can be taught to make distinct enough sounds, but they are by no means capable of language. 2 Only *man* is in a position to use these sounds as signs of internal conceptions—signs through which a man can make his thoughts known to others.

Theo: If we didn't want to make ourselves understood we indeed wouldn't ever have created language—I agree about that. But once it has been created •it serves also for purposes other than communication; for• it also enables man to reason to himself, both because •words provide the means for remembering abstract thoughts and also because •symbols and 'blind thoughts' are useful in reasoning, as it would take too long to lay everything out and always replace terms by definitions.

Phil: 3 But if every particular thing needed a distinct name

to be signified by, there would be so many words that it would be hard to manage them; and so language was further improved by the use of general terms standing for general ideas.

Theo: General terms don't merely *improve* languages; they are required for their essential structure. **(1)** If by 'particular' things you mean individual ones, then if we only had words that applied to *them*—only proper names and no descriptive terms—we wouldn't be able to say anything. This is because new items are being encountered at every moment—new individuals and accidents and (what we talk about most) events. **(2)** But if by 'particular things' you mean the lowest species—the ultimately detailed and specific *kinds* of things—then . . . it is obvious that these are themselves universals, based on similarity. So what we have here is just a matter of more or less widespread similarity, depending on whether one is speaking of large classes or of smaller ones; and it's natural to mark ·linguistically· all sorts of similarities or agreements, thus employing terms having every degree of generality. Indeed the most general ones, though they have a •wider spread over individuals to which they apply, carry a •lighter load of ideas or essences; they were very often the easiest to form, and are the most useful. Thus you will see children and people who are trying to speak an unfamiliar language, or to speak about unfamiliar matters, employ general terms like 'thing', 'plant' and 'animal' in place of the more specific terms that they don't know. And it is certain that all proper or individual names were originally descriptive or general.

Phil: 4 There are even words that men use not to signify any idea but to signify the lack or absence of some idea—words such as 'nothing', 'ignorance' and 'barrenness'.

Theo: I don't see what's wrong with saying that there are

negative ideas, just as there are negative truths, since the act of denial is positive. I have already mentioned this [page 44].

Phil: 5 I shan't argue with you about that. It will be more useful in leading us a little way towards ·understanding· the source of all our notions and knowledge if we notice how words that are used to conceive events and notions far removed from the senses *arise from* sensible ideas, from which they are carried across to more abstruse meanings.

Theo: The situation is that our ·specifically human· needs have forced us to abandon the *natural* order of ideas, for the natural order would be common to angels and men and intelligences in general. It would be the one for us to follow if we had no concern for our own interests. As things stand, however, our specifically human needs have forced us to abandon the natural order in favour of the order that was provided by the incidents and episodes to which our species is subject; this order represents the history of our discoveries, as it were, rather than the origin of notions.

Phil: Just so; and this historical order, which can't (for the reason you have given) be learned through the analysis of •notions, can be learned from names themselves through the analysis of •words. Thus the following words:

imagine,
comprehend,
adhere,
conceive,
instill,
disgust,
disturbance,
tranquillity,

and so on are all words •taken from the operations of sensible things and •applied to certain ways of thinking. 'Spirit' in its

primary meaning is *breath*; ‘angel’ in its primary meaning is *messenger*. Facts like these enable us to make some kind of guess about •what kind of notions filled the minds of those who first launched languages; and about •how nature used the names themselves to suggest to men—without the men being aware of what was happening—the sources and drivers of all their knowledge.

Theo: . . . In the Hottentots’ Creed the Holy Spirit is called by a word that signifies a mild, gentle puff of air. It is the same with most other words—sometimes without its even being recognized, because most of the true etymologies are lost. . . . This analogy between sensible and insensible things, which has been the basis for figures of speech, is worth exploring. We will understand it better if we consider the very widespread examples provided by the use of prepositions, such as ‘to’, ‘with’, ‘of’, ‘before’, ‘in’, ‘out’, ‘by’, ‘for’, ‘on’, ‘toward’, which were all derived from •place, •distance and •motion and were subsequently carried across to all kinds of changes, orders, sequences, differences, and conformities.

‘**To**’ signifies *approach*, as when we say ‘I am going to Rome’. But also to tie something down we make it *approach* the thing we want to join it to, and so we say that one thing is tied **to** another. Also, since there is an immaterial tie (so to speak) when one thing follows from another according to moral reasons, we say that what results from someone’s movements or decisions belongs or attaches **to** him, as if it tended to cling to and *go along* with him. . . . If someone is **of** [= ‘from’] a certain place, the place has been an object for him by virtue of the sensible things with which it has confronted him, and it is still an object of his memory, which continues to be full of it; with the result that objects of thought are signified by the preposition ‘**of**’, as when we say: it is a question **of** this, he is speaking **of** that; as though the person were **of** [= ‘from’] the item in question. [He adds two more examples: ‘in’ and ‘on’.] Since these analogies are extremely variable and don’t depend on any determinate notions, languages vary greatly in their use of these particles. . . .

Chapter ii: The signification of words

Philaethes: **1** Since words are used by men as signs of their ideas, we can begin by asking how these words came to be settled as such—i.e. how it came about that *this* word signified *that* idea. This much is generally agreed: particular articulate sounds aren’t *naturally* connected with certain ideas, for if they were there would be only one human language; rather, sounds are connected with ideas through

human decisions, in which *this* word is voluntarily made the mark of *that* idea.

Theophilus: I know that the Scholastics and everyone else are given to saying that the meanings of words are *chosen*, and it’s true they aren’t settled by natural necessity. But they *are* settled by reasons—sometimes natural ones in which chance plays some part, sometimes moral ones that

involve choice. [Theophilus continues with this theme at great length, including a theory that an individual syllable or sound can have the same meaning in many languages. He concludes by saying:] I myself have presented some thoughts on this subject. . . . Most inquiries into European origins, customs and antiquities have to do with the Teutonic language and antiquities. I wish that learned men would do as much with regard to Walloon, Biscayan, Slavonic, Finnish, Turkish, Persian, Armenian, Georgian, and others, the better to reveal their harmony—which, as I have said, would especially help to make clear the origin of nations.

Phil: This proposal is important; but now the time has come to set aside *material* aspects of a word and return to *formal* ones, i.e. to the aspects of meaning that are common to different languages. **2** You will grant me in the first place that when one man speaks to another, what he wants to give signs of are *his own ideas*, since he can't apply words to things he doesn't know. Until he has some ideas of his own, he can't suppose them to correspond with the qualities of things or with the conceptions of another man.

Theo: Nevertheless, he very often claims to be indicating what others think rather than what he thinks on his own account. This happens only too often with laymen [here = 'people who aren't clerics'] who have an unquestioning faith which leads them to spout doctrines without properly grasping what they mean. But I agree that the speaker, however 'blind' and vacuous his thought may be, always does mean *something* of a general sort by what he says. At least he takes care to put the words in the order that others customarily do, and without really knowing the meaning of what he is saying, he contents himself with the belief that he *could* grasp its sense if the need arose. Thus a person is sometimes—oftener indeed than he thinks—a mere passer-on of thoughts, a

carrier of someone else's message, as though it were a letter.

Phil: You are right to add that a person always has something general in mind, however dense he may be. **3** In the metal he hears called 'gold', a child notices nothing but the bright shining yellow colour; so he applies the word 'gold' to this same colour when he sees it in a peacock's tail. Others will add great weight, fusibility and malleability.

Theo: I agree; but our idea of the object we are talking about is often even more general than this child's. I have no doubt that a man born blind could speak aptly about colours, and make a speech in praise of light without being acquainted with it, just from having learned about its effects and about the conditions in which it occurs.

Phil: This observation of yours is very true. It often happens that men focus their thoughts more on words than on things. Indeed, because most words are learned before the ideas for which they stand are known, some people—not only children but adults—often speak as parrots do. **4** However, men usually think they are revealing •their own thoughts, and in addition they credit their words with secretly referring also to •other people's ideas and to •things themselves. For if two conversing people attached different ideas to the same sounds, they would be speaking two languages. It is true that men don't pause long to examine what the ideas of others are; we assume that *our* idea is the one that the majority and the intelligent people in our country attach to the word in question. **5** This assumption that our words stand also for ideas in the minds of others occurs especially with regard to •simple ideas and •modes; but with regard to •substances it is more especially believed that our words stand also for the reality of things.

Theo: Ideas represent substances and modes equally, and in each case words indicate the things as well as the ideas. So

I don't see much difference, except that ideas of substantial things and of sensible qualities are more settled. Another point: It sometimes happens that our ideas and thoughts

are what we are talking about, and are the very things we want to signify; and notions of •thoughts enter more than one might think into notions of •things. . . .

Chapter iii: General terms

Philaethes: 1 Although nothing exists but •particular things, the great majority of words are •general terms, because 2 it is impossible for each particular thing to have a name to itself. Furthermore, that would require a prodigious memory, vastly greater than that of certain generals who could call all their soldiers by name. In fact there would have to be *infinitely* many words if every beast, every plant, indeed every leaf of a plant, every seed, and finally every grain of sand that one might need to designate had to have its own name. And how could we name the parts of sensibly uniform things like water and iron? 3 Besides, these •particular names would be useless because the main purpose of language is to arouse in my hearers mind an idea like my own, and for that the similarity conveyed by •general terms is sufficient. 4 And particular words by themselves wouldn't be of any use for •extending our knowledge or •judging the future by the past or •judging one individual by another. However, since we often need to mention certain individuals, particularly of our own species, we use proper names; 5 which we give also to countries, cities, mountains, and other geographical items. . . .

Theophilus: These comments are good, and some of them agree with the ones I have just made. [He goes into details

illustrating his thesis that almost all proper names began as general names—e.g. 'the first Brutus was given this name because of his apparent stupidity'.]

Phil: 6 Let us move on to the origin of descriptive names, or general terms, I'm sure you will agree that words become general by being made the signs of general ideas: and ideas become general through *abstraction*, in which an idea is stripped of time and place and any other circumstances that might pin it down to some one particular thing.

Theo: I don't deny that abstractions are used in that way, but it involves going from •species up to •genera rather than from •individuals up to •species. You see, paradoxical as it may seem, it is impossible for us to know individuals or to find any way of precisely determining the individuality of anything

Leibniz's defective French: . . . *à moins que de la garder elle même.*

one possible reading: . . . except by keeping hold of the thing itself.

another possible reading: . . . except by keeping the thing unchanged.

For any set of circumstances could recur, with tiny differences that we wouldn't take in; and place and time, far

from being determinants by themselves, must themselves be determined by the things they contain. The most important point in this is that *individuality involves infinity*, and only someone who was capable of grasping the infinite could know the principle of individuation of a given thing. This arises from the influence—properly understood—that all the things in the universe have on one another. The case would be otherwise, it is true, if the atoms of Democritus existed, but *they couldn't exist, because* then there would be no •difference between two •different individuals with the same shape and size.

Phil: 7 Still, it's quite obvious that the •ideas children have of the people they see (taking children as an example) are like the •people themselves in being *particular*. They have well formed ideas of their nurse and their mother, and the child uses the names 'Nurse' and 'Mamma' exclusively to refer to those persons. When in the course of time they observe that a great many other things resemble their father and mother, they form an idea that fits those many particulars; and to that idea they give the name 'man'. **8** In the same way they advance to more general names and notions. For instance, the new idea of *animal* is made not by •adding anything but rather by •leaving out the shape and other properties that are special to man, so that what is left is *the idea of a body with life, sense and spontaneous motion*.

Theo: Very good; but that only illustrates what I was just saying, for when the child proceeds by abstraction from the idea of *man* to the idea of *animal* he has arrived at the idea of *human nature* from the **more specific** idea that he had of his mother and father and other people. He had no precise idea of the **individual**, as is shown by the fact that he could easily be deceived by a moderate resemblance into mistaking some other woman for his mother. . . .

Phil: 9 And so this whole mystery of *genera* and *species* that the Schools make such a noise about—and that is rightly ignored everywhere else—is nothing but more or less comprehensive abstract ideas with names associated with them.

Theo: The art of ranking things in genera and species is quite important, and greatly helps our judgment as well as our memory. You know how much it matters in botany, not to mention animals and other substances, or again with 'moral' and 'notional' entities, as some call them. Order largely depends on it, and many good authors write in such a way that their whole account could be divided and subdivided according to a procedure related to genera and species. This helps one not merely to retain things *in one's memory*, but also to find them *there*. Writers who have laid out all sorts of notions under certain headings or categories have done something very useful.

Phil: 10 In defining words we use the •genus, i.e. the •word that is one step more general than the one being defined. We do this is to save the labour of listing all the simple ideas that this genus stands for, and perhaps sometimes to save ourselves from having to admit that we don't know what they are! But though 'defining by genus and differentia'—which is what the logicians call it—is the •shortest way, I am not convinced that it is the •best. At least it isn't the •only way of defining a word. Consider this definition (not perhaps a perfectly correct one, but good enough for present purposes):

'man' means 'rational animal'.

In this we could replace the word 'animal' by its definition, *so as to get something like*

'man' means 'rational body with life, sense and spontaneous motion',

which is not a definition by genus and differentia. That

shows how little necessity there is to insist that a definition must consist of a genus and a differentia, and how little is to be gained by insisting on definitions with that form. Also, languages aren't always made according to the specifications of logic; so not every term *can* have its meaning exactly and clearly expressed by two others. . . .

Theo: I agree with your remarks. Yet there are many reasons why it would be useful if definitions could consist of two terms: that would certainly shorten them a great deal, and all divisions could be reduced to dichotomies, which are the best kind and are highly useful for discovery, judgment and memory. But I don't think that logicians require the genus or the differentia always to be expressed by a single word: for instance the two-word phrase 'regular polygon' is acceptable as the genus of 'square', and in the case of 'circle' the genus could be

'curvilinear plane figure'

and the differentia would be

'having all the points on the circumference equally distant from a central point'.

It is also worth mentioning that the genus can very often be turned into the differentia and vice versa. For instance,

a square is a •regular •quadrilateral (·noun·),

or equally well

a square is a •quadrilateral (·adjective·) •regular-figure;

so that it seems that the difference between genus and differentia is just the difference between noun and adjective.

In place of saying

man is a reasonable animal

we could say that

man is an animal rational-being,

that is, a rational substance endowed with an animal nature,

as contrasted with Spirits that are rational substances whose nature isn't animal. ·In the former definition 'reasonable' is the adjective and 'animal' the noun; in the latter, 'animal' is the adjective and 'rational-being' is the noun·. . . .

Phil: 11 From what I have been saying it follows that *general* and *universal* don't belong to the existence of things, but are the workmanship of the understanding. **12** And the essences of the various species are only abstract ideas.

Theo: I can't see that this follows: generality consists in the resemblance of singular things to one another, and this resemblance is a reality.

Phil: 13 I was just going to tell you myself that these species are based on resemblances.

Theo: Then why not look to resemblances also for the essence of genera and species?

Phil: 14 You'll find it less surprising that I say these essences are the workmanship of the understanding if you bear in mind that complex ideas, at least, are often different collections of simple ideas in the minds of different men, so that *covetousness* is one thing in the mind of one man and something different in that of another.

Theo: I confess that I have seldom had so poor a grasp of the force of your argument as I do now, and this distresses me. If men disagree in the •name, does *that* change the •things themselves or their •resemblances? If one person applies the name 'covetousness' to one resemblance and another applies it to another, these will merely be two different species designated by the same name.

Phil: Consider the species of substances that is most familiar to us, ·namely *humans*·. It has sometimes been questioned whether some fetus that had been born of a woman was a

human, even to the extent of arguing over whether it should be nourished and baptized. This couldn't happen if the abstract idea or essence to which the name 'human' belonged was made by nature, rather than being the uncertain and various collection of simple ideas that the understanding •puts together, •makes general by means of abstraction, and •gives a name to. So that in truth every distinct idea formed by abstraction is a distinct essence.

Theo: Forgive me for saying that I'm puzzled by your manner of expressing yourself, because I don't find what you say coherent. If we can't always judge inner similarities from the outside, does that make them any less a part of the inner nature? [In what follows, 'monster' means 'creature born with physical features drastically and disquietingly unlike those of most members of the species to which its mother belongs'.] When we aren't sure whether a monster is human, that's because we are not sure whether it has reason. If we find that it has, the theologians will demand that it be baptized and the legal authorities that it be fed. . . . In any case, essences, genera and species depend only on possibilities, and these are independent of our thinking; *they* aren't affected by whether or not we combine such and such ideas—or indeed by whether they are actually combined in nature.

Phil: 15 [In what follows, the words 'real' and 'nominal' are used in senses that come from their Latin origins, *res* and *nomen*, meaning 'thing' and 'name' respectively.] There is ordinarily supposed to be a real constitution of the species of each thing; and no doubt each thing must have a real constitution on which depends the collection of simple ideas or qualities that coexist in that thing. •That is •one sort of essence•. But because (and this is *obvious*) things are grouped into sorts or species under names purely on the basis of their fitting certain abstract ideas with which we have associated those names,

the *essence* of each genus and each species amounts merely to the abstract idea that the genus-name or species-name stands for. •That is •the other sort of essence•, and we'll find that this second kind is what the word 'essence' stands for in its most familiar use. I think we can reasonably call these two sorts of essences the 'real essence' and the 'nominal essence' respectively.

Theo: I have never before heard anyone talk like this! People have divided *definitions* into 'nominal' ones and 'causal' or 'real' ones, but so far as I know they haven't (until now) spoken of any *essences* except real ones. . . . Essence is basically just the *possibility* of the thing in question. Something that is thought possible is expressed by a definition; but if this definition doesn't at the same time express this possibility then *it* is merely nominal, leaving us to wonder whether the definition expresses anything real—i.e. possible—until experience helpfully acquaints us *a posteriori* with the thing's reality if it does actually occur in the world. (We can settle for this way of knowing in cases where reason can't acquaint us *a priori* with the reality of the defined thing by exhibiting its cause or the possibility of its being generated.) So it isn't within our discretion to put our ideas together as we see fit, unless the combination is justified either

- by reason, showing its possibility, or
- by experience, showing its actuality and hence its possibility.

To reinforce the distinction between essence and definition, bear in mind that although a thing has only one essence it can be expressed by several definitions, just as the same structure or the same town can be represented by different drawings in perspective depending on the direction from which it is viewed.

Phil: 18 I think you'll agree with me that the real and the nominal are always the same in •simple ideas and •ideas of modes, but in •ideas of substances they are always quite different. Consider this:

A figure including a space between three ·straight·
lines

—that is the *nominal* essence of a **triangle**, because it is the abstract idea to which the general name 'triangle' is attached; and it is also the *real* essence of a triangle—the very *essentia* or being of the thing itself—because it is the foundation from which the triangle's properties flow and to which they are attached. ·So much for the mode *triangle*·. But with ·the substance· **gold** the situation is quite different. We don't know the real constitution of gold's parts, on which depend its colour, weight, fusibility, chemical inertness etc.; and since we have no idea of it we have no name as the sign of it. But these qualities ·of colour etc.· are what make this stuff be called 'gold'; they are its nominal essence, i.e. they give it a right to that *name*.

Theo: I would prefer to say, in keeping with accepted usage, that the essence of gold is what constitutes it and gives it the sensible qualities that let us recognize it and that make its nominal *definition*; whereas if we could explain this structure or inner constitution we would possess the real, causal definition. However, in our present case the nominal definition is also real, not •in itself (since it doesn't show us *a priori* the possibility of gold and its mode of origin) but •through experience, in that we find that there is a body in which these qualities occur together. Otherwise we could doubt whether that weight was compatible with that much malleability (just as we *do* wonder whether it is naturally possible for there to be glass that is malleable when cool).

And I don't agree either with your view that in respect of this matter ideas of •substances differ from ideas of •predicates, i.e. that

definitions of predicates (i.e. of modes and of objects of simple ideas) are always nominal and real at once, while those of substances are only nominal.

I do agree that it is more difficult to have real definitions of bodies, which are substantial entities, because their structure is less sensible. But the same isn't true of all substances: we have as intimate a knowledge of •true substances or •unities, like •God and •the soul, as we have of most modes. Besides, some predicates are no better known than is the structure of bodies: yellow and bitter, for instance, are objects of simple ideas or imaginings, yet we have only a confused knowledge of them; even in mathematics a single mode can have a nominal as well as a real definition. Not many people have properly explained the difference between these two definitions, a difference that also marks off essence from property. In my opinion, the difference is that the real definition shows that the thing being defined is possible whereas the nominal definition doesn't. For instance, the definition of two parallel straight lines as 'lines in the same plane that don't meet even if extended to infinity' is only nominal, for one could at first question whether that is possible. But once we understand that we can draw a straight line in a plane, parallel to a given straight line, by ensuring that the point of the stylus drawing the parallel line remains at the same distance from the given line, we can see at once that the thing is possible, and why the lines have the property of never meeting, which is their nominal definition (though this is a sign of parallelism only when both lines are straight: if at least one were curved it might be that they could never meet though they were not parallel). . . .

Chapter iv: The names of simple ideas

Philaethes: 2 Although I have, I confess, always thought that the formation of •modes was an arbitrary matter, it has been my conviction that •simple ideas and •ideas of substances must signify not just a possibility but a real existence.

Theophilus: I see no need for them to do so. God has ideas of substances before creating the objects of the ideas, and there is nothing to prevent him from passing such ideas on to intelligent creatures ·at a time when the objects still don't exist·. There isn't even a rigorous demonstration to prove that the objects of our senses, and of the simple ideas that the senses present us with, exist external to us. This point holds especially for people like the Cartesians and Locke, who believe that our simple ideas of sensible qualities in no way resemble anything that exists outside us and in objects; for if *that* were right there would be no compelling reason why these ideas should be based on any real existence.

Phil: 4–7 You will at least agree that simple ideas differ from composite ones in this way: the names of simple ideas can't be defined in any way, whereas the names of composite ideas can. For any definition should contain more than one term ·on the right-hand side·, each term signifying an idea; ·for example, the definition

'square' = 'plane and rectangular and closed and equilateral',

which has four terms on its right-hand side·. Thus we can see what can and what can't be defined, and also why definitions can't go on to infinity. . . .

Theo: In the little paper on ideas that appeared about twenty years ago I also remarked that simple terms can't be given

nominal definitions; but I also made a point there about terms that are simple only from our point of view because we have no way of analysing them into the elementary perceptions that make them up: terms like 'hot', 'cold', 'yellow' and 'green' *do* admit of real definitions that would explain what causes them [= 'causes the qualities that they name']. Thus the •real definition of 'green' is *being made up of a thorough mixture of blue and yellow*; though 'green' can no more be given a •nominal definition through which greenness could be recognized than can 'blue' or 'yellow'. In contrast with this, if a term is simple in itself—i.e. if we have a vivid and distinct conception of it—then it doesn't admit of any definition, nominal or real. In that little essay of mine you'll find the groundwork for a good part of an account of the understanding, set out in summary fashion.

Phil: 4 It was good to explain this matter, and to indicate what could and what couldn't be defined. I suspect that much of men's wrangling, and much of the jargon in what they say and write, comes from their not having ·a grasp of this ·matter·. 8 Those notorious *triflings* that have kicked up so much fuss in the Schools have arisen from neglect of this difference in our ideas. The greatest philosophers have had to leave most simple ideas undefined, and when they have tried to define them they have met with failure. Consider this definition of Aristotle's: 'Motion is the act of a being in power, as far forth as in power.' Could the wit of man invent a fancier bit of jargon that *that*? 9 And the philosophers who define 'motion' as 'a passage from one place to another' merely put one synonymous word for another.

Theo: I have already pointed out during one of our previous conversations that you treat as simple many ideas that aren't so. *Motion* is one of them: I think it can be defined, and the definition that says that it is *change of place* deserves respect. Aristotle's definition isn't as absurd as it is thought to be by those who don't understand that for him the Greek *kinesis* didn't signify what we call 'motion' but rather what we would express by the word 'change', which is why he gives it such an abstract and metaphysical definition. What *we* call 'motion' is just one kind of change.

Phil: 10 But at least you won't defend Aristotle's definition of 'light' as 'the act of the transparent'.

Theo: Like you, I find that utterly useless. Aristotle relies too much on his term 'act', which isn't very informative. He takes *the transparent* to be a medium through which vision is possible; and light, according to him, consists in the actual passage of something through the medium. Oh dear!

Phil: 11 We are in agreement, then, that our simple ideas can't be nominally defined. We can't know the taste of pineapple, for example, by listening to travellers' tales. . . .

Theo: You are right. All the travellers in the world couldn't have given us through their narratives what we have been given by a single one of our own countrymen who grows pineapples. . . .

Phil: 12 With complex ideas the situation is quite different. A blind man can understand what a *statue* is, **13** and someone can understand what a *rainbow* is without ever having seen one, so long as he has seen the colours that make it up. **15** Yet although simple ideas can't be explained, they are still the least doubtful ideas because experience is more effective than definitions.

Theo: Still, there is something problematic about ideas that are simple only from our point of view. For example, it would be hard to mark precisely the boundary between blue and green, or in general to tell apart any pair of closely similar colours; whereas we can have precise notions of the terms that are employed in arithmetic and geometry.

Phil: 16 Another special feature of simple ideas is that they can't be placed at the bottom of a hierarchy using the 'line of predicates', as the logicians call it, from the lowest species to the highest genus. ·I mean a hierarchy like this:

material
organic
animal
mammalian
canine

and so on downwards·. That's because if you try to place put a simple idea as the lowest species in such a hierarchy, you won't be able to put anything above it because—it being *simple*—nothing can be left out of it ·in the way something can be left out of the idea of *canine* so as to get the idea of *mammal*·. For example, nothing can be left out of the ideas of *white* and of *red* while retaining the appearance they have in common; and that is why they, along with *yellow* and others, are brought together under the genus or name 'colour'. And when men want to devise a still more general term that brings in also sounds, tastes and tactile qualities, they employ the general term 'quality' in its ordinary sense, to distinguish those qualities from extension, number, motion, pleasure and pain that act on the mind and introduce their ideas through more senses than one.

Theo: I have something to add regarding that remark; and I hope you'll credit me with being guided here and elsewhere by what the subject-matter seems to demand, not by a

quarrelsome spirit. The fact that the sensible qualities are so unhierarchical and admit of so few subdivisions is not one of their merits—it is merely a result of our knowing so little about them. Furthermore, something *can* be left out of our ideas of colours: this is shown by the fact that all colours have in common •being seen by the eyes, •all passing through bodies that let the appearance of any of them through, and •being reflected by polished surfaces of opaque bodies. We even have a good ground for dividing colours into the •extreme ones (white positive, black negative), and the •middle ones that are called ‘colours’ in a narrower sense. These are obtained from light by refraction, and they in turn can be subdivided into those on the convex side of the refracted ray and those on its concave side. These divisions and subdivisions of colours are of considerable importance.

Phil: But how can genera be found in these simple ideas?

Theo: They only *appear* to be simple. When they occur, other things are also going on that are connected with them, although the connection is one we don’t understand; and these accompanying events provide something that can be explained and subjected to analysis, which gives some hope that eventually we shall be able to discover the reasons for these phenomena. So there is a kind of redundancy in our perceptions of sensible qualities as well as of sensible portions of matter: it consists in the fact that we have more than one notion of a single subject. Gold can be nominally defined in various ways—it can be called

the heaviest body we have,

the most malleable,

a fusible body that resists cupellation and aquafortis, and so on. Each of these marks is sound, and enables us to

recognize gold: provisionally, at least, . . . until we discover a still heavier body. . . or encounter the ‘inert silver’—a silver-coloured metal with nearly all the other qualities of gold—which Robert Boyle seems to say that he has made. So one can say. . . that in matters where we have only the empiric’s kind of knowledge our definitions are all merely provisional. Well, then, the fact is that we don’t know demonstratively whether a colour could be generated by reflection alone, without refraction; or whether, through a hitherto unknown kind of refraction, colours that in ordinary refraction have always been observed on the concave side of the angle might occur on the convex side, and vice versa. The simple idea of *blue* would then no longer fall within the genus to which we have assigned it on the basis of our experiments. . . .

Phil: 17 But what do you say about the remark that has been made that •simple ideas are taken from the existence of things, and aren’t arbitrary at all, whereas •ideas of mixed modes are perfectly arbitrary and •ideas of substances are somewhat so?

Theo: I think that the arbitrariness lies wholly in the words and not at all in the ideas. For an idea expresses only a possibility: so even if parricide had never occurred, and even if no lawmaker had ever thought of speaking of it, it would still be a possible crime and the idea of it would be real. For ideas are in God from all eternity; and they are in us, too, before we actually think of them, as I showed in our first discussions. If anyone wants to take ‘ideas’ to be men’s actual thoughts, he may; but he will be pointlessly going against accepted ways of speaking.

Chapter v: The names of mixed modes and relations

Philaethes: 2 But doesn't the mind make ideas of mixed modes by combining simple ideas as it sees fit, without needing a real model, whereas simple ideas come to it willy-nilly through the real existence of things? **3** Doesn't the mind often see a mixed idea before the thing itself

Theophilus: If you take 'ideas' to be actual thoughts, you are right. But when we separate off the •world of 'ideas' from the •existent world, we are tying 'ideas' to the very form or •possibility of those thoughts, not to their •actuality. The real existence of beings that aren't necessary is a matter of fact or of history, while the knowledge of possibilities and necessities. . . .is what makes up the demonstrative sciences.

Phil: 6 But is there a greater connection between the ideas of *killing* and of *man* than between the ideas of *killing* and of *sheep*? . . . And what the English call 'stabbing', that is murdering someone by thrusting the point of a weapon into him, which they regard as a worse offence than to kill someone by striking him with the edge of a sword: is it more natural for *this* to have been given a name and an idea than it would be to give a name and an idea to the act of killing a sheep, say, or killing a man by slashing him with a sword?

Theo: If we are concerned only with *possibilities*, all these ideas are equally natural. Anyone who has seen a sheep killed has had an idea of that act in his thought, even if he hasn't thought it worth his attention and hasn't given it a name. So why should we restrict ourselves to *names* when our concern is with the *ideas* themselves, and why attend so much to the privileged position of ideas of mixed modes when our concern is with ideas in general?

Phil: 8 Since men arbitrarily form various species of mixed

modes, the result is that we find words in one language that don't correspond to anything in another. . . . The Latin names *hora*, *pes* and *libra* are smoothly translated into 'hour', 'foot' and 'pound'; but the Romans' ideas were very different from ours.

Theo: I see that many of the matters we discussed when we were concerned with ideas themselves are now being brought back into the discussion through the *names* of those ideas. What you have said is true about names and about human customs, but it irrelevant to the •sciences or to the •nature of things. It is true that someone who wanted to write a universal grammar would be well advised to go beyond the essence of languages and get into their existence—i.e. to go beyond the features that languages absolutely *must* have and attend to features that they merely *happen to* have—and to compare the grammars of various languages. Similarly, someone trying to write a universal jurisprudence, derived from reason, would do well to bring in parallels from the laws and customs of the nations. This would be useful not only in a practical way but also theoretically, prompting the author himself to think of various considerations—various *possibilities*—that would otherwise have escaped his notice. But in the •science of universal jurisprudence itself, as distinct from its •history and its •application to the actual world, it doesn't matter whether or not the nations have actually conformed to the ordinances of reason.

Phil: 9 The doubtful meaning of the word 'species' will lead some people to find incredible my claim that *the species of mixed modes are made by the understanding*. But I put it to you: who *does* make the boundaries of each sort? (Or the

boundaries of each species—since for me ‘species’ and ‘sort’ are perfectly synonymous.)

Theo: Ordinarily, these boundaries of species are fixed by the nature of things—for instance the line between man and beast, between stabbing and slashing. I do admit though that some notions involve a truly arbitrary element. An example is the notion of a *one-foot length*; this is arbitrary, settled by *us*, for a straight line is uniform and indefinitely long nature and therefore doesn’t indicate any boundaries on it. There are also vague and imperfect essences, where individual opinion plays a part—as in the question of how few hairs a man can have without being *bald*. This was one of the sophisms that the ancients used for putting pressure on an adversary, until he fell, tricked by ‘the argument of the vanishing heap’. But the right reply is that nature hasn’t fixed this notion, and that opinion plays a part; that there are people whose being bald or not bald is open to question; and that there are ambiguous cases whom some would regard as bald and others wouldn’t. . . . Something of the kind can occur even with simple ideas, for, as I have just remarked, the outer limits of colours are doubtful. There are also essences that are truly half-nominal: these are ones where the name has a role in the definition of the thing; for instance, the rank or quality of Doctor, Knight, Ambassador or King is displayed through someone’s becoming entitled to use that name. . . . These essences and ideas are vague, doubtful, arbitrary, nominal in slightly different senses from those you have mentioned. . . .

Phil: 12 When we speak of a horse, or of iron, we think of them as things that give us the original patterns of our ideas. But when we speak of mixed modes—or anyway of most of them, which are moral beings [= ‘which have to do

with describing and evaluating human conduct’] such as *justice* and *gratitude*—we think of the original patterns as being in the mind. . . .

Theo: The patterns of one of these kinds of idea are just as real as the patterns of the other. The mind’s qualities are no less real than the body’s. True, one doesn’t *see* justice as one sees a horse, but one *understands* it as well, or rather one understands it better. Whether or not one gives thought to it, justice inheres in actions as much as straightness and crookedness do in movements. To show you that my opinion is shared by others, even the ablest and most experienced in human affairs, I need only appeal to the authority of the Roman legal theorists, who have been followed by all the others. They speak of these mixed modes or ‘moral beings’ of yours as *things*, specifically non-material *things*. For example, they speak of legal rights, such as a right of way over a neighbour’s land, as incorporeal *things* that can be owned, can be acquired through long use, can be possessed, and can be claimed by legal action. . . .

Phil: 15 Notice also that men learn the names of mixed modes before learning the ideas of them, because it is the name that shows that this idea is worth attending to.

Theo: That is a good point. Though in fact these days, when children learn with the aid of vocabulary lists, this learning of names ahead of things occurs just as much with substances as with modes, and indeed even more. That is because those same vocabulary lists are defective in that they include only nouns, and no verbs; their makers ignore the fact that verbs, though they signify modes, are more needed in ordinary speech than are most of the nouns that indicate particular substances.

Chapter vi: The names of substances

Philaethes: **1** The genera and species of substances are merely *sorts* (as indeed are the genera and species of other items). For example, suns are a sort of stars; specifically, they are fixed stars, for it is believed, with some reason, that each fixed star would present itself as a sun to a person who was placed at the right distance from it. **2** The boundary of each sort is its *essence*. It is known either by the inner structure or by the outer marks that make it known to us and make us give it a certain name. **3** In the same way, one may know the Strasbourg clock either in the manner of the clock maker who built it or in the manner of a spectator who sees what it does.

Theophilus: If you choose to express yourself thus, I have no objection.

Phil: I am expressing myself in a way that shouldn't start up our earlier disagreements. **4** And now I add that only •sorts have essences and that nothing is essential to •individuals. An accident or a disease may alter my colour or shape; a fever or a fall may take away my reason or my memory; an apoplexy may leave me with no senses, no understanding, indeed no life. Is it essential to me to have reason? I say no.

Theo: I think there *is* something essential to individuals, and more than there is thought to be. It is essential
to substances to act,
to created substances to be acted on,
to minds to think,
to bodies to have extension and motion.

That is, there are sorts or species such that if an individual has ever belonged to such a sort or species it can't (naturally, at least) stop belonging to it, no matter what great events

may occur in the natural realm. Thus, the essence of a species of *that* kind is also the essence of every individual belonging to the species. But I agree that some sorts or species are accidental to the individuals that are of them, and an individual can stop being of a sort of that kind. Thus one can stop being healthy, handsome, wise, and even visible and tangible, but one doesn't stop having life and organs and perception. I have said enough earlier about why it appears to men that life and thought sometimes stop, although really they continue to exist and to have effects.

Phil: **8** Many of the individuals that are brought together under one common name, and thought of as belonging to one species, have very different qualities arising from their very different real particular constitutions. This can easily be seen by people who work with natural kinds of stuff—such as chemists, who are often convinced of it by sad experience, when they try and fail to find in one portion of sulphur, antimony or vitriol the qualities that they have found in others.

Theo: You couldn't be more right. I could add some facts about this on my own account—e.g. that whole books have been devoted to the unsuccessfulness of experiments in chemistry. The point is that people mistakenly take these bodies to be homogeneous or uniform, whereas really they are more mixed than they are thought to be. When dealing with heterogeneous bodies, one isn't surprised to find differences between individual samples: physicians know only too well how much human bodies differ in their balance and their constitution. . . .

Phil: **9-10** We don't notice all these differences because

we don't know the tiny parts or, therefore, the internal structures of things. So we can't put things into sorts or species by means of their internal structures; and if we *did* try to fix species according to these essences ·or internal structures· or what the Scholastics call 'substantial forms', we would be like a blind man trying to sort bodies by their colours. **11** We don't even know the essences of *spirits*. We can't form different specific ideas of angels, although we know quite well that there must be several species of spirits. And it seems that we have no simple ideas by which to distinguish God from ·created· spirits, ·saying 'God answers to simple idea S and created spirits don't' or vice versa·. The only way we can distinguish God from the other spirits is by attributing infinity to him.

Theo: In my system there is also another difference between God and created spirits, namely that according to me all created spirits must have bodies, just as our soul has one.

Phil: **12** I believe that there is at least one analogy between bodies and spirits, namely: just as there are no gaps in the varieties of things the corporeal world contains, so there will be at least as much variety among thinking creatures. You can go from human beings right down to the lowest things by easy steps, with at each step things that are only slightly different from the ones a step above or a step below. There are fishes that have wings, and use them to fly; some birds live in the water and have blood as cold as that of fishes, and taste like fish too. Some animals are intermediate between birds and beasts; amphibious animals link the terrestrial and aquatic together; seals live on land and at sea; and porpoises. . . . have the warm blood and entrails of a hog. . . . Some non-human animals seem to have as much knowledge and reason as some animals that are called men; and the animal and plant kingdoms are so nearly joined that if you

will take the lowest animal and the highest plant you won't easily see any great difference between them; and as we move ·**downwards**· towards the lowest and least organic parts of matter, we shall find everywhere that the various species are linked together, with the difference between neighbouring species being almost imperceptible. And when we consider the infinite power and wisdom of ·God·, the author of all things, we have reason to think that it is suitable to the magnificent harmony of the universe and to the great design and infinite goodness of this architect, that the species of creatures should also ascend by small steps **upwards** from us toward his infinite perfection. So we have reason to believe that there are far more species of creatures above us than there are beneath us, because our level of perfection puts us at a much greater distance from •the infinite being of God than from •that which approaches nearest to nothing. And yet of all those different species we have no clear distinct ideas.

Theo: I had planned to say elsewhere something close to the line of thought you have just expounded, but I'm quite content to have been forestalled when I see things being said better than I could have hoped to say them. Able philosophers have addressed themselves to this question of whether there is a 'vacuum among forms', that is, whether there are possible species that don't actually exist, so that nature might seem to have overlooked them. I have reasons for believing that not all •possible species are •compossible [= 'possible *together*'] in the universe, great as it is. The existence *now* of species S may be impossible with the state of the universe *now*; or it may be impossible with the whole series of things. My view, in other words, is that there must be species that never did exist, and never will, because they aren't compatible with the series of creatures that God has

chosen. But I believe that the universe contains everything that its perfect harmony could admit. It is agreeable to this harmony that between creatures that are qualitatively far removed from one another there should be intermediate creatures, though not always on a single planet or in a single planetary system; and sometimes a thing is intermediate between two species in some respects and not in others. Birds, which are otherwise so different from man, approach him by virtue of their speech, but if monkeys could speak as parrots can they would approach him even more closely. The Law of Continuity says that nature leaves no gaps in the orderings that it follows, but not every form or species belongs to each ordering. As for Spirits: since I hold that every created intelligence has an organic body, whose level of perfection corresponds to that of the intelligence or mind that occupies the body by virtue of the pre-established harmony, I hold that a very useful way to get some conception of the perfection of Spirits above ourselves is to think of perfections of bodily organs that surpass our own. To raise ourselves above ourselves in that manner, what we mostly need are the richest and liveliest imaginations. . . . And what I have said in defence of my theory of harmony, which exalts the divine perfections beyond what anyone had dreamed of, will also serve to give us ideas of incomparably greater creatures than any that we have had ideas of up to now.

Phil: 13 To return to how little reality there is in species, even among substances, I ask you: Are water and ice of different species?

Theo: I reply with question for you. Is gold melted in a crucible of the same species as gold that has been cooled into an ingot?

Phil: . . . Judging from that counter-question, I think you will agree that the ranking of things into species is done

according to the ideas we have of them, which is sufficient to distinguish them by names. But if we suppose that this distinguishing is based on their real internal constitutions, and that existing things have real essences that naturally put them into species corresponding to the species that we put them into when we give them names, we'll be liable to make great mistakes.

Theo: All this trouble arises from a certain ambiguity in the term 'species' or 'of different species'. When that ambiguity is removed, there will be no further dispute except perhaps about the name. One can understand species •mathematically or else •physically. In mathematical strictness, the tiniest difference that stops two things from being alike in all respects makes them of different species. It is in that sense that in geometry all circles are of a single species, because they are all perfectly alike, and for the same reason all parabolas are of a single species; but the same doesn't hold for ellipses and hyperbolas, for there is an infinity of sorts or species of these, each containing an infinity of members. A single species contains all the countless ellipses in which the distance between the foci has the same ratio to the distance between the vertices; but since there are countless different ratios between these distances, there are infinitely many species of ellipses. However, since the ratios of these distances vary only in magnitude, the result is that all these infinite species of ellipses make up but a single genus, and that there are no further subdivisions. . . . Two physical individuals will never be perfectly of the same species in this manner, because they will never be perfectly alike; and, furthermore, a single individual will move from species to species—still taking 'species' in the strict mathematical sense—for it is never entirely similar to itself for more than a moment. But when men settle on physical

species, they don't abide by such rigorous standards; and it is for them to say whether stuff that they themselves are able to restore to its previous form continues to be of the same species so far as they are concerned. And so we say that water, gold, mercury and common salt remain such, and are merely disguised, in the ordinary changes they undergo; but in the case of organic bodies—i.e. the species of plants and animals—we define species by *generation*, so that two similar individuals belong to the same species if they did or could have come from the same origin or seed. In the case of man we demand not only •human generation [= 'being the offspring of human parents'] but also the quality of being a •rational animal; and although some men remain like beasts all their lives, we presume that that isn't for want of the basic capacity ·for reasoning· but rather because of impediments that hold it back. But we haven't yet settled exactly what outer facts we are willing to take as sufficient to create this presumption. Anyway, no matter what rules men make to govern how things are to be named and what entitlements go with names, provided that the system of rules is orderly (i.e. interconnected and intelligible) it will be based on reality, and men will be able to imagine only such species as have already been made or distinguished by nature—taking 'nature' to cover possibilities ·as well as actualities·. As for what is inner: although every outer appearance is grounded in the inner constitution, it can happen that two different constitutions result in the same appearance, though even here there will be something in common. . . . But even if that weren't so, even if. . . .

the blue of a rainbow had an *entirely* different cause from the blue of a turquoise,

and even if

we agreed that some of the apparent natures that lead us to name things had *nothing* in common internally,

our definitions would nevertheless be grounded in real species, for *phenomena ·or appearances· themselves are realities*. It can be said, then, that whatever we truthfully distinguish or compare is also distinguished or made alike by nature, although nature also has distinctions and comparisons that are unknown to us and that may be better than ours. So a great deal of care and experience is needed if one is to mark out genera and species in a manner that comes fairly close to nature. Modern botanists think that distinctions based on the *forms* of flowers come closest to the natural order; and that may be the best basis so far devised for a system that learners can cope with; but the botanists have encountered plenty of difficulties with it. It would be wise not to rest one's comparisons and rankings entirely on a single basis, such as the form-of-flowers one that I have just mentioned. It is better to be guided also by other bases, involving other parts and features of plants, with each ground of comparison being accorded its own separate chart. If this isn't done, one may fail to capture many subordinate genera, and many useful comparisons, distinctions and observations. But the more deeply we study how species are generated, and the more thoroughly our classifications follow the necessary conditions of generation, the nearer we shall come to the natural order. [Theophilus is going to use the word *pollen* as Latin for 'powder'. It didn't become a naturalized French word for another half-century.] That implies something about the conjecture that some sensible people have offered, namely:

A plant contains not only the grain or familiar seed that corresponds to the ovum of an animal, but also another seed that could fairly be called male; it is a *pollen* that is often visible but sometimes invisible like the grain of some plants; and it is spread around by the wind or by other contingencies, so that it

combines with the grain—sometimes of the same plant and sometimes (as with cannabis) of a neighbouring plant of the same species. The former plant is thus analogous to the male, though perhaps there is always some of this same *pollen* in the female as well.

If this theory turned out to be true, and if we learned more about how plants are generated, I have no doubt that the differences we observed amongst them would provide a basis for very natural divisions. And if we knew enough and had acute enough senses we might find for each species a fixed set of attributes that were common to all the individuals of that species and that a single living organism always retained no matter what changes it might go through. (Reason is a fixed attribute of this kind, associated with the best-known physical species, namely that of humans; reason belongs inalienably to each individual member of the species, although one can't always be aware of it.) But lacking such knowledge, we avail ourselves of the attributes that we find to be the most convenient for distinguishing and comparing things and, in short, for recognizing species or sorts; and those attributes always have their basis in reality.

Phil: 14 For us to distinguish substantial beings into species according to the usual supposition, namely that

there are certain precise essences or forms of things through which all existing individuals are naturally distinguished into species,

we would need to be assured: first **15** that nature always produces things with the intention that they will have certain regulated established essences, . . . and secondly **16** that nature always attains that goal. But monsters give us reason to doubt both of these [see note on 'monster' on page 141]. **17** Thirdly, it ought to be determined whether monsters are really a new distinct species, for we find that some of these

monstrous productions have few or none of the qualities that are supposed to result from the essence of the species. . . .to which they seem, judging by who their parents were, to belong.

Theo: In trying to settle whether a monster belongs to a given species, one is often thrown back on guesswork. And that reliance on guesses shows that one is *not* restricting oneself to •outer features; for what we are trying to guess is whether the •inner nature that is common to the individuals of a given species (for example reason, in man) is also present—as suggested by the facts of birth—in individuals lacking some of the outer signs that ordinarily occur in that species. But our uncertainty doesn't affect the nature of things: if there is such a common inner nature, the monster either has it or lacks it, whether or not we know which. And if the monster doesn't have the inner nature of any species, it can be of a species all of its own. But if •the species we were interested in didn't have such inner natures, and if •we didn't particularly dwell on the facts of birth either, *then* the boundaries of a species *would* be determined solely by outward signs. A monster would then not belong to the species from which it was deviant, unless the species was taken somewhat vaguely and loosely, and in that case it would be wasted labour to try to *guess* what species the monster really belonged to. Perhaps that was what you meant in all your objections to species drawn from real inner essences. But then you would have to prove that there is nothing inner that is common to the whole of a species in cases where there are outer differences. But in the human species the contrary is the case, for sometimes children who have some gross abnormality eventually reach a stage at which they manifest reason. Why couldn't something like that hold for other species also? It is true that we can't

define a species in terms of something that is unknown to us; but the outer features serve in place of it, though we recognize that they don't suffice for a rigorous definition, and that even nominal definitions in these cases are only conjectural and sometimes—as I have already pointed out [page 145]—merely provisional. For example, a way might be found of •counterfeiting gold so that it would pass all the tests we now have; but one might then also discover •a new assaying method that would provide a way of distinguishing natural gold from this artificial gold. . . . If •both these things happened, however, it could lead us to a more perfect definition of gold than we have at present; and if artificial gold could be made in large quantities at low cost, as the alchemists claim it could, this new test would be important, because it would enable mankind to retain the advantages that natural gold has in commerce, because of its rarity, in providing us with material that is durable, uniform, easy to divide and to recognize, and valuable in small quantities. . . .

Phil: 19 [The next sentence is mis-handled in the Remnant-Bennett edition of the work.] The fact is that we could never have precise knowledge of the many properties depending on the real essence of gold, unless we knew the real essence of gold itself. **21** However, if we restrict ourselves precisely to certain properties, that will be enough for us to have rigorous nominal definitions; and these will serve us in the meantime, though we may later change the significations of names if we hit on some useful new way of distinguishing things. But a nominal definition must at least conform to how the name is used, and must be able to be put in the place of the name. This serves to refute those who allege that *extension* is the essence of *body*; for when someone says that *one body makes another move by pushing it*, obvious absurdity would result if we substituted 'extension' and said that *one*

extension makes another extension move by pushing it! For solidity is also required. . . .

Theo: I believe you are right, because the objects of abstract, incomplete ideas don't suffice to pick out the entities that are involved in all the actions of things. . . .

Phil: 22 There are creatures that have shapes like ours, but are hairy, and don't have language or reason. There are imbeciles amongst us that have perfectly our shape but lack reason, and some of them lack language too. It is said that there are creatures that have language and reason and a shape like ours except that they have hairy tails; at least there *could* be such creatures. . . . Are these all *men*? Are they all members of the human species? Obviously, the question refers only to the nominal definition or the complex idea that we devise for ourselves in order to indicate it by the word 'human'. For the internal essence is utterly unknown to us though we have reason to think that *big* differences in abilities or visible make-up are accompanied by *at least some* differences of internal constitution.

Theo: In the case of *man* I think we have a definition that is both nominal and real. For reason is as internal to man as anything can be, and ordinarily it declares its presence *·outwardly·*. That's why hairy tails won't be treated on a level with it. A man of the forest, hairy though he is, will still be recognizable; and what disqualifies a baboon isn't its fur! Imbeciles lack the use of reason; but we know from experience that reason is often held back so that it can't be manifested *·now·* in people who *have* exhibited it and *will* do so again. We plausibly make the same judgment about imbeciles on the strength of other signs, namely their bodily shape. Those signs, together with the facts of birth, are our only basis when we assume that babies are human and will eventually manifest reason—and we are hardly wrong

about that! But if there were rational animals whose outer form differed slightly from ours, we would be perplexed. This shows that when our definitions depend on bodily exteriors they are imperfect and provisional. If someone claimed to be an angel, and had knowledge or abilities far above our own, he could make himself believed. If someone else came from the moon. . . .and told us credible things about his homeland, we would take him to be a lunarian; and yet we might grant him the rights of a native and of a citizen, as well as the title 'man', although he was a stranger to our globe; but if he asked to be baptized and to be regarded as a convert to our faith, I think great disputes would arise among the theologians. [He gives details.] Fortunately we are spared these perplexities by the nature of things; but still these bizarre fictions have their uses in abstract studies, as aids to a better grasp of the nature of our ideas.

Phil: 23 Not just in theological questions but in other matters too, some people might want to rely on *descent*, saying that the supposed real species are kept distinct and entire by *propagation* (in animals by the mixture of male and female, in plants by seeds). But that would serve only to fix the species of animals and plants. What about the rest? And even in the case of plants and animals it isn't sufficient, for there are historical records of women conceiving by baboons. And that raises a new question—to what species should such a production belong? [He adds facts about other inter-species generation, e.g. of mules. Then:] If you also throw monstrous productions into this mix, you'll find it hard to determine species by generation. And if it *has to* be done in that way, does that mean that when I am wondering whether this stuff is tea and that animal is a tiger I must go to the Indies to see seeds of one and the parents of the other?

Theo: Generation or pedigree does at least create a strong

presumption (i.e. a provisional proof); I have already remarked that what we take as indications are very often conjectural. The pedigree is sometimes belied by the shape, when the child is unlike its father and mother, and a mixed shape isn't always evidence of a mixed pedigree: a female can give birth to an animal that seems to belong to another species, this irregularity being caused by the mother's imagination. . . . But if we judge provisionally as to species on the basis of pedigree, we also judge as to pedigree on the basis of species. The King of Poland, John Casimir, was presented with a forest child, captured in the company of bears; the child had many of the habits of bears but eventually proved to be a rational animal. People had no hesitation in believing that he belonged to the race of Adam and baptizing him under the name of Joseph. . . . We still don't know enough about the results of crossing animals, and we often destroy monsters instead of raising them, although in any case they seldom survive for long. . . . Anyway, we don't know for sure what mainly determines the species of an animal—the male? the female? both? neither? The theory of the female ovum. . . .seemed to reduce males to a position like that of moist air in relation to plants, providing the seeds with what they need to sprout and to rise above the earth. . . . But Leeuwenhoek has restored the male kind to its eminence, and the other sex has been lowered accordingly and regarded as having only the function that earth has with respect to seeds, namely providing them with lodging and nourishment. That could be the case even if we still accepted the theory of ova. But even if we were to suppose that the animal initially comes from the male, that wouldn't prevent the female's imagination from having a great influence on the form of the fetus. For in the ordinary course of events it is bound to undergo great change while in this state, and will be so much the more prone to extraordinary changes as

well. . . . Perhaps someone will come along and claim that although the soul can come from only one sex, both sexes provide something organic, and that one body develops from two, just as we see that the silkworm is a sort of double animal that encloses a flying insect within the form of a caterpillar. This indicates how much we are still in the dark about this important matter. Perhaps some day the analogy with plants will shed some light on it, but at present we don't even understand very well how plants are generated. The tentative view of the dust that has come to our attention as something that could correspond to the male seed is still not thoroughly elucidated. Besides, a cutting from a plant can often produce a new and complete plant, and no analogy to this has yet been observed among the animals; so the foot of an animal can't be called an animal, in the way that it seems that each branch of a tree is a plant that is separately capable of bearing fruit. Furthermore the mixing of species, and even changes within a single species, often take place very successfully among plants. Perhaps at some time or in some place in the universe there are or were or will be species of animals more subject to change than those we have here now. Various cat-like animals, such as the lion, the tiger and the lynx, may once have been of the same race and may now amount to new subdivisions of the ancient cat species. Thus I keep returning to what I have already said several times: that our classifications of physical species are provisional, and are adapted to what we know.

Phil: 24 At least, when men made their divisions into species, nobody gave any thought to 'substantial forms' except in this one part of the world—western Europe—where we have learned the language of the Schools.

Theo: It seems that substantial forms have recently acquired a bad name in certain quarters, where people are ashamed

to speak of them. However, this is perhaps a matter more of fashion than of reason. When particular phenomena were to be explained, the Scholastics inappropriately used a general notion, but this misuse of the concept of substantial form doesn't destroy the thing itself. The human soul somewhat shakes the confidence of some of our modern thinkers who otherwise briskly dismiss the notion of substantial form. Some of them acknowledge that the soul is the form of the man, but add that it is the only substantial form in the known part of nature. [Theophilus is about to use the Latin phrase *unum per se*, literally meaning 'one through itself, i.e. inherently and unaidedly single, unitary, one.] Descartes speaks of it in this way; and scolded Regius for challenging the soul's status as a substantial form and for denying that man is *unum per se*, a being endowed with a genuine unity. Some think that Descartes was merely playing safe when he said this, but I rather doubt that because I think that he was *right* about it. But the privilege of being *unum per se* shouldn't be restricted to man alone, as though nature were put together higgledy-piggledy. There is reason to think that there is an infinity of souls, or more generally of primary entelechies [see page 67], that have something analogous to perception and appetite, and that all of them are and forever remain substantial forms of bodies. It's true that there appear to be species that aren't really *unum per se* (i.e. bodies endowed with a genuine unity, or with an indivisible being that provides their whole active force), any more than a mill or a watch could be. Salts, minerals and metals could be of this nature, that is, simple mixtures or masses that exhibit some regularity. But both kinds of bodies, animate bodies as well as lifeless mixtures, will fall into species according to their inner structures; since even with the former—the animate ones—the soul and the machine is each sufficient by itself to determine the species, since they agree perfectly. Though the

soul and the machine have no immediate •influence on each other, they mutually •express each other, the soul having concentrated into a perfect unity everything that the machine has dispersed throughout its multiplicity. Thus, when things are to be grouped into species it is useless to dispute about substantial forms. Still, it is good for other reasons to know whether there are any, and how; for without that knowledge one will be a stranger in the intellectual realm. . . .

Phil: 25 Languages were established before sciences, and things were put into species by ignorant and illiterate people.

Theo: That is true, but the people who study a subject-matter correct popular notions. Assayers have found precise methods for identifying and separating metals, botanists have marvelously extended our knowledge of plants, and experiments that have been made on insects have given us new routes into the knowledge of animals. However, we are still far short of halfway along our journey.

Phil: 26 If species were nature's workmanship, they couldn't be conceived so differently by different men. To one person *man* appears to be a featherless biped with broad nails; another, after a deeper examination, adds reason. But many men determine the species of animals by their shape rather than their parentage, as is shown by the debates about whether or not a certain human fetus should be baptised. The question arises only because the fetus differs in its outward configuration from the ordinary run of children, at a time when for all the questioner knows the fetus may be as capable of reason as infants who are differently •and more normally• shaped. And some of *them*, despite having an approved shape, are *never* capable of as much appearance of reason as can found in an ape or an elephant, and never give any signs of being controlled by a rational soul. This makes it evident that what is being made essential to the

human species is the outward shape. . . .and not the faculty of reason. . . . On occasions like this the learned divine and lawyer must renounce his sacred definition of 'man' as rational animal, and substitute some other essence of the human species. . . .

Theo: So far no rational animal has ever been discovered with an outer shape much different from our own. That is why, when there was some question of baptizing a child, its pedigree and its shape were never regarded as more than *signs* from which to judge whether or not it was a rational animal. So theologians and jurists had no need to give up their consecrated definition on this account.

Phil: 27 But think about the monster that is mentioned by Licetus, with a man's head and hog's body, and other monsters with the bodies of men and the heads of dogs, horses or the like—if any of *them* had lived and been able to speak, that would have increased the difficulty.

Theo: I agree. A certain writer, a monk of the olden days named Hans Kalb (John Calf) portrayed himself in a book he wrote with a calf's head and pen in hand, so that some people foolishly believed that he really had a calf's head. Now if this actually happened and someone was made like that, from then on we would become more cautious about getting rid of monsters. For it appears that reason would be decisive for the theologians and legal theorists, despite the shape and even the anatomical differences that could be found by the physicians; these wouldn't disqualify someone from being a man. . . . That is obviously the right way to look at it provided that the variations in shape among rational animals don't go too far. But if we found ourselves back in the age when beasts used to speak, we would lose the privilege of being the sole inheritors of reason; and we would thenceforth pay more attention to birth and to outward features in order to

be able to distinguish members of the race of Adam from the descendants of some king or patriarch of a community of African monkeys. Locke rightly points out in **29** that even if Balaam's she-ass had talked as rationally throughout her life as she did once with her master—assuming this wasn't a prophetic vision—she still would have had difficulty being accorded the status and dignity of a woman. [Locke made the point in terms of 'ass' and 'man'; the French translator substituted the French for 'she-ass', and Leibniz fell in line by substituting 'woman'.]

Phil: I can see that you are joking, and perhaps Locke was too; but in all seriousness it is clear that species can't always be assigned fixed boundaries.

Theo: I have already granted you that: when we are considering fictions and how things *could* be, there might be insensible transitions from one species to another, and telling them apart might sometimes be rather like the problem of deciding how much hair a man must have if he is to escape being bald. This indeterminacy would hold even if we were perfectly acquainted with the inner natures of the creatures in question. But I don't see that this prevents things from having real essences independently of our understanding, or us from knowing them. It is true that the names and the boundaries of species would sometimes be like the names of measures and weights, where there are fixed boundaries only to the extent that we choose them. However, in the ordinary course of events we have nothing like that to fear, because species that are too alike are seldom found together.

Phil: We seem to be basically in agreement on this point, although our terminologies differ a little. **28** I also grant you that there is less arbitrariness in the naming of substances than in the names of composite modes. One would hardly think of joining the voice of a sheep with the shape of a horse, or the colour of lead with the weight and chemical inertness

of gold; rather one prefers to copy nature.

Theo: It isn't so much because with substances we are concerned only with what actually exists, as because with ideas of real things (which aren't very thoroughly understood) we aren't sure whether the mixture is possible and useful unless we have its actual existence as a surety. But that holds for modes too: not only when their obscurity is •impenetrable by us, as sometimes happens in natural science, but also when it is •penetrable only with difficulty—and geometry provides plenty of examples of that. For in neither of these sciences is it up to us to make combinations just as we please; otherwise we would be entitled to speak of regular decahedra, and would explore the semicircle for a •centre of magnitude like the •centre of gravity that it actually has; for it is indeed surprising that •the latter does exist while •the former can't do so. With modes, then, combinations aren't always arbitrary. And on the other side it turns out that they *are* sometimes arbitrary in the case of substances: we are often at liberty to combine qualities so as to define substantial entities in advance of experience, as long as we understand these qualities well enough to judge the possibility of their combining. In the same way gardeners who are expert in the greenhouse can purposefully and successfully undertake to produce some new species and to give it a name in advance.

Phil: **29** You will agree with me, in any case, that which ideas are combined in the definition of a species depends on the person who makes the combination—on how careful he is, how hard-working, how imaginative. With plants and animals it is the •shape, whereas with most other natural bodies that aren't propagated by seed it is the •colour we mainly fix on and are mainly led by. **30** In fact, these are very often no more than gross, confused and inaccurate

conceptions. Men are far from having agreed on exactly what simple ideas or qualities belong to any species or name, because it requires much trouble, skill and time to find the simple ideas [= 'qualities'] that are constantly united. However, the few qualities that make up these inaccurate definitions are usually sufficient for conversational purposes. But despite the fuss about 'genus' and 'species', the 'forms' that the Schoolmen have made so much noise about are only chimeras [= 'wild and fanciful conceptions'] that give us no light into the natures of species.

Theo: Someone who makes a *possible* combination commits no error in doing that, or in giving it a name; but he does err if he believes that what he conceives is the whole of what others who are more expert conceive under the same name or in the same body. He may be conceiving too broad a genus in place of a more specific one. There is nothing in all this that goes against the Schools, and I don't see why you have returned to the attack on genera, species and forms, since you too have to recognize genera and species and even inner essences or forms—although we don't claim to use them to understand the specific nature of a thing so long as we admit to still not knowing what they are.

Phil: It is obvious, at least, that the boundaries we set to species don't exactly conform to the boundaries set in nature. That's because we need general names that we can use right now, so we don't pause to discover which qualities would best show us the most essential differences and agreements ·among things·. We just go ahead and on our own initiative divide them up into species, doing this on the basis of certain obvious appearances, so that we may more easily communicate with one another.

Theo: If the ideas we combine are compatible, then the limits we assign to species do always exactly conform to •nature;

and if we are careful to combine ·only· ideas that actually occur together, our notions also conform to •experience. ·In making such combinations· we shan't be doing anything wrong, provided that

•we regard them as only provisional with reference to actual bodies, and as subject to experimental results concerning those bodies, and •we consult the experts when fine points arise about whatever it is that the name is generally understood to stand for.

Thus, although nature can furnish more perfect and more convenient ideas, it won't give the lie to any ideas we have that are sound and natural even if they are perhaps not the most sound and most natural.

Phil: 32 Our generic ideas of substances—the idea of *metal*, for instance—don't *exactly* follow the patterns set them by nature , because there couldn't be a body that has merely malleableness and fusibility in it, without other qualities.

Theo: No-one is asking for patterns of that sort: it would be unreasonable to do so, as they don't exist even for the most distinct notions. We never find a multitude in which there is nothing to be seen but multiplicity in general, or something extended that has only extension, or a body that has only solidity and no other qualities. . . .

Phil: So if anyone thinks that a man, a horse, an animal and a plant etc. are distinguished by real essences made by nature, he must think nature to be very lavish in handing out these real essences, making one for *body*, another for *animal* and a third for *horse*, with all these essences being liberally bestowed on ·the horse· Bucephalus. In fact, all these genera and species are ·not items existing in nature but· only more or less comprehensive *signs*.

Theo: If you take real essences to be *substantial* patterns such as would be provided by

a body that is nothing but a body,
 an animal with nothing more specific to it,
 a horse with no individual qualities,

then you are right to regard them as chimeras. No-one, I think—not even the most extreme of the old realists—has claimed that there are as many *substances with only a generic property* as there are *genera*. But if general essences aren't like that—as you and I agree that they aren't—it doesn't follow that they are merely signs: I have pointed out to you several times that they are possibilities inherent in resemblances. Similarly, from the fact that colours aren't always substances, i.e. extractable dyes, it doesn't follow that they are imaginary. Also, we couldn't *exaggerate* nature's liberality; she goes beyond anything that we can devise, and all the dominant compatible possibilities are made real on her great stage. Philosophers used to have two axioms: the •realist one seemed to make nature profligate and the •nominalist one seemed to declare her to be stingy. One says that •nature permits no gaps, the other that •she does nothing in vain. These are two good axioms, as long as they are understood: nature is like a good housekeeper who is sparing when necessary in order to be lavish at the right time and place. She is lavish in her effects and thrifty in the means she employs.

Phil: . . . **35** If there were a body that had all the properties of gold except malleability, would it be gold? It is up to men to decide; so it is they who settle the •species of things.

Theo: Not at all; they would only settle the •name. But this discovery would teach us that malleability has no necessary connection with the other qualities of gold, taken together. So it would show us a new •possibility and consequently a new species. I don't apply this to the brittle gold that we

actually know about. *Its* brittleness is merely the result of impurities, and can be removed. . . .; so it's not on a par with the other tests for gold.

Phil: 38 From what I have been saying something follows that will seem very strange. It is that each abstract idea with an associated name makes a distinct species. But who can help it, if truth will have it so? I don't see why a poodle and a hound aren't as distinct species as a spaniel and an elephant.

Theo: I have distinguished earlier [page 150] between the various meanings of the word 'species'. In the logical (or rather the mathematical) sense, the least dissimilarity between two things is enough to put them in different species; so that in *that* sense each different idea yields a new species—it doesn't need an associated name to do so. However, in the physical sense, we don't give weight to every variation. To deal with your dog/elephant challenge, I need to say some general things about how we *do* proceed when we are using 'species' in its physical sense. When we speak of 'species' in the physical sense of the word, we may be speaking either

- unreservedly, when it is a question merely of appearances, as when we *untentatively* say 'This is a pen and that is a paint-brush' or
- conjecturally, when it is a question of the inner truth of things, with the presumption that they have some essential and unchangeable nature, as man has reason.

The presumption is that things that differ only through accidental changes—such as . . . water and ice—belong to a single species. In organic bodies we ordinarily take generation or pedigree as a provisional indication of sameness of species, just as among bodies of a more homogeneous kind we go by how they can be produced. It is true that we

can't judge accurately, for lack of knowledge of the inner nature of things; but, as I have said more than once, we judge provisionally and often conjecturally. However, if we want to speak only of outward features, so as to say nothing that isn't certain (·in the way the pen/paint-brush statement is certain·), then we have more freedom; and in that case to debate whether or not a difference between two things puts them into different species *is* to debate about a name. Taking this approach, there are such large differences amongst dogs that mastiffs and lap-dogs can very well be said to be of different species. But the situation might be this:

Mastiffs and lap-dogs are remote descendants of the same or similar breeds, which we would find if we could go back a long way. Their ancestors were similar or the same, but after much change some of their descendants became very large and others very small.

In fact it wouldn't be offending against reason to believe that they have in common an unchanging specific inner nature. . . . But there is no likelihood that a spaniel and an elephant come from a single ancestral line or that they have any such specific nature in common. So, when we talk about the different sorts of dogs in terms of •appearances, we can distinguish their species, and when we talk in terms of •inner essences we can remain uncertain; but when we compare a dog and an elephant we have no grounds for attributing to them, •externally or •internally, anything that would make us think they belonged to a single species—and the presumption that they do so should be rejected. [The remainder of this paragraph, without adding to the content of what Leibniz wrote, expands his writing of it in ways that the ·small-dots· system can't easily indicate.] **(1)** Using 'species' in its logical sense, are there different species of men? **Yes**, for in *that* sense you and I belong to different species because my hair is darker than yours. **(2)** Well, then, using 'species' in its physical sense,

are there different species of men? That depends on whether we are tying 'species' to external features or to inner natures. **(2a)** If we stress externals, the answer is **Yes**, we can find differences among men that put them into different 'species' in the physical sense. (Thus one explorer believed that Negroes, Chinese and American Indians had no ancestry in common with one another or with peoples resembling ourselves.) **(2b)** But if we are tying species-differences to differences of inner nature, the reasonable answer is **No**. We know the inner essence of man, namely reason, which is present in each individual man; and we find among us no fixed *inner* feature that generates a subdivision within mankind; so we have no reason to think that the truth about men's inner natures implies that there is any essential specific difference among them. There *are* such differences between man and beast—assuming that beasts don't have reason and learn from experience only in the manner of mere empirics.

Phil: Let us take the case of an artificial thing whose internal structure is known to us. **39** A silent watch and one that strikes the hours belong to a single species in the minds of those who have only one name for them; but in the mind of someone who calls one a 'watch' and the other a 'clock' they belong to different species. What puts things in different species is their names, not their inner structures; and if we weren't guided by names in this there would be too many species. Some watches are made with four wheels, others with five; some have strings and pulleys and others none; in some the balance is loose, in others it is regulated by a spiral spring, and in yet others by hog's bristles—are any of these enough to make a specific difference? I say No, as long as these watches have the same name.

Theo: And I would say Yes; for, rather than attending much to the names, I would prefer to consider the varieties of inner structure and in particular how the balances differ; for now that the balance has been provided with a spring that regulates its oscillations by means of its own, and thereby makes them more equal, pocket-watches have changed in appearance and have become incomparably more accurate. . . .

Phil: If anyone wants to sort things on the basis of differences that he knows in their internal structures, he can do so. But what he sorts them into won't be distinct species in the minds of men who don't know how the things are constructed.

Theo: I don't know why you and your associates always want to make virtues, truths and species depend on our opinion or knowledge. They are present in nature, whether or not we know it or like it. To talk of them in any other way is to change the names of things, and to change accepted ways of speaking, without any cause. Until now men have probably believed that there are several species of clocks or watches, without learning how they are constructed or what they might be called.

Phil: Still, you acknowledged not long ago that when we try to distinguish physical species by appearances, we lay down arbitrary limits for ourselves whenever it seems appropriate—i.e. depending on whether we find the difference more or less important, and on what our purposes are. You yourself used the comparison with weights and measures, which we organize and name to suit ourselves.

Theo: I have recently begun to understand you. Between •purely logical specific differences, for which the slightest variation in definition is sufficient, however accidental it may be, and •purely physical specific differences that rest on

what is essential or unchangeable, we can make room for •an intermediate kind of difference, but not one that we can determine precisely. Our handling of it is governed by the weightiest appearances—ones that aren't entirely unchangeable but don't change readily, some coming closer than others to what is essential. And since some connoisseurs make finer discriminations than others, this whole business is relative to men and appears to be arbitrary; which makes it seem convenient that the use of names should be governed by these •intermediate• principal differences. So we could speak of them as 'civil' specific differences and as 'nominal' species; but they mustn't be confused with what I earlier called nominal *definitions* [page 142], which can involve logical specific differences as well as physical ones. . . . This whole line of thought deserves respect, but I don't see that it does very much here; for, apart from the fact that you seem to apply it in some cases where it does nothing, one will reach pretty much the same conclusion by recognizing that men are free to subdivide as far as they find appropriate and to abstract from additional differences without needing to deny that they exist, and that they are also free to choose the determinate in place of the indeterminate, so as to establish various notions and measures by giving them names.

Phil: I'm glad that we are no longer as far apart on this point as we appeared to be. **41** And so far as I can see, you will also grant me that artificial things have species, as well as natural ones—contrary to the view of some philosophers. **42** But before leaving the names of substances, I will add that of all our various ideas, only the ideas of substances have proper, i.e. individual, names. For it seldom happens that men need to make frequent references to any individual quality or to any other accidental individual. Furthermore, individual events perish straight away, and the combinations

of states of affairs that occur in them don't last as they do in substances.

Theo: In certain cases, though, there has been a need to remember an individual accident, and it has been given a name. So your rule usually holds good but admits of exceptions. Religion provides us with some: for instance, the birth of Jesus Christ, the memory of which we celebrate every year. [He gives a couple of other Biblical examples of individual events that have proper names, and goes on to agree that artificial things fall into species. Then:] Still, it's just as well to recognize the difference between •perfect substances and the collections of substances that are •substantial entities put together by nature or by human artifice. For nature also contains such collections: for instance, **(1)** 'imperfectly mixed bodies' as our philosophers [here = 'scientists'] call them, which are not *unum per se* and don't have in themselves a perfect unity. And I think the same holds for **(2)** the four ·kinds of· bodies they call 'elements', which they believe to be simple [= 'homogeneous'], and also for **(3)** salts, metals and other bodies that they think are perfectly mixed with their ingredients in fixed proportions—none of them are *unum per se* either. For one thing, we should regard them as only *apparently* uniform and homogeneous, and anyway even a homogeneous body would still be a collection ·of its parts·. In short, perfect unity should be reserved for •animate bodies, or bodies endowed with primary entelechies; for such entelechies are somewhat like souls and are as indivisible and imperishable as souls

are. [See the discussion of 'entelechy' on page 67]. And I have shown elsewhere that their organic bodies are really machines, although as much superior to the artificial machines that we design as the designer of those natural ones is superior to us. For the machines of nature are as imperishable as souls themselves, and the animal together with its soul persists for ever. I can explain my meaning better with the help of a pleasant though very silly example: it is as if someone tried to strip Harlequin bare on the stage but could never finish the task because he was wearing so many costumes, one on top of the other; though the infinity of replications of its organic body that an animal contains aren't as alike as suits of clothes are; nor are they arranged one on top of another, since nature's artifice is of an entirely different order of subtlety. This all shows that the philosophers weren't utterly mistaken when they made so great a separation between •artificial bodies and •natural bodies endowed with true unity. But it fell to our age alone to unravel this mystery, and to demonstrate its importance and its consequences for the sound establishment of •natural theology and of •the science of spiritual beings, in a truly natural manner and in conformity with what we can experience and understand. It doesn't deprive us of any of the important considerations that should arise out of •those two sciences; rather, it enhances them, as does the system of pre-established harmony. And I believe that we can't conclude this long discussion of the names of substances on a better note than that.

Chapter vii: Particles

Philaethes: **1** Besides words that name ideas, we need words that signify how ideas or propositions are connected with one another. 'Is' and 'is not' are the general marks of affirmation or negation. But as well as the parts of propositions, the mind connects whole sentences or propositions **2** by means of words that express this connection of various affirmations and negations. These are called 'particles', and good speech depends primarily on using them correctly. If reasonings are to hang together in an orderly way, we must have words to show connection, restriction, distinction, opposition, emphasis, etc. When someone makes mistakes with these he puzzles his hearer.

Theophilus: I agree that the particles that connect propositions do valuable work, but I doubt that the art of speaking well consists primarily in that. Suppose someone utters nothing but aphorisms or disconnected propositions. (This is often done in the universities and in what legal scholars call 'articulated pleadings', and it also occurs in the points that are put to witnesses.) As long as he arranges these propositions carefully, he will make himself almost as well understood as if he had connected them up and put in particles, since these are supplied by the reader. But I grant that the reader would be confused if the particles were put in wrongly—much more confused than if they were left out. It seems to me, too, that particles connect not only **(1)** the component propositions of a discourse, and **(2)** the component ideas of a proposition, but also **(3)** the parts of an idea made up of other ideas variously combined. Of these 'three functions', **(3)** this last one is signified by •prepositions, whereas **(2)** •adverbs govern affirmation and negation when it occurs in the verb, and **(1)** •conjunctions

govern the connections between various affirmations and negations. But no doubt you have noticed all this yourself, even though your words seem to say something different.

Phil: **3** The part of grammar that deals with particles has been less cultivated than the part that methodically sets forth cases and genders, moods and tenses, gerunds and supines. It is true that particles in some languages have been listed, classified and sub-divided with a great show of exactness; but it isn't enough to go through such lists. A man must reflect on his own thoughts and observe how his mind conducts itself when he is discoursing; for particles are all marks of the mind's activity.

Theo: The doctrine of particles is indeed important, and I wish it had been explored in greater detail, for nothing would be more apt to reveal the various forms of the understanding. Genders are of no significance in philosophical grammar; but cases correspond to prepositions, and through them there is often a preposition contained in a noun, absorbed in it so to speak, 'as when we say 'John's father' meaning 'the father of John'; and other particles are concealed in the inflections of verbs, 'as when we say 'he went' meaning 'he *did* go'. [Latin provides a much richer harvest of examples.]

Phil: **4** To explain a particle properly it isn't enough to do what dictionaries usually do, namely produce the word in the other language that comes nearest to its meaning; for the exact meaning is as hard to grasp for a particle in one language as in another. Besides, the meanings of related words in two languages aren't always exactly the same and even vary within a single language. I remember that in the Hebrew language there is a particle with only one letter that

is claimed to have more than fifty significations.

Theo: Learned men have devoted themselves to writing whole books on Latin, Greek and Hebrew particles. . . . One usually finds, though, that people offer to explain them by means of examples and synonyms rather than by distinct notions. Nor can one always find a meaning for them that is general. . . .and valid for every instance. Still, we *could* reduce all the uses of a word to a determinate number of meanings; and that's what we ought to do. [Philalethes cites some different ways of using 'but', as evidence that particles have many different meanings. Theophilus, after some remarks about how 'but' can be translated in French and German, remarks that 'what we need is a paraphrase that can be substituted for the particle, just as a definition can be put in place of the defined expression', and he tries to deal with Philalethes' examples by maintaining that in all of them 'but' means 'and no more'. Then:]

Phil: 6 I intended to dwell only very briefly on this topic. I

might add that often particles—some constantly and others in certain constructions—have the sense of a whole sentence contained in them.

Theo: But when it is a complete sense, I believe that it is achieved through a sort of short-hand. In my opinion, the only words that can stand on their own and say everything in a single word are interjections such as 'Ah!' or 'Alas!'. When we say 'But' without adding anything further, it is short-hand for 'But let's wait and see—let's not applaud too soon'. . . . I wouldn't have minded your going into a little more detail about the turns of thought that reveal themselves so wonderfully in our use of particles. But since we have reason to hurry, so as to complete this investigation of words and return to things, I don't want to hold you here any longer; although I really believe that languages are the best mirror of the human mind and that a precise analysis of the meanings of words would tell us more than anything else about the operations of the understanding.

Chapter viii: Abstract and concrete terms

Philalethes: 1 It remains to be noted that terms are either abstract or concrete. Each abstract idea is distinct, so that of any two the one can never be the other: the mind will, by its intuitive knowledge, perceive their difference; and therefore no two of these ideas can ever be affirmed one of another. Everybody at once sees the falsehood of 'Humanity is animality' and 'Humanity is rationality'. This is as evident as any of the most widely accepted maxims.

Theophilus: There is something to be said about this, though. It is agreed that

fairness is a virtue,
 fairness is a disposition,
 fairness is a quality,
 fairness is an accident,

and so on. Thus, two abstract terms *can* be asserted one of the other. Now, I always distinguish two sorts of abstract

terms: •logical and •real. [Here, as quite often, the force of 'real' comes from its origin in the Latin *res* = 'thing'. One might translate *terme abstrait réel* as 'thing-related abstract term'.] •Real abstract terms, or at least those that are thought of as real, are •qualities, i.e. either essences or parts of an essence, or else accidents; they are something added to a substance •in a predication, as when we use the abstract *wise* in saying 'That man is wise'. •Logical abstract terms are predications reduced to single terms—as I might say to-be-man, to-be-animal—and taken

in this way we can assert one of the other: To be man is to be animal. But with realities we can't do this. We can't say that •humanity (or humanness) is •animality, because the •former is the whole essence of man while the •latter is only a part of that essence. However, these abstract incomplete beings signified by real abstract terms also have their genera and species, and these are equally expressed by real abstract terms. So they can be predicated of one another, as I have shown by means of the example of fairness and virtue. . . .

Chapter ix: The imperfection of words

Philaethes: 1–2 We have already spoken of the double use of words. •The first is in talking to ourselves in recording our own thoughts as an aid to our own memories. •The other is for communicating our thoughts to others by means of speech. It is in these two uses that we see the perfection or imperfection of words. When we are talking only to ourselves it doesn't matter what words we used provided that the meaning of each word is remembered and held constant. 3 The communicative use of words subdivides into two sorts, civil and philosophical. •The civil use consists in the conversation and practice of civil life. •The philosophical use of words is the use of them to convey precise notions and to express certain truths in general propositions.

Theophilus: Very good. Words are just as much reminders for oneself—in the way that numerals and algebraic symbols might be—as they are signs for others; and the use of words as signs occurs when •general precepts are being applied in

daily life, i.e. applied to individual cases, as well as when •one is trying to discover or to verify these precepts. The former is a •civil and the latter a •philosophical use of signs.

Phil: 5 Here are the principal cases where it's hard to learn and retain the idea that a given word stands for. (1) Where the idea is very composite; (2) where the ideas that make up the composite have no natural connection with one another, so that nowhere in nature is there any settled standard by which to correct and adjust them; (3) where the standard •exists but •isn't easy to know; (4) where the meaning of the word isn't exactly the same as the real essence. The names of modes are more liable to being doubtful and imperfect for reasons (1) and (2); the names of substances for reasons (3) and (4). 6 When ideas of modes are highly complex, as are those of most moral words, they don't often have exactly the same meaning in the minds of two different men. . . . 8 Common use regulates the meanings of words pretty well for

everyday conversation; but there is nothing precise about this, and there are daily disputes about which meaning best fits the propriety of speech. Many people speak of 'glory', but few of them agree in what they mean by it. **9** In many men's mouths some words are little more than mere sounds, or at best they have very undetermined meanings. In a discourse or conversation about honour, faith, grace, religion, church, especially when there is controversy, it can be seen at once that men use the same terms to express different notions. And if it is hard to grasp the senses of terms used by one's contemporaries, it is even harder to understand •the writings of antiquity. **10** It is just as well that we can do without •the latter except when they contain something we are required to believe or to do.

Theo: Those are good remarks. With regard to ancient writings, though, •your dismissive remark is inappropriate•. The thing that we most need to understand is •the ancient text of• Holy Scripture; and •ancient• Roman law is still actively employed throughout much of Europe. . . . The ancient physicians are also worth understanding. The Greeks' way of practising medicine has come down to us from the Arabs: the spring-water was muddied in the Arab rivulets, and has had many impurities removed by recourse to the Greek originals. But these Arabs are useful all the same. . . . After religion and history, then, I find that it is principally in medicine—in its empirical aspects—that we can profit from what is passed on by the ancients and preserved in writing, and from other people's observations generally. That's why I have always had a great respect for physicians who are also steeped in the knowledge of ancient times. [He goes on at length about the value to science of discoveries of scientific knowledge that the ancients had, remarking that the recovery of such knowledge requires textual scholarship, which should therefore be given

more respect than it often is. Then:] It is because textual scholarship rests largely on the meanings of words and on the interpreting of authors, especially ancient ones, that our discussion of words together with your remark about the ancients led me to touch on this important topic. But to return now to your four defects in naming, let me tell you that there are remedies for all of them, especially since the invention of writing, and that it is only because of our carelessness that they still occur. For we now have the option of fixing meanings, at least in some learned language, and of agreeing on them, so as to pull down this Tower of Babel. But there are two •other• defects that are harder to remedy: one consists in the doubt that arises as to whether certain ideas are compatible if experience has never provided us with all of them combined in a single subject; the other consists in the need for provisional definitions of sensible things, if one's experience of them hasn't sufficed for one to have more complete definitions of them; but I have already spoken more than once about each of these defects.

Phil: What I'm about to tell you will throw a certain amount of further light on the defects you have just pointed out. Defect **(3)** seems to imply that these definitions are provisional: it occurs when we don't know enough about our sensible standards, i.e. about substantial entities in corporeal nature. This defect also involves our not knowing whether it is permissible to combine sensible qualities that nature hasn't combined, because one's understanding of them is superficial. [The paragraph down to here is purely Leibniz's, owing nothing to Locke. *Whenever* Philalethes uses the phrase 'substantial entity' it is Leibniz's replacement for Locke's 'substance'.] **11** Well, then, if the meanings of words standing for composite •modes are doubtful because of the lack of standards in which that same composition occurs, the meanings of the names of

•substantial entities are doubtful for a quite opposite reason, namely that they have to signify something that is supposed to square with the reality of things, and have to be referred to standards made by nature.

Theo: I have already remarked more than once during our earlier conversations that this isn't essential to ideas of substances; but I do concede that the most reliable and useful ideas are those that are modelled on nature.

Phil: 12 When one does follow standards entirely made by nature, with the imagination being needed only to store representations of them, the names of substantial entities have in their ordinary use. . . .a double reference. The first is that they stand for the real inner constitution of things. But this standard can't be known, and so it can't govern meanings.

Theo: That isn't what we are concerned with now, since we are discussing ideas for which we *do* have standards. The thing has its inner essence, but it isn't in dispute that it can't serve as a pattern.

Phil: 13 The second reference that the names of substantial entities have is their immediate reference to the simple ideas [= 'qualities'] that exist together in the substance. But because the number of such ideas that are united in the same subject is very large, those who speak of that one subject have very different ideas of it. This happens both •through differences in the combinations of simple ideas that they make and also •because most qualities of bodies consist in their powers to change or be changed by other bodies. Look at the alterations that one of the baser metals can be put through by the operation of fire; and it can undergo still more at the hands of a chemist by the application of other bodies. Again, one person is satisfied with colour and weight for recognizing

gold, another brings ductility and fixedness into it, a third believes that solubility in *aqua regia* should be taken into account. **14** Also, as things often resemble one another, it is sometimes difficult to indicate exactly how they differ.

Theo: Indeed, since bodies are capable of being altered, disguised, falsified, counterfeited, it is very important to be able to distinguish and to recognize them. Gold is disguised in solution, but it can be recovered either by precipitating it or by distilling the water; and counterfeit or adulterated gold is recognized or purified by the assayer's art. Since this art isn't known to everyone, it's no wonder that men don't all have the same idea of gold. As a rule, only the experts have sufficiently accurate ideas of a given material.

Phil: 15 This variety, however, causes less trouble in everyday transactions than in philosophical inquiries.

Theo: It would be easier to bear if it made no practical difference. But in practice it often matters that one isn't fobbed off with a substitute, and thus that one either knows the signs of the thing or has access to people who know them. This is especially important in connection with medicines and costly substances that may be needed in important situations. It is with terms of a more general kind that the *philosophical* troubles become evident.

Phil: 18 The names of simple ideas are less prone to ambiguity, and mistakes are rarely made with terms such as 'white' and 'bitter'.

Theo: Yet the fact is that these terms aren't entirely free of uncertainty. [This next sentence is mangled in the Remnant-Bennett translation.] I called attention earlier [page 144] to the example of boundary colours—ones whose genus is doubtful because they lie on the borderline between two genera.

Phil: **19** The names of simple modes—such as those of shape and number—are second only to those of simple ideas in their freedom from doubt. **20** All the trouble comes from composite modes and substances. **21** It will be said that rather than imputing these imperfections to •words, we should lay the blame on •our understanding; but I reply that words interpose themselves so much between our mind and the truth of things that they are comparable with the medium through which light-rays pass from visible objects—a medium that quite often casts a mist before our eyes. I'm inclined to think

that if the imperfections of language were more thoroughly weighed, the majority of controversies would automatically cease, and the way to knowledge—and perhaps also the way to peace—would be a great deal opener.

Theo: I believe that controversies that are carried on in writing could be brought to an end *right now* if men would agree on certain rules and take care to carry them out. But there would have to be changes in language if we were to conduct ourselves in a precise way in unprepared spoken discourse. I have explored that topic elsewhere.

Chapter x: The misuse of words

Philaethes: **1** Besides the •natural imperfections of language, there are others that are •wilful and arise from •neglect. To make such poor use of words is to misuse them. **2** The first and most obvious misuse is the failure to associate a word with a clear idea. Words of this kind fall into two classes. One consists of the words that were originally launched with having any determinate idea associated with them, and haven't acquired one since. Most of the sects of philosophy and religion have introduced some of these, to support some strange opinions or cover some weakness in their doctrine. Yet in the mouths of the members of sects these •basically meaningless words• are proud slogans. **3** There are other words that did at first have clear ideas in common usage, but then became associated with very important matters without any definite ideas being annexed to them. This is how the words 'wisdom', 'glory' and 'grace'

often occur in men's mouths.

Theophilus: I believe there are fewer imperfectly meaningful words than you think, and with a little care and the right attitude one could fill the gaps, i.e. remove the indeterminacies. *Wisdom* appears to be nothing but knowledge of happiness. *Grace* is a benefit extended to those who have done nothing to deserve it but are in a condition where they need it. And *glory* is the renown of someone's excellence.

Phil: I don't want to consider now whether there is anything to be said about those definitions. I am more concerned to point out the *causes* of the misuse of words. **4** **Firstly**, words are learned before the ideas that belong to them; and children, accustomed to this from their cradles, continue to do so all their lives; and all the more because they can still make themselves understood in conversation without ever having fixed their ideas, by using a variety of different

expressions to get others to grasp what they mean. Yet this fills their talk with a great deal of empty noise, especially in moral matters. Men adopt the words they find in use in their society, so that they won't seem ignorant of what they stand for, and use them confidently, without giving them a definite fixed meaning. And although in such discourses they are seldom in the right, they are equally seldom open to being convinced that they are in the wrong. Trying to extricate them from their mistakes is like trying to drive a homeless person out of his home.

Theo: . . . I'm sometimes amazed that children can learn languages as early as they do, and speak as correctly as they do when they are grown up, considering how little trouble is taken to instruct children in their native tongue, and how little thought adults give to getting sharp definitions (especially since the definitions taught in the schools are usually not of words that are in general use). Another point: I agree that men quite often fall into error, even when engaged in serious dispute and speaking from conviction. Yet I have also noticed that when people engage in disputes on theoretical questions that lie within their intellectual range, it quite often happens that all the disputants on both sides of the issue are correct in *everything except the mutual opposition arising from the misunderstanding of each others' opinions*, which in turn arises from poor use of terms and sometimes also from contentiousness and a passion for getting the upper hand.

Phil: 5 **Secondly**, the use of words is sometimes inconstant. This happens all too often among the learned, but it is an outright cheat and misuse, and if it is done deliberately it is folly—or dishonesty! If someone did this in numerical calculations—for instance taking a 9 to be a 5—who would have anything to do with him?

Theo: This misuse is so common, not only among the learned but also in the world at large, that I think it arises from bad habits and carelessness rather than from dishonesty. Usually the different meanings of a single word are alike, so that one gets taken for another, and speakers don't pause to think as accurately as one would like them to about what they are saying. People are accustomed to figures of speech, and are easily carried away by elegant turns of phrase and spurious brilliancies. This is because they are usually in pursuit less of the truth than of pleasure, entertainment and outward appearance; and an element of vanity comes into it too.

Phil: 6 The **third** misuse is deliberate obscurity, using old words with unusual meanings or introducing new terms without explaining them. The ancient Sophists. . . claimed to talk about everything, and hid their ignorance under the veil of verbal obscurity. Among the philosophical sects, the Aristotelian one has made itself conspicuous by this fault, but other sects haven't been wholly clear of it—and that includes even some of the modern ones. For example, there are people who misuse the term 'extension' and find it necessary to confound it with 'body'. **7** Logic, i.e. the art of disputing, which has been so highly esteemed, has helped to maintain obscurity. **8** Those who are given to it have been useless, or rather harmful, to society at large. **9** Whereas craftsmen, so despised by the learned, have been useful to human life. Yet these obscure doctors—i.e. the leaders of the philosophical sects—have been admired by the ignorant; and they have been thought to be invincible because they were armed with briars and thorns that it would have been painful to plunge into! For them the only defence left for absurdity is obscurity. **12** The mischief of it is that this art of making words obscure has brought confusion in those two

great rules of human action, religion and justice.

Theo: Your complaints are largely justified. Yet there are, though rarely, obscurities that are pardonable and even laudable—as when someone avowedly speaks in riddles when there is point in riddling. Pythagoras used them like that, and so do the oriental philosophers, more or less. . . . A certain obscurity might be permissible, but it must hide something that is worth trying to discover, and the riddle must be solvable. But religion and justice require clear ideas. The tangled condition of religious and legal doctrines seems to be due to the unsystematic way they are taught, and they may have been harmed more by the indeterminateness of terms than by obscurity. As for logic: since it is the art that teaches us how to order and connect our thoughts, I see no grounds for laying blame on *it*. On the contrary, men's errors are due rather to their *lack* of logic.

Phil: 14 The **fourth** misuse occurs when words are taken for things, i.e. when terms are believed to correspond to the real essence of substances. Everyone brought up in the Aristotelian philosophy thinks that the ten names signifying the categories exactly square with the nature of things; and that 'substantial forms', 'vegetative souls', 'horror of a vacuum', 'intentional species' and so on are something real. The Platonists have their 'soul of the world', and the Epicureans their 'endeavour towards motion' in their stationary atoms. . . .

Theo: Strictly speaking that isn't a matter of •taking words to be things, but rather of •believing something to be true when it isn't. It is an error that is all too common among men in general, but it isn't a matter of mere misuse of words, and consists of something else altogether. The •Aristotelian• scheme of the categories is a very useful one, and we should think of improving it rather than rejecting it. It might

be that all that is needed are five general headings for beings—namely •substance, •quantity, •quality, •action or passion, and •relation—together with any that can be formed from those by composition; and in your own setting out of ideas weren't *you* trying to present them as categories? I have spoken above of 'substantial forms' [starting at page 155]. And I doubt that there are good enough grounds for rejecting 'vegetative souls', given that there are experienced and judicious people who recognize a strong analogy between plants and animals, and given that you yourself have seemed to admit that beasts have souls. The 'horror of a vacuum' can be understood in a legitimate way, thus:

On the assumption that •all the spaces in nature have at some time been filled, that •bodies can't interpenetrate, and that •bodies can't shrink, *nature can't allow a vacuum*;

and I hold that those three assumptions are well founded. But the same can't be said for the 'intentional species' that are supposed to let the soul interact with the body. . . . I grant that Plato's 'soul of the world' doesn't exist, because God is *above* the world. . . . When you speak of the 'endeavour towards motion' of the Epicureans atoms, I'm not sure whether you have in mind the weight that the Epicureans attributed to atoms by claiming that all bodies move by themselves in a single direction—which is certainly a groundless doctrine. . . .

Phil: 15 An example concerning the word 'matter' will give you a better grasp of my thought. Matter is taken to be a being really existing in nature, distinct from body. For it is perfectly obvious that the word 'matter' stands for an idea distinct from •the idea for which• 'body' •stands•. If that were not so, it would make no difference if one of these two ideas were replaced by the other; •but it *does* make a difference•. For one can say 'There is one matter of all bodies' but not

'There is one body of all matters'. Nor, I think, will it be said that 'one matter is bigger than another' though it *can* be said that 'one body is bigger than another'. 'Matter' expresses the *substance and solidity* of body, and so we can't make sense of 'different matters' any more than we can of 'different solidities'. Yet some philosophers have taken 'matter' to be the name of something existing under that precision, and this thought produced unintelligible discourses and tangled disputes concerning 'prime matter'. [The phrase 'something existing under that precision' is Locke's. It means 'something that has nothing to it except what that label gives it', something about which the *whole truth* is that it *is matter*, with no further details. The French translator put *sous cette précision*, which couldn't carry that meaning, and you'll see that this misled Leibniz.]

Theo: This example appears to me to count more in favour of the Aristotelian philosophy than against it. If all silver were shaped—or rather, *because* all silver is shaped, by nature or by art—does that make it any less correct to say that silver is a being really existing in nature, distinct (taking it in its precise nature) from the goblet and the coin? And although the silver manifests the weight, sound, colour, fusibility and various other qualities of the coin, that won't lead us to say that silver is nothing but some qualities of the coin. So it isn't as useless as you think to reason in general natural science about *prime matter* and to determine its nature—whether it is always uniform, whether it has any essential properties other than impenetrability (in fact I have shown, following Kepler, that it also has what could be called inertia), and so on—despite the fact that it never occurs naked and unadorned; just as it would be permissible to theorize about pure silver even if we never found any and had no methods for purifying silver. So I have nothing against Aristotle's speaking of 'prime matter'; but it is impossible to withhold

some blame from those who have made too much of it, and have created illusions on the basis of misunderstood words of this philosopher. Perhaps he did sometimes unduly lay himself open to these misconceptions and to high-sounding nonsense. Still, you shouldn't so greatly exaggerate the faults of this famous writer, because it is known that several of his works weren't completed or made public by him.

Phil: 17 The **fifth** misuse is to put •words in the place of •things that they don't and can't possibly signify. This happens when we try to use the names of substances to mean more than we *can* mean by them; for example when we say

'Gold is malleable'

purporting to convey that

malleableness depends on the real essence of gold;

when really all we can coherently mean is that

what I call 'gold' is malleable

(though basically 'gold' there signifies nothing more than 'that which is malleable', so that the statement is a triviality, or what you would call an 'identity'). Thus we say that Aristotle's definition of *man* as *rational animal* is a good one, and that Plato's as *two-legged animal with broad nails and no feathers* is bad, implying that Aristotle's definition captures the real essence of *man* better than Plato's does.

18 There is hardly anybody who doesn't suppose these words 'gold' and 'man' to stand for a thing having the real essence on which the defining properties depend. Yet this is a plain misuse, because the real essence isn't included in the complex idea that the word signifies.

Theo: Well, I should have thought it was obviously wrong to criticize this common usage, since it is quite true that the complex idea of gold includes its being

something that has a real essence whose detailed

constitution is unknown to us, except for the fact that such qualities as malleability depend on it.

But to assert that gold is malleable without merely asserting an identity. . . . one must recognize this stuff by other qualities—e.g. colour and weight. And then saying ‘Gold is malleable’ is tantamount to saying that

a certain fusible, yellow and very heavy body that is called ‘gold’ has a nature that endows it with the further quality of being very soft to the hammer and with the capacity for being made extremely thin.

The definition of *man* that is laid at Plato’s door is obviously rather too external and too provisional. . . . But Plato appears to have devised that definition only as an exercise, and I don’t think that you would want seriously to put it alongside the received definition, namely Aristotle’s. . . .

Phil: 19 A soon as one of the ideas making up a composite mode is changed, the result is a different composite mode; this is uncontroversial. We see it clearly in the words ‘murder’ and ‘manslaughter’: the former signifies homicide by premeditation, and the latter homicide that is voluntary though not premeditated. . . . For •what is expressed by such names is identical with •what I believe to be in the thing itself; or, in terms I used earlier [page 141], the •nominal essence is identical with the •real essence. But it isn’t like that with the names of substances. For if one man puts into the idea of *gold* something that another leaves out, for example fixedness and solubility in *aqua regia*, people don’t take them to be talking about different species; they merely think that one of the men has a more perfect idea than the other of what constitutes the hidden real essence that they take the name ‘gold’ to refer to, despite the fact that this tacit reference is useless and serves only to make trouble for us.

Theo: I believe I’ve already said this, but I shall here again make plain to you that what you have just said applies to •modes as well as to •substantial entities, and that there are no grounds for finding fault with this reference to an inner essence even in the case of modes. Here is an example of what I mean. One can define a ‘parabola’, in the geometers’ sense, as *a figure in which all the rays parallel to a certain straight line are brought together by reflection at a particular point, the focus*. But what that idea or definition expresses isn’t so much the figure’s •inner essence, i.e. something that could let us straight away grasp its origin, but rather •an external feature, a result. Wanting to construct a figure that has such a resulting property, one might even wonder initially whether this is *possible*; and for me that’s what shows whether a definition is a merely nominal one (drawn from properties) or whether instead it is real (drawn from the thing). If someone who names the parabola knows it only through the definition I have just given, he is nevertheless using the word to mean a figure that has a certain construction or constitution—he doesn’t know what it is, but he hopes to find out, so as to be able to draw it. Another person who studies it more deeply will add some further property of parabolas. . . . He will thus have a more perfect idea than the first person had, and will have less difficulty in drawing the figure, though he may not yet be able to. Yet it will be agreed that it is the same figure, but that its constitution is still hidden. You see, then, that everything that you find and partly criticize in the use of words signifying substantial things is also present, and is obviously beyond criticism, in the use of words signifying composite modes. What has led you to believe that substances differ from modes is your neglect of intellectual modes that are difficult to dissect, which turn out to be just like bodies in this respect, though bodies are even harder to know. . . .

Phil: I now see that I would have been wrong to condemn this reference to essences and inner constitutions on the pretext that it turns our words into signs of something unreal or unknown. For what is unknown in certain aspects may reveal itself in some other way, and a thing's inner nature does reveal itself to some extent through the appearances to which it gives rise. As for the question 'Is a monstrous fetus a man or not?', I see that even if one can't answer it straight away, the ·human· species may for all that be quite determinate in itself, as our ignorance doesn't affect the nature of things. . . . [Up to here this speech is purely Leibniz's work, except for the question, which Locke asks in III.x.21.] **22** We now come to the **sixth** misuse (I stay with the original numbering, although I see very well that some should be omitted). This common though little noticed misuse is that men, having by long-standing usage attached certain ideas to certain words, imagine that the connection is an obvious one and that everyone accepts it. This makes them think it very strange when they are asked the meanings of their terms, even when it is absolutely necessary to do so. Most people would be offended by being asked what they mean when they speak of 'life'. Yet their idea of it may be a vague one that isn't sufficient if it is a question of knowing whether

a plant that lies ready formed in the seed, or
the embryo in an egg before incubation, or
a man in a coma, without sense or motion

has *life*. And though men won't wish to appear so dull or so pushy as to need to ask for explanations of the terms that are being used, or so fault-finding as to keep correcting others' uses of words, when one is engaged in precise inquiry such explanations *must* be sought. When learned men of different parties argue with one another, they are often speaking different languages and don't differ in what they *believe* (though they may differ in what they *want*).

Theo: I think I have already expounded my views about the notion of life fully enough. Life must always be accompanied by perception in the soul; otherwise it will be only an appearance, like the life the savages in America attributed to watches and clocks. . . .

Phil: 23 To conclude: words serve •to make our thoughts understood, •to do this with ease, and •to provide a way into the knowledge of things. We fail in the first respect when we have no steady, determinate ideas for our words, or none that are accepted and understood by others. **24** We fail in respect of ease when we have very complex ideas without having distinct names. This is often the fault of the languages themselves, because they don't contain the names; but in many cases the fault lies with the man, who doesn't know the names. When this happens, long paraphrases are needed. **25** There is a failure in the third respect when the ideas that words signify don't agree with what is real. **26 (1)** Someone who has words without ideas is like one who has nothing but a list of book-titles. **27 (2)** Someone who has very complex ideas is like a man who has a stock of books uncollated and untitled, so that he can't indicate any book except by producing its pages one by one. **28 (3)** Someone who is inconstant in his use of signs is like a merchant who sells different things by the same name. **29 (4)** Someone who attaches his own special ideas to words in common use won't be able to give others the benefit of any insights he may have. **30 (5)** Someone whose head is full of ideas of substances that have never existed won't be able to advance in real knowledge. **32-3** The first will speak vainly of the 'tarantula' or of 'charity'. The second will see new animals without being easily able to make them known to others. The third will take 'body' sometimes to stand for whatever is solid and sometimes to stand for whatever is

merely extended; and he will use 'frugality' sometimes to name a virtue and sometimes to name the neighbouring vice. The fourth will call a mule by the name 'horse', and will describe as 'generous' what everyone else calls 'spendthrift'; and the fifth, on the authority of Herodotus, will search in Tartary for a nation of one-eyed men. I would point out that the first four defects are common to the names of substances and of modes, whereas the fifth is special to substances.

Theo: These are very instructive remarks. I will add only that there seems to me to be something chimerical also in people's ideas of ·modes, i.e. of· qualities or ways of being, so that the fifth defect is also common to substances and to qualities. *The Fanciful Shepherd* deserved that name not only because he thought there were •nymphs (·substances·) hiding among the trees but also because he was constantly expecting romantic •adventures (·modes·) to come his way. . . .

Chapter xi: The remedies of those imperfections and misuses

Philaethes: . . . **1** We must look for remedies for the imperfections we have noticed in words, thus bringing our whole treatment of words to a close. **2** It would be ridiculous to attempt to reform languages, or to want to make men confine their speech to what they know. **3** But it isn't too much to demand that philosophers speak with exactness when they are seriously pursuing the truth, for otherwise everything will be full of errors, stubborn prejudices and pointless wrangles. **8** The first remedy is never to use any word without associating an idea with it. Whereas such words as 'instinct', 'sympathy' and 'antipathy' are often used without being given any sense.

Theophilus: This is a good rule, but I'm not sure that your examples are apt. It seems to me that everyone understands instinct to be an inclination that an animal has—with no conception of the reason for it—towards something that is suitable to it. Even men ought to pay more attention to these instincts: they occur in humans as well, though our

artificial way of life has almost wiped out most of them. . . . 'Sympathy' and 'antipathy' signify whatever it is in inanimate bodies that is analogous to the instinct of animals to come together or move apart. We don't understand the causes of these inclinations or endeavours as well as might be wished, but we have a notion of them that is sufficient for us to be able to talk intelligibly about them.

Phil: **9-10** The second remedy is that the names of modes should have ideas that are at least determinate, and that the names of substances should have ideas that are also in conformity with what exists. If someone says that justice is 'law-abiding conduct that affects the well-being of others', this idea isn't determinate enough when one has no distinct idea of what is being called 'law'.

Theo: It could be remarked at this point that the law is a prescription imparted to us by wisdom, i.e. by the science of happiness.

Phil: 11 The third remedy is to use words, as far as possible, in ways conforming to their common use. **12** The fourth is to declare what sense one takes a word to have, whether one is •introducing new words or •using old ones in new senses or •firming up a meaning that isn't adequately fixed in ordinary usage. **13** But there's a distinction to be made. **14** Words that can't be defined—ones with simple ideas—are explained either through better-known synonyms or else by showing the things themselves. In this way one can make a peasant understand what colour *feuille morte* is by telling him it is the colour of withered leaves falling in autumn. **15** The names of composite modes should be explained by definition, for that can be done. **16** That is how morality is capable of demonstration. In that context one takes a man to be a corporeal rational being, without troubling about his outward shape. **17** For it is through definitions that matters of morality can be treated clearly. To define *justice* it will be better to be guided by the idea of it in one's mind than to seek some external model—some individual just man—and form an idea that copies him. **18** And since most composite modes are made up of elements that don't exist anywhere together, the only way they can be settled is by definitions in which the scattered elements are enumerated. **19** With substances there are usually several leading qualities that we •take to be the most distinguishing idea of that species and •suppose to be connected with the other ideas that make up the complex idea of the species. In animals and vegetables it is shape, in inanimate bodies colour, and in some it is shape and colour together. **20** That is why Plato's definition of 'man' is more distinguishing than Aristotle's, and if it weren't so we ought not to kill monstrous newborns. **21** Often, sight alone is enough with no further scrutiny; for people who are accustomed to examining gold will frequently distinguish true from counterfeit, pure from adulterated, by sight.

Theo: No doubt everything rests on definitions that eventually go back to ideas from which all the others are derived. There may be several definitions for a single subject; but to know that they do all fit the same thing one must either •use reason to derive one definition from another or •learn from experience that they constantly go together. As for morality: one part of it is wholly grounded in reasons, but there's another part that rests on experiences and has to do with people's temperaments. In our knowledge of substances our first ideas come from shape and colour, i.e. from what is visible, because that's how we know things from a distance; but they are usually too provisional, and in cases that are important to us we try to know the substance from less far away. I am surprised that you return once more to that definition of 'man' that is attributed to Plato, just after saying in **16** that in morality one should take a man to be a corporeal rational being, without troubling about his outward shape. Another point: It is true that long practice does much for one's ability to distinguish by the sight something that another person might have trouble knowing by means of elaborate tests. An experienced physician with good eyesight and memory often knows from one glance at a patient something that another would laboriously extract from him by dint of asking questions and feeling his pulse. But it is good to assemble all the clues one can get.

Phil: 22 I acknowledge that someone who learns all the qualities of gold from a competent assayer will have a better knowledge of it than eyesight could give him. But if we could learn what the inner constitution of gold is, the signification of the word 'gold' would as easily be ascertained as that of 'triangle'.

Theo: It would be just as determinate [*détermine*] and there would no longer be anything provisional about it; but it

wouldn't be as easily ascertained [*déterminée*]. For I believe that it would take a rather wordy definition to explain the structure of gold (-substance-), just as there are, even in geometry, some figures (-modes-) with lengthy definitions. . . .

Phil: 24 We have already noted that although the definitions of substances can serve to explain the •names, they are imperfect so far as the knowledge of the •things is concerned. For usually we put the name in the place of the thing; hence the name says more than the definition does; and so if substances are to be well defined, natural history has to be inquired into.

Theo: So you *do* see that the name 'gold', for instance, signifies not merely •what the speaker knows about gold, e.g. that it is something yellow and very heavy, but also •what *he* doesn't know but *someone else* may know about gold, namely: a body with an inner constitution from which flow its colour and weight, and which also generates other properties that he acknowledges to be better known by the experts.

Phil: 25 I wish that men with experience in physical inquiries would set down, for each species, all the simple ideas [= 'qualities'] that they observe to be common to all the individual members of the species. In that way they would be creating a dictionary that would contain a natural history, as it were. But this would require too many people, as well as taking too much time, trouble, and cleverness ever to be hoped for.

Still, it would be good if the words for things that are known by their outward shapes were to be accompanied by little drawings of the things. A dictionary along these lines would be most useful to posterity, and would spare the textual critics of the future a great deal of trouble. A little print of an apium or an ibex (a species of wild goat) would be more useful than a long description of that plant or that animal. And anyone wanting to know what Latin-speakers meant by *strigilis*, *sistrum*, *toga*, *tunica* or *pallium* would be given incomparably more help by pictures in the margin than by being offered the supposed synonyms 'currycomb', 'cymbal', 'gown', 'coat' and 'cloak', which hardly enable us to identify them. . . .

Theo: I have been told that the Chinese have dictionaries in which pictures are used. There is a little word-list printed in Nuremberg in which there are such pictures—quite good ones—associated with each word. Such an illustrated Universal Dictionary is very desirable, and wouldn't be very hard to construct. As for the other kind of dictionary, the one giving descriptions of species: rather than providing 'a natural history, *as it were*', that is *exactly* what natural history is. And it is being worked at gradually. If it weren't for the wars that have disturbed Europe ever since the Royal Societies and Academies were first founded, much progress would have been made, and people would already be in a position to derive benefit from our labours. . . .