

Abstraction

No. 5 of *Essays on the Intellectual Powers of Man*

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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 reported between brackets in normal-sized type.

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Chapter 1: General words

The words we use in language are either •general words or •proper names. Each proper name is intended to signify just one individual. Such are the names of men, kingdoms, provinces, cities, rivers, and of every other creature of God or work of man that we choose to distinguish from all others of the kind by giving it a name of its own. All the other words in language are *general*—not dedicated to naming some one individual thing, but equally related to many.

Logicians label as ‘general terms’ any general words that can make the subject or the predicate of a proposition. But under my label ‘general words’ I include not only those words but also their auxiliaries, . . . such as prepositions, conjunctions, and articles, which are all general words though they can’t properly be called general terms. In every language—whether rough or polished—most of the words are general words, and proper names make a very small proportion of the whole. Grammarians have grouped all words into eight or nine classes, known as ‘parts of speech’. All the proper names are found in just one of these groups, namely that of *nouns*. All adjectives, pronouns, verbs, participles, adverbs, articles, prepositions, conjunctions, and interjections, are general words—and so are most nouns. Every noun that has a plural number is a general word; for no proper name can have a plural number, because it signifies only one individual. In all the fifteen books of Euclid’s *Elements* every single word is general, and that holds also for many other large volumes.

At the same time it must be acknowledged that all the objects we perceive are individuals. Every object of sense, of memory, or of consciousness is an *individual* object. All the good things we enjoy or desire, and all the evils we feel or fear, must come from individuals; and I think we can safely

say that every creature that God has made anywhere in the universe is an individual.

So how does it come about that in every language general words make the greatest part of the language, and proper names only a very small and inconsiderable part of it?

This seemingly strange phenomenon can, I think, be easily explained by the following ·three· points.

(1) A few individuals that everyone is aware of have proper names in all languages—such as the sun, the moon, the earth, and the sea—but the great majority of the things we choose to give proper names to are *local*, known perhaps to a village or to a neighbourhood, but unknown to •most people who speak that same language and to •all foreigners. Because the names of such things are confined to a corner, and have no names corresponding to them in other languages, they aren’t regarded as a •part of the language, just as the customs of a particular village aren’t regarded as a •part of the law of the nation.

That is why there are so few proper names belonging to any language. Now let us consider why there must be so many general words in every language.

(2) Every individual object that we encounter has various •attributes, and •they are what make the object useful or harmful to us. We don’t know the essence of any individual object; all we can know about it are its attributes—its quantity, its various qualities, its various relations to other things, its place, its situation and motions.

- The only way we can communicate our knowledge of objects to others is by reporting on their attributes.
- Our hopes or fears relating to objects are governed by their attributes.

•Only by attention to their attributes can we make objects serve our purposes.

Therefore, we give names to such attributes.

Now all attributes must from their nature be expressed by general words, and are so expressed in all languages. In ancient philosophy, attributes in general were called by two names that express their nature: •‘universals’, because they can belong equally to many individuals; •‘predicables’, because whatever is predicated—i.e. affirmed or denied—of one subject could be predicated of others as well, and therefore is a universal and is expressed by a general word. So ‘predicable’ means the same as ‘attribute’. . . . The attributes that we find either in the creatures of God or in the works of men are common to many individuals—we either find that they are or presume that they may be, so we give them the same name in every subject to which they belong.

As well as attributes belonging to individual things there are attributes of *attributes*, which we could call ‘secondary attributes’, ·distinguishing attributes of *individuals* by the label ‘primary attributes’·. Most attributes are capable of different degrees and different •modifications, which must be expressed by general words. Thus, being-in-motion is an attribute of many bodies, but motion ·has many •modifications, for example it· can be in countless different directions, can be quick or slow, in a straight line or on a curve, uniform or accelerating or decelerating.

[A note on ‘proposition’ in Essay 4, chapter 3 is applicable here. In what follows, Reid mostly uses ‘proposition’ to mean ‘sentence’, i.e. a bit of language. But he starts by speaking of a ‘proposition we *express in language*’, and that proposition obviously is not itself a sentence. In this version, ‘proposition’ will be allowed to stand, leaving it to you to resolve its ambiguity case by case.] Because all attributes, whether primary or secondary, are expressed by general words, it follows that in every proposition that we express in language,

what is affirmed or denied of the subject of the proposition must be expressed by general words. The subject of the proposition also may often be a general word, as will appear from my next point.

(3) Our ability to distinguish and give names to the different attributes belonging to a single thing goes along with an ability to observe that many things have certain attributes in common while they differ in others. This enables us to put the countless hordes of individuals into a limited number of classes, which are called ‘kinds’ and ‘sorts’—and in the scholastic language are called ‘genera’ and ‘species’.

Observing that many individuals have certain attributes in common, we assign them all to one *class*, to which we give a name. This class-name includes in its meaning not merely •one attribute but •all the attributes that distinguish that class; and by affirming this name of any individual we affirm it to have all the attributes that characterize the class. Thus men, dogs, horses, elephants, are so many different *classes* of animals. And we also round up other substances—plants and inanimate things—into classes.

And it’s not only substances that we put into classes in this way. We do the same with qualities, relations, actions, affections, passions, and all other things.

When a class is very large, it is divided into subordinate classes in the same way. The lower class is called a

species or *sort* of the higher class.

Sometimes a species is again subdivided into subordinate species; and this ·process of· subdivision is carried on as far as we find it convenient for the purposes of language or for the growth of knowledge.

In this classifying of things into genera and species, it is obvious that the name of the species covers more attributes than does the name of the genus. The species includes everything that is in the genus *and also* the attributes that

distinguish this species from others belonging to the same genus. The further down we go with subdivisions, •the more full of meaning the class-names will be, but •the smaller the classes will be. . . . For example, in the series of subordinate general terms

animal
man
Frenchman
Parisian

each term after the first includes in its meaning all that its predecessor includes *and more*; and each term before the last applies to more individuals than its successor applies to.

Such divisions and subdivisions of things into genera and species, with general names, are not confined to learned and polished languages; they are found in the languages of the most primitive human tribes. This tells us that the invention and the use of general words, to signify both •the attributes that things have and •the genera and species that they fall into, is not a subtle invention of philosophers but rather an operation that all men perform by the light of common sense. Philosophers may theorize in technical ways about this operation. . . .but men of common understanding, without knowing anything of the philosophy of it, can *do* it; just as they can see objects and make good use of their eyes without knowing anything about the structure of the eye or the theory of vision.

[The examples in the next paragraph are editorial additions, not given by Reid.] Every genus and every species of things can be either the subject or the predicate of a proposition—indeed, of countless propositions; for

Reid writes: every attribute common to the genus or species may be affirmed of it;

examples: mammals (genus) are warm-blooded, have diaphragms, propagate sexually, have skeletons; humans (species) are two-legged, use language, have binocular vision. . .

Reid writes: the genus may be affirmed of every species; and **examples:** humans are warm-blooded, have diaphragms, etc., dogs are warm-blooded, have diaphragms, etc., whales are warm-blooded, have diaphragms, etc.

Reid writes: both genus and species may be affirmed of every individual to which it extends.

examples: Joe is warm-blooded etc. and is two-legged etc., Mary is warm-blooded etc. and is two-legged etc.

Thus of *man* it can be affirmed that •he is an animal made up of body and mind; that •he has a short life that is full of trouble; that •he is capable of various improvements in arts, in knowledge, and in virtue. In short, everything common to the species can be affirmed of *man*; which is the •subject of all the countless propositions of this sort.

Again it can be affirmed of every nation and tribe, and of every individual of the human race—past, present, or future—that they are men. In all the countless propositions of this sort *man* is the •predicate of the proposition.

I have remarked that each general term has an extension (•the individuals to which it applies-) and a comprehension (•the attributes that its meaning includes-), and I have noted that in any subdivision of things

- the name of the lowest species is the most comprehensive, and

- the name of the highest genus is the most extensive.

I now point out that such general terms make it possible for *propositions* also to have an extension and a comprehension. This is one of the grandest powers of language, and fits it for expressing quickly and easily the highest attainments in

knowledge of which the human understanding is capable. Here is how the comprehension and extension of general terms creates comprehension and extension for propositions:

- When the predicate is a genus or a species, the proposition is more or less comprehensive according as the predicate is.

Thus, when I say that *this coin is gold*, by this single proposition I affirm of the coin all the properties that gold is known to have. When I say of any man that *he is a mathematician*, this label comprehends all the attributes that belong to him as an animal, as a man, and as one who has studied mathematics. When I say that *the orbit of the planet Mercury is an ellipsis*, I affirm of that orbit all the properties that . . .geometricians have discovered or may discover concerning ellipses.

- When the subject of a proposition is a genus or a species, the proposition is more or less extensive according as the subject is.

Thus, when I am told that *a plane triangle has three angles that are equal to two right angles*, this extends to every species of plane triangle, and to every individual plane triangle, that did or does or can exist.

It is by means of such extensive and comprehensive propositions that human knowledge is condensed, as it were, to a size suitable for the capacity of the human mind, adding greatly to its beauty without making it any less clear or any harder to absorb.

General propositions in science can be compared to the seed of a plant which—according to some philosophers—has not only the whole future plant enclosed within it but also the seeds of that plant, the plants that will come from those seeds, and so on through all future generations. But the comparison fails in one respect: whether and when the seed's contents come into view depends on time and accidents that we don't control, whereas a general proposition's contents can be brought out, ripened and exposed to view, whenever we like and in an instant. . . .

What I have said in this chapter is enough, I think, to show that •there can't be any language—there can't be so much as a single proposition—without general words, that •they must make the greatest part of every language, and that •it is only by means of them that language can express with wonderful ease and speed all the treasures of human wisdom and knowledge.

Chapter 2: General conceptions

Given that general words are so necessary in language, it is natural to conclude that there must be general conceptions of which they are the signs.

Words are empty sounds when they don't signify the thoughts of the speaker; and it is only because of signification that they count as *general*. [Usually Reid's 'signification' = our 'meaning', and it has been so presented in this version. But in a context where a word's 'signification' is linked with its 'signifying' the speaker's thoughts, 'signification' is left untouched.] Every word that is spoken, considered merely as a sound, is an *individual sound*. It can be called a *general word* only because what it signifies is general. Now what it signifies is something conceived by the mind both of the speaker and hearer, if the word has a clear meaning and is clearly understood. So words can't possibly have a general signification unless the minds of the speaker and of the hearer contain *conceptions of things that are general*. Those are what I call 'general conceptions'. Please note that a conception counts as 'general' not because there is anything general about the act of the mind in having that conception (for that is an *individual* act) but because the object—the *thing that is conceived*—is general.

So our next task is to look into whether we have such general conceptions, and how they are formed.

I start with the conceptions expressed by general terms, i.e. by such general words as may be the subject or the predicate of a proposition. They are either •attributes of things or •genera or species of things.

It is evident, with respect to all the individuals we are acquainted with, that we have a clearer conception of •their attributes than of the •thing that has those attributes.

Take for instance any individual body that we can know:

what conception do we form of it? Everyone can answer this from his own consciousness. He will find that he conceives the body as a thing that has length, breadth, and thickness, such-and-such a shape and such-and-such a colour; that it is hard or soft or fluid; that it has such-and-such qualities and is fit for such-and-such purposes. If it is a plant, he may know where it grew, what the form is of its leaves and flower and seed. If it is an animal, he may know what are its natural instincts, its manner of life and of rearing its young. He can surely have a distinct conception of these attributes of this individual, and countless others as well; and he will find words in language by which he can clearly express each of them.

If we consider in this way the conception we form of any individual person whom we know, we shall find it to be made up of various attributes that we ascribe to him—he is the son of x, he is the brother of y, he has such-and-such an employment, has such and such a fortune, is tall or short, well or ill, handsome or ugly, young or old, married or unmarried; and to all this we may add his mood, his character, his abilities, and perhaps some stories about his past.

That is the kind of conception we form of individual persons whom we know. We describe them, to people who don't know them, through those attributes; which is also how historians give us a conception of the personages of former times. There is no other possible way to do it.

All the distinct knowledge we have or can get of any individual is knowledge of its attributes. For we don't know the essence of any individual—that seems to be beyond the reach of the human faculties. Now, every attribute is what

the ancients called a *universal*. It is or can be common to various individuals. None of God's creatures has *any* attribute that can't also be had by others, which is why in all languages attributes are expressed by general words.

It also appears from every man's experience that he can have as clear a conception of attributes like those I have named, and of countless others, as he can have of any individual to which they belong.

Indeed, we don't clearly conceive anything about an individual except its attributes. It is true that we conceive a *subject to which the attributes belong*; but we have only an obscure and relative conception of this subject (whether body or mind) when its attributes are set aside .

I noted this before with regard to bodies, in Essay 2 [the opening paragraphs of chapter 19], which you might look back at now; and it is equally obvious with regard to minds. What *is* it that we call 'a mind'? It is a thinking, intelligent, active being. Granting that thinking, intelligence, and activity are attributes of mind, I want to know: What is the thing or being that *has* these attributes? I can find no satisfying answer to this question. We know clearly the attributes of mind and especially its operations, but we have only an obscure notion of the thing itself.

Nature teaches us that thinking and reasoning are attributes that can't exist without a subject, i.e. with some *thing* that thinks and reasons; but the best notion we can form of that subject, I believe, implies little more than that it is the subject of such attributes!

Whether other created beings can have knowledge of the real essence of created things, so as to be able to deduce their attributes from their essence and constitution, or whether this is possible only for ·God· who made them, we cannot tell; but it is a knowledge that seems to be quite beyond the reach of the human faculties.

We know the essence of a triangle, and from that essence we can deduce its properties. It is a universal, and could have been conceived by the human mind even if no individual triangle had ever existed. It has only what Locke calls a '*nominal* essence', expressed in its definition. Every existing thing has a real essence, but it is above our understanding, which is why we can't deduce its properties or attributes from its nature, as we do with the triangle. In our knowledge of God's works we must settle for knowing things' attributes, and believing in a general way that there is a *thing* to which the attributes belong; this is the opposite direction ·to that of God or Nature, which starts with the thing's and lets the attributes flow from that·. . . .

The other class of general terms are those that signify the genera and species into which we divide and subdivide things. And if we can form clear conceptions of attributes, it surely can't be denied that we can have clear conceptions of genera and species; because they are only *collections of* attributes that we conceive to exist in a subject and to which we give a general name. If the attributes covered by the meaning of that general name are clearly conceived, the thing meant by the name—·i.e. a certain collection of attributes·—must be clearly conceived. And the name can rightly be applied to every individual that has those attributes.

Thus I conceive clearly what it is to have wings, to be covered with feathers, to lay eggs. Suppose, then, that we give the name 'bird' to every animal that has these three attributes. Here undoubtedly my conception of a bird is as clear as my notion of the attributes that are common to this species. And if this is accepted as the definition of 'bird', there is nothing I conceive more clearly. If I had never seen a bird but was made to understand the definition, I could easily apply it to every individual of the species, without danger of mistake.

When things are divided and subdivided by men of science, and names are given to the genera and species, those names are defined. Thus the genera and species of plants and of other natural bodies are precisely defined by the writers in the various branches of natural history, so that to all future generations the definition will convey a clear notion of the genus or species defined.

No doubt many words signifying genera and species of things have meanings that are somewhat vague and unclear, so that people speaking the same language don't always use them in the same sense. But if we attend to the cause of this unclarity, we'll find that it doesn't come from •their being general terms, but from •the lack of any authoritative definition of them. Because of this, their meaning has been learned not through a definition but by a kind of induction, by observing which individuals these words are applied to by people who understand the language. We learn by habit to use them as we hear others do, even when we don't have a precise meaning for them. It can happen that you know that a certain word can properly be applied to this, that, and the other individual, while you are uncertain about whether it is applicable to certain other individuals, your uncertainty coming from there being no good authorities. . . .

Thus a man may know that when he applies the name 'beast' to a lion or a tiger, and the name 'bird' to an eagle or a turkey, he speaks properly. But he may be uncertain whether a bat is a bird or a beast. If there was any precise and sufficiently authoritative definition of 'beast' and of 'bird', he wouldn't be at a loss.

It is said to have sometimes been a matter of dispute, with regard to a mis-shaped offspring of a woman, whether it was *human* or not. Although this is really a question about the meaning of a word, it may be of some importance because of the privileges that laws have attached to the

human character. To make such laws perfectly precise, 'human' would have to be defined, and I don't think that legislators have often, if ever, thought fit to provide such a definition. It is indeed very difficult to settle on a definition of such a common word, and any definition might have unforeseen and unwanted consequences. Since such a definition would seldom be useful, it may be better, when the question arises in a practical way, to leave the meaning of 'human' to a judge or jury.

Since a genus or species is a collection of attributes thought of as existing in one subject, a definition of the class-name is the only way to prevent additions to or subtractions from the collection in the conceptions of different persons; and when there is no definition that can be appealed to as a standard, the name will hardly retain the most perfect precision in its meaning.

What I have said makes it obvious, I think, that words signifying genera and species of things often have significations as precise and definite as any words whatsoever; and that when such a word doesn't have a precise signification, that's not because it is a general word but for other reasons.

Having shown that we can have a perfectly clear conception of the meaning of a general •term, I think we can take it for granted that this also holds for other general •words, such as prepositions, conjunctions, articles. But the point about general terms is enough for my present purpose, which is just to show that we have general conceptions that are at least as clear as our conceptions of individuals. Conceiving the meaning of a general word is the same as conceiving the items that the word signifies. So our conceiving clearly the meanings of general terms is our conceiving clearly that which they signify. What such terms signify is not any individual but rather what is common to many individuals; so we have a clear conception of things that are common to many

individuals—that is, **we have clear general conceptions.**

Beware of the ambiguity of ‘conception’! Sometimes it signifies •the act of the mind in conceiving, sometimes •the thing conceived, the *object* of that act. If the word is taken in the former sense, I agree that every act of the mind is

an individual act; so what is universal is not in the act of the mind but in the object or thing that is conceived. The conceived thing is an attribute common to many subjects, or a genus or species common to many individuals. . . .

Chapter 3: General conceptions formed by analysing objects

Our next topic is the operations of the understanding that enable us to form general conceptions. There seem to me to be three of these:

- (1) What philosophers call ‘abstraction’: analysing a subject into its known attributes, and giving to each attribute a name signifying that attribute and nothing more.
- (2) What could be called ‘generalising’: observing that one or more such attributes are common to many subjects.
- (3) Combining into one whole a certain number of the attributes of which we have formed abstract notions, and giving a name to that combination. That is how we form abstract notions of the genera and species of things.

I shall consider these three operations in order, •(1) and (2) in this chapter, and (3) in the next•.

Abstraction and generalising—it is hard to say which of them goes first, and perhaps they are so closely connected that neither can claim precedence. For on the one hand (2) to perceive that two or more objects have some attribute in common seems to require nothing more than to *compare*

them. A savage, on seeing snow and chalk, would have no trouble (2) perceiving that they have the same colour. Yet it seems impossible that he should observe this fact about the two objects without (1) abstraction, i.e. separating off in his thought their shared colour from the other qualities in respect of which they differ.

So it seems that we can’t generalise without some degree of abstraction; but I think we can abstract without generalising. Nothing stops me from attending to the whiteness of the page I am writing on without applying that colour to any other object. The •conception of the• whiteness of this individual page is an (1) abstract conception, but it isn’t a (2) general one until it comes to be applied to more than one individual. Still, •although abstraction is in a certain way more basic than generalising•, these two operations render service to each other, for the more (1) attributes we observe and distinguish in any one individual, the more (2) resemblances we shall discover between it and other individuals.

With regard to abstraction, strictly so-called, I can’t see anything in it that is difficult either to understand or to do. What can be easier than to distinguish the different

attributes that we know to belong to a subject? In a man, for instance, to distinguish his size, his complexion, his age, his fortune, his birth, his profession, and twenty other things that belong to him. To think and speak of these things with understanding is surely within the reach of everyone equipped with the human faculties.

[Reid concedes that a specialist in some field may be able to pick out more attributes of a thing than the rest of us can, but he insists that every human being has 'a certain degree of this talent'. Then:]

Notice also that attributes that can't be actually separated •in the subject can quite easily be distinguished and separated •in our conception. Thus in...extension I can distinguish length, breadth, and thickness, yet none of these can be separated from the others. Among the attributes that belong to a subject and are inseparable from it there may be some of which we have no knowledge and consequently no conception; but this doesn't stop us from conceiving clearly those of its attributes that we *do* know. For example, all the properties of a circle are inseparable from the nature of a circle, and can be demonstrated from its definition; but a man might have a perfectly clear notion of a circle while knowing very few of the properties of it that mathematicians have demonstrated; and a circle probably has many properties that no mathematician ever dreamed of. . . .

Having considered abstraction strictly so-called, let us next consider the operation of generalising, which is merely observing one or more attributes to be common to many subjects.

Are there attributes that are really common to many individuals? Well, aren't there many men who are above six feet tall and many shorter than that? Aren't many men rich and many others poor? Many born in Britain and many

born in France? To pile on instances of this kind would be an insult to your understanding. It is *certain* that there are countless attributes that are really common to many individuals. . . .

There are some attributes expressed by general words of which this may seem more doubtful. . . . This may be said:

Every subject has *its own* qualities, and the quality belonging to one thing can't belong to another thing. The whiteness of the sheet of paper that I'm writing on can't be the whiteness of another sheet, even though both are called 'white'. The weight of one coin isn't the weight of another, even if the two are said to 'have the same weight'.

I answer that •the whiteness of this sheet is one thing, •whiteness is another; the conceptions signified by these two expressions—'the whiteness of this sheet' and 'whiteness'—are as different as the expressions. The former signifies an *individual quality really existing*, and it isn't a •general conception though it is an •abstract one. The latter, 'whiteness', signifies a •general conception. . . .that can be predicated, always in the same sense, of everything that is white. So if someone said 'The whiteness of this sheet is the whiteness of that', everyone would see this to be absurd; but when he says 'Both these sheets are white', this is true and perfectly understood. The conception of whiteness doesn't imply anything about what exists; it would remain the same even if everything white in the universe were annihilated. In contrast with that, the conception of the whiteness of this page *does* imply something about what exists—it implies the existence of this page.

So we see that the general names of qualities, as well as of other attributes, are applicable in the same sense to many individuals, which couldn't be so if there weren't general conceptions signified by such names.

How early in their lives do men begin to form general conceptions? I answer: As soon as a child can say with understanding that he has two brothers or two sisters. As soon as he can use the plural number he must have general conceptions, because no individual can have a plural number.

[Reid has a paragraph about displays of 'wit' that consist in the ingenious display of extremely surprising similarities between things. He emphasizes that his principal concern is rather with similarities that 'can't escape the notice of the lowest understanding'. Then:]

The ancient philosophers called these items 'universals' or 'predicables', and tried to group them into five classes:

- genus
- species
- specific difference
- properties
- accidents.

Lists covering so much territory are seldom complete, so there may well be more classes of universals or attributes than are covered in the above list. Anyway, every attribute common to several individuals can be expressed by a general term, which is the sign of a general conception.

We can see how prone men are to form general conceptions when we look at the use of metaphor and of the other figures of speech based on similarity, i.e. the sharing of attributes. [Reid goes on to comment on the uses of metaphor in literature, on its prevalence in *all* language-use, on the process through which a foreign word enters a language and is eventually domesticated in it, and the similar process through which a metaphorical expression comes to be regarded as literal. Then:]

Summing up: these two operations of •abstracting and •generalising seems to be common to all men that have

understanding. The practice of them must be familiar to everyone who uses language; but it is one thing to practice them and another to explain *how* they are performed; as it is one thing to see and another to explain how we see. The first is everyone's business, and is the natural and easy operation of our God-given faculties. The second is the philosophers' business, and although it isn't an intrinsically difficult matter it has been severely tangled by •the ambiguity of words and still more by •the hypotheses of philosophers.

•Look at how straightforward and easy it is!• When I consider a billiard ball, its colour is one attribute, which I signify by calling it 'white'; its shape is another, signified by calling it 'spherical'; the firm cohesion of its parts is signified by calling it 'hard'; its recoiling when it strikes a hard body is signified by its being called 'elastic'; its origin as part of the tusk of an elephant is signified by calling it 'ivory'; and its use by calling it a 'billiard ball'.

Each word by which I signify one of those attributes has one distinct meaning, and in this meaning it is applicable to many individuals. It doesn't signify any individual thing, but an attribute common to many individuals; and a *child* can understand such words perfectly, and apply them properly to every individual in which they—or rather the attributes that they signify—are found.

We acquire our simplest abstract conceptions by **analysing** a complex object into its several attributes. A chemist isolates the ingredients that make up a compound by **analysing** the compound. It would be worthwhile to compare these two sorts of analysis. There is such a strong analogy between them that we call them both 'analysis'; but there is also so much *dissimilarity* in some respects that we may be led into error by thinking of one in terms that are appropriate only to the other.

Obviously, chemical analysis is a physical operation on portions of matter, using various material instruments. The analysis that is our present topic is purely an operation of the understanding; it requires no material instruments and doesn't make any change in any external thing. I'll refer to it as 'intellectual analysis' (I could have said 'mental analysis').

In chemical analysis, what is analysed is the compound body itself. This is a subject that is so imperfectly known that •it may be made up of a variety of ingredients when to our senses it appears perfectly simple, and •even when we can analyse it into its different ingredients we still don't know how or why the combination of *those* ingredients produces *that* sort of body.

Thus, pure sea-salt is a body that appears as simple as any in Nature. Every least particle of it that our senses can detect is exactly like every other particle in every respect. The most discriminating taste, the most alert eye, can't pick up any sign of its being made up of different ingredients; yet it can be chemically analysed into an acid and an alkali, and can be produced again by re-combining those two ingredients. But no-one has been able to discover *how* this combination produces sea-salt. The ingredients are as unlike the compound as any bodies we know. No-one could have guessed in advance that sea-salt is compounded of an acid and an alkali. And that is often the situation regarding the **chemical** analysis of a compound body.

In the **intellectual** analysis of an object, obviously, nothing like this can happen, because the thing that is analysed isn't •an imperfectly known external object, but rather •a conception of the mind itself. And to suppose that a conception contains something that isn't conceived is a contradiction.

I have a reason for pointing out this difference between the two kinds of analysis. It is that some philosophers, in order to support their systems, have maintained that

a complex idea can appear to be perfectly simple and not resemble in any way any of the simple ideas of which it is compounded; just as a white colour can appear perfectly simple and not resemble any of the seven primary colours of which it is compounded, or as a chemical compound can appear perfectly simple and not resemble any of its ingredients.

Those philosophers have inferred from this the important conclusion that a cluster of ideas of sense, properly combined, can make the idea of *a mind*; and that all the ideas that Locke calls 'ideas of reflection' are only compounds made up of the ideas that we have through our five senses. And if

a proper compound of •ideas of matter may make the
•idea of a mind,

it is easy to move on from this to the thesis that

a proper compound of •matter itself may make •a
mind,

so that a man is only an intricately structured piece of matter.

This strange system rests entirely on the foundation of the thesis that because a compound body may appear to our senses to be perfectly simple, *a complex idea that is made up of various simple ideas may appear to be perfectly simple and to bear no signs of its composite nature*. On this fundamental proposition of this system I venture to make two remarks.

(1) Even if it were true, it only says that something *may be* the case. In most cases we are very imperfect judges of what may be, but we do know this much: however certain we are that something *may be*, this is no good reason for believing that it really *is*. A 'may be' is a mere hypothesis, which may provide materials for investigation but isn't entitled to the least degree of belief. Someone who has a liking for

hypotheses will find familiar and easy the shift from what *may be* to what really is; but for someone who seeks truth without prejudice or prepossession, that shift is a very long and difficult step, and he will never take it unless he has evidence not only that the thing *may be* but that it really is.

(2) As far as I can judge, this thing that it is said *may be* actually *can't be*! The thesis that

a complex idea is made up of simple ideas in such a way that to a mature understanding reflecting on that idea there will be no appearance of compositeness, and nothing resembling the simple ideas of which the complex idea is made up

—this seems to me to involve a contradiction. The 'idea' is a conception of the mind. (If 'idea' means anything more than this, I don't know what it is, and demand •to be told what that meaning is, and •to be given proof that 'ideas' in *that* sense exist.) That the conception of an object should contain anything that isn't conceived in it seems to me to be as obvious a contradiction as that •there should be an existence that doesn't exist or that •a thing should be conceived and not conceived at the same time.

But, say these philosophers, a white colour is produced by the composition of the primary colours and yet doesn't resemble any of them. I grant it. But what can be inferred from *this* with regard to the composition of *ideas*? They will have to say that because a white colour is compounded of the primary colours therefore the idea of a white colour is compounded of the ideas of the primary colours. If we allowed this inference we would be landed in countless absurdities. An opaque fluid can be compounded of two or more transparent fluids. Are we to infer that the idea of an opaque fluid can be compounded of the ideas of two or more transparent fluids?

Nature's way of compounding bodies and our way of compounding ideas are so different in many respects that we can't reason from one to the other unless it turns out that ideas are combined and analysed by chemical methods. [Reid throws in some technical references to the chemical procedures of his day.] Until this ·fanciful and quite impossible· discovery is made, we must regard as *simple* the ideas which on the most attentive reflection have no appearance of composition; and regard as *ingredients of complex ideas* only the ideas which attentive reflection shows us to be contained in them. . . .

Chapter 4: General conceptions formed by combination

Just as by intellectual analysis we form general conceptions of single attributes (which are the simplest of all our conceptions), so by combining several of these into one cluster and giving it a name we form general conceptions that may be very complex and yet very clear. ·Just as we *take complexes*

apart to get simples, so we *put simples together* to make complexes·. Thus, someone who by analysing extended objects has acquired the simple notions of **point line straight curved angle surface solid** can easily conceive a plane surface terminated by four equal

straight lines meeting at four points at right angles. To this species of shape he gives the name ‘square’. Similarly he can conceive a solid terminated by six equal squares, and give it the name ‘cube’. The words ‘square’ and ‘cube’ and every name of a mathematical figure are general terms, each expressing a complex general conception made by a certain combination of the simple elements into which we analyse extended bodies.

Every mathematical figure is precisely defined by listing •the simple elements of which it is formed and •how they are combined ·in it·. The definition contains the whole essence of it. And every property that belongs to it can be deduced by demonstrative reasoning from its definition. It isn’t *a thing that exists*, for then it would be an individual. Rather, it is *a thing that is conceived without regard to existence*.

[Reid reflects on complexes of various kinds: parish, county, kingdom; company, regiment, army; murder, robbery, piracy. Then:]

When we observe that Nature in its animal, vegetable, and inanimate productions has formed many individuals that are alike in many of their qualities and attributes, we are led by natural instinct to expect them to be alike in other respects that we haven’t yet had occasion to perceive. A child who has once burnt his finger in the flame of one candle expects the same outcome if he puts his finger into the flame of another candle, or into any flame; and this leads him to think that all flames have the quality of burning. •This instinctive induction isn’t justified by the rules of logic, and it sometimes leads men into harmless mistakes which experience may correct later on; but •it preserves us from destruction in the countless dangers to which we are exposed.

I call attention *here* to this driving force in human nature because it adds to the usefulness of the distribution of the productions of Nature into genera and species.

The physician expects that an untested batch of rhubarb will have medical powers like those of rhubarb that he has prescribed on previous occasions. Two lots of rhubarb share certain sensible qualities, and this resemblance is why they are both called by the same general name, ‘rhubarb’. So they are expected to be alike in their medical powers. And as experience has revealed certain powers in one lot, or in many, we presume without experience that every batch of rhubarb that we use will have those same powers.

If a traveller meets a horse, an ox, or a sheep that he never saw before, he isn’t nervous because he believes these animals to be of a species that is tame and inoffensive. But he is afraid of a lion or a tiger because they are of a fierce and ravenous species.

We can get endless advantages, and are exposed to endless dangers, from the various productions of Nature—animal, vegetable, and inanimate. We could live a hundred times as long as we do and still not have enough time to learn *from experience* the useful and harmful qualities of every *individual* production of Nature, taken singly.

The author of Nature has provided for our getting such knowledge of his works as is needed for our survival, partly by **(1)** the constitution of the productions of Nature and partly by **(2)** the constitution of the human mind.

(1) In the productions of Nature, vast numbers of individuals are made so alike, both in their obvious qualities and in their more hidden ones, that we are not only *enabled* but (as it were) *invited* to put them into classes and to give a general name to each class and thus to each of its members. . . .

(2) The human mind is so built that resemblances between individuals in the more obvious qualities on the basis of which we put them into one class naturally lead us to expect that they will be found to be alike also in their less obvious qualities, and usually they are.

So we have a strong and rational inducement to put natural substances into classes—genera and species—under general names, doing this with as much precision and clarity as we can. For the more precisely our divisions are made, and the more clearly the various species are defined, the surer we can be that the qualities we find in one or in a few individuals members of a species will be found in all the rest. . . .

[In an admitted aside, Reid writes of human conceptions that are *inventions* of the conceiver—a plan for a new kind of machine, a new tune, a new form of government. He stresses how different these ‘works’ are from ‘the works of God’: they are only conceptions, not realities, and we can have a ‘perfect and complete’ knowledge of them, which we can never have of anything created by God. Then he says he will ‘return’ to his proper topic:]

The simple attributes of things that come within our observation are not so numerous that they couldn’t all have names in a rich language. But it would be impossible to give names to all the combinations that can be made of two, three, or more of them. ·Even· the richest languages have names for only a very small proportion of them.

The combinations that have names are nearly, though not completely, the same in the different languages of civilized nations that have relations with one another. So the lexicographer can usually give words in one language that perfectly or nearly correspond to the words in another; and what is written in a simple style in one language can be translated almost word for word into another.

From this we can infer that *something* disposes men to select, from an infinite number of combinations that might be formed, the same relative few. The ‘something’ is either •certain common drives in human nature or •certain common occurrences in human life.

To explain this phenomenon, Hume appeals to what he calls the associating qualities of ideas—namely causation, contiguity in time and place, and similarity. He says:

Among the things explained by these associating qualities is the fact that languages so nearly correspond to one another; it is because Nature has (in a way) pointed out to everyone the simple ideas that are most suitable for being united into a complex one. (*Treatise* I.i.4)

I agree with this ingenious author that Nature does in a way point out the simple ideas that are most suitable for uniting into complex ones. But Nature doesn’t do this entirely, or even mainly, by the relations of contiguity, causation, and resemblance amongst simple ideas. Rather, Nature does it through the fitness of the combinations we make to aid our own conceptions and to convey them, easily and agreeably, to others by language. What language is for, and how it works, will lead normally intelligent men to form complex notions that are suitable for expressing their needs, their thoughts, and their desires. And in every language we shall find *those* to be the complex notions that have names. This explanation makes no appeal to the ‘associating qualities of ideas’ ·on which Hume relied·.

[Reid devotes a page to going through various kinds of human activity, listing for each some of the general terms that are useful in it. He comments on vain or stupid attempts to introduce new general terms that aren’t beautiful or useful, and says that such words don’t last long. Then:]

New inventions of things that are generally useful easily give birth to new notions and new names, which spread as widely as the inventions do. Think of the new complex notions that have been formed, and names for them invented, in the languages of Europe, because of the modern inventions of printing, gunpowder, the mariner’s compass, optical

glasses! The simple ideas combined in those complex notions are very ancient, and so are their associating qualities, but they didn't produce those complex notions until there was a *use* for them. . . .

What has led men to form and give names to only certain combinations of ideas, neglecting countless other combinations that could be formed, is *usefulness* and not the associating qualities of the ideas.

[Reid devotes a further page to describing some of the kinds of general terms that we have, and the kinds of ways in which they are useful. He notes with approval Locke's statement that general terms of 'mixed modes and relations'—a kind to which many of Reid's examples belong—are developed by us only because they are useful 'for the purpose of communicating our thoughts by language'. Then:]

There remains a very large class of complex general terms on which I shall make some comments, I mean the ones we use to name the species, genera, and tribes of natural substances.

Here too it is usefulness that leads us to give general names to the various species of •natural substances; but in combining the attributes that are to be included under the species-name we are more aided and directed by *Nature* than we are in forming combinations of •mixed modes and relations. In the latter, the ingredients are brought together in everyday events or in the actions or thoughts of men. But in the former—the complex ideas of natural substances—the ingredients are united by Nature in many individual substances that God has made. We form a general notion of the attributes that many individuals share. We give a species-name to this combination—a name that applies to all actual and possible substances having those attributes. The species-name includes exactly the attributes—neither more nor fewer—that we see fit to put into its definition. It

doesn't include time or place or even existence, although there can't be an individual without these.

This work of the understanding is absolutely necessary for speaking intelligibly about the productions of Nature, and for getting benefits and avoiding harm from them. There are so many individuals that it would be beyond the power of language to give a proper name to each of them. If a good or bad quality was observed in an individual, this observation would be almost useless unless there were a species in which the same quality might be expected.

Without some general knowledge of the qualities of natural substances, human life could not be preserved. And we can't have general knowledge of this kind without grouping things into species under species-names. That is why even among the most primitive nations we find names for fire, water, earth, air, mountains, fountains, rivers; and for the kinds of plants they use, the animals they hunt or domesticate or find useful or harmful. . . .

As the knowledge of Nature advances, more species of natural substances are observed and their useful qualities discovered. For this important part of human knowledge to be communicated and handed down to future generations, it isn't enough that the species *have* names; the names need accepted definitions, because otherwise, in the fluctuating state of language, a general name wouldn't always retain the same precise meaning.

There was undoubtedly a great fund of natural knowledge among the Greeks and Romans in ancient times. There is a great fund of it in Pliny's natural history; but much of it is lost to us, partly because we don't always know what species of substance he signifies by a given name. . . .

To prevent such losses in future times, modern philosophers have—to their credit—tried to give names *and precise definitions* for all the known species of substances with

which God in his generosity has enriched our planet. . . . Every species that is known to exist ought to have a name, which should be defined by whatever attributes will serve best to distinguish that species from all others. Nature invites us to do this work, by forming things in such a way as to make the work both easy and important. Its importance can be seen in its three stages:

(1) We perceive many individual substances to be so alike in their •obvious qualities that even the least developed tribes of men consider them as belonging to one species, and give them one common name.

(2) The individuals of a species are generally alike in respect of their •less obvious qualities. So when such a quality is found by observation or experiment in a few individuals of a species, it is presumed and commonly *found* to belong to the species as a whole. This enables us to draw general conclusions from particular facts. This kind of induction is indeed the master-key to the knowledge of Nature. Without it we couldn't form any general conclusions in that branch of philosophy.

(3) Simply because of the way we are built, we are led *without reasoning* to ascribe to the whole species what we have found to belong to individual members of it. This is how we come to know that fire burns and water drowns, that bodies gravitate and bread nourishes.

The species of two of the kingdoms of Nature—namely the animal and vegetable kingdoms—seem to be fixed by Nature through the power they have of reproducing their like. And in these kingdoms men at all times and places have counted the parent and the offspring as belonging to the same species. There are only minor disagreements among

naturalists with regard to the species of these two kingdoms; the disagreements may arise from changes produced by soil, climate, and nutrition, and sometimes by monstrous productions [= 'births of severely misshapen offspring'], which are comparatively rare.

In the inanimate kingdom we don't have the same means for dividing things into species, and that makes the limits of their species seem more arbitrary. But the progress already made gives us grounds for hope that even in this kingdom, as the knowledge of it advances, the various species may come to be well enough distinguished and defined to serve every purpose that matters.

When the species are so numerous as to burden the memory, it is greatly assisted by grouping them into •genera, the genera into •tribes, the tribes into •orders, and the orders into •classes. Such a regular classification of natural substances by divisions and subdivisions is called a 'system'. It isn't a system of •truths, but a system of •general terms with their definitions. . . .

[Reid closes out this chapter with two pages concerning systems of classificatory terms. They deserve respect, he says, as indispensable aids to natural philosophy, but they are only *aids*—they aren't the real thing. There is something attractive about them, he adds. 'There is an intrinsic beauty in *arrangement*'—he contrasts the appearance of •an army drawn up in ranks for battle with that of •the very same men crowded into a market. His use, above, of 'class' as a technical term at the top of a hierarchy—class/order/tribe/genus/species—won't occur again in this version of the work.]

Chapter 5: Remarks on the names that are given to our general notions

...The names that modern philosophers have given to our general notions have helped to darken our thoughts about them and to make them difficult and abstruse.

We call them ‘general notions’, ‘conceptions’, ‘ideas’. The words ‘notion’ and ‘conception’ in their proper and most common sense signify the •act or operation of the mind in conceiving an object. They’re sometimes used, in a figurative sense, to stand for •the object that is conceived. I don’t think they are often (if at all) used in this figurative sense except when we are speaking of what we call ‘general notions’ or ‘general conceptions’. (All this applies also to ‘idea’ as it is used these days.)

When we describe our ‘notions’ or ‘conceptions’ as *general*, we have to be using those words in their figurative sense. If we were using them in their proper, literal sense we would be describing as *general* an act of the mind, and that would be absurd because every act of the mind is an *individual* act—a particular past or present event. The only generality that is involved is in the object that is conceived, not in the act of conceiving it. We have the power to conceive things that don’t and never did exist, and to conceive attributes without regard to whether anything has them. The conception of such an attribute is an individual act of the mind, but the conceived attribute is common to many actual or possible individuals. We are too apt to muddle •an object of conception with •the conception of that object; and the risk of that must increase when the object of conception is itself called a ‘conception’!

The Aristotelians called such objects of conception ‘universals’ and ‘predicables’. Those names had no ambiguity, and I think were much more fit to express what was meant by them than the names we use •these days•.

That is why I have so often used the word ‘attribute’, which means the same as ‘predicable’. And why I have thought it necessary to keep warning you that when I go along with ordinary usage in speaking of ‘general notions’ or ‘general conceptions’, I always mean things that are conceived and not the mind’s act in conceiving them.

The Pythagoreans and Platonists gave the name ‘ideas’ to such general objects of conception and to nothing else. As we borrowed the •word ‘idea’ from them, so that it is now familiar in all the languages of Europe, I think it would have been a good thing if we had also borrowed their •meaning for it, using it only to signify what they meant by it. We need an unambiguous word to distinguish •things barely conceived from •things that exist. If ‘idea’ had been used *only* for this purpose, it would have been restored to its original meaning, and that need would have been met.

We can accept the Platonists’ •meaning for ‘idea’ without adopting their •theory about ideas—i.e. without believing that ideas are eternal and self-existent and have a more real existence than the things we see and feel.

What led them to ascribe existence to ideas was the common prejudice that every object of conception must really exist; and having once given existence to ideas, the rest of their mysterious system about ideas smoothly followed. •Much of their theory was correct•; it’s true that things that are merely conceived

- don’t begin or end,
- aren’t in time or at any place,
- don’t undergo change, and
- are the patterns and exemplars according to which God made everything that he made;

for the work must be conceived by the worker before it is made.

These are undeniable attributes of the ideas of Plato; if we add to them the attribute of *real existence*, we have the whole mysterious system. Take away the attribute of existence, and suppose ideas to be not •things that exist but •things that are barely conceived, and all the mystery is removed; all that remains is acceptable to the human understanding.

The word 'essence' came to be much used among the schoolmen, and what the Platonists called the 'idea' of a species they called its 'essence'. . . . The essences of things were held by the schoolmen to be uncreated, eternal, and unchanging.

Locke distinguishes two kinds of essence—*real* and *nominal*. By the 'real essence' he means

•the constitution of an individual that makes it be what it is.

This essence must begin and end with the individual whose essence it is; so it isn't a Platonic idea. But what Locke calls the 'nominal essence' is

•the constitution of a species, or what makes an individual belong to that species;

and this is merely the combination of attributes that is signified by the species-name and that we conceive without regard to existence. So the essence of a species is what the Platonists called the 'idea' of the species.

If 'idea' is restricted to the meaning the Platonists and Pythagoreans gave it, many things that Locke said about ideas will be sound and true, and others will not.

It will be true that most words (indeed all general words) are the signs of ideas, while proper names are not because they signify individual things and not ideas. It will be true not only that there are general and abstract ideas but that *all* ideas are general and abstract. But it will *not* be true that •all our simple ideas are acquired immediately either from

sensation or from consciousness. Indeed, this is so far from true that in fact •no simple idea is acquired in either of those ways without the co-operation of other powers. The objects of sense, of memory, and of consciousness are not ideas but individuals; for us to have simple ideas those objects must be analysed by the understanding into their simple ingredients. . . . It will be probable not only that brutes have no abstract ideas but that they have no ideas at all. . . .

From all I have said about abstract and general conceptions I think we can draw the following conclusions:

(1) Abstraction is what provides the mind with all its simplest and clearest notions. The simplest objects of sense appear both complex and unclear until by abstraction they are analysed into their simpler elements; and the same holds for the objects of memory and of consciousness.

(2) Our clearest complex notions are the ones formed by compounding the simple notions acquired through abstraction.

(3) Without the powers of abstracting and generalising we couldn't manage things in an orderly and methodical way by classifying them into genera and species.

(4) Without those powers there could be no definition; for definition can only be applied to universals—no individual can be defined.

(5) Without abstract and general notions there couldn't be any reasoning or any language.

(6) Because brute animals show no signs of being able •to distinguish the various attributes of the same subject, •to group things into genera and species, •to define, •to reason, or •to communicate their thoughts by artificial signs as men do, I have to agree with Locke that they don't have the powers of abstracting and generalising, and that this is one way in which Nature has made a specific difference between them and the human species.

Chapter 6: Opinions of philosophers about universals

In ancient philosophy the doctrine of universals—i.e. of things that we express by general terms—looms large. The 'ideas' of the Pythagoreans and Platonists, about which I have already said so much, were universals. All science has universals as its object. It was thought that a science must have as its object something real and unchanging; and therefore those who paid homage to truth and science maintained that ideas or universals have a real and unchanging existence. [It is this paragraph, and later in this chapter, 'science' is used in an old sense in which it means something like 'body of doctrine that is theoretically highly organized, deductively interconnected, and rigorously proved'.]

The sceptics, on the other hand (for there *were* sceptical philosophers in those early days), maintained that all things change and are in a perpetual flux; from which they inferred that there is no science, no truth—only uncertain opinion.

Plato and his masters of the Pythagorean school conceded this with regard to •objects of the senses, agreeing that there could be no science or certain knowledge concerning *them*. But they held that there are •objects of the intellect that are intrinsically superior to the objects of the senses, and belong higher up in the classification system; and they regarded *them* as permanent and unchanging. These are 'ideas' or 'universal natures', of which the objects of the senses are only the images and shadows. To these ideas they ascribed. . . .the most magnificent attributes. They believed that

- for any species of thing—men, roses, circles, etc.—there is one 'idea' or 'form', which existed from eternity before any individual of the species was formed;
- this idea is the exemplar or pattern according to which God constructed the individuals of the species;

- every individual of the species 'participates in' this idea, which is its essence; and
- this idea is also an object of the human intellect when by abstraction we identify it as *the same* in all the individuals of the species.

Thus the idea of each species, though it is *one* item and doesn't change, can be considered in three different views or respects: **(1)** as having an eternal existence before there was any individual of the species; **(2)** as existing in every individual of that species without being divided or multiplied, and constituting the essence of the species; and **(3)** as an object of intellect and of science in man. That is the doctrine of Plato, as far as I can understand it.

His disciple Aristotle rejected **(1)** as visionary, but fairly much agreed with his master concerning **(2)** and **(3)**. He didn't admit **(1)** the existence of universal natures antecedent to the existence of individuals; but he held that every individual consists of matter and form (I take his 'form' to be Plato's 'idea'), and that **(2)** the form is common to all the individuals of the species, and that **(3)** the human intellect is fitted to receive the forms of things as objects of contemplation. Such are the deep theories about the nature of universals that we find even in the first ages of philosophy. I wish I could make them more intelligible to myself and to you.

The division of universals into five classes—genus, species, specific difference, property, accident—is also very ancient. I think it was borrowed by the Aristotelians from the Pythagorean school.

Porphyry has given us a very clear treatise on these classes, as an introduction to Aristotle's categories. But he has omitted the intricate metaphysical questions that were

debated concerning their nature: Do genera and species really exist in Nature or are they only conceptions of the human mind? If they exist in Nature, are they material or immaterial? And are they inherent in the objects of sense or separate from them? Porphyry tells us that he omits these questions for brevity's sake, because they are very profound and require precise discussion. The questions probably exercised the minds of the philosophers until about the twelfth century.

At about that time Roscelin, the master of the famous Abelard, introduced a new doctrine—namely that there is nothing universal but words or names. For this and other heresies he was much persecuted. However, through his eloquence and abilities and those of his disciple Abelard the doctrine spread, and those who followed it were called 'nominalists' [from Latin *nomen* = 'name']. His opponents, who held that there are things that are really universal, were called 'realists'. From the beginning of the twelfth century the scholastic philosophers were divided into these two sects. A few took a middle road between the contending parties: they held that universals are not in •things themselves (as the realists thought), or in •names only (as the nominalists thought), but in •our conceptions. So they were called 'conceptualists'. But being exposed to the cannons of both the opposing parties, they didn't put up much of a show.

When the sect of nominalists seemed to be near to dying out, it received new life and spirit from Occam, the disciple of Duns Scotus in the fourteenth century. At that time the dispute about *universals in things* was revived with the greatest animosity in the colleges of Britain, France, and Germany. It was conducted not only by arguments but also by bitter reproaches, blows, and bloody dog-fights, until the doctrines of Luther and the other ·religious· reformers turned the learned world's attention to more important subjects.

After the revival of learning, Hobbes adopted the opinion of the nominalists. 'It is obvious,' he says, 'that there is nothing universal but names' (*Human Nature*, xii.6). Also: 'The only universal things in the world are merely names. . . . A proper name brings to mind only one thing, universals recall any one of many' (*Leviathan* I.4).

I think Locke can be classified as a conceptualist. He maintained not •that there are things that are universal, but •that we have general or universal ideas which we form by abstraction; and he thinks that this power of forming abstract and general ideas is what chiefly marks us off, intellectually, from the brutes.

Locke's doctrine about abstraction has been combated by two very powerful antagonists, Berkeley and Hume, who have taken up the opinion of the nominalists. Berkeley thinks that

The theory that the mind has a power of forming *abstract* ideas or notions of things has played a large part in making people's theories complex and confusing, and has caused endless errors and difficulties in most branches of knowledge. (6)

Abstract ideas are like a fine and delicate net, which has miserably perplexed and entangled the minds of men (with this special feature: the more sharp-witted and exploratory any man's mind is, the more completely he is likely to be trapped and held by the net!). (22)

Among all the false principles that people have accepted, none has had a wider influence over the thoughts of enquiring and theory-building men than this doctrine of abstract general ideas.(17)

In twenty-four pages of the Introduction to his *Principles of Human Knowledge*, Berkeley tackles this doctrine with a zeal proportioned to his sense of its malignant and extensive

influence. [The above numerical references, and all remaining references to Berkeley in this chapter, are to sections of that Introduction.]

That the zeal of the •ceptical philosopher (Hume) against abstract ideas was almost equal to that of the •bishop (Berkeley) appears from this:

An important question has been raised about abstract or general ideas, namely: Are they general or particular in the mind's conception of them? A great philosopher (he means Dr Berkeley) has challenged the usual opinion about this, and has asserted that a general idea is nothing but a particular idea attached to a certain word that gives it a wider application and makes it recall (when needed) other individuals that are similar to it. As I regard this as one of the greatest and most valuable scholarly discoveries that has been made in recent years, I shall try here to confirm it by some arguments that I hope will put it beyond all doubt and controversy. (*Treatise* I.i.7)

I shall conclude my treatment of this subject with some reflections on what these two eminent philosophers have said about it. [There will be five of them, occupying about ten pages.]

(1) I don't think we can properly be said to have abstract and general ideas, either in the popular or in the philosophical sense of 'idea'. In the •popular sense, an idea is a thought; it is an act of the mind in thinking or conceiving any object. This act of the mind is always an individual act—a particular event, occurring in a particular mind at a particular time—and therefore there can't be any general 'ideas' in *this* sense. In the •philosophical sense, an idea is an image in the mind or in the brain, which is the *immediate* object of thought in Locke's system, and the *only* object of thought in Berkeley's and Hume's. I believe that there aren't any ideas of this kind, and therefore there aren't any abstract general ideas. Indeed, if there really *were* such images in

the mind or in the brain, they couldn't be general, because everything that really exists is an individual. Universals are not acts of the mind or images in the mind.

So there are no general ideas, in either of the senses in which 'idea' is used by the moderns, and that gives Berkeley and Hume an advantage over Locke in this debate. Their arguments against him are good *ad hominem* [Latin = 'against the man'; i.e. they have good arguments to show why Locke in particular, given his other views, isn't entitled to hold that there are general ideas]. They saw further than he did into the real consequences of the hypothesis about ideas that they shared with him, and they reasoned soundly when they concluded from this hypothesis that there is •no material world and •no such power in the human mind as that of abstraction.

A triangle in general, or any other universal, might be called an 'idea' by a Platonist; but understanding 'idea' as modern philosophers do, it is not an idea; and we never ascribe to *ideas* the properties of *triangles*. No idea is ever said to have three sides and three angles. We don't speak of equilateral, isosceles, or scalene *ideas*, or of right-angled, acute-angled or obtuse-angled *ideas*. And if ideas don't have these attributes, it follows that a triangle is not an idea. The same reasoning can be applied to every other universal.

Ideas are said to have a real existence in the mind, at least, while we think of them; but universals have no real existence. When we ascribe existence to them, it is not existence *in time or place* but existence *in some individual subject*; and all that *this* existence means is that they are truly attributes of such a subject. Their existence is merely predicability, i.e. the capacity to be attributed to a subject. The name 'predicables' that was given them in ancient philosophy is the one that best expresses their nature.

(2) I think it must be granted that universals can't be the objects of *imagination*, when we take that word in its strict

and proper sense. Berkeley writes:

I find that I do indeed have a capacity for imagining—representing to myself the ideas of particular things that I have perceived—and of splitting those ideas up and re-assembling them in various ways. I can imagine a man with two heads, or the upper parts of a man joined to the body of a horse. I can consider the hand, the eye, the nose, each by itself abstracted or separated from the rest of the body. But then whatever hand or eye I imagine must have some particular shape and colour. Similarly, any idea that I form of a man must be of a specific kind of man: he must be white or black or brown, straight or crooked, tall or short or middling. (10)

I think you will find in *yourself* what this ingenious author found *in himself*, namely an inability to imagine a man without colour or height or shape.

As I have already remarked, 'imagination' properly signifies a conception of how an object would look if it were actually seen. A universal is not an object of any external sense, so it can't be imagined; but it can be distinctly conceived. When Pope writes 'The proper study of mankind is *man*', I clearly conceive his meaning, though I don't imagine a black or a white man, or a crooked or a straight one. The distinction between •conception and •imagination is real, although too often it is overlooked and the words are taken to be synonymous. I can conceive a thing that is impossible, but I cannot clearly imagine a thing that is impossible. I can conceive a proposition, or a demonstration, but I can't imagine either of them. I can conceive understanding and will, virtue and vice, and other attributes of mind, but I can't imagine them. Similarly, I can clearly conceive universals but I can't imagine them.

How do we conceive universals? I admit that I don't know. I don't know how I hear or see or remember, and I'm just as far from knowing how I conceive things that don't exist. In *all* our original faculties, the structure and manner of operation seems to be beyond our comprehension, and perhaps is perfectly understood only by God who made them.

But when we are conscious of some fact *about ourselves*, we ought not to deny it just because we don't know how it is brought about. And I think *we do know one negative fact about how we conceive universals*: we can be certain that universals are *not* conceived by means of images of them in our minds, because there can't be an image of a universal.

(3) It seems to me that on this question Locke and his two antagonists divided the truth between them. He saw very clearly that the power of forming abstract and general conceptions is one of the most distinguishing powers of the human mind, and puts a specific difference between men and brute animals. But he didn't see that this power is flatly inconsistent with his doctrine concerning ideas.

His opponents saw this inconsistency; but instead of rejecting the hypothesis of ideas they explained away the power of abstraction, leaving no specific distinction between our understanding and that of the brutes.

(4) In his reasoning against abstract general ideas, Berkeley seems to grant, unwillingly or incautiously, all that is needed to support abstract and general conceptions:

I don't deny that a man can *abstract*, in that he can consider a figure merely as triangular without attending to the particular qualities of the angles or relations of the sides. But that doesn't show that he can form an abstract general inconsistent idea of a triangle. (16)

If a man can 'consider a figure merely as triangular', he must have some conception of this object of his consideration, for

no-one can *consider* a thing without *conceiving* it. So he has a conception of a triangular shape, merely as such. I don't know of anything more that is meant by an 'abstract general conception of a triangle'.

Someone who considers a figure 'merely as triangular' must understand what is meant by 'triangular'. If to the conception he associates with this word he adds any particular quality of angles or relation of sides, 'this shows that' he misunderstands it and *doesn't* consider the figure 'merely as triangular'. This, I think, clearly shows that someone who considers a shape 'merely as triangular' must have the conception of *a triangle*, abstracting from any quality of angles or relation of sides.

In a similar concession, Berkeley writes: 'Because all that is *perceived* is not *considered*, we can think about Peter considered as a man, or considered as an animal, without forming the abstract idea of *man* or of *animal*' (16 again). I remark that someone who considers Peter as a man or as an animal must conceive the meaning of the abstract general words 'man' and 'animal'; and someone who conceives the meaning of such a word has an abstract general conception.

From these concessions one would be apt to infer that Berkeley thinks that we •can abstract but we •can't make abstract ideas; and in this I would agree with him. But I can't reconcile his concessions 'quoted above' with his previously stated general principle: 'I deny that I can abstract from one another, or conceive separately, qualities that couldn't possibly exist separately' (10). This strikes me as inconsistent with the concessions quoted above, and inconsistent with experience.

If we can consider a figure 'merely as triangular', without attending to the particular quality of the angles or relation of the sides, this (I think) is conceiving separately things that couldn't exist separately. For surely a triangle can't exist

without a particular quality of angles and relation of sides. And we know from experience that a man can have a clear conception of a triangle without having any conception or knowledge of many of the properties without which a triangle cannot exist.

Let us next consider Berkeley's notion of *generalising*. He doesn't absolutely deny that there are general ideas—only that there are *abstract* general ideas. He writes:

An idea, which considered in itself is particular, becomes general in its meaning by being made to represent or stand for all other particular ideas of the same •sort as itself. Suppose for example that a geometrician, proving the validity of a procedure for cutting a line in two equal parts, draws a black line one inch long. As used in this geometrical proof, this particular line is general in its significance because it is used to represent all particular lines, so that what is proved regarding it is proved regarding all lines. And just as that particular *line* becomes general by being used as a sign, so the *word* 'line'—which in itself is particular—is used as a sign with a general meaning. (12)

Here I would remark that when a particular idea is made to be a sign to represent and stand for all things of a •sort, this presupposes that things have been grouped into sorts or species. To be 'of a sort' implies having the attributes that characterise the sort and are common to all the individuals belonging to it. So there can't be a sort without general attributes, and there can't be any conception of a sort without a conception of the general attributes that distinguish it. So the conception of a sort is an abstract general conception. . . .

When I demonstrate any general property of a triangle, such as that the three angles are equal to two right angles, I must understand or conceive distinctly what is common

to all triangles. I must distinguish •the attributes that all triangles have in common from •the attributes that some triangles have and others don't. And if I clearly conceive *what is common to all triangles*, without mixing it up with what is not common to them all, this is to form a general conception of a triangle. Without this, one can't know that the demonstration extends to all triangles.

Berkeley takes special notice of this argument, and answers it thus:

Although the idea I have in view while I make the demonstration may be (for instance) that of an isosceles right-angled triangle whose sides are of a determinate length, I can still be certain that it applies also to all other triangles, no matter what their sort or size. I can be sure of this because neither the right angle nor the equality of sides nor length of the sides has any role in the demonstration. (16)

But if in the idea he has in view he doesn't clearly distinguish what is common to all triangles from what is not, he couldn't tell whether something that isn't common to all has a role in the demonstration. So, to perceive that the demonstration applies to all triangles he has to have a clear conception of what is common to all triangles, excluding from that conception everything that is not common to them all. And that's all that I understand by 'an abstract general conception of a triangle'.

[Reid says that Berkeley gets an argumentative advantage from Locke's having exaggerated how difficult it is to form abstract general ideas, and the hard work and skill needed for that purpose. According to Reid, some are hard to form but many are not—the easy ones include ones that are involved in the earliest and most minimal uses of language. He winds up the discussion thus:] 'Isn't it a hard thing,' Berkeley writes, 'that a couple of children can't chatter about

sugar-plums and toys until they have first tacked together countless inconsistencies and so formed abstract general ideas in their minds, attaching them to every common name they make use of?' (14) However 'hard' a thing it may be, it is obviously *true* that a couple of children cannot chatter so as to understand and be understood, even about their sugar-plums and their toys, until they have learned to conceive the meanings of many general words—and this, I think, is to have general conceptions.

(5) Having considered Berkeley's views on this subject, let us next attend to those of Hume as they are expressed in his *Treatise* I.i.7. [All indented passages in the rest of this chapter will be quotations from that section of Hume's.] He entirely agrees with Berkeley:

- A general idea is nothing but a particular idea attached to a certain word that gives it a wider application and makes it recall (when needed) other individuals that resemble it.
- A particular idea becomes general by being attached to a general term, i.e. to a term that is related by a customary conjunction to many other particular ideas which it readily recalls in the imagination.
- Abstract ideas are in themselves individual, even when they become general in their representation. The image in the mind is only that of a particular object, though the application of it in our reasoning may be the same as if it were universal.

Although Hume looks on this as 'one of the greatest and most valuable scholarly discoveries that has been made in recent years', it seems to me to be simply the nominalist view that was so much in dispute from the beginning of the twelfth century down to the reformation, and was later supported by Hobbes. I shall briefly consider the arguments that Hume hopes will 'put it beyond all doubt and controversy'.

He tries to prove by **three arguments** that it is utterly impossible to conceive any quantity or quality without forming a precise notion of its degrees. This is indeed a great undertaking; but even if he could prove it, it isn't sufficient for his purpose. There are two reasons why it isn't.

(a) There are many attributes of things besides quantity and quality, and Hume needs to prove that it is impossible to conceive *any* attribute without forming a precise notion of its degree. Each of Aristotle's ten categories is a genus, and can be an attribute; if Hume proved that there can be no general conception of two of them—namely quantity and quality—he still has to prove it of the other eight.

(b) Even if it were impossible to conceive any quantity or quality without forming a precise notion of its degree, it doesn't follow that it is impossible to have a general conception of quantity and quality. The conception of *one pound weight* is the conception of a quantity, and of its precise degree; but it is nevertheless an abstract general conception, because it can be the attribute of many individual bodies and of many kinds of bodies. So Hume needs to prove that we can't conceive quantity or quality or any other attribute without joining it inseparably to some individual subject. [The idea is that if he could prove *that*, Hume could argue that you can't conceive *one pound weight* without conceiving *some particular thing having that weight*, and he would maintain that in conceiving that thing you conceive it in all its detail.]

This won't be easy to prove! For instance, I conceive what is meant by 'a Japanese' as clearly as what is meant by 'an Englishman' or 'a Frenchman'. It is true that *being Japanese* is not a quantity or a quality, but it is an attribute common to every individual of a populous nation. If I can trust my consciousness, the general term 'Japanese' doesn't lead me to imagine one individual Japanese person as a representative of all others. ·Indeed, it *couldn't* do so,

because· I have never seen an individual Japanese person.

Thus, although Hume undertakes a large task, even if he succeeded in proving all that he says he will prove, that would be far from sufficient to show that we have no abstract general conceptions. But now let's let that go, and attend to his arguments for proving this extraordinary thesis that it is impossible to conceive any quantity or quality without forming a precise notion of its degree.

First argument: It is that it's impossible to distinguish things that are not actually separable. '*The precise length of a line* is not different or distinguishable from *the line*.' I have already tried to show that things that can't be separated in their nature may still be distinguished in our conception. And to be convinced of this look at Hume's own example! The precise length of a line, he says, is not distinguishable from the line. When I say 'This is a line' I say and mean one thing; when I say 'This is a line three inches long' I say and mean *another* thing. If that isn't distinguishing the length of the line from the line, I don't know what distinguishing is!

Second argument: 'Every object of sense, i.e. every impression, is an individual with determinate degrees of quantity and quality. But whatever is true of the impression is true of the idea, because they differ *only* in their strength and liveliness.'

The conclusion of this argument is indeed validly inferred from the premises. If it is true that ideas differ from objects of sense *only* in strength and liveliness, as it must be granted that all the •objects of sense are individuals, it will certainly follow that all •ideas are individuals. Granting the validity of this inference, I venture to draw two other conclusions that will follow just as necessarily from the same premises .

(a) If •ideas differ from •objects of sense only in strength and liveliness, it will follow that the •idea of a lion is a •less strong and lively lion. An urgent question arises: can the

idea of a lion tear apart and eat the ideas of sheep, oxen, and horses—and even of men women and children?

(b) If ideas differ only in strength and liveliness from the objects of sense, it will follow that •objects merely conceived are not •ideas; because •objects merely conceived differ from •objects of sense in respects utterly different from strength and liveliness. Every object of sense must have a real existence and time and place. But things merely conceived needn't have existence or time or place; so even if there were no abstract ideas, it doesn't follow that abstract and general things can't be conceived.

Third argument: 'It is a principle generally accepted in philosophy that every being in Nature is individual, and that it is utterly absurd to suppose (for instance) a really existent triangle that has no precise proportion of sides and angles. If this is absurd *in fact and reality*, therefore, it must also be absurd *in idea*, since nothing of which we can form a clear and distinct idea is absurd and impossible.'

I accept that it is impossible that a really existing triangle should have no precise proportion of sides and angles; and impossible that any being should exist that isn't an individual being (because I think 'a being' and 'an individual being' mean the same thing). But I do *not* accept that there can't be attributes that are common to many individuals. Thus, many figures that really exist may have in common that they are triangles; and many bodies that exist may have in common that they are fluid. *Triangle* and *fluid* are not beings—they are attributes of beings.

As to the principle Hume relies on here, that nothing of which we can form a clear and distinct idea is absurd or impossible, I refer you to what I said about that in Essay 4, chapter 3. It is evident that in every mathematical demonstration *ad absurdum*—and almost half of mathematics is of this sort—we have to •suppose and consequently

to •conceive a proposition P that is impossible. We infer consequences from P until we come to a conclusion that is not only impossible but absurd. From this we infer that P is impossible, and therefore that its contradictory is true. . . . This shows that we can clearly and distinctly conceive things that are impossible.

The rest of Hume's discussion of this subject is devoted to explaining how an individual idea attached to a general term can serve all the purposes in reasoning that have been ascribed to abstract general ideas:

When we have found a resemblance among a number of objects that we often encounter, we apply a single name to all of them, whatever differences we may observe in the degrees of their quantity and quality, and whatever other differences may appear among them. After we have become accustomed to using the word in that way, the hearing of it revives •in our mind• the idea of one of these objects, and makes the imagination conceive it in all its particular detail.

But along with this idea there is a readiness to survey any of the other individuals to which the name belongs, and to check that no conclusion is being reached that is contrary to any of them. If any such conclusion is reached, the individual ideas that contradict it immediately 'crowd in on us' and make us perceive the falsehood of the proposition. If the mind sometimes fails to suggest these ideas, that is because of 'some imperfection in its faculties', one that is often the source of false reasoning and sophistry.

This is the substance of Hume's explanation for what he calls 'the foregoing paradox, that some ideas are particular in their nature but general in their representation'. I shall make •three• remarks about this account.

(a) Hume allows that we find a resemblance among several objects—a resemblance that leads us to apply the same name

to all of them. If we do this, we have general conceptions. There can't be a resemblance among objects that have no common attribute; and if there are attributes belonging in common to several objects, and we are able to observe and conceive these attributes and give names to them, that means that we have general conceptions.

I believe indeed we can have a fuzzy perception of a resemblance between two things without knowing what their resemblance consists in. For example, I may see a resemblance between two faces without being able to say precisely in what feature they are alike. But by analysing the two faces, and comparing feature with feature, I may eventually achieve a clear notion of what they have in common. A painter, being accustomed to this kind of analysis, would have formed a clear notion of this resemblance at first sight; to another man it may require some attention.

So there is a •fuzzy notion of resemblance when we make over-all comparisons between objects, and I think that brute animals may have this. There is also a •clear notion of resemblance when we analyse the objects into their different attributes, and perceive them to be alike in some and unlike in others. It is only in this latter case that we give a name to the attributes that the things share. . . . Thus, when I compare cubes made of different materials I perceive them to have in common the attribute of *being bounded by six equal squares*; and this attribute is all that is signified by applying the name 'cube' to them all. When I compare clean linen with snow, I see that they are alike in colour; and when I apply the name 'white' to both, this name signifies neither •snow nor •clean linen but •the attribute that they both have.

(b) Hume says that when we have found a resemblance among several objects we apply the same name to all of them.

I should point out that he seems to mix up •proper names and •common names, though they are in fact very different

in nature and in the power they have in language. The former are the names of individuals. Two individuals that are alike won't be given the same proper name on that account, because the whole purpose of a proper name is to distinguish one individual from all others; which is why it's a grammatical rule that proper names have no plural form. A proper name signifies nothing but the individual whose name it is; and when we apply it to the individual we aren't affirming or denying anything about him.

A common name is not the name of any individual, but a general term signifying something that is or could be common to many individuals. So common names signify common attributes. Thus, when I apply the name 'son' or 'brother' to several people, this signifies and affirms that this attribute is common to them all.

This makes it obvious that •applying the same name to several individuals on account of their resemblance can only mean •expressing by a general term something that is common to those individuals and can therefore be truly affirmed of them all. Consistency with grammar and with common sense requires that that's what it means.

(c) Hume says: 'It is certain that whenever we use any general term we form the idea of individuals. The word raises up an individual idea, and makes the imagination conceive it with all its particular details.' He takes a lot of trouble to explain this fact as an effect of custom.

But before working to explain the fact, we should establish that it is a fact. I can see no reason to believe it; I think a farmer can talk of his sheep and his black cattle without conceiving in his imagination one individual with all its particular details. If I am right about this, the whole of Hume's theory of general ideas falls to the ground. . . .

Hume observes that 'the idea of *an equilateral triangle of an inch perpendicular* may serve us in talking of a figure,

a rectilinear figure, a regular figure, a triangle, and an equilateral triangle'. I say that the man who uses these general terms either understands their meaning or he doesn't. If he doesn't understand their meaning, all his talk about

them will be mere sound without sense, and the particular idea Hume mentions can't enable him to speak of them with understanding. If he does understand the meaning of the general terms, he'll have no use for the particular idea. . . .