Chapter 1

Concepts of Indiscriminability

This chapter is a study in the epistemology of identity. Of course, what is true of knowledge in general is true of knowledge of identity in particular, and for most purposes it would be both inefficient and prejudicial to focus on the latter rather than the former. Nevertheless, the relation of identity exhibits a unique formal character, which is reflected as in a distorting mirror by the formal character of knowledge of identity. The interaction of general features of knowledge with general features of identity needs special attention. The phenomenon of indiscriminability provides one way into this area, the way to be followed here. Since the indiscriminability of objects is less a route to knowledge that they are identical than a block to knowledge that they are distinct (or so it will be argued), it might be less misleading to say that this chapter deals with knowledge of non-identity.

Indiscriminability, unlike identity, is non-transitive. It is not always the case that when \( a \) is indiscriminable from \( b \) and \( b \) is indiscriminable from \( c \) then \( a \) is indiscriminable from \( c \), for otherwise there could not be series in which the differences between successive members are both too small to be discriminated and yet add up to a discriminable difference between the first member and the last. The non-transitivity of indiscriminability is often treated as a specific and rather mysterious feature of sensory experience, from which startling philosophical conclusions may be drawn. The underlying aim of this chapter is to understand it as a general cognitive phenomenon.

Section 1 develops a cognitive model of discrimination. Section 2 uses the model to explain some formal features of indiscriminability, such as its failure to be transitive, Section 3 uses it to expound a sense in which discrimination is intentional. In section 4 this intentionality is observed to threaten an attempt to define a
transitive notion of indiscriminability in terms of a non-transitive notion. Section 5 ties up loose ends.

1.1 Indiscriminability and Cognition

What is indiscriminability? Surface form indicates that things are indiscriminable if and only if it is not possible to discriminate between them. One may therefore expect an account of indiscriminability to comprise accounts of discrimination and, perhaps less importantly, of the relevant kind of possibility.

What is it to discriminate? The verb has an active meaning, in a more than purely grammatical sense. To discriminate is to do something. That is not, of course, to say that discrimination is a bodily (rather than mental) act, still less that it is whatever falls under a certain behavioural (rather than intentional) description. Discrimination has at the very least a cognitive component. For the processes involved in discrimination can also lead to ignorance or error. If I fail to discriminate between the lengths of two lines, one slightly longer than the other, there is something I have failed to find out. If, misled by perspective, I judge one line to be longer than another, and they turn out to be of equal length, my would-be discrimination was incorrect. Failures of discrimination are cognitive failures, so discrimination is a cognitive act.

Naturally, it is open to anyone to use the word ‘discrimination’ in a non-cognitive sense, perhaps defined in terms of differential responses to stimuli, where ‘stimulus’ and ‘response’ are somehow themselves understood non-cognitively. One might even say that a window can discriminate between a ball and a feather, if one breaks it and the other does not. However, that just looks like a metaphorical extension of the concept; we pretend that the window is a knowing subject. In literal terms, the window is at most the instrument of our discrimination. Derived senses of the word will not be pursued here.

What kind of cognitive act is discrimination? If discriminating could be assimilated to judging, then false or incorrect discriminations should be possible, as well as true or correct ones. They seem not to be. If I judge this vintage to be fuller-bodied than
that, and they turn out to be the same vintage, poured from the same bottle, I have not falsely or incorrectly discriminated the vintage from itself; I have not discriminated at all. I may have seemed to discriminate the vintage in this glass from the vintage in that, but I have not actually done so. In general, a good way of refuting someone’s claim to be able to discriminate between this and that is to show that this is that. The cognitive failures associated with discrimination occur in its absence.

Discrimination thus seems closer to knowledge than to belief; false discrimination, like false knowledge and unlike false belief, is a contradiction in terms. Indeed, there is good reason to push this likeness to the point of identity, for if we can characterize discrimination as knowledge, we shall be in a position to explain both why discrimination cannot be in error and why the alternatives to it are ignorance and error.

It would not be quite right simply to assimilate discriminating to knowing, for the former is a process and the latter – like believing – a state. One might use ‘recognition’ and ‘judgement’ to express the processes analogous to knowledge and belief, respectively, since judgement but not recognition can be false. Just as knowledge entails belief (on most views), so recognition entails judgement. The hypothesis would then be that discrimination is a kind of recognition, not merely of judgement.

Discrimination involves states as well as processes. The state of being able to discriminate stands to the process of discrimination as the state of being able to recognize stands to the process of recognition. A more specific comparison might be with memory. There is the process of remembering that tomorrow is my birthday, active recall, and there is the state of being able to remember that tomorrow is my birthday. The process is a kind of activation of the state, an exercise of the ability which it is the state of having. However, if I am able to remember that tomorrow is my birthday, I already know that tomorrow is my birthday – I am not merely able to know it; in contrast, I may be able to discriminate between two things, even though I have not yet encountered them and have as yet no relevant knowledge, simply because my present cognitive capacities would permit me to discriminate if I did encounter them. The knowledge activated in discrimination need not pre-exist the process. Thus the closest we can reasonably come to assimilating discrimination to knowledge is the hypothesis
that it is the activation of knowledge, where this activation may be described either as acquisition or employment, depending on whether the subject calls on knowledge already possessed.

What knowledge is activated in discrimination? What is its content? The identity of $a$ and $b$ rules out discrimination between them. It would be natural to explain this in terms of the content of the knowledge activated in discrimination, by the incompatibility of this content with the identity of $a$ and $b$. The simplest hypothesis meeting these requirements is this: to discriminate between $a$ and $b$ is to activate the knowledge that $a$ and $b$ are distinct. One cannot discriminate between $a$ and $a$ because there can be no knowledge that $a$ and $a$ are distinct to be activated; knowledge entails truth. The idea of discriminating as activating knowledge of distinctness is explored in this and subsequent chapters; it will emerge as adequate to a wide variety of cognitive phenomena.

Not every kind of knowledge is relevant to every kind of discrimination. When we speak of discriminating between wines, we do not usually mean reading the labels on the bottles, although in special circumstances we might speak of this as a quick but not always reliable means of discrimination unavailable to the illiterate. In this respect the sense of the word ‘discrimination’ is context-relative; different kinds of knowledge are meant in different contexts. The word ‘knowledge’, in contrast, will not be used in this context-relative way; it will be read as stably covering all relevant kinds. Thus although discrimination between $a$ and $b$ entails knowledge that $a$ and $b$ are distinct, not all knowledge that $a$ and $b$ are distinct entails discrimination between $a$ and $b$ in the sense appropriate to a given context, since the knowledge may not issue from the right source.

There is no good reason to restrict the kinds of knowledge which constitute kinds of discrimination. The relevant sources may be sensory modalities, statistical techniques, the use of litmus paper or parish records. Any source which yields knowledge of the properties or relations of $a$ and $b$ may indicate that $a$ has a property which $b$ lacks, or stands in a relation to something to which $b$ does not, thus revealing the distinctness of $a$ and $b$ by Leibniz’s Law; identity entails sharing of properties and relations. Any source of knowledge of properties or relations can therefore correspond to a kind of discrimination.

There is also no good reason to restrict the kinds of object
which can be discriminated. For, by the same reasoning, for any object $a$ of whose properties or relations one can have non-trivial knowledge, there will be an object $b$ such that one can know that $a$ and $b$ are distinct, and in that sense discriminate between them. One can discriminate between paints, or between painted surfaces or walls, or between their colours, or between one’s experiences of those colours, for knowledge of distinctness is possible in all these cases. The subjects who discriminate will also be as various as the subjects who know, or at least who know facts of distinctness: people, animals, perhaps machines, and groups of these.

Given this account of discrimination, it is easy to define indiscriminability: $a$ is indiscriminable from $b$ for a subject at a time if and only if at that time the subject is not able to discriminate between $a$ and $b$, that is, if and only if at that time the subject is not able to activate (acquire or employ) the relevant kind of knowledge that $a$ and $b$ are distinct.

This account is no doubt something of an idealization; as an attempt to state necessary and sufficient conditions for the correct use of the word ‘discrimination’ in ordinary English it would presumably go the way of most attempts to state necessary and sufficient conditions. Instead it displays a paradigm of discrimination, like pure water. What satisfy the account are clear cases of discrimination; what do not satisfy it but come near to doing so are less clear cases, which it may nevertheless be useful to think of in the same terms. A baby or animal may discriminate sugar from salt, even if it seems excessive to describe them as having the propositional knowledge that sugar is not salt. One might even say that it discriminates between London and Paris (its attitude to passers-by varies) while being reluctant to admit that it thinks of either city. In increasingly attenuated senses, flowers discriminate between day and night, litmus paper between acid and alkali, the window between the feather and the ball. The use of the word is not wholly inept, for such conceptualized sensitivity to difference bears some similarity to the cognitive paradigm. Knowledge is missing, but information may be received. This chapter and the next two, however, deal with more strictly knowledgeable forms of discrimination. They are more amenable to a certain kind of understanding, and the phenomena it discerns should have their analogues in the less articulate cases.

Knowledge is intentional. If, at a party, the sandal-wearer
is the vegetarian and the tea-drinker is the George Orwell expert, I can
know that the sandal-wearer and the tea-drinker are distinct without
knowing that the vegetarian and the George Orwell expert are distinct.
The example requires the definite descriptions to take narrower scope
than the knowledge operator (the \textit{de dicto} reading), of course; it fails
if they take wider scope (the \textit{de re} reading). If I know, of the sandal-
wear and the tea-drinker, that they are distinct, I thereby know, of
the vegetarian and the George Orwell expert, that they are distinct.
Which reading applies to discrimination? If I discriminate between
the sandal-wearer and the tea-drinker, do I thereby discriminate between
the vegetarian and the George Orwell expert? It looks as though both
readings are possible, a point which would tell in favour of a cognitive
model of discrimination.

A reading of ‘discriminate’ is \textit{non-intentional} just in case it logically
validates the following inference schema:

\begin{align*}
    a \text{ is discriminated from } b \\
    a = c \\
    b = d \\
\end{align*}

\textbf{Ergo}, $c$ is discriminated from $d$.

The schematic letters ‘$a$', ‘$b$', ‘$c$' and ‘$d$' are replaceable by any
singular terms. If the schema is not validated, the reading is \textit{intentional}.

One’s ability to discriminate between $a$ and $b$ will in general be sen-
sitive to the ways in which they are presented to one; even one’s ability
to discriminate between colours depends upon the light in which one
sees them. However, sense can always be made of the non-intentional
reading in terms of the intentional one, if only by the stipulation
that $a$ and $b$ are discriminated non-intentionally if and only if there
are modes of presentation under which they are discriminated inten-
tionally. Only on the non-intentional reading can discrimination, and
therefore indiscriminability, be a relation between the objects to be dis-
criminated, by Leibniz’s Law. It will simplify matters in the short run
to adopt this reading. In the long run, however, this neglect of modes
of presentation distorts our view of the phenomena to be understood,
or so it is argued below, and their role will later be given explicit acknowledgement.

1.2 Formal Features of Indiscriminability

Indiscriminability is generally agreed to be a reflexive, symmetric and non-transitive relation. One cannot discriminate between \( a \) and itself, nor can one discriminate between \( a \) and \( b \) without thereby discriminating between \( b \) and \( a \); however, one can sometimes discriminate between \( a \) and \( c \) when one can discriminate between neither \( a \) and \( b \) nor \( b \) and \( c \). An advantage of the present cognitive account is that it enables these formal features to be explained on general grounds, as follows.

(1) Reflexivity. It is not possible that \( a \) is distinct from \( a \), since identity is necessarily reflexive; it is therefore not possible to know that \( a \) is distinct from \( a \), since knowledge entails truth; so it is not possible to activate the knowledge that \( a \) is distinct from \( a \), and so no subject is able to do so; \( a \) is therefore indiscriminable from \( a \). The reflexivity of identity thus indirectly explains the reflexivity of indiscriminability.

(2) Symmetry. Suppose that \( b \) and \( a \) are discriminable: someone is able to activate the knowledge that \( b \) is distinct from \( a \). Might they nevertheless be unable to activate the knowledge that \( a \) is distinct from \( b \)? It seems not; indeed, it seems that the knowledge that \( b \) is distinct from \( a \) would constitute knowledge that \( a \) is distinct from \( b \). Imagine trying to work out which of these pieces of knowledge a subject had by trying to discover whether the representation of \( a \) was to the right or the left of the representation of \( b \) in the relevant sentence token of the subject’s language of thought. A subject who assented to the sentence ‘Cicero is not Catiline’ but refused assent to the sentence ‘Catiline is not Cicero’ seems to be too confused to count as knowing that Cicero is not Catiline, perhaps even to count as believing that, unless the words are not being understood in the relevant way. Whether or not the pieces of knowledge are identical, conditions on knowledge and understanding seem to make the ability to activate one equivalent to the ability to activate the ‘other’, without any commitment to the false general thesis that knowledge is closed under logical consequence (crucially, knowledge of the relevant propositions has
not been said to require knowledge of more complex propositions). Moreover, the argument exploited no change in the parameters of discrimination – subject, time, source of knowledge, and so on. If \( b \) is discriminable from \( a \) in a certain sense, \( a \) is discriminable from \( b \) in the same sense; contrapositively, if \( a \) is indiscriminable from \( b \) then \( b \) is indiscriminable from \( a \). Thus the symmetry of identity indirectly explains the symmetry of indiscriminability.

(3) Non-transitivity. At least part of what needs to be explained on the present view is the failure of the transitivity of identity to entail the transitivity of indiscriminability. On the other hand, one cannot hope to show that no relation of indiscriminability is transitive, for some sources will give complete knowledge of identity and distinctness for some limited domains; in these cases indiscriminability will be equivalent to distinctness, and therefore indiscriminability to identity, so that it will be transitive. What one can do is to give specific examples of non-transitive indiscriminability relations, and use them to show where attempted arguments from the transitivity of identity to the transitivity of indiscriminability break down. The simplest example is as follows. Let \( a \), \( b \) and \( c \) be three distinct objects, and let the relevant source of knowledge about them be merely the testimony that \( a \) is distinct from \( c \). Thus \( a \) and \( c \) are discriminable, since a subject with access to the appropriate source can know that they are distinct. However, nothing whatsoever can be learned from that source about \( b \). It leaves open the possibility that \( b \) is \( a \); it also leaves open the possibility that \( b \) is \( c \). Thus \( a \) is indiscriminable from \( b \) and \( b \) from \( c \), since one cannot know in the appropriate way that they are distinct. So the relation of indiscriminability in question is non-transitive. The underlying logical point is that although the distinctness of \( a \) from \( c \) entails that either \( a \) is distinct from \( b \) or \( b \) is distinct from \( c \) (to contrapose the transitivity of identity), one can know that such a disjunction is true without being able to work out which disjunct is. A way of verifying a disjunction need not be a way of verifying one or other disjunct. It is worth noting that this point could still hold even if knowledge were closed under logical consequence.

For all that has been said so far, the indiscriminability relations of most philosophical interest – such as those associated with direct observation, in some appropriate sense of the term – might still be transitive. However, we know independently that they are
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not. Given a series of red paints, each very slightly darker than the one before, I may be able to discriminate between the first red and the last without being able to discriminate between any red and its immediate successor (all by the naked eye).

The point deserves further reflection, for it has been challenged on the basis of an information-processing model of perceptual discrimination (see Hardin 1988 for further details). Suppose that a system is to determine whether or not signals are distinct (in type), but that its inputs consist of signals mixed with a certain amount of random interference (noise). The system would be excessively prone to error if it judged signals to be distinct whenever the corresponding inputs were, for qualitatively identical signals will often lead to qualitatively distinct inputs because of variation in the randomly added noise. If its judgements are to be reliable, it should judge that the signals are distinct only when the difference between the inputs is large enough for the probability that it is entirely due to variation in the random noise to be acceptably small. However, if two signals are qualitatively distinct, by however little, the addition of noise in the long run tends to yield an average difference between inputs greater than in the case of qualitatively identical signals, and the probability that this difference results from qualitatively identical signals can be reduced below any desired threshold by sufficiently prolonged exposure to the signals (with probability 1). Our perceptual systems may well work in this way. Thus, it might be suggested, objects presented to this system are indiscriminable in a given context if and only if they cause qualitatively identical signals in that context: but qualitative identity is a transitive relation, so indiscriminability is. Of course, if the system’s exposure to the signal is limited to a fixed time – five minutes, say – then indiscriminability will be non-transitive, since for any such time there will be almost but not quite qualitatively identical signals which cannot be discriminated with the required degree of reliability within the given time; transitivity will fail for a series of such signals. The reliability constraint certainly seems to be required by the idea that discrimination is the activation of knowledge that the signals come from numerically distinct objects. However, any such time limit would be arbitrary, and give a distorted picture of the underlying phenomena. Or so the argument goes.

An obvious objection to the argument is that it fails to do
justice to the role of consciousness in constituting the kind of discrimination at issue. No doubt a transitive relation of indiscriminability has been described, but that relation is not the one in which we are most interested, at least not when we are investigating perceptual appearances. We are concerned with the way things seem to a pre-reflective observer, and thus the relevant kinds of discrimination are non-inferential. In reply to the claim that all perceptual discrimination involves statistical inferences of the sort just discussed, it is reasonable to stipulate that we are concerned with the way things seem to an observer who has not consciously reflected on them, so that ‘non-inferential’ may be glossed as ‘not involving conscious inference’. Thus the argument for the transitivity of the relevant kind of indiscriminability goes through only if the system can make all the required inferences unconsciously; it is not enough for a professional psychometrician with a calculator to make them. There could indeed be such creatures: presented with any two differently coloured surfaces, however similar, they might experience a sense of slowly gathering conviction that the colours were distinct; it would simply be a matter of looking long and hard enough. We, however, are not such creatures. The longer and harder we look at two surfaces whose colours are distinct but sufficiently similar, the more confused we become; there is a limit to the length of runs of statistical data which we can unconsciously integrate in that way. This fact has an effect on the nature of our experience. It also imposes a non-arbitrary time limit on non-inferential discrimination of the relevant kind, and thus renders the corresponding relation of indiscriminability non-transitive.

The point has nothing to do with the supposed subjectivity of colour, as a secondary quality. Exactly parallel arguments would apply to naked-eye discrimination in respect of length, a primary quality and therefore supposedly objective.

If no distinction were drawn between inferential and non-inferential discrimination, a simpler argument would threaten to make indiscriminability transitive (compare Jackson and Pinkerton 1973, Jackson 1977 pp. 112–15, Sanford 1981 pp. 380–2). Suppose that I can discriminate between a and c, but not between b and c. Thus I can get into the position of having discriminated between a and c without having discriminated between b and c; what is then to stop me from recognizing that to be my position,
and thence inferring that \( a \) is not \( b \) by Leibniz’s Law? I should then have inferential knowledge, based on the relevant source, that \( a \) and \( b \) are distinct, thereby having discriminated between \( a \) and \( b \). Thus if \( a \) but not \( b \) is discriminable from \( c \) then \( a \) is discriminable from \( b \); by contraposition, if \( a \) is indiscriminable from \( b \) and \( b \) from \( c \) then \( a \) is indiscriminable from \( c \). This argument evidently fails for non-inferential forms of discrimination. It has other flaws too, such as the absence from it of any reason to suppose that we can know what discriminations we have made, or not made, and that we can get this knowledge in an appropriate way, but these difficulties may be less pressing in the case of perceptual discrimination; they will be discussed later. What the argument does seem to show is that any relation of indiscriminability can be used to define a transitive relation of indiscriminability, where \( a \) and \( b \) are indiscriminable in the new sense just in case they are indiscriminable in the old sense from exactly the same things. Although this conclusion is correct as stated, one must treat it with caution once account is taken of the ways in which the objects of discrimination are presented, and it is to this topic that we now return.

1.3 The Intentionality of Indiscriminability

The standard notions of reflexivity, symmetry, transitivity and non-transitivity are defined for, and only for, binary relations. Thus in describing indiscriminability as non-transitive, one presupposes that it is a binary relation. It follows that any breakdown in the transitivity of indiscriminability will involve at least three objects of attempted discrimination. For suppose that \( a \) is indiscriminable from \( b \), and \( b \) from \( c \), but that \( a \) is not indiscriminable from \( c \); since indiscriminability is reflexive, \( a \) and \( c \) are certainly distinct. If \( a \) and \( b \) were identical, they would stand in the same relations; since \( b \) but not \( a \) stands in the relation of indiscriminability to \( c \), they are distinct. By a similar argument, \( b \) and \( c \) are distinct. Thus three objects of attempted discrimination are involved even in the simplest case of non-transitivity. The argument invokes Leibniz’s Law for relations, but it is surely correct to do so.

Nevertheless, the transitivity of indiscriminability appears to
fail in some cases involving only two objects of attempted discrimination. The first example to be given may strike some as a cheat, but it usefully highlights the relevant schema, and will be followed by examples of a more familiar kind.

Goldbach’s Conjecture famously says that every even number greater than two is the sum of a pair of prime numbers. It has been neither proved nor refuted; such a proof or refutation may or may not be forthcoming in the future. Even so, the Conjecture will be assumed to be either true or false. Since we do not presently know that the Conjecture is not true, ‘0=0’ is presently indiscriminable in truth value from it, for us. Since we do not presently know that the Conjecture is not false, it is presently indiscriminable in truth value from ‘0=1’, for us. But we can certainly discriminate ‘0=0’ from ‘0=1’ in truth value now. The example does of course involve three distinct sentences, and the three distinct structured propositions they express – 0=0, Goldbach’s Conjecture and 0=1 – but these are not the objects of the relevant attempts to discriminate. We can tell all three sentences apart, and all three structured propositions, without the least difficulty; there is no failure there of transitivity, and equally, nothing which enables mathematicians to answer the question in which they are interested. Rather, the objects of the relevant attempts to discriminate are the truth values, of which by hypothesis there are exactly two, of these sentences or propositions. One could restate the example in the following terms: the truth value of ‘0=0’ is indiscriminable from the truth value of Goldbach’s Conjecture; the truth value of Goldbach’s Conjecture is indiscriminable from the truth value of ‘0=1’; the truth value of ‘0=0’ is not indiscriminable from the truth value of ‘0=1’. On this way of speaking, the functor ‘— is indiscriminable from . . .’ contains two opaque contexts, in which co-referring singular terms are not intersubstitutable salva veritate. Suppose, for instance, that the Conjecture is true; then the two definite descriptions ‘the truth value of “0=0”’ and ‘the truth value of Goldbach’s Conjecture’ have the same referent, the True (which may arbitrarily be identified with a certain set, for example), but the insertion of the former in the gap in ‘— is indiscriminable from the truth value of “0=1”’ yields a falsehood, whereas the insertion of the latter yields a truth. On this intentional reading, truth values are not discriminable or indiscriminable absolutely, but only relative to their presentations. It does not
matter for present purposes whether these are thought of as linguistic expressions, the Fregean thoughts or Russellian propositions expressed, or any of several other possibilities. What does matter is that the objects of attempted discrimination are the objects presented, not the presentations of them, and that while there are three of the latter, there are only two of the former.

The mathematical example confirms the point implicit in the foregoing analysis, that the failure of the transitivity of indiscriminability is not a specifically perceptual phenomenon (it would also be easy to give mathematical examples involving three objects rather than two). However, it does strikingly occur in perception; some perceptual examples involving only two objects are therefore in order.

I turn on the radio and hear three songs in succession, having missed the announcement of the singers. I can hear that the singer of the first song is not the singer of the third, but I can hear neither that the singer of the first song is not the singer of the second nor that the singer of the second is not the singer of the third. Thus, in my circumstances and given my capacities, the singer of the first song is indiscriminable from the singer of the second, and the singer of the second from the singer of the third, but the singer of the first is not indiscriminable from the singer of the third. It is perfectly compatible with all this that the singer of the second should turn out to be the same person as either the singer of the first or the singer of the third. If she does, there are only two objects of discrimination – two singers. In this context one may think of the singings of the songs as the presentations of the singers. There are indeed three of these, but they are not the objects of the relevant attempts to discriminate; my ability to discriminate any one of the singings from the other two is not in question. My difficulty is in telling the difference between the singers they present.

Both examples involve three presentations and two objects presented. The object presented by \( x \) is indiscriminable from the object presented by \( y \), which is in turn indiscriminable from the object presented by \( z \), although the object presented by \( x \) is discriminable from the object presented by \( z \). All this is consistent with \( x \) and \( y \) presenting the same object; it is equally consistent with \( y \) and \( z \) doing so. Since the object presented by \( x \) is discriminable from the object presented by \( z \), they are certainly distinct,
so at least two objects are needed. The description also requires \( x, y \) and \( z \) to be distinct presentations. If \( x \) were \( z \), the object presented by \( x \) would be the object presented by \( z \), which has just been seen not to be the case. If \( x \) were \( y \), the discriminability of the object presented by \( x \) from the object presented by \( z \) would contradict the indiscriminability of the object presented by \( y \) from the object presented by \( z \); co-referring variables over presentations are intersubstitutable \( \text{salva veritate} \) in a context like this even though co-referring definite descriptions of the objects they present are not (all relative to an assignment of values to variables). Thus the presentations \( x \) and \( y \) are distinct; by a similar argument, \( y \) and \( z \) are distinct.

If there are three presentations and only two presented objects, one object is presented twice. Examples of this kind could thus not be found for kinds of object and presentation, if any, for which each object admits of at most one presentation. Such objects have indeed been sought by philosophers in search of foundations for knowledge. Russellian sense data seem to provide an example. They could of course be referred to by means of many different descriptions – ‘the dark red spot at the top left of my visual field at midnight’, ‘the most irritating sense datum I have had all month’, and so on – but each is supposed to have only one period of immediate presentation; a sense datum is the object of acquaintance only once. This period is not momentary, according to Russell; it may last a few minutes (Russell 1918, p. 203). Now what is to stop me from noticing that my present red sense datum occupies more of my visual field than did my red sense datum of two seconds ago, and is therefore presumably distinct from it, without being sure exactly when the change took place? In the circumstances, my red sense datum of two seconds ago is indiscriminable from my red sense datum of one second ago, and my red sense datum of one second ago is indiscriminable from my present red sense datum, although my red sense datum of two seconds ago is discriminable from my present red sense datum. For all that I can tell, the change took place entirely within the last second, in which case my red sense datum of two seconds ago and my red sense datum of one second ago are presumably identical; alternatively, the change may have taken place entirely within the penultimate second, in which case my red sense datum of one second ago and my present red sense datum are presumably
identical. Perhaps I have clearer memories of how things were two seconds ago than of how they were one second ago, and thus find the former easier to compare than the latter with how things are now. In this case the passage of time differentiates what are in effect distinct presentations of the same sense datum. The point seems generalizable, given that any object of our awareness is so for more than a single moment of time. If sense data admit distinct presentations, so a fortiori do less exotic creatures of subjectivity. The same colour looks different in different lights; pains return.

In the last example, the passage of time gave rise to a difference of presentations. Even if the same sense datum was presented in qualitatively just the same way throughout the period from two seconds ago to one second ago, the facts about discriminability required the presentation of the sense datum two seconds ago to be distinct from the presentation of it one second ago. The point evidently does not turn on the special nature of sense data; it would also arise for a film projected on a screen. It is indeed the reason for speaking of presentations rather than modes of presentation, tokens rather than types, since the former but not the latter have changed (on the most natural readings of ‘mode of presentation’). Questions obviously exist about the way in which presentations are to be individuated. It follows from the case that there is no positive length of time $\delta t$ such that whenever an object is presented in qualitatively just the same way from time $t$ to time $t+\delta t$ then the presentations of it at all times between $t$ and $t+\delta t$ are numerically identical (otherwise the presentation two seconds ago would be the presentation one second ago, by transitivity). Can any presentation exist for more than a single moment? If this cannot happen when no qualitative change occurs, a fortiori it can hardly happen when such change does occur. Suppose that the presentation at time $t$ is always distinct from the presentation at any later time $t+\delta t$; would it follow that there is always room for doubt as to whether the object presented at $t$ is the same as the object presented at $t+\delta t$? These problems are alleviated but not solved by the reflection that the presentations in the earlier examples could be identified with relatively uncontroversial items, sentences in one case, performances of songs in the other, although neither would be upset by finer distinctions. It may be that presentations $x$ and $y$ are identical if and only if it is necessary that
anyone who thinks of an object under $x$ thinks of it under $y$ and *vice versa*, but the implications of this principle are unclear in the absence of a developed theory of content. Fortunately, presentations can for present purposes be treated merely as indices, sequences of relevant factors including in at least some cases times; the arguments which follow are not too sensitive to the detailed filling in of this idea.

Some final remarks are in order about the logical form of statements involving intentional and non-intentional uses of ‘discriminate’ and cognate words. In English sentences of the form ‘$a$ is discriminable from $b$’, where ‘$a$’ and ‘$b$’ are singular terms, the subject is ‘$a$’. This creates grammatical pressure to read the sentence as ascribing a property to the individual $a$. One takes ‘discriminable’ non-intentionally, at least with respect to the first argument-place, and therefore with respect to the second too in uniform cases. By contrast, the singular term ‘$a$’ in the analysing sentence ‘It is possible to activate the knowledge that $a$ is not $b$’ is not the subject, and occurs embedded within several operators. Something like ‘$a$ is such that it is possible to activate the knowledge that it is not $b$’ better matches the grammar of the original, on the non-intentional reading; the formal equivalent would use a predicate-forming lambda-operator. However, explicit constructions of this kind will not be used. The non-intentional reading will generally be in play when and only when the singular terms are individual variables. In this special case it is plausible that ‘It is possible to activate the knowledge that $a$ is not $b$’ and ‘$a$ is such that it is possible to activate the knowledge that it is not $b$’ are logically equivalent. Another assumption is of course involved: that individual variables can occur meaningfully within the scope of propositional attitude operators. Surely this assumption is correct; we can make sense of the half-English sentence ‘For some $a$, John believes that $a$ contains water and Mary knows that $a$ contains gin’ (Church 1982 gives a contrasting view). On these assumptions, and using ‘$a$’ and ‘$b$’ as variables, the formula ‘It is possible to activate the knowledge that $a$ is not $b$’ in effect expresses a relation between $a$ and $b$.

As for intentional discriminability, it is naturally expressed in English by a sentence whose subject stands for the presentation rather than the object of discrimination. The intentional reading is clearer in ‘This line is discriminable from that in length’ than in
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‘The length of this line is discriminable from the length of that’, although it can be heard in both. Substitution is legitimate for coreferring terms for presentations but not for the objects presented, as in the formula ‘It is possible to activate the knowledge that the object presented by \( x \) is not the object presented by \( y \)’. These points also apply to the interpretation of the formal system in the next chapter.

1.4 Direct and Indirect Discrimination

The intentionality of discrimination bears on attempts to define a notion of indirect discrimination for which indiscriminability would be transitive in terms of a notion of direct discrimination for which indiscriminability is non-transitive. The idea, already mentioned, is that the direct discriminability of this but not that from a third thing is itself an indirect means of discriminating between this and that.\(^2\) This is indiscriminable by indirect means from that just in case this and that are indiscriminable by direct means from exactly the same things, a transitive matter even if direct discrimination is not. What happens if the relevant notion of indiscriminability by direct means is an intentional one?\(^3\)

Given an intentional kind of indiscriminability, indiscriminability\(_i\), we can say that the object presented by \( x \) is indiscriminable\(_i\) from the object presented by \( y \) just in case for every presentation \( z \), the object presented by \( x \) is indiscriminable\(_i\) from the object presented by \( z \) if and only if the object presented by \( y \) is indiscriminable\(_i\), from the object presented by \( z \). If indiscriminability\(_i\) could be treated simply as a relation between the objects presented, so could indiscriminability\(_{is}\)\(_i\), and the latter would automatically be an equivalence relation; that is, it would be reflexive, symmetric and transitive. Some problems with this construction have already been mentioned, but the intentionality of indiscriminability\(_i\), creates a more urgent one. For the discriminability\(_{is}\)\(_i\) of the object presented by \( x \) from the object presented by \( y \) does not entail the distinctness of those objects. Suppose that the object presented by \( x \), but not the object presented by \( y \), is discriminable\(_i\) from the object presented by \( z \); given the intentionality of indiscriminability\(_i\), it is consistent also to assume that the objects presented by \( x \) and \( y \) are the same. The object presented by \( x \) is discriminable\(_i\) from
the object presented by y, by definition; yet the subject has been given no kind of access to knowledge that the object presented by x is not the object presented by y, for the subject has been given no kind of access to a situation in which this would be true (even when the definite descriptions are given narrow scope, as they should be). If one reasons ‘I have discriminated the object presented by x from the object presented by z, but I have not discriminated the object presented by y from the object presented by z; therefore by Leibniz’s Law the object presented by x is not the object presented by y’, one has simply committed a fallacy of illicit substitution of co-referring definite descriptions in an opaque context (given the same assumption as before about scope); one’s premises are true and one’s conclusion is false. Thus discriminability is not the possibility of any kind of discrimination, and indiscriminability is not a kind of indiscriminability.

One can of course legitimize the definition of indiscriminability by reverting to a non-intentional reading of indiscriminability. One would then say that a is indiscriminable from b just in case for every object c, a is indiscriminable from c if and only if b is indiscriminable from c, where the variables ‘a’, ‘b’ and ‘c’ range over presentable objects (unlike ‘x’, ‘y’ and ‘z’, which range over presentations). The discriminability of a and b would then entail their distinctness. Expressions such as ‘the object presented by x’ could be substituted for variables such as ‘a’, provided that the description was given wide scope. However, this move is less than fully illuminating in the absence of an account of the relations between the intentional and non-intentional uses. The sensitivity to presentation seems too germane to the phenomena in which we are interested simply to be ignored in this way.

1.5 Further Reflections

Three further aspects of the importance of presentation may be mentioned.

(1) We can know two things to be distinct simply because they are in different places, even if we can discern no qualitative difference between them. If Tweedledum and Tweedledee are presented to me simultaneously, I know without being told that the twin on my right is not the twin on my left. If they are
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presented to me consecutively, I do not know without being told that the twin now in the room is not the twin who left the room five minutes ago. There is little to be proud of in my kind of ability to discriminate between the twins. To specify the kind of discriminability in which we are more likely to be interested, we must advert to the presentations to stipulate that they should be consecutive.

(2) Consider a man who cannot discriminate between elms and beeches. That is not to say that for him every elm is indiscriminable from every beech, nor even that every elm is indiscriminable from some beech (not necessarily the same one in every case) and vice versa; some elm may look quite different from every beech, even to him. The point is rather that if you take him to a grove of elms and beeches, he cannot usually sort the trees into two classes, one containing all and only the elms and the other all and only the beeches (he is not required to know which class to associate with the word ‘elm’ and which with the word ‘beech’). In particular, if you present him with an elm and a beech, he cannot usually tell that the former is a different kind of tree from the latter. At the same time he may know theoretically that the genera *Ulmus* (elm) and *Fagus* (beech) are distinct; he may even know of examples of each, labelled as such in the Botanical Gardens. The objects of discrimination are in effect kinds of tree, genera, but as presented by individual trees instantiating them rather than by definitions. Similarly, consider a man who cannot discriminate between liars and truth-tellers. That is not to say that for him every liar is indiscriminable from every truth-teller, nor even that every liar is indiscriminable from some truth-teller (not necessarily the same one in every case) and vice versa; some liar may sound quite different from every truth-teller, even to him. The point is rather that if you present him with a liar and a truth-teller, he cannot usually tell that they fall on different sides of the liar/truth-teller divide. At the same time he may perfectly understand what the divide is; he may even know paradigms of each. Thus the objects of discrimination are in effect the qualities of being a liar and of being a truth-teller, but as presented by individual people instantiating them rather than by definitions. More generally, the ability to discriminate between As and Bs can be characterized as the ability to discriminate between the qualities of A-hood and B-hood (or between the kinds, classes or whatever), but only on the
stipulation that these qualities (or kinds, classes or whatever) are presented by their instances (or members) rather than by descriptions. One cannot carry out this subsumption of the ability to discriminate between As and Bs under the preceding account without reference to modes of presentation.

(3) It is not implied that a subject can activate the knowledge that the object presented by x is distinct from the object presented by y only by thinking about the presentations x and y themselves. The subject will normally think only about the objects presented; the requirement is to think about them under x and y respectively. Nevertheless, at least one aspect of the subject’s knowledge can be articulated perspicuously by the proposition that the object presented by x is not the object presented by y, which is de re with respect to presentations rather than objects; it is left open whether the subject has de re knowledge concerning the objects, that they are distinct.

The informal analysis in this chapter has only begun to reveal the structure implicit in the non-transitivity of indiscriminability. The next chapter continues the process by developing a formal system. Informal readers may prefer to go straight to chapter 4.