The normativity of artefacts[*]

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Abstract
Part of the distinction between artefacts, objects made by humans for particular purposes, and natural objects is that artefacts are subject to normative judgements. A drill, say, can be a good drill or a poor drill, it can function well or correctly or it can malfunction. In this paper I investigate how such judgements fit into the domain of the normative in general and what the grounds for their normativity are. Taking as a starting point a general characterization of normativity proposed by Dancy, I argue how statements like 'this is a good drill' or 'this drill is malfunctioning' can be seen to express normative facts, or the content of normative statements. What they say is that a user who has a desire to achieve a particular relevant outcome has a reason to use, or not to use, the artefact in question. Next this analysis is extended to show that not just statements that say that an artefact performs its function well or poorly but all statements that ascribe a function to an artefact can be seen as expressing a normative fact. On this approach the normativity of artefacts is analyzed in terms of reasons on grounds of practical, and to a lesser extent theoretical, rationality. I close by investigating briefly to what extent reasons on moral grounds are, in the analysis adopted here, involved in the normativity of artefacts.

1 *Introduction*

People use artefacts to change the state of the world and sometimes to keep it from changing. Artefact use shares in the broadly normative assessment to which all human activity is liable. Using x to do y may be right or wrong, it may be wise or clever or stupid, it may be skilfully done or clumsily, and so forth. Additionally, the role played by the artefacts in our activities is itself subject to judgements that are broadly normative. An artefact may be more or less fit for its job, may perform its function well or poorly or may malfunction. Although in our use of objects we are not restricted to artefacts, since we can and do use natural objects for all kinds of purposes, the extent to which broadly normative judgements are considered to be in order concerning the performance of objects in general matches the extent to which such objects are 'incorporated' into the fabric of human activity. If we choose to use a stone to hammer a pin into the ground, we pick one that 'makes a good hammer', but when it cracks after some

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blows, we do not easily say that our hammer is broken or malfunctioning, as we would if we had been using a 'proper' hammer for the job and the handle broke. It seems that, within the context of the human use of objects, the notion of malfunctioning is restricted to artefacts, that is, objects designed and made by human beings for some purpose or other.

The assessments that were presented in the previous paragraph were characterized as 'broadly normative'. There seems to be a general recognition that our statements judging that something is 'right', 'wrong', that something 'ought to be the case' or 'ought to be done', that something or someone is 'good' or 'bad', 'recommendable' or 'admirable', and the like, somehow belong together. Such expressions belong to the sphere of human intentional activity. None of these terms applies to the realm of nature in so far as we consider that realm as existing independent of human intentional activity.[1]

How these various terms hang together, however, is not something on which much of a consensus appears to exist. Usually a division is made between *deontic* notions ('right', 'wrong', 'reason to', 'ought to') and evaluative or *axiological* notions ('good', 'bad', 'evil'). Opinions differ on whether either of these can be considered primary and the other as secondary. Additionally there are conflicting views on how far the value part extends. Some declare instrumental value, being the value of something as a means to an end, not to be a form of value at all,[2] while others make instrumental value one of the cornerstones of their categorisation of value concepts.[3]

In this contribution my aim is to clarify the various forms of broadly normative judgements that are applied to artefacts, and to show how they hang together. I cannot, nor do I need to, evaluate the debate on the precise interrelations between the various normative concepts. I will adopt a characterization of the normative that I think is broad enough to capture both deontic notions like 'right', 'reason to' and 'ought to' and evaluative notions like 'good' and 'better', 'poor' and 'worse', 'dysfunctional' and 'malfunctional' that apply to artefact use.

2 *Characterizing normativity*

Since there is no accepted general account of normativity, I will adopt a particular one that I find useful for my purpose. It is one sketched very recently by Dancy.[4] According to this characterization, the normative concerns the difference that facts about the world make to

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[1] I am not considering here the applicability of such terms due to nature's possible dependence on other forms of intentionality, as studied in, for example, theology.
[2] Dancy (2000), in support of W.D. Ross.
[3] Von Wright (1963).
[4] Dancy (2005).

what to do, believe, or desire. What may be termed a normative fact, or, alternatively, what is the content of a normative statement,[5] is the second-order fact that a particular fact or set of facts about the world has this sort of relevance to the actions, beliefs or desires of a specific person or of any person. This 'definition' does not characterize the normative purely in non-normative terms, since the relation of relevance to what to do that certain facts have is itself a normative relation, but it is not Dancy's ambition to characterize the normative in purely non-normative terms, nor is this is an issue that matters here. It is important, however, to understand that the facts that make a difference need not be 'purely' natural facts as they are commonly understood.[6] They include intentional facts, that is, facts stating what certain people do, believe or desire. What our fellow human beings do and wish for forms a major part of what motivates our own behaviour.

On this broad characterization of the normative, evaluative facts figure as normative facts, or evaluative statements as normative statements, in so far as such facts mean, or such statements express, that certain features about the world are of relevance to what to do or believe or desire. In order to spell out to what extent this is so, we must first look at the structure of normative statements in more detail.

For a start, there are various ways in which a fact can be of relevance to us. A particular fact can be of *practical* relevance, relevance to what to *do*, or of *theoretical* relevance, relevance to what to *believe*, or of *orectical* relevance[7], relevance to what to *desire*. Whether this threefold division is exhaustive is not of much concern to this essay. Let it suffice to say that it matches the basic categories of the philosophy of mind, where human actions are standardly considered to be based on a mixture of desires, expressing how you would like the world to be, and beliefs, representing how you think the world is. Acknowledging a distinction between practical relevance and theoretical relevance is what matters most here.

Secondly, Dancy distinguishes two forms of the relevance relation: a fact making it the case that a person *has a reason to* do or believe or desire something, and a fact making it the

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[5] In this contribution I will not take a stand on basic issues in, predominantly, ethics about the character of the normative, i.e., whether there are normative facts that we can discover, and whether normative sentences describe such facts and are therefore either true or false, or whether these should not be seen as declarative sentences. Henceforth I will speak in terms of normative facts without implying thereby a commitment to cognitivism. 'Normative fact' can be replaced by 'the content of a normative statement' or similar phrases, according to one's point of view.

[6] That is, as being distinct from intentional facts, disregarding the opinion of an adherent of the identity theory who holds that the set of natural facts includes the set of intentional facts.

[7] Aristotle uses *orektikos* alongside *praktikos* and *theôrètikos*, which carve up the realm of the mental along lines roughly similar to the terms used today. The *Oxford English Dictionary* mentions the word 'orectic'. Being unaware of any use of the term in contemporary philosophical writings, I use a latinized variant to match the similarly latinized practical and theoretical. I am grateful to Jonathan Dancy for supplying me with the correct word.

case that a person *ought to* do or believe or desire that thing. He expresses the hope that these two are sufficient to understand all normative facts. This will depend on how one wants to read the 'ought to' relation. According to Dancy, this relation expresses the way the balance of reasons lies. It matters, however, whether we let the facts speak for themselves as to what a person has reason to do or ought to do, or whether that is mediated by what this person believes. Suppose x has agreed to meet a friend who will be visiting him at the station. Unbeknownst to x, his friend has missed the train. So on the facts, x does not have a reason to go to the station at the time of the train's arrival, but on his beliefs he has. Ought x to go to the station or not? It is tempting to say here that x ought not to go, nor has he a reason to go, but that he is justified in going. However, this is not a compelling argument for introducing a third relevance relation of making it the case that a person is justified in doing or believing or desiring something, on a par with the other two relations. There is the possibility of analyzing this relation in terms of the other two: certain facts make it the case that person x has a reason to believe that he or she ought to do A, or has a reason to believe that certain facts make it the case that he or she ought to do A. So for the time being, 'have a reason to' and 'ought to' can be held to exhaust the forms of relevance.[8]

Finally, a distinction can be made between different grounds for the relevance relation. The major distinction here is between *rational* and *moral* grounds. These two sorts of ground have, to a certain extent, their own sphere of application. For action, rational and moral grounds apply equally. It makes as much sense to say that certain facts make it the case that one ought on moral grounds to do a certain thing, as it makes sense to say that certain facts make it the case that one ought on rational grounds to do something. As a result, we can have conflicting prescriptions concerning one and the same act. A sufficiently self-interested man may find that the fact that the ship he is on is sinking rapidly makes it the case that he ought, on rational grounds, to secure for himself a place in the life boats at all costs, while the same man might admit that, on the same facts, he ought, on moral grounds, to let women and children go first. Concerning the adoption of beliefs, rational grounds are often considered to be of primary or even exclusive significance. Nevertheless, it seems defensible to say that, apart from the rational grounds we have or fail to have for doing so, we ought on moral grounds to believe that the beings externally similar to ourselves that fill our environment are

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[8] Cf. Raz (1975) for the distinction between 'having a reason to do *a*' and 'believing one has a reason to do *a*'. The same work shows, by the way, that the analysis of 'ought to' as expressing the balance of reasons is not universally accepted. For Raz, '*x* ought to do *a*' is identical in meaning to '*x* has a reason to do *a*'. For the case where the balance of all reasons swings in favour of doing *a*, Raz uses the expression '*x* has a *conclusive reason* to do *a*'.

human beings that are also internally similar to ourselves, with roughly similar feelings and desires. As far as desires are concerned, there is an important philosophical tradition, going back to Hume, which holds that desires can be evaluated morally but are insensitive to rational grounds. Yet here as well it seems defensible to say of some desires, say, a desire for healthy food, that they are rational, in particular against a background of other desires.

3 *Normative judgements of artefact performance*
Having articulated, in this way, some of the conceptual apparatus necessary for analyzing normative statements, we can set out to investigate how evaluative judgements, and in particular evaluative judgements regarding artefacts, fit into the realm of the normative.

According to Dancy, evaluative judgements, or facts about values, as his cognitivist perspective has it, are normative but in a vague way. When we say that a particular violin is good, we express the fact that the violin has certain features *and* that these features, though not furnishing a reason or even a conclusive reason to do something in particular, are such that a positive rather than a negative attitude toward it is in order. This positive attitude could be to admire it, or to protect it, and so forth. However, this does not catch what we mean when we say that something is a good drill or a good pump. In such cases there is no vagueness at all concerning what the something is that there would be reason to do; it is *using* them. However, to merely add this specification will not do. Apart from the fact that using a drill or pump can hardly be seen to represent either a positive or a negative attitude, clearly '*x* is a good drill' cannot be analyzed as '*x* has certain features *f* and these features make it the case that person *p*, or any person, has a reason to use *x*'. Whether a person has a reason to use *x* depends, apart from *x*'s specific features, on whether that person has a reason to use a drill in the first place. If we want to hold on to the meaningfulness of statements like '*x* is a good drill', then the analysis has to take the dependency on overall reasons into account.[9] So for the general case of an artefact of the functional kind K we would have:

'*x* is a good K' expresses the normative fact that *x* has certain features *f* and that because of these features, if a person *p* wishes to achieve the result of K-ing, then *p* has a reason to use *x* for K-ing.

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[9] If we want to hold on, that is, to the idea that it makes sense to call an artefact good or poor independently of the actual involvement of an interested user. One could, of course, choose the way out of saying that only

Here it is assumed that to each artefact belongs one particular function for which it is designed, the artefact's so-called proper function, indicated by K. Included among the features *f* is the design history that identifies *x* as a K. Using the artefact for that function amounts to the matching activity of K-ing. If *x* is a knife, then the use I make of it is for cutting, satisfying a wish of mine to have some particular thing cut. If *x* is a radio, then I use it for listening to a broadcasted program, satisfying a wish of mine to hear that particular program, or a program of that type, or perhaps any program. Whether indeed all artefacts have one particular proper function is an issue not taken up here.

Additionally this analysis has a myopic view of what can be done with an artefact. Many artefacts perform their function as components of larger artefacts and they are not used as one uses, say, a hammer. For component-artefacts, one should rather speak of a reason to *install* rather than a reason to use. Large, system-like artefacts do not have one particular user, nor one particular form of use. Such subtleties must be skipped here for reasons of space.

The value than an object *x* has for a person *p* if *p* has a reason to use *x* is, on this analysis, a form of *instrumental value*. It is the value of a means to an end. The user's desire is typically for the outcome of K-ing, not for the activity of K-ing.[10] Since, for people with such desires to create particular outcomes, the facts about *x* definitely make a difference as to what to do, facts about instrumental value belong, in the present analysis, plainly to the normative domain. The analysis suggests the following complement:

> '*x* is a malfunctioning K' expresses the normative fact that *x* has certain features *f* and that because of these features, if a person *p* wishes to achieve the result of K-ing, then *p* has a reason not to use *x* for K-ing.

It might be thought that the conditional clause restricting the reason not to use *x* to those people who wish to achieve *x*'s purpose is not required in the case of malfunctioning. Surely, if *x* malfunctions, then one has a reason *tout court* not to use *x*? This, however, is not true, since the use that can be made of an artefact is not limited to what it is designed for. Suppose that *p* owns a burnt-out iron. It is not true that *p* now has a reason not to use the iron, since *p* may wish to use the iron as a paperweight, and it serves perfectly for that purpose. In a way it

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statements like '*x* is a good drill for person *p*' can be true or false, or at any rate meaningful, and have the truth or the assertability of *these* statements depend on the fact whether *p* wants to achieve what *x* is designed for.
[10] This also applies to activities like pleasure rowing, where the rowing itself is instrumental to the end of spending a nice and quiet day on the water. Of course it occasionally happens that someone is interested in using

serves this purpose better than a functional iron would, since now no conflict of uses, wanting to iron a shirt while the papers on the desk are being organized, can occur. Nevertheless, the above articulation is redundant in the sense that, once the use of x is restricted to the use according to its proper function, no reference to p's goals is necessary. So we can do with the following shorter version:

> 'x is a malfunctioning K' expresses the normative fact that x has certain features f and that because of these features, a person p has a reason not to use x for K-ing.

It might be thought that if an artefact x is malfunctioning, certainly in the full-blown sense of failing to operate at all, a person p who wishes to do what x was designed to do does not simply have *a* reason not to use x but has a *conclusive* reason not to use x, such that p ought not to use x. However, the functions of artefacts are rarely so narrowly defined that this is true in general. Suppose Jack intends to rob a bank but finds his gun is jammed. Does Jack now have a conclusive reason not to use the gun for the robbery? It should say he has not, since he may expect that merely waving the gun around will do the job. Suppose that Jill wishes to kill her boss but finds her gun is also jammed. Does she have a conclusive reason not to use the gun? Again it seems this is too strong, since she may try to see if he will not die of fright at the sight of a gun being pointed at him. (She'd better have an alternative means to hand in case he does not, though.) Only if someone definitely wants to fire a bullet do they have a conclusive reason not to use a jammed gun for the purpose. But can we say this is the one and only function of a gun? If we do, the cases of Jack and Jill are cases of the use of a gun for a purpose different from its proper function, as discussed in the previous paragraph.

4 *Additional conditions for the (un)reasonableness of use*

The above analysis is incomplete, however. Consider the following case: x is a good car, in that it has features such that p, who needs to do the shopping for the coming week, has a reason to use it to drive to the local supermarket. Does this mean that q similarly has a reason to use the car to drive to her local school? Not if q is twelve years old. In this case she definitely has a reason *not* to use the car to drive to school. The use of an artefact for the purpose it is designed for usually requires more justification, in terms of valid reasons, than just the desire to realize the corresponding end. The use of artefacts is hardly ever a

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an artefact primarily for the physical action, for example when someone chops wood with an axe to vent his anger, but even then there is an interest in the outcome of the action.

straightforward matter. Children need considerable time to master the use of relatively simple tools like hammers, screwdrivers, knives and scissors. Many other artefacts come with instructions for use that make for some hard reading. It can been argued that every artefact is imbedded in a *use plan* that specifies which operations of the artefact will lead to the end state that corresponds to the function of the artefact.[11] A use plan tacitly or explicitly contains the circumstances that must obtain and the abilities the user must show for these operations to lead to the desired end state. A clinical thermometer cannot be used successfully to check the temperature of an oven, an electric drill will only work when connected to a life power socket, a torch needs a fresh set of batteries, and a chainsaw wielded by someone with insufficient muscle power and training will saw up something else rather than the wood that needs to be sawn. Therefore the analysis of positive evaluative judgements has to be extended:

> '*x* is a good K' expresses the normative fact that *x* has certain features *f* and that because of these features, if a person *p* wishes to achieve the result of K-ing and if the circumstances and *p*'s abilities satisfy what is presupposed or specified in *x*'s use plan and if *p* is acquainted with *x*'s use plan, then *p* has a reason to use *x* for K-ing.

Accordingly there are many cases where someone has a reason not to use a particular artefact which do not involve a judgement of poor functioning or malfunctioning, although they involve normative facts of some sort: a clinical thermometer is *useless* for determining oven temperature; an electric drill is *useless* for drilling holes if there is no electric power at hand; a torch with empty batteries is *useless* as a light; a ten-year old boy makes a *poor* lumberjack.[12]

The added clause of circumstances and abilities being right and of acquaintance with a use plan will be tacitly understood in the remaining part of this contribution.

5 *Type and token judgements*

It should be noted that 'poor' and 'good' can be applied to artefact types and to artefact tokens. By an artefact *token* I mean one particular artefact, for example, 'this knife over here', 'my neighbour's car', 'the rifle Lee Harvey Oswald killed John F. Kennedy with' (if indeed he did). Artefact types come in two varieties, for which I introduce the following two technical terms. By an artefact *kind* I mean an artefact as defined by its functional role and by the mere fact of being designed to perform that function, e.g. a knife, a car, a rifle. By an

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[11] Houkes, Vermaas, Dorst & de Vries (2002).

[12] The latter is an example of the poor performance of a human task, not of the poor functioning of an artefact.

artefact *type*, narrowly conceived, I mean an artefact as identified by its functional role and by its total design/manufacture history. That is, as designed and subsequently manufactured in a specific number of copies, e.g. an eight-inch chef's knife from the firm Zwilling J.A. Henckels, or a Volkswagen Golf built in the 14th week of 1996 at the factory in Wolfsburg. The amount of detail necessary to identify a particular artefact-type varies and depends on the context in which the concept figures. Both an artefact type and an artefact kind can be realized by exactly one token, but artefacts are designed and 'fixed'[13] at the type level, so to speak, and in principle additional tokens can always be created.

A particular artefact token can be good or poor but an artefact type can also be good or poor. In the latter case, the idea is that the artefact is well-designed and well-manufactured, such that a typical token of a good type can be assumed to be a good token, relative to the typical tokens of a different artefact type. Or at least a 'fresh' token, obtained directly from its designer/manufacturer, can be assumed to be so, since the goodness of an artefact type is consistent with the poorness of all of its tokens, for example, when all tokens are worn or broken or deliberately damaged. It does not make sense to say of an artefact kind that it is good or poor, however. To call something a knife is another way of saying that it is useful for cutting because it was designed for that purpose. Speaking of good and poor artefact kinds would imply that it is meaningful to say that knives are more useful for cutting than hammers are for hitting nails, but this seems pretty nonsensical. Goodness and poorness discriminate performance within a particular functional domain and therefore do not apply to the functional domain as such. Accordingly, in the above expressions x stands for either an artefact type or an artefact token. For a type judgement, some fine-tuning in the phrasing is necessary, as follows:

> 'Type X is a good K-type' expresses the normative fact that a token of X typically has certain features f and that because of these features, if a person p wishes to achieve the result of K-ing, then p has a reason to use a token of X for K-ing.

Though goodness and poorness can apply to artefact types, malfunctioning, in its usual sense of not being at all capable to perform its designed function, hardly will. It is difficult to imagine how an artefact of which, through some design or production fault, not a single copy works, can still be identified as a K and marketed and sold as such. A malfunction judgement

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[13] The term is from Ulrich Krohs, see his (2004).

is justified only when, notwithstanding its inability to perform the function K, the artefact is still a K by design, that is, identifiable as a token of the corresponding artefact type. Otherwise, nothing would prevent us from calling a sugar cube a malfunctioning aeroplane. Similarly artefacts used for accidental purposes cannot malfunction, nor can natural objects. If I use a Phillips screwdriver to open a tin of paint and I do not manage to get the screwdriver's end under the lid, or if I use a wooden stick for the same purpose and it breaks, then I am not dealing with a malfunctioning paint-tin opener. Otherwise, again, a sugar cube could be a malfunctioning aeroplane, due to its failure to fly me from Amsterdam to Dublin. Instead, we should say that the screwdriver or the stick does not *make* a paint-tin opener, and therefore it cannot be a malfunctioning paint-tin opener. The fact that *x* does not *make* a paint-tin opener is, nevertheless, a normative fact in its own right, as I will argue below.

It may happen that *x*, which is designed as a K, and on these grounds has features *f* that give anyone who wishes to achieve the result of K-ing a reason to use *x*, is a poorer K than *y*, which by sheer coincidence may have similar but different features *g* that make *y* useful for K-ing. For cutting a rope you may prefer to use a very sharp glass splinter, found lying somewhere, to using your cheap pocketknife. Such things, however, are only to be expected for relatively simple tools, in which little scientific theory is applied. It is difficult to imagine an object that, used in an ad hoc fashion, would make a better television set than a proper television set. Yet situations similar to the case of the knife and the glass splinter are readily available for the higher-level social functions that complex systems embody. The ANWB (the Dutch equivalent of the AA) has employed, over the years, a system of telephone boxes along the Dutch motorways for the benefit of drivers whose cars break down. Currently, however, a driver's personal mobile phone with the telephone number of the ANWB stored in its memory is, judging by the behaviour of car drivers, considered to be a better ANWB-alerting system than the system that was designed for the purpose.

6 *Criteria for judgements about artefact performance*

Why does the presence of certain features *f* in an artefact *x* make it the case that a person *p* has a reason to use *x*? In the case of instrumental value, it is because the result of the physical process of applying features *f*, as specified in *x*'s use plan, is exactly what *p* hopes to achieve. The fact that a particular artefact is good or poor matches certain criteria that people use to judge the result of using the artefact. If *p* judges knife *x* to be better than knife *y*, it is because *p* prefers the outcome when *x* is used, the smoothness of the cut, the shape of the resulting pieces, the amount of effort that has to be put to the job, and everything else that is considered

a relevant aspect of the outcome, to the outcome when *y* is used. Strictly speaking, then, such judgements would come one at a time, concerning one particular task performed by one particular person. In practice our interest in value judgements is in generalized ones, both over users and over uses. 'Good' and 'poor' are therefore, inevitably, vague categories. If we had only one token of a particular artefact kind, then it would be difficult to say in what respect the fact that the artefact was good differs from the fact that it was functional, that is, being a means actually to realize a corresponding goal. To call a knife good is to be acquainted with knives that are worse. To call a knife poor is to be acquainted with better knives or at least to be able to point out how the performance of the knife could be improved. Such acquaintance differentiates between '*x* is/makes a K' and '*x* is/makes a good K'.

Although less so than in the case of 'good' and 'poor', there is also a vagueness as to where exactly malfunction judgements start to be in order. It seems odd to say that disposable lighters or torches malfunction once the reservoir or the battery is empty, since it was understood from the start that the lighter or the batteries would be empty one day. So the non-functionality is due to failing circumstances rather than to a failure of the artefact. Similarly, a personal computer infected by a virus is a malfunctioning computer to someone who only knows how to operate it using some preinstalled software package, whereas it is a computer that is functioning as reliably as always to someone who knows how to remove the virus.

In generalizing over different persons, it is assumed that the criteria they apply in judging the quality of K-ing are shared. If we say that *x* is a good knife, we assume that all people who wish to cut something would agree that the features of this knife make it fit for cutting, that they would not urge you to start looking for a better knife, and so forth. If someone has a different opinion as to whether a certain knife is good, it is because this person's abilities are atypical, she is, for example, left-handed or rheumatic or just plain clumsy, or because she has an atypical form of use in mind. Specific forms of use come with their own criteria of goodness. Cutting out forms from a sheet of thin paper requires a very sharp and thin knife, which is therefore also a fragile knife, whereas cutting open the sheets of an uncut book requires a knife that for many other purposes would be considered rather blunt. Introducing specific forms to use corresponds to refinements of the classification of artefact kinds, dividing an artefact kind, say, a knife, up into subkinds, say, a cooking knife or a bread-slicing knife or a book-opening knife. If one wishes to hold on to the idea that token-of-a-kind judgements, i.e. '*x* is a good knife', and token-of-a-subkind judgements, i.e. '*x* is a good bread-slicing knife', both

make sense, then it will have to be acknowledged that such judgements are not conservative.[14] A knife may be a good knife but a poor book-opening knife, because it is too sharp for this particular job.[15] Another example concerns cutting to size the gypsum blocks that are used to build interior walls in modern houses. As a do-it-yourselfer one is advised to use a saw, but for this job a saw that is general-purpose-wise a poor saw, i.e., a worn or cheap one, is precisely a good saw, just as a good saw, i.e., a new, expensive one, would be a bad saw to use here.[16]

Finally it is vague what determines whether we can say that an *x is* a K and, as such, a poor K or a malfunctioning K. If someone presents you with an artefact that does not resemble any artefact familiar to you and claims it is a new type of corkscrew, then if no one, including the designer, succeeds in opening a wine bottle with the aid of this contraption, you will be tempted to say that the thing is not a corkscrew at all. However, the designer may be able to show that it was because of a missing component, or a mis-shaped component, that you were unable to remove a cork using the new corkscrew. So the *type* this particular artefact represents is a corkscrew all right, and may even be a relatively good corkscrew, but the *token* used was a *malfunctioning* corkscrew.

Regarding the ascription of function, design often defeats performance. There are examples of ordinary consumer goods made or designed so poorly that they are as good as useless. Personally I have had this experience with a pair of nail scissors. Few people, however, would see in this a reason to deny them the status of being what they were obviously designed to be, nail scissors. The verdict is rather that they are nail scissors, but extremely poor ones. Especially during the design phase of artefacts there is a certain generosity in function ascription. For example, the prototype of a jet engine may explode or collapse within a few seconds of ignition, and many of the first ones did, but that does not stop it from being a jet engine, even though it does not, at that stage, do what jet engines are designed for, propelling an aeroplane into the air. But it looks like a jet engine, it smells like a jet engine, it may even taste like a jet engine; therefore it is a jet engine. Design, or at least the full-blown rational and justifiable form of engineering design, rules supreme here.[17]

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[14] The other way around, people find it difficult to 'carry over' the judgement of an artefact designed as a subkind to a judgement of that same artefact as a kind-token. Is a good bread-knife also a good knife as a mere knife? That sounds to me like an ill-posed question. Cf. on this issue Hansson (2006).

[15] It is interesting that in these cases people use 'bad' rather than 'poor'.

[16] This case shows that reasons, at least instrumental reasons, are person-specific. The new and expensive saw may very well do a better job of sawing the blocks than the old and worn one. Someone who can afford to buy a new saw every day will therefore disagree: the fact that sawing such blocks ruins the saw is irrelevant for this person.

[17] One should beware of special cases, however. A trick cigar is not a cigar by design, nor, therefore, a malfunctioning cigar. On various aspects of the justification of design and function ascription, see Houkes (2006), Houkes & Vermaas (2006), de Ridder (2006).

7 *The inherent normativity of function ascription*

Tying together the various results of the previous sections, it becomes apparent that as a consequence of the present analysis function ascription itself is already normative. The analysis is slightly complicated, however, due to the interference of tokens, types, and kinds, as the following analysis shows:

> '*x* is a working K' expresses the normative fact that *x* has features *f* and that because of these features, if a person *p* wishes to achieve the result of K-ing, then *p* has a reason to use *x* for K-ing.

In other words, '*x* is a working K' implies that *x* is useful for K-ing. Calling something a drill is pointing out certain features of an object that will be a reason for someone who has the drilling of one or more holes as a goal to use the thing. However, in order for that person to indeed have a reason to use the drill in question, the drill must be in working order. The function word 'K', moreover, is derived from the activity of K-ing, an activity involving the use of a mediating object, such that any object that is fit to mediate in the way required can be referred to as a K. The following is therefore also true:

> '*x* makes a (good) K' expresses the normative fact that *x* has features *f* and that because of these features, if a person *p* wishes to achieve the result of K-ing, then *p* has a reason to use *x* for K-ing.

What the three cases '*x* is a working K', '*x* is a good K' and '*x* makes a (good) K' share, what establishes the existence, for a person *p*, of an instrumental reason, conditional on *p*'s having a particular goal, to use *x*, is the presence of certain physical capacities. What distinguishes them are partly physical characteristics, discriminating between '*x* is a working K' and '*x* is a good K', but also the history of the object in question, whether or not it was designed as a K.

An analogous case is the distinction between '*x* is a poor/malfunctioning K' and '*x* is not and does not make a K', since the latter can again be seen, in the present analysis, to represent a normative fact in its own right:[18]

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[18] Note that the 'and does not make' is substantial: an *x* that is not a K can still make a K.

> '*x* is not and does not make a K' expresses the normative fact that *x* has features *f* and that because of these features, a person *p* has a reason not to use *x* for K-ing.

What '*x* is a malfunctioning K' and '*x* is not nor does it make a K' share is, now, the lack of a certain physical capacity, and what distinguishes between the two cases are again historical features (*x*'s design history) present in the former but absent in the latter.

These results can be presented as forming a hierarchy of normative facts about artefact tokens: *x* can be useful for K-ing or it can be useless for K-ing. If *x* is useful for K-ing, it can either be the case that *x* is a working K or that *x* is not a K, being either a natural object or an artefact designed for some other function than K-ing, but can serve as a K or make a K. Some *x*s, again, that are Ks are good Ks, just as some *x*s that can serve as Ks make particularly good Ks. If *x* is useless for K-ing, it can be the case that *x* is not a K and does not make a K either, or that *x* is a malfunctioning K.

It remains to be seen whether mere ascription of function can be construed as a normative fact. Since I have defined an artefact type by its functional role and its design and manufacture history, it is possible that not a single token of a type *X* is useful for its designed function of K-ing. Therefore one does not *ipso facto* have a reason to use a token of *X* for K-ing, provided one desires to achieve the result of K-ing; one has such a reason only if the token is a *working* token. However, there is a way of construing mere function ascription on the token level as a normative fact, as follows:

> '*x* is a K' expresses the normative fact that *x* has features *f* (c.q. its design history) and that because of *f* a person *p* has a reason to believe that *p*, if *p* has a desire to achieve the result of K-ing, has a reason to use *x* for K-ing.

In other words, mere function ascription to a particular artefact, i.e. without bringing in the actual physical characteristics of a particular artefact, matches the *justification* of the use of that artefact. The (true) statement that an object is a particular artefact expresses a normative fact of a *theoretical* kind only, whereas the other statements, pronouncing that an object is a working, good, poor, malfunctioning, and so forth, artefact, express normative facts of *practical* kind.

It is, therefore, a consequence of the present account of normativity that all statements ascribing or denying functionality to an artefact express normative facts in one way or another. What this reflects is that normativity is an inherent aspect of intentionality. If we

consider acting in the world, there is no limit to what we can consider relevant for our choice of action. Many people will be familiar with the following situation. While busy constructing or repairing, you suddenly need something as, say, a temporary support for some part, so that you can reach out for another tool. While your eyes travel over the workshop or room, jumping from object to object, you ask yourself 'will it do?' Each object is, in the instrumental sense, valued: its features are checked to see whether they are such that you have a reason to use it as your temporary support or such that you have a reason not to use it for that purpose. This is not only so in the case of practical reasons, it applies equally to theoretical reasons. Every observational fact is a reason, for any person p learning of that fact, for believing a number of propositions.[19]

8 *Rational and moral grounds*

In the previous sections an analysis of normative judgements about artefacts was proposed in so far as these judgements directly relate to the artefacts' instrumental value. Of the two grounds for reasons, mentioned in the introduction, *instrumental* value is linked exclusively to *rational* grounds. If x is a good K, then x's features are for any p who wishes to do what a K is for a reason to use x for K-ing on grounds of rationality. In the remaining part of this contribution I will briefly discuss how far the relevance of rational grounds extends and what place there is for that other sort of grounds, moral grounds.

Since x's features are a ground for *doing* something, we say that p has a reason to use x on grounds of *practical* rationality.[20] Reasons to do something on grounds of practical rationality are intimately linked to reasons to *believe* something on grounds of *theoretical* rationality. A particular act is only rationally justified if the beliefs supporting a rational action are themselves rationally justified.[21] As was already indicated in the previous section, the features possessed by an artefact that make it the case that one has a reason to use it are the artefact's morphological and physical characteristics. However, for most of the artefacts that surround us very few users would be able to point out what these features are. A basic characteristic of a technological society like ours is a sharp division of labour between the users of artefacts and the designers and manufacturers of artefacts. For all but the simplest utensils, a user p

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[19] The precise relation between normativity and intentionality merits a much more elaborate discussion and I cannot do justice to this issue here.

[20] Another issue is whether the relation between instrumental value and rational grounds is one-to-one, i.e. whether rational grounds are linked exclusively to instrumental value. This concerns the issue whether rationality can be interpreted only as instrumental rationality. This issue lies beyond the scope of this contribution.

[21] I leave open the question whether the desires that are fed into this calculus are subject to any form of justification.

does not know which morphological or physical features go into K-ing or are relevant to K-ing, nor does he or she need to know. What justifies for p the proposition 'x is a (good) K' is the historical fact that x was designed as a K and/or p's experience of success at using x for K-ing. Person p can take either of these as evidence that x has the corresponding morphological and physical characteristics. What kind of evidence p in turn can have for the fact that x was designed as a K is a delicate matter, but clearly that evidence, and the justification of p's subsequent use of x, is more of a socio-cultural than of a scientific character.[22]

The division of technical labour has the roles of designer/manufacturer and user distinctly separated, although, of course, an engineer can also be the user of a product he or she was involved in designing or manufacturing. This is quite different from the case where the role of designer and user coincide. This ranges from a lone inventor testing a prototype, or a dextrous do-it-yourselfer, to the use of an artefact or a natural object for an ad hoc purpose that has, if it concerns an artefact, nothing to do with the function for which this artefact was designed. In this case, the burden of the proof that the use is based on correct beliefs about the object's behaviour rests upon the shoulders of the user. If someone uses a cardboard box as a chair, this person has no one to blame but himself if the box collapses when he sits down.

When an artefact is used for the function it was designed for, in circumstances that are consistent with the artefact's use plan as explicated in the instructions for use, the situation is entirely different. When handing over an artefact designed for a specific purpose to a client who ordered it, or to the market, the designer/manufacturer is committed to the veracity of the predictions he or she makes about the artefact's behaviour. For the artefact's purchaser and subsequent user, these predictions have the force of a promise, and the commitment accordingly has the character of a *moral* obligation. We can say, therefore, that the designer's beliefs ought, on moral grounds, to be rationally justified.

It is part of the human condition that neither the criteria of theoretical and practical rationality nor the criteria of moral obligation can guarantee that the use of a particular artefact will lead to the anticipated result. We may be disappointed by our fellow men and, metaphorically speaking, by nature. A recognition of the ubiquity of uncertainty shows in our use of language where we say that a particular artefact 'ought to do' or 'ought not to do' such-and-so when we handle it in a certain way. Taken at face value, such a statement embodies a category mistake, or at least it does if we take 'p ought to K' to mean 'p has a conclusive reason to K' or 'the balance of reasons for p swings in favour of K-ing', since artefacts do not

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[22] Compare on the division of labour and on the evidence for functionality the contribution to by Houkes (2006).

act for reasons; only people do. However, I propose that statements like '*x* ought to do K', where *x* is an artefact, can be analyzed as follows:

> When a person *p* says '*x* ought (not) to do K in circumstances *c*', *p* expresses the opinion that *p* is justified in expecting that *x* will (not) do K in circumstances *c*.

There are two quite different ways in which *p* can be so justified, however. One, this way of speaking expresses the idea that one is theoretically justified in one's belief that the artefact will perform in a particular way, given the amount of research and testing spent during the design or the repair of the artefact, though at the same time it is acknowledged that there is always the possibility that something was overlooked. Two, it may express the idea that one *has a right* to the artefact's performance, on the basis of a promise about the artefact's performance by either a designer/manufacturer or a retailer or a repairman, while at the same time it expresses an awareness that such promises are occasionally broken. [23]

As far as moral obligations on the part of the user and the designer/manufacturer are concerned, they extend further than just trustworthiness of promises. The use of an artefact ought not to put other people at the risk of being hurt or of incurring damage to their property, and this is a shared responsibility, where the designer's instructions for use should warn a user about hazardous use. A more extensive discussion of the responsibilities resulting from claims about an object's functionality can be found in Houkes's contribution to this issue (Houkes 2006).

Such claims about what a user or a designer is committed to on moral grounds originate in a view of artefact use and artefact design as forms of action, to which generally acknowledged moral considerations apply. They do not address the relation between evaluative judgements on artefacts and moral reasons for action. Returning to our central conception of evaluative judgements about artefacts as normative facts, a remaining question, therefore, is whether such judgements express or imply that someone has a reason to do anything with respect to the artefact *on moral grounds* instead of rational grounds. For example, does the fact that *x* malfunctions mean that a person *p* has a reason not to use *x* on moral grounds? This might be motivated, for instance, by the hazard that the use of a malfunctioning artefact would pose for

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[23] Although it was briefly discussed how to analyze the normative fact of being theoretically justified to expect *p*, namely as having a reason on grounds of rationality to believe that *p* will be the case, I will not offer such an analysis for the normative fact of having a moral right to expect *p*, although it must be clear that its structure is quite different. The person who holds the expectation does not have a reason for this belief on moral grounds, such as one has, for instance, a reason to believe in the value of human life on moral grounds.

other people. However, whereas the having of an instrumental reason not to use a malfunctioning artefact is contained in the *meaning* of malfunction, there is no general connection between the instrumental value of a means and any moral reasons for or against using it. It is not *a priori* the case that the use of a poor or malfunctioning artefact puts bystanders at greater risk than does the use of a properly functioning artefact. And that one ought not to kill one's neighbour is a judgement that is totally unrelated to the quality of the knife selected for the job.

The having of moral reasons for or against using an artefact is a different issue from an artefact having moral value. This is a somewhat off-Broadway use of the notion of moral value: moral goodness is traditionally ascribed to states of the world, or states of mankind, such that the appropriate action is to strive to realize such a state, or it is ascribed to persons, such that the appropriate action is to support the actions of such a person, or ascribed to people's motives, such that acting on that motive is morally vindicated. I would say, nevertheless, that it makes sense to say that a public litter basket is, as an artefact, morally good, where this judgement expresses the fact that a public litter basket has certain features f and that, because of these features, a person p has a reason on moral grounds to *promote* its use. Similarly a meaning can be attached to the judgement that unleaded petrol is morally better than leaded petrol. In these cases, the reasons that p has for the appropriate positive action are, from a moral point of view, not conditional on any of p's desires, and this seems a desideratum for the analysis of the moral value of an object. Such desires would matter if the moral value of a public litter basket or of unleaded petrol was analyzed as entailing that p has a reason, on moral grounds, to *use* them.

9 *Conclusion*

In the above I have shown that Dancy's recent characterization of normativity can be used to give a general account of how evaluative statements about artefacts like 'x is a good drill', 'y is a malfunctioning drill', and even 'z is a working drill', can all be seen as expressing the same type of normative fact. The basic feature of Dancy's characterization of normative facts is that they express that certain facts are of relevance to what to do, what to believe and what to desire. Without any further specification of the relevance relation, this characterization is too general to be of much use. However, I have been able to show that the various evaluative judgements can all be understood by the particular relevance relation of furnishing a reason, occasionally a conclusive reason, as the facts may be, to use, or not to use, the artefact in question, provided a desire for the result of using the artefact is present in the user. This

analysis just fails to apply to statements of mere function ascription, e.g. '*w* is a drill'. For this kind of statement, the facts stand in a general relation of relevance only to what a prospective user *believes* about the artefact's use, not to any use itself. This is due to the fact the a particular artefact can, on basis of certain facts, i.e. its design history, be a token of an artefact type, and therefore, say, 'a drill', whereas it can, on the basis of other facts, i.e. its physical condition, be unable to perform the corresponding function, being, say, a broken drill.

Additionally I have argued that a specific sort of normative statement applied to artefacts, e.g. 'when I do *p*, the artefact ought to do *q*', which, taken literally, would be classified as a category mistake, can be made sense of in the analysis of normative facts adopted. Such statements are to be construed as indicating normative facts that express the justification, either of a theoretically rational or of a moral nature, of a prospective user's *expectation* of artefact behaviour. As such, they bear no specific semantic relation to artefacts, and could be formulated for either natural objects or for situations where objects do not play a role.

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