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The Perception of Representational Content

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How can it be true that one sees a lake when looking at a picture of a lake, since one's gaze is directed upon a flat dry surface covered in paint? An adequate contemporary explanation cannot avoid taking a theoretical stand on some fundamental cognitive science issues concerning the nature of perception, of pictorial content, and of perceptual reference to items that, strictly speaking, have no physical existence. A solution is proposed that invokes a broadly functionalist, naturalistic theory of perception, plus a double content analysis of perceptual interpretation, which permits non-supervenient, culturally autonomous modes of reference to be generated and artistically exploited even in a purely physical world. In addition, a functionalist concept of broad or 'spread' reference replaces the traditional precise intentional concept of reference, which previously made reference to non-existent items theoretically intractable.

Visual representational artworks, such as paintings of people or natural scenes, are such that normally one can see their content, or subject matter, when one looks at them. Thus under normal conditions, one can see a lake when looking at a non-abstract painting of a lake. However, such commonplaces of everyday experience are theoretically challenging for several reasons. One is that the physical surface of a painting does not in fact include a real lake.[1] This is problematic because normally the concept of seeing is a veridical one, i.e., so that if one genuinely sees an X, then there must be an X that one sees. So how could it be true to say that one sees a lake when looking at such a picture, since there is no real lake there?

One approach to the issue would regard such a picture as a 'visual prosthesis', or device for seeing an actual lake that the picture might represent.[2] On this view, just as one could use binoculars to prosthetically assist one's seeing of an actual lake, so also could one use a representational painting for the same purpose. But such a view cannot account for those pictures where no actual lake is represented, and generally it seems implausible other than in specialized cases, such as the sense in which pictures transmitted back from a space probe near the moons of Jupiter might enable scientists to *see* the surface of those moons for the first time.[3]

However, independently of such a prosthesis view, whether or not it is a lake that one sees when looking at a picture of one, it certainly seems as if one sees *something*, and that 'something' seems to include the representational content or subject matter of the picture. One may or may not simultaneously see the marked physical surface of the canvas, as urged by Wollheim in his 'twofold' view,[4] but it is hard to deny that one also in some sense sees the content, or sees the lake-related content as a lake.

To be sure, this common intuition can be resisted, such as by explaining the apparent seeing as being in some way illusory, as with Gombrich, or involving some form of pretense or game of make-believe, as on Walton's account, or--with Goodman--as either involving noticing that the picture symbolically denotes or refers to an actual lake, if it represents some actual lake, or merely noticing that it can be classified as a lake-picture if no actual lake is represented.[5]

Also, admittedly there are formidable semantic and ontological issues to be dealt with in connection with the seeing of pictorial content, such as that of how interpersonal reference to, and reidentification of, content items is possible, and how to avoid a Meinongian commitment to an infinity of subsisting lakes etc, none of which actually exist, but which nevertheless could be seen or referred to in appropriate pictures. Thus some kind of fundamentally naturalistic explanation of the seeing of content, or more generally of reference to content items, would be highly desirable, so as to defuse such doubts.

Nevertheless, in spite of such alternatives and difficulties, there is a strong countervailing theoretical pressure in favor of the prima facie legitimacy of such representational seeing of content. A painting or depiction of a lake does provide specifically visual information about the lake--unlike a linguistic description of one--and indeed, in trompe l'oeil cases, a viewer may momentarily be unable to tell whether she is viewing a depicted or an actual lake. Yet in the general case perceivers of pictures of Xs do not acquire persistent false beliefs that they are seeing a real X, so that there are no non-momentary epistemic failures in such cases that could generally undermine claims of veridicality for representational seeing.

Also, the following, broadly cognitive science-based strategy may be employed to further defuse traditional metaphysical and semantic concerns. Concepts such as those of content, seeing, recognition, objects of sight, reference, and so on are primarily cognitive or epistemic rather than ontological concepts. So as long as an account of

representational seeing can be given that is broadly continuous with, and integrally related to, adequate cognitive accounts of such concepts, including of ordinary seeing of everyday objects, and as long as no egregious errors or illusions are involved in the seeing of content as such, then no more can reasonably be asked. After all, for philosophical naturalists, it is the best discoverable science that should, at least provisionally, settle issues as to the legitimacy of folk psychological concepts such as that of reference to, or seeing of, content, rather than any traditional metaphysical or semantic concerns or theories.[6] In this paper I shall concentrate on providing the outlines of such a specifically naturalistic, cognitive scientific account of visual perception of content. This will involve discussing, at least in outline form, rather more perceptual and cognitive science issues than are normally found in articles in aesthetics journals, but the potential payoff for aesthetic theory may be hoped to justify the initial costs.

I. A DOUBLE CONTENT, FUNCTIONALIST ACCOUNT OF VISUAL REPRESENTATION

To the extent that visual perception is a broadly representational activity that represents the world as being a certain way, the correlative concept of visual content must apply to all such cases, whether involving perception of ordinary objects, or specifically of the content of representational artifacts. Thus issues concerning the nature and status of visual content are pervasive ones, rather than being specific to pictorial seeing, so that the most promising naturalistic accounts are likely to be those that provide a comprehensive

explanation of all kinds of visual content in similar terms. One such account will be offered here. But an initial disclaimer, or fair warning, should be provided: currently there is no generally agreed upon account of the nature of *any* kinds of cognitive representation, whether perceptual or otherwise,[7] and indeed there is even a recent influential movement that views perception itself as an 'enactive' or 'sensorimotor' activity--integrally involving skilled interactions with an environment--that is not primarily a representational activity at all.[8] Thus anyone seeking to use or provide a workable, unified account of perceptual content is forced to take sides, or innovate, at least to some extent.

In order to illustrate the approach to be argued for, which has some significant novel elements, here is an initial example, focused on the indeterminacy of sensory information.[9] Suppose that one attempts to see the *shape* of a round disk. Now the retinal image of such a disk may not be round at all, since it only would be round if the disc were viewed perpendicularly to its surface, since any other viewing angle would produce elliptical retinal data instead. So somehow one must also use that same retinal sensory data to estimate the angle at which one is viewing the disk, in order to determine the actual shape of the disk. But that needed aspectual angle of view is itself equally indeterminate, in the absence of information about the actual shape of the object. Or in other words, raw sensory information by itself is too indeterminate to specify any definite shape-related perceptual content, since any given shape on the retina could have been caused by many different combinations of actual shapes plus different angles of view--a

given retinal ellipse might be the image of a round disk viewed at an oblique angle, or of a similar ellipse viewed perpendicularly, and so on.

Moreover, similar points would apply to any raw *color* retinal data as well. A yellow sensory stimulation might be the result of a white surface viewed in yellow light, or a yellow surface viewed in white light, or many other combinations of surface color plus aspectual lighting conditions. But since arguable all visual sensory data is restricted to data about colors or shapes, *all* retinal data is indeterminate because of interactions between aspectual versus object-related factors. Hence, on the view being defended, any determinate perceptual content, whether veridical or not, cannot be explained purely in terms of the data available to a perceiver via sensory inputs. In addition, some broadly inferential or interpretive process must be involved, in order to estimate determinate values both for the aspectual and object-related kinds of perceptual content--namely, the perspectival angle of view plus the intrinsic shape of the perceived object for shapes, and the ambient light plus the intrinsic color of the surface in the case of colors.

One must be careful at this point not to have too intellectualist, experiential, or conceptually rich an account of the kinds of inference or interpretation involved, for a broadly naturalistic theory of perception must be widely applicable in the biological world, including to organisms not possessing any conceptual or higher cognitive structures at all. Thus my own basic account of perception would be a variant on the kind of broad cognitive functionalism that has been a standard or mainstream position in the

philosophy of mind for the last thirty years or so,[10] and which to that extent is well understood and accepted by many.[11]

On a functionalist view of the mind, mental items such as thoughts or intentions are to be understood in terms of their functional role in mediating between sensory inputs and behavioral outputs of a cognitive system. Similarly, a functionalist perceptual theory would explain perceptual content in terms of the mediating functional role played by perceptual states. For example, on such a view, one's having inferred, on the basis of sensory inputs, that the shape of the disk one is seeing is a circular shape is integrally connected with other cognitive states and outputs, such as one's activity of consciously modeling the object for oneself as being round, internally classifying the object with other round objects, thinking to oneself, or saying out loud 'It's round', attempting to pick it up as if it were a round object, and so on. Thus the view has some affinities with recent sensorimotor accounts of perception, as briefly mentioned above, in that one's perceptual content may reveal itself via actual interaction with some relevant object, but it is a much more general-purpose view, in that potentially it can explain any kinds of representational perceptual content in functionalist terms.

An advantage of such a functionalist approach is that it can also provide a ready account of *mis*perception, or incorrect visual content, such as when a person, viewing the same round disk from the same angle, incorrectly infers both the angle and hence the shape of the object as well. In such a case, the differing functional connections from the veridical case, including e.g. the person's classifying the item as being elliptical, making mistakes

in attempting to pick it up, and so on, are what show that her perceptual content is incorrect.

II. INNOVATIONS IN THE FUNCTIONALIST VIEW OF PERCEPTION

As for what may be innovative--i.e., not readily available for comparison elsewhere--in the above account, there are two main factors. The first is the specifically functionalist view of perception, on which more below. The second novel element is the implied claim that there are *two* kinds, rather than just one kind, of perceptual content--aspectual versus object-related--which are also correlative to each other. For example, on the above account, one cannot infer a determinate, object-related shape to be part of one's perceptual content without simultaneously inferring that one has an appropriate correlative angle of view from which one is perceiving that object.[12]

The current *double content* view of perceptual content may usefully be presented as a reaction to the failures of dominant *causal* theories of perception, which explain perceptual content exclusively in terms of information derived from sensory causal *inputs* (with no consideration of other internal mediating factors, or of outputs) to perceptual states. In the hands of naturalistically minded philosophers and cognitive scientists such as Dretske and Fodor, such accounts have been founded on a 'nomic covariation' account

of perceptual information or content, according to which sensory data supplies information about what it reliably co-varies with among its worldly causes.[13] For example, if an object changes color from red to yellow and back again, and if sensory data caused by those changes reliably co-varies with those changes, then the resulting perceptual content would *correctly represent* those color changes as just specified.

It is now generally acknowledged even by their proponents that such views are at best incomplete as they stand,[14] while their opponents regard them as fundamentally hopeless--for example because of their inability to explain misrepresentation--with some radically new alternative being required.[15]

The double content account given here is such a radical account, in that it makes no use of covariance concepts at all. Its basic theoretical stance is that covariance accounts of perceptual content could not possibly succeed, because sensory contents are always a function of at least *two* independent variables, namely aspectual conditions versus intrinsic object properties, rather than just a single variable as in covariation accounts. Hence, the perceptual content of a perceptual state cannot be explained in terms of an input-based, backward-looking account of what caused the state, but instead a full functionalist account of the role of the perceptual state in a perceiver's--at least partly inferential--cognitive transactions with the world is required to explain its double content.[16]

As for the kind of perceptual functionalism itself appealed to here, perhaps surprisingly enough it also seems to include novel--or at least newly revived--elements. For in spite of the widespread popularity of more generic, non-perceptual functionalist views of cognitive activities, specifically functionalist views of perception seem to have been dormant or absent in philosophy and cognitive science since the death of behaviorism in the 1960's, which perhaps gave putative perceptual functionalist theories a bad name because of their inclusion of behavioral output factors.[17] Or alternatively, perhaps it has been the wide popularity of purely input-based causal theories of perception, such as the nomic covariance views discussed above of Dretske, Fodor et al, that has led to the neglect of functionalist alternatives. In any case, some additional factors to further differentiate the current functionalist view from any competing views, whether functionalist or not, will be presented in the next section.

III. A REFLEXIVE FUNCTIONALIST VIEW OF PERCEPTUAL CONTENT

Two further required elements in the current functionalist view need to be explicitly drawn out. First, any adequate account of genuinely perceptual content must be specific or fine-grained enough so that co-extensive, but intensionally distinct, content properties are not identified with each other--which could be dubbed the *content intensionality* condition. For example, it should be possible to distinguish seeing a shape as being trilateral from seeing it as being triangular, even though the extensions of the two predicates are the same. This intensionality requirement is especially important in the

explanation of pictorial content, because an artist could easily structure a picture of a trilateral and triangular shape so that normal viewers primarily noticed one property rather than the other--such as by either putting numbers 1..2..3 in each angle, or alternatively, next to the middle of each side of the shape. (The inability of the input-based nomic covariance view--which cannot move beyond extensional equivalence--to satisfy this requirement is another factor that dooms it to failure.)

And second, an intuitive *referential particularity* requirement for the seeing of a particular object must also be satisfied, namely that the relevant perceptual content must specifically be *about the particular object X being perceived*, rather than just being about any qualitatively identical object. For example, there is a standard problem concerning nomic covariance accounts of content, namely that a given causal chain for sensory data may contain several, possibly qualitatively identical, items that all nomically covary to the same extent with the perceptual data, hence causing a violation of this particularity requirement--such as if one block pushes a qualitatively identical block into the field of view of a perceiver, in which case both blocks equally cause the sensory data, but only the second is seen.[18]

In order to satisfy both of these requirements, a necessary condition on a functionalist theory is that it must specifically be a *reflexive* functionalist theory, in which a particular object or property X causes a person to enter a functional state that includes some cognitive role or behavioral disposition directed toward *that very object or instantiated property X*. For example, in the case of the two qualitatively identical blocks just

mentioned, it is the fact that a perceiver's cognitive and behavioral dispositions are directed toward the *second* block--such as in picking it up rather than the first block--that ensures that the functionally defined perceptual content satisfies the particularity requirement. Or, as a property-related case, perception of the red color of an object X would be a case where the physical basis of the red color causes the perceiver to enter a functional state in which, among other things, she acquires some disposition toward the color of that particular object X as such--such as a disposition to sort object X into a box of red objects rather than one of green objects.

Given such a reflexive functionalist account of perception, the initial *content intensionality* requirement, distinguishing triangularity from trilaterality and so on, can now also be addressed. It is at this point that the specifically *double content* aspect of the present account performs some useful additional work. Consider perception of two qualitatively identical pictures of triangles, which differ only in that the interior angles of one are numbered, while instead the sides of the other are numbered. In each case, the physical causal factors associated with the triangular/trilateral shapes as such are the same. However, the *aspectual* factors, including the numbered angles in one case versus numbered sides in the other, are different. So the retinal sensory data available to a perceiver of the two will be different in each case, and that combined causal difference is sufficient to causally account for the fact that a perceiver would likely enter a *different* functional state in each case as a result of her inferential double content, aspect plus object processing of the retinal data.

In such a case, the different functional perceptual states would involve different dispositions, such as a disposition to describe to oneself one shape as a trilateral shape, versus describing the other as a triangular shape, or to regard or manipulate each picture in different ways appropriate to an interest in its sides rather than angles, and so on. Thus the current reflexive functionalist theory of perception (RFTP) potentially can--unlike any other available naturalistic theories--provide a very flexible and intuitively plausible account of the differing perceptual contents in such intensionality cases.

IV. RECOGNITION OF REAL VERSUS REPRESENTATIONAL XS

The pieces are now in place for a reflexive functionalist theory of perception (RFTP)-based approach to our central question, namely, how is it possible for one to see a lake when looking at a picture of one, when strictly speaking there is no real lake upon which one's gaze is directed when looking at the picture? There are at least four related issues that need to be resolved to fully clarify this situation. First, an adequate account of the relations between visual recognition of a *real* X, versus mere recognition of a *represented* X, is needed. Second, a legitimate basis specifically for *reference* to a represented X to occur must be supplied, to ensure that this is a genuine kind of seeing of an X, having the implication that there is an X that one sees, to which visual reference can be made. Third, the relevant kind of visual reference to an X must be *veridical*, i.e., minimally it must not involve any significant epistemic errors that could impugn this being a genuine kind of seeing. And fourth, a *naturalistically adequate* account of the relations between

the physical surface of a picture and the X-related content that is seen there must be provided, so that the account given does not, for instance, end up invoking any Meinongian subsistent entities whose status as objects of reference would be inconsistent with naturalism.

First, then, an adequate account of the relations between visual recognition of a real X, versus mere recognition of a represented X, must be given. The main issue here is that as to how to consistently acknowledge the very different ontological status of real Xs versus merely represented Xs, while at the same time also making use of a compatible, unitary concept of recognition of an X that can apply to both real and represented Xs.

A main key to doing so is to distinguish ontological from epistemic questions, and in particular, questions concerning the metaphysical *identity* of an X from questions concerning its visual *identification* as an X. To be sure, only those objects having all of the properties of an actual lake ontologically qualify as real lakes. But the perceptual *identification* of something as a lake can occur via seeing of a much more limited range of properties, which properties could be possessed both by a real X and by a representation of an X, such as the properties associated with having a certain configuration of colors and an appropriate shape.[19]

Indeed, since the issue with respect to recognition is primarily that of plausible identification with respect to the available evidence, rather than that of the identity of the intrinsic properties of an item, one may invoke perceiver-relative relational properties

such as that of 'looking lake-like' as a justified basis for recognition, since both real and represented lakes can and often do look lake-like, whereas other items only rarely do so, and even when they do, such cases potentially may be explained using a broader, non-intentional concept of representation of lakes.[20]

Now admittedly, at this point one should distinguish two concepts of recognition, namely a limited, pure cognitive science concept of an internal perceptual process resulting in a normal classification of a perceived item as an X on the basis of a limited subset of perceived properties, from a more normative epistemic concept that would further filter such cognitive results into correct versus incorrect cases. Such a normative concept would only count a perceptual process as involving genuine recognition of an X if genuine seeing of an X was also involved, namely, such that there is an X that one sees, and that one does veridically see it as an X. But of course that normative concept invokes the very concept of seeing to which all four of our related issues, as summarized above, are addressed, so its satisfaction must await resolution of the other three unsettled issues. Or, to put the matter another way, broadly recognitional accounts of the perception of artworks[21] cannot avoid the kinds of foundational issues addressed in this paper by pleading that they are only attempting to do good cognitive science, because a broader conception of cognitive science would itself involve such normative perceptual considerations.

V. THE NON-SUPERVENIENCE OF PERCEPTUAL CONTENT

There still are three remaining issues from the last section to be discussed, which may be combined into the single issue of how to give a naturalistically adequate account of veridical perceptual reference to represented Xs. But as a preliminary to resolving that issue, it will be useful to discuss some broader characteristics of the reflexive functional theory of perception (RFTP) that has been outlined.

To begin, there is an important general theoretical issue for naturalists concerning the relations of purely naturalistic, causally effective physical properties to other kinds of properties. The case of colors provides a notorious example, with endless controversy as to whether colors are e.g. objective physical reflectance properties of surfaces, or instead perceiver-relative in various possible ways, so that at best color properties would supervene on, or be determined by, whatever are the actual physical properties of surfaces that explain the seeing of colors.[22] In aesthetics the issue is also important, in that some have claimed that aesthetic properties similarly supervene on physical properties--which, if true, would among other things set rigorous limits on permissible interpretations of artworks.[23]

However, the RFTP has, in virtue of its double content structure and its resulting view that all perceptual content must involve inferential factors, an unusual perspective on this issue. According to the RFTP, it is *never* the case that, purely as a result of perceptual processes, an item of perceptual content supervenes on, or is determined by, some physical object, property, or group of such physical properties. Hence, if there are any

such determination or supervenience relations between purely physical versus content properties, they must have some basis other than a purely perceptual one. Indeed, to emphasize, the RFTP holds that even purely physicalistic perceptual content properties do not supervene on the corresponding physical properties--as one should expect, given the failure of nomic covariance views of content and their replacement by the double content view.

Moreover, in the case of artworks, and cultural concepts generally that integrally rely on various forms of perception, the RFTP in effect underwrites a thesis of the *autonomy of cultural concepts*, in that not only the conceptual structure, but even the purely *perceptual* structure of cases involving employment of such concepts cannot be rigorously determined by the physical world.[24] Thus from this point alone we already have the beginnings of an answer to our question as to the status of represented Xs, namely that if we can, or already have, internally arranged our conceptual and perceptual structures so as to provide, in our normal practices, a functionally useful status to perceptual contents that include represented Xs, then no fundamental objection to, or constraint from, the purely physical world need be feared with respect to such practices. Thus, to summarize this point, a view of aesthetic objects and properties as being *metaphysically autonomous*, and as not being strictly reducible to physical objects or properties, even if a strongly reductive physicalist science is true,is one welcome outcome of the present analysis--and one that would not be possible without the double content account of perceptual content.

This issue of the non-supervenience of perceptual content items with respect to worldly properties will now be examined in more detail. To clarify its significance, a situation will first be considered in which it would make no ontological or perceptual difference. Consider an austere naturalistic view of worldly properties, according to which all of them are purely physical, so that all good science is strongly reductionistic. Then add to that an equally austere concept of perceptual content, according to which all perceptual content is content that is purely about such physical properties. The combination of these two views would still permit a classical realist view of perception, with no room for an autonomous concept of perceptual inference or interpretation going beyond veridical versus non-veridical perception of those worldly properties.

Next, consider a more moderate scenario, in which there are still no worldly properties other than purely physical ones, so that a strongly reductionistic science of the world remains the correct view. However, this second scenario is moderate in that perceptual content includes properties that are not purely *about* those physical worldly properties. Such a moderate scenario is compatible with the RFTP and its thesis of cultural autonomy, since the non-supervenience of perceptual contents on worldly physical causes guarantees that a variety of different culturally bound perceptual contents are physically possible, not all of which need be purely about the physical properties of the world.[25]

Now in this second moderate scenario--which may well be the one in which we actually live--it is likely that many of our everyday perceptual contents, including our perceptions of aesthetic qualities, sounds, colors, pains, and other secondary qualities, would not,

strictly speaking, be about those purely physical properties which are, in this scenario, the only actually instantiated worldly properties. Thus an account is needed of how nevertheless some legitimate kind of veridical perceptual reference to such qualities is possible. I shall provide such an account, and then argue that the veridical perceptual status of such qualities applies equally to representational content properties in general--hence also to the aesthetic qualities that arguably are a subset of them--after some more explicit discussion of perceptual intentionality in the next section.

VI. PERCEPTUAL INTENTIONALITY AND REFERENTIAL SPREAD

It will be useful at this point to explicitly bring in the concept of intentionality, involving aboutness or directedness toward an object. Of course any discussions of content at all, including the previous sections of this paper, are inextricably tied up with issues about intentionality, but the hope of naturalists--whose naturalistic stance is adopted for the purposes of this paper--is that an account of the intentionality or aboutness of mental contents, whether of cognitive or perceptual kinds, can be provided in *non*-intentional terms. Thus both the rejected nomic covariance account of content or information, and the current reflexive functionalist theory (RFTP), attempt to explain the intentionality of perceptual and other mental contents in terms of their own favored non-intentional naturalistic structures. Nevertheless, both of these views are attempts to *reduce* rather than *eliminate* intentionality--or, in the oft-quoted view of Jerry Fodor, if aboutness is real then it must be really something else.[26]

However, perhaps surprisingly, intentionality is almost always discussed--whether by Brentano and the phenomenological tradition, or by naturalists such as Dretske, Fodor, Searle and so on[27]--in terms of a simple or stereotypical model of aboutness or directionality, in which intentionality is regarded as a relation between a single, intrinsically defined mental state, and a single particular object or property. In pictorial terms, the stereotypical picture is of something like a mental state emitting, because of its intrinsic nature, a tightly focused laser-like beam of light--a kind of pure pointer--which affects nothing else in its path, and which precisely hits only the object or property which is its target.

However, a functionalist view of perception such as the RFTP should, and must, reject *every part* of this traditional picture of intentionality. First, on a functionalist view no mental or perceptual state can be defined purely in terms of its intrinsic properties, because its functional role integrally involves its relations to other internal cognitive states, plus to inputs and outputs. For example, on the present view the perceptual content of a perceptual state would involve a sensorily caused group of dispositions, whose existence and manifestation conditions also integrally depend upon other relevant parts of the person's cognitive structure and behavioral skills. Thus on a functionalist view, a perceptual state is closer to being a total state of a whole organism than it is to being a traditional, intrinsically defined mental state.

Second, on such a functionalist view the directedness of an intentional state toward an item X would be explained in terms of the connected causal chain leading from sensory inputs to X-related outputs, such as a direct causal interaction with X. But the X-related perceptual dispositions, whose sensory activation initiates such a causal chain, integrally affect and depend on each item in that chain. So the traditional picture of a laser-like beam of intentionality, functioning as if in a vacuum and affecting nothing else in its path, must be wrong for this reason also. In a physical world, if intentionality is real--as it is on the present account--then it must work by being instantiated by a chain of causally linked physical states, that overall causally relate functional states of perceivers with worldly objects and properties. On this functionalist view, intentionality is integrally involved with the overall directed pattern of such causal networks, whether as actually or potentially instantiated, so that the intentional content or message *requires* instantiation in such a causally structured and linked medium in order to have any real existence.

Third, and most important for present concerns, the part of the traditional picture in which the narrow intentional beam or pointer is directed toward *exactly one* object or property must also be rejected. (Though, as we shall shortly see, it can be partially or indirectly recovered.) If the functionalist causal chain picture of intentionality is correct, the parts of the chain that involve direct behavioral interaction with worldly objects and properties inevitably involve a kind of *referential spread*, to coin a term--that is, because they consist of complex action-related behavioral states interacting with equally complex worldly states, in strict physical terms the intentional referential pointer cannot be more precisely focused than on the *whole complex* of objects, events and properties with which

the perceiver, via her actions, is interacting. Or, to vary the metaphor, intentionally hitting a perceptual target is, in the real world, more like using a shotgun, with multiple pellets hitting a broad target, than it is like use of a rifle to precisely hit only a single item.

To be sure, some aspects of the 'pure pointer' view of intentionality may be recoverable in indirect ways, such as the following. Typical users of shotguns presumably do usually intend to hit a precise target, such as a particular bird, even though they use a device that produces a much broader spread of target impacts. Similarly, a perceiver may intend to sort objects specifically with respect to their color, even though her perceptually driven physical interaction with the objects inevitably involves many more of their states and properties than just their colors.

There are at least two indirect ways to narrow down the spread of targets in such cases. First, in both kinds of case various purely internal aspects of the intentional cognitive structure of each person may be more precisely focused, such as linguistic aspects. The shotgun user might think, or say to herself "it is the bird I intend to hit", and the color sorter think "I intend to sort the objects purely according to their colors". Or in other words, even if an intentional network can only be broadly focused or spread in its critical worldly interactions, it may, for more specialized functional uses of the content of the perceptual state such as linguistic uses, be more narrowly focused. And second, perceptual feedback from previous perceptual episodes of interaction with the intended objects may be focused on the specific properties of the worldly situation that are

currently of most interest to the perceiver, even though those interactions themselves always involve a broader, more scattered range of events and properties.

VII. REFERENTIAL SPREAD, AND FOUR KINDS OF DEPENDENCE

With the above functionalist account of intentionality in hand, we can now return to the second scenario of the previous section 5, in which a strongly reducible world of purely physical properties also contains perceivers, some of whose perceptual contents, as a result of the non-supervenience of perceptual content properties on worldly causal states, can be about some culturally contingent, non-physical properties N, in addition to any other perceptual contents that are primarily about those worldly physical properties P.

Now the current strategy, as briefly announced at the end of section 5, is to provide a naturalistically adequate account of veridical perceptual reference to *non*-physical objects or properties of *any* legitimate kind, and then to argue that the content properties, which may be seen in represented Xs, make up a legitimate subclass of those items. In a nutshell, the argument will be that the inevitable *referential spread* of functional intentionality allows--under specific conditions discussed in the next section--perceptual reference to non-physical objects or properties to *piggyback on,* or depend on, simultaneous, austerely legitimate perceptual references to purely physical objects and properties.

To begin, recall from section 3 that there is an intuitive *referential particularity* requirement for any genuine seeing of a particular object, namely that the relevant perceptual content must specifically be about the particular object X being perceived, rather than just being about any qualitatively identical object. In the naturalistic worldview being assumed, this means that the paradigms of genuine perceptual reference are provided by veridical perceptual contents that are primarily about particular purely physical objects, plus, or including, any physical properties that those objects currently instantiate.

But since the relevant worldview is, in the relevant scenario, a strongly reductionistic one, such paradigm cases also constitute the *only* genuine cases of perceptual reference that there are. Or in other words, even though the non-supervenience of perceptual content on worldly states allows there to be more kinds of perceptual content than purely physically-directed content, the claim is that nevertheless all *veridical* perceptual contents must be so exclusively in virtue of their having a physicalistic intentional component, directed towards physical objects or properties.

However, fortunately, acceptance even of this fairly draconian requirement on veridical perceptual content is compatible with simultaneous veridical perception of non-physical objects or properties, because of the inevitable *referential spread* of functionalist intentionality. For example, if traditional views of colors as being secondary or perceptually dependent qualities were correct in such a scenario, then strictly speaking

the colors that one sees would not be genuine physical properties. However, it could still be true that one's color-related perceptual contents would enable one to veridically perceive those colors, as long as every color-related disposition in one's functional state of color perception would be a disposition whose referential spread included relevant purely physical objects or properties, such as the actual physical properties of the physical surface on which one sees the colors. Thus, as long as color-related dispositions themselves would have a referential spread including relevant physical objects and properties, then the draconian conditions on genuine reference would still be satisfied in such color-related perceptual situations. (For other necessary conditions on reference see the next section.)

Another way of explaining this draconian--but quite possibly true of the actual world--scenario is in terms of no less than four kinds of dependence of colors on the physical world. In such a scenario, genuine color perception is possible only if a) *functional* dependence holds, i.e., the color-related perceptual content is functionally linked through a physical causal chain--which is one of the possible multiple realizers of the functional state--to object surfaces apt for being perceived as colored; b) *ontological* dependence holds, in that this aptness is an ontological dependence of the seen color on that physical surface; c) *referential* or semantic dependence holds, in that the referential spread of the color content includes such physical objects and surfaces, without which it would not refer at all; d) *epistemic* dependence holds, in that any perceptual knowledge or information about colors is obtainable only from such typical physical sources upon which colors are ontologically dependent.

At this point a brief further discussion of *referential spread* may be useful. The concept is intended to be a foundational concept for a semantic theory. Thus, for instance, the claim is not that we really can specifically refer to purely physical properties, and also, in the same or distinct acts of reference, to purely non-physical properties, but that for epistemic reasons connected with the causal realizations of dispositions we are unable to distinguish the evidence for the two kinds of reference. Instead the claim is that *reference itself* is an inherently blunt instrument (to further vary the metaphor), and that any finer discriminations among objects and properties cannot take place in the final stages of referential, directed causal interaction with worldly objects, but instead are confined to more specialized, non-referential--or only indirectly referential--roles in other parts of the relevant functional network, such as linguistically related functions.

VIII. GROUNDING, CATEGORIAL AND VERIDICALITY CONDITIONS ON PERCEPTION

The previous section argued that referential spread makes reference to non-physical objects or properties at least possible. But there are further necessary conditions required in order to achieve sufficient conditions for successful perceptual reference in such cases, which conditions will now be discussed.

First, reference to non-physical items requires some *grounding conditions*. These are broadly ontological or epistemic conditions on reference being possible at all to such items, whether veridically or not. For example, if colors are secondary qualities, then presumably their grounding conditions would include whatever it is that enables a distinctive range of color-related phenomenological qualities to be present in some mental states--which qualia-related conditions are distinct from issues of perceptual reference to what seem to be specific worldly colors. Or, in the case of the representational contents associated with represented Xs, such as the lake-related content associated with a picture of a lake, presumably the grounding conditions are provided by the existence of actual lakes, plus the cognitive and perceptual contents and other functional structures that result from perception of such lakes. For a functionalist, presumably all such grounding conditions become causally effective via their roles in making available for cognition dispositional structures that would facilitate or make possible the relevant referential uses.

Second, there are *categorial* conditions, which are logical, semantic or conceptual conditions that are also necessary conditions for reference to be possible at all to non-physical items. For example, if in fact colors are non-physical secondary qualities, a person cannot refer to colors at all, whether verbally or perceptually, if she, in all of her functional dealings with physical surfaces apt to be seen as colored, always and only sees or thinks about their purely physical characteristics. Or, in the case of representational contents, a person cannot perceive the lake-related content of a picture of a lake at all if

she has no effective working concept, as functionally implemented in her cognition, of the broad structural patterns of differences between real versus representational Xs.[28]

And third, there are *veridicality* conditions, which determine whether a genuine reference to a non-physical item--i.e., one satisfying the grounding and categorial conditions--is veridical or not. For example, one could misperceive a red color as being brown, or misperceive the represented lake in a picture as a bathtub, whether or not colors or represented items are non-physical.

Now so far, the second group of categorial conditions sound like standard analytic conditions on the use of concepts in perception and cognition generally--which, among other things, they are. However, it must not be forgotten that we are now discussing reference to *non-physical* objects or properties, which, in the strongly reductive physicalist ontology being assumed, strictly speaking *do not exist*. Thus in effect my general claim is that it is possible to domesticate, in a broadly analytic and naturalistic way, perceptual references to what may well be *non-existent* objects and properties[29] --if the assumed strongly reductive scenario applies to our actual world--via plausible extensions of standard analytic conceptual tools as applied to a functionalist account of perceptual cognition.

IX. FUNCTIONAL DIFFERENCES IN SEEING OF REAL VERSUS REPRESENTATIONAL XS

More will now be said about the structure of categorial conditions in the case of represented Xs, and their relations to parallel conditions for the seeing of real Xs. It will turn out that characteristically functionalist features of the analysis are just as important as the concept of referential spread in making the theory plausible, and distinguishing it from its competitors. To begin, we may accept that the only physically real lakes are those having all of the physical properties of actual lakes, so that lake-related seeings of the surface of a painting of a lake are not seeings of a physically real lake, but instead they must be--if genuine seeings at all--seeings of the content or subject matter of the painting.

Now the fundamental philosophical problem being worked on at this point is that of finding a way in which to render completely compatible two relevant systems: on the one hand, a comprehensive account of acceptably veridical reference to represented Xs such as lake-related content, and on the other hand, the austere system of acceptably veridical reference to real Xs such as real lakes. Also, both systems have to be shoehorned into the same, purely physical reality on the current naturalistic scenario, so that it is the austere system of reference to real Xs that sets the rules of the game, to which the system of references to represented Xs must conform.

The overall pattern of the solution being proposed is that, first, the purely *de re* aspects of reference to physical worldly items are blunt or spread enough to permit simultaneous, equally spread references to non-physical items to co-exist or co-occur along with those

spread austere references, and second, that all of the other differences in grounding, categorial and veridicality conditions for each system are to be explained in terms of the *differing structures of the characteristic kinds of perceptual functional state* associated with seeing of each kind. Thus, in terms of broad metaphysical categories, this is at least initially primarily a conceptualist, rather than a nominalist or realist, kind of solution to the problem. (Nevertheless, it does suggest, and perhaps requires, a broadly irrealist background view of the relevant non-physical objects and properties--though of a novel kind, due to spread reference.) On this view, representational seeing is to be explained in terms of the characteristic kinds of functional cognitive structure involved in such representational perceptual episodes, and of their characteristic differences from the functional structures that are involved when seeing real Xs.

In order to bring out the significance of these characteristic differences, it will be useful briefly to contrast the current functionalist accounts of any kind of seeing with two kinds of broadly phenomenalist or traditional empiricist views, according to which any differences in seeing between represented versus real cases must be differences in the *experienced qualities of the objects of sight* in each case.[30] On such empiricist views, the section 4 distinction of the *identity* versus the *identification* of a seen object--namely, all of its objective or actual worldly properties versus its seen or noticed properties--is obliterated, in that on these accounts the proper object of sight is a purely phenomenal object, whose properties are exactly those it appears to have and no others.[31]

There are at least two well-known features of such views. First, on an extreme phenomenalistic version of such a view, strictly speaking we never do see actual worldly objects, hence obliterating any distinctions between the seeing of ordinary objects, paintings, and their contents--a hopeless view. Or, on a more moderate indirect representational realist version of such a view, all seeing of Xs is initially seeing of X-related representational content, but some such seeing may be promoted to veridicality in virtue of its being caused in the right way by actual Xs. But on this more moderate view, seeing the represented content X' of a painting will still turn out to be illusory or mistaken, because of the failure of such representational contents X' to correspond in the right way to any actual objects X that could have caused such representational seeings.

However, by contrast, the current functionalist view would put much more emphasis on the cognitive *attitudes* or *expectations* a perceiver has when seeing something. It is, on the RFTP view, the functional structure of the perceiver's attitude or 'mental set' toward what she perceives that determines the status of the relevant object of sight, rather than the noticed properties of it. For example, seeing a horse in a picture is a matter of processing horse-related content in a functional framework in which one *does not expect* that the seen horse will suddenly move, or be disturbed by one's looking at it, and so on, whereas seeing a real horse, with exactly the same noticed characteristics, would involve quite different expectations.

Another important difference of the RFTP from a traditional representative realist perceptual view is as follows. Such a traditional approach views representation as a

purely internal picturing or modeling, with its epistemic status requiring comparative checking of the internal model with its external causes. But on the contrary, the current functionalist view views all representational perceptual content as being fundamentally active, with seeing involving, among other things, an acquiring or activation of dispositions to interact with the world in various ways, whether the seeing is of the content of pictures or of ordinary non-representational objects.

Thus on the functionalist view, both seeing content, and seeing ordinary objects, involve actual or potential interactions with the world--it is just that the characteristic patterns or modes of interaction, as activated by the perceiver's characteristic mental set or expectations, are systematically different for real versus representational Xs, even in those cases in which the seen properties are the same. For example, after seeing a person in a realistic photograph it is commonplace to give the photograph itself, in which one sees the person, to someone else to view, but when seeing the same qualities in the actual person 'in the flesh' it is *not* culturally acceptable to give that person to someone else to view! Thus the social and cultural practices associated with seeing content in pictures, which closely mesh with the relevant, representation-related perceptual dispositions, are significantly different from those involved in seeing real examples of appropriate kinds. (See the next section for the relevance of the various dependence relations in explaining these differences.)

Implicit in the above discussions is another important difference between functionalist versus more traditional views of what is involved in seeing. This is the point that the

kind of naturalistic, dispositional functionalism being appealed to is, as with any dispositional analysis, able to invoke in its explanations various kinds of readiness, attitude or expectation, even in cases when *none of these are currently activated*. Dispositions only manifest themselves under the right conditions, but they can still be relevant to the explanation of the status of what is seen even when they remain unmanifested. For example, with staged plays, there are familiar examples associated with the concept of aesthetic distance, such as the fact that correctly 'distanced' audience members do not rush on to the stage to prevent a character from being stabbed. Such necessarily inhibited dispositions are part of what it is involved in veridical seeing of the action-related *content* of the play as such onstage, as opposed to witnessing what one believes to be actual stabbings.[32]

X. THE DEPENDENT FOUNDATIONS OF REPRESENTATIONAL SEEING

The previous section argued that, in addition to referential spread, representational seeing is possible because of the characteristic functional differences between seeing represented versus real Xs. This section will reinforce that view by briefly relating those characteristic differences to the various dependence relations holding between content items and the physical world on the one hand, and the absence of any such dependence relations in the seeing of real Xs on the other hand. Thus a more fundamental explanation is available of those functional differences, so that more than just an

ultimately unsatisfying Wittgensteinian 'different forms of life' kind of explanation of the differences can be provided.

As a preliminary, the relation between the reflexive functionalist theory of perception (RFTP) and these issues should be clarified. A central point is that it is analytic within the functional theory itself that all perceptual content is genuinely referential, in that the RFTP explains perceptual content in terms of functional structure that must include dispositions--even if unmanifested--to interact with the very same objects or properties that caused the perception. But on such a view, there cannot be any perceptual content without resulting genuine perceptual reference to the items causing the perceptual state, as directed via the relevant dispositional structures, since all perceptual content and reference is explained in terms of such reflexive functionalist dispositional relations of these kinds. However, what is not analytic is that it is possible to *apply* such a theory, and in an explanatorily useful way, to the real world, as well as also to a hypothetical strongly reductive, physicalist world, which may or may not be identifiable with the real world. It is primarily the applicability and relevance of such a naturalistic theory to issues of representational seeing and reference that has been argued for here.

To begin, on the present view the concept of spread reference makes reference to non-physical items logically possible, but no actual references will occur, unless no less than *five* kinds of dependence hold between the physical world, and the physically realized functional structures that implement the relevant kind of non-physical references.[33]

First, there must be some kind of *grounding* relation (as discussed in section 8) which supplies some basic raw materials needed for the relevant kind of non-physical content--such as color qualia for colors, or cognitive structure associated with perception of real X's in the case of perception of represented Xs. The other four kinds of dependence relations, as introduced in section 7, fundamentally shape the characteristic functional differences between represented and real Xs.

Three of them--ontological, referential and epistemic--are primarily concerned with the physical artifacts or vehicles with which representational artworks are associated, including physical paintings or photographs in the visual arts, manuscripts and printed copies in the literary arts, and concrete sonic events in music. It is these physical artifacts or events to which spread reference is made by a perceiver's functional perceptual network, which is itself *functionally* dependent on some particular underlying causal realization in the perceiver's brain.

In terms of broad categories of characteristic differences between real and representational Xs, the three kinds of artifact-dependence of represented Xs result in those artifacts having *dual* uses or roles, both as physical objects in their own right, and as necessary devices for accessing their content. Hence the characteristic kinds of functional structure, or mental set, associated with representational seeing--as expressed in the conceptual *categorial conditions* discussed in section 8--will be ones that take this dual role of artwork-related artifacts into account, which categorial conditions must also

be consistent with the fourth kind of functional dependence of functional structure on some underlying physical realization of it.

Thus, for instance, perceivers find nothing paradoxical about the fact that a photograph of a person can be handed round a group of people without the represented content changing its represented spatial position, even though we know that analogous changes for real persons are impossible, because we factor into our expectations for photographs that their seen contents are perceptually and spatially distinct from those of the physical artifacts on which they are dependent.

This dual use, and the consequent logical separation of the properties of the seen content from the physical properties of the relevant artifact, also explains the characteristic dispositional differences between seeing real versus represented Xs, such as the dispositions not to attempt to interact with represented Xs, versus the expectations that such interactions are always possible with real Xs. Such differences also ensure that representational seeing does not involve non-veridical or illusory seeing of real Xs, as on Gombrich's view, in that the categorial separation achieved via such dual uses provide distinct standards for veridical versus non-veridical cases of the seeing of representational versus real Xs respectively.

XI. ARTWORKS AS INVOLVING TWO KINDS OF CONTENT

This paper has considered only the normal representational content, or subject matter, of representations such as pictures. However, arguably visual artworks involve artistic as well as representational content, with artistic content including stylistic, expressive and intentional or attitudinal factors. Also, one can *see* both the artwork and its subject matter, even though, as argued by Danto, neither of them can be identified with the 'mere real things' or physical painted artifacts as such.[34] Thus it is a matter of some theoretical urgency to extend the current account of seeing to cover both kinds of content.[35] One promising approach would be to attempt to extend the theoretical structure concerning the double content of perception generally, as discussed here in sections 1 and 2, to the perception of artworks and their representational content.[36]

XII. A COMPARISON WITH WALTON'S VIEW

To conclude, here is a brief comparison of the current RFTP view with Walton's influential view, according to which, roughly speaking, we do not actually see the content of pictures, but instead we pretend, in an imaginative game of make-believe, to see the real things represented by such pictures.[37]

Though the two views are explicitly inconsistent on the issue of seeing content, and on much else, nevertheless, interestingly enough, the RFTP view could co-opt or agree with many of Walton's insights about the imaginative basis of our dealings with artistic pictures, in that many of the systematic functional differences between seeing

representational rather than real Xs might well be usefully viewed as involving the exercise of a person's imaginative abilities.

The remaining differences would be, first, that the RFTP provides a theoretical basis for *some* imaginative seeing--namely, those kinds not involving any explicit pretense--to be a genuine kind of seeing when properly understood, and second, that such an account would draw on a much broader account of imaginative abilities, including the creative imagination of artists, to reinforce its case. For, just as deception or lying is only one very limited form of the exercise of abilities to think propositionally, so also, on the current view, would pretense or make-believe be only one very limited form of the exercise of imaginative abilities that may well be, in general, important factors in the understanding of representational seeing.[38]

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Notes

[1] Other reasons will be raised and dealt with during the course of the paper.

[2] Kendall Walton holds such a view for photographs in 'Transparent Pictures: On the Nature of Photographic Realism', *Critical Inquiry,* 11 (1984), pp. 246-277, while Dominic Lopes extends it to pictures generally in his book *Understanding Pictures* (Oxford: Clarendon Press; Oxford University Press, 1996), Ch. 9.

[3] For more searching criticisms of such a prosthesis view see my paper 'Internal Versus External Representation', *The Journal of Aesthetics and Art Criticism,* vol. 62 no. 1 (Winter 2004), pp. 23-36, plus the extended version in Chapter 11 of my recent book *The Double Content of Art* (New York: Prometheus Books, 2005.) The book is also relevant to most of the other topics discussed in this paper, so perhaps this single compendious reference to it will suffice, so as to avoid continual references to it throughout this article.

[4] E.g., in Wollheim, *Painting as an Art* (Princeton, N.J.: Princeton University Press 1987).

[5] E. H. Gombrich, Art and Illusion; a Study in the Psychology of Pictorial Representation, 2d ed. (London: Phaidon Press, 1962); Kendall Walton, *Mimesis as Make-Believe* (Harvard University Press, 1990); Nelson Goodman, *Languages of Art: an Approach to a Theory of Symbols* (Indianapolis: Bobbs-Merrill, 1968.)

[6] For example, broadly recognitional accounts of perception, such as those of Flint Schier, *Deeper Into Pictures* (Cambridge: Cambridge University Press, 1986), and Lopes *Understanding Pictures,* employ concepts that equally apply to the seeing of ordinary objects.

[7] E.g., see the comprehensive criticisms of extant accounts in Robert Cummins, *Representations, Targets and Attitudes* (Cambridge, Mass.: MIT Press, 1996.)

[8] E.g., Alva Noë, *Action in Perception* (Cambridge, Mass.: MIT Press, 2004.)

[9] See my articles 'The Double Content of Perception', forthcoming in *Synthese*, and 'The Twofold Orientational Structure of Perception', *Philosophical Psychology,* 18 no. 2 (April 2005), pp. 187–203.

[10] For two complementary descriptions of my view see 'Naturalized Perception Without Information', *The Journal of Mind and Behavior*, 25 no. 4 (2004), pp. 349-368, and 'The Reflexive Theory of Perception', forthcoming in *Behavior and Philosophy*.

[11] For a selection of relevant articles see one of the standard anthologies, e.g. David Chalmers (ed.), *Philosophy of Mind* (Oxford: Oxford University Press, 2002).

[12] Partially overlapping views about perception in general having two different kinds of content seem to have been developed independently by Alva Noë and myself during the last few years. E.g, his account is presented in his recent book *Action in Perception*, while mine is in the two forthcoming articles previously referred to--'The Double Content of Perception' and 'The Twofold Orientational Structure of Perception'. Other distinguishing factors are that my account gives the distinction a more prominent and structural role in perceptual theory than does his, plus that it was arrived at as a natural extension of the view that perception specifically of *artworks* has a double content.

[13] Originally proposed by Fred Dretske in *Knowledge and the Flow of Information* (Cambridge, Mass: MIT Press, 1981.)

[14] E.g., Fred Dretske, *Naturalizing the Mind* (Cambridge, Mass: MIT Press, 1995.)

[15] See again Cummins, *Representations, Targets and Attitudes.*

[16] See my two articles cited in fn. 12.

[17] Among perceptual theories familiar to many philosophers, those of D.M Armstrong in *Perception and the Physical World* (New York: Humanities Press, 1961) and George Pitcher in *A Theory of Perception* (Princeton, N,J.: Princeton University Press, 1971) may be mentioned, though it is debatable to what extent either is a purely functionalist theory.

For example, Pitcher's theory is almost a pure behaviorist theory, giving virtually no role to mental or cognitivist factors in perception.

[18] For many examples of covariation problems see Cummins, ibid., and also his earlier book *Meaning and Mental Representation* (Cambridge, Mass: MIT Press, 1989.)

[19] As a sonic, specifically aesthetic example, the identity of Beethoven's fifth symphony, or of performances of it, involves near full compliance with a very complex range of required properties. But many musically educated people can recognize or identify such performances as being of that symphony from just hearing a few consecutive notes of them.

[20] Compare Wollheim's view that distinguishes the broader class of X's that can be 'seen in' objects from those pictures in which Xs can be seen that are intentionally represented thus by artists, eg in *Painting as an Art*.

[21] See fn. 6.

[22] E.g., see Evan Thompson, *Colour Vision: A Study in Cognitive Science and the Philosophy of Perception* (London: Routledge 1995) for a comprehensive discussion with references.

[23] See, e.g., John E. McKinnon, 'Aesthetic Supervenience: For and Against', *British Journal of Aesthetics*, vol. 41 no. 1 (January 2001), pp. 59-75.

[24] E.g., see the recent debate between Danto and Joseph Margolis on such issues: J. Margolis, 'Farewell to Danto and Goodman', *British Journal of Aesthetics*, vol. 38, no. 4 (October 1998), pp. 353-374., A. Danto, 'Indiscernibility and Perception: A Reply to Joseph Margolis', *British Journal of Aesthetics,* vol. 39, no. 4 (October 1999), pp. 321-329., and J. Margolis, 'A Closer Look at Danto's Account of Art and Perception', *British Journal of Aesthetics,* vol. 40, no. 3 (July 2000), pp. 326-339.

[25] For completeness a third scenario should also be mentioned, namely one in which there are at least some non-physical worldly properties, in the minimal sense that not all objective properties can be strongly reduced to purely physical properties. But arguably the points to be made about content would equally apply to such a world, so it will not be further considered here.

[26] Jerry Fodor, *Psychosemantics* (Cambridge, Mass.: M.I.T. Press, 1987), p.97.

[27] Dennett's instrumentalist views regarding intentionality, such as in his book *The Intentional Stance* (Cambridge, Mass.: M.I.T. Press, 1987) provide one of the few exceptions.

[28] Presumably such a person could mistake a trompe l'oeil painting of a lake for a real lake, but would be unable to see the represented lake as such, whether veridically or in some mistaken way.

[29] A non-existent property, as the term is used here, is one that has no actual instances.

[30] David Davies criticizes views of these kinds, which he calls 'aesthetic empiricism', in his recent book *Art as Performance* (Oxford: Blackwell, 2004.)

[31] Wollheim also criticizes such a 'presentational' view of aesthetic objects in *Art and its Objects* (Cambridge: Cambridge University Press, 2nd ed., 1980).

[32] Some similarities to a broadly Wittgensteinian view of mental activites as embedded in characteristic forms of life may be noticed in these discussions, in spite of the fact that my attempts to ground them in a purely naturalistic cognitive science are profoundly un-Wittgensteinian.

[33] A more complete naturalist account would invoke a sixth kind of dependence as well, namely evolutionary factors that led to the preferential selection of humans having representational seeing competences over those who did not.

[34] Arthur Danto, *The Transfiguration of the Commonplace* (Cambridge, Mass.: Harvard UP, 1981).

[35] For an overview of those kinds of content themselves see my article 'A Double Content Theory of Artistic Representation', *The Journal of Aesthetics and Art Criticism*, vol. 63 no. 3 (Summer 2005), pp. 249-260. However, the current cognitive science account of seeing is new, so that explicitly relating it to the double content account of artworks is work for further papers.

[36] This work is in progress, with some initial attempts under review.

[37] Walton, *Mimesis as Make-Believe*.

[38] My thanks to the Editor, Peter Lamarque, for very helpful comments.