

# How Real are Real Patterns?

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## **Abstract:**

Propositional attitudes are, Dennett maintains, here to stay, contrary to the arguments of eliminative materialists. Furthermore, they are not part of “the furniture of the world” as realists maintain, but neither are they mere convenience as instrumentalist see them.

Rather, they are real patterns discernable from the intentional stance. What is a stance? What is the intentional stance, in particular? What constitutes a real pattern? Do these notions sufficiently distinguish Dennett’s position from others? How real are real patterns and is their reality problematic?

**Keywords:** propositional attitudes, cryptographer’s constraint, real patterns, indeterminacy of translation, true believers, eliminative materialism

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## 1. Introduction

Do propositional attitudes (beliefs, desires, etc.) exist and, if so, in what way? Those who affirm their objective existence are generally referred to as *realists*, while those who deny their objective existence may be called *antirealists* regarding propositional attitudes. Of the realists, *reductive realists* (e.g. Fodor, 1987) understand beliefs and desires to be facts of the matter, like whether or not a person has a cold, but allow for reductive analyses. Others *antireductive realists* argue that propositional attitudes are irreducible and thus distinct from lower-level phenomena (neuron firing, language of thought, functional properties, etc.). Of the antirealists, there are *eliminativists*, and *ineliminativists*. *Eliminative materialists* argue that propositional attitudes are artifacts from an inevitably outmoded ontology and that they will be replaced by a more refined neurologically-based understanding (e.g. Churchland, 1981). Those that do not regard propositional attitudes as objective, but deny their being replaceable (*ineliminativists*) may generally be referred to as *instrumentalists*.

Within the intellectual landscape regarding the existence of propositional attitudes, Daniel Dennett has tried to find a stable point poised between the chiasms (as he may see them) of the standard positions. To this end, he employs an impressive array of concepts, and thought experiments. Chief among them are the interrelated notions of stances, virtual machines and real patterns. Ultimately, real patterns of a certain type are essential for distinguishing his position from the others. Whether or not real patterns do the necessary work is the matter at hand.

## 2. Dennett's Stances

In order to understand Dennett's position regarding the existence of propositional attitudes it is necessary to understand his general approach, much of which is couched in terms of stances. Stances are, in essence, predictive strategies. These strategies enable us to pick-out the relevant features of systems for prediction and explanation. As Don Ross puts it:

A stance is the foregrounding of some (real) systematically related aspects of a system or process against a compensating backgrounding of other aspects. It is both possible and useful to pick out these sets of aspects *because* (as a matter of

fact) the boundaries of patterns very frequently do not correspond to the boundaries of the naïve realist's objects... To be a tracker of patterns under more than one aspectualization is to be a taker of stances. (Ross, 2000b)

So, the need for strategies arises from our basic need to track patterns. Of course there are many kinds of patterns that may interest us, and, correspondingly there are different stances that make these patterns salient. Three of these are particularly significant: physical, design and intentional stances.

The *physical stance* consists of treating a system's behavior as being determined by its physical constituents, forces and the like. This strategy is not practicable in many cases, but it is generally held by scientists to be available in principle (Dennett, 1981). It is also important to note that the physical stance has a privileged position in Dennett's understanding—as Ross puts it, “the generalizations of the special sciences must not contradict those of physics, whereas no symmetrical limitation holds in the opposite direction” (Ross, 2000a). Though the physical level has priority, it cannot properly describe some objects—in these systems we may want to shift to the design stance.

From the *design stance*, we interpret a system's behavior in light of its function/s. Systems subject to the design stance include human artifacts and the results of other selection processes (whether natural or not) (Dennett, 1981, 1991a, 1995 etc.). Note that ascending to the functional stance allows for the notion of error, whereas the physical stance admits of no such thing. The notion of error is generally dependent upon the source of its selection or creation, though the judgment of correctness and error it is far from immutable (Dennett, 1990). When a functional system is not malfunctioning, the physical composition of the system is ignored (part of the background, if you will) and its functional properties are salient (in the foreground). For example, we ignore the composition of our lights and light switches when they work correctly, and only think about power sources, connections and the like when there is a malfunction. For some systems, even the design stance does not yield appropriate level of analysis—such systems may be subject to the intentional stance.

### 3. The Intentional Stance

The intentional stance is a strategy adopted for the prediction and explanation of an intentional subject's behavior. Specifically, this strategy consists of treating a system as a rational agent. Under this description, we may predict what beliefs and desires the agent *ought* to have given their situation and what they *should* do based on them. This stance is strikingly predictive for some complex systems, such as normally functioning people. For instance, when I see a man in a firefighter's uniform running toward a burning building and hear a child crying for help inside, an intentional explanation readily follows. I predict that the man will run in and save the child. Why? Quite roughly, the man believes the child to be in danger and desires that the child be safe. Consequently, he will act to assure the child's safety. It is appropriate to cite these beliefs and desires as being legitimate causes in such a case. There are other distinctive characteristics of the intentional stance, including its predictive economy and ability to pick-out what Dennett calls "true believers".

Were we to try to describe and predict the aforementioned scenario at the microphysical level, it would be hopelessly complex—easily outstripping our computational powers. By contrast, the intentional stance functions well within the time and memory constraints of humans. Without the predictive power of the intentional stance, human behavior would be "just so much Brownian motion" (Dennett, 1991b). Dennett's emphasis on predictability arises from his view that our capacity to interpret behaviors is dependant upon our being able to predict them.

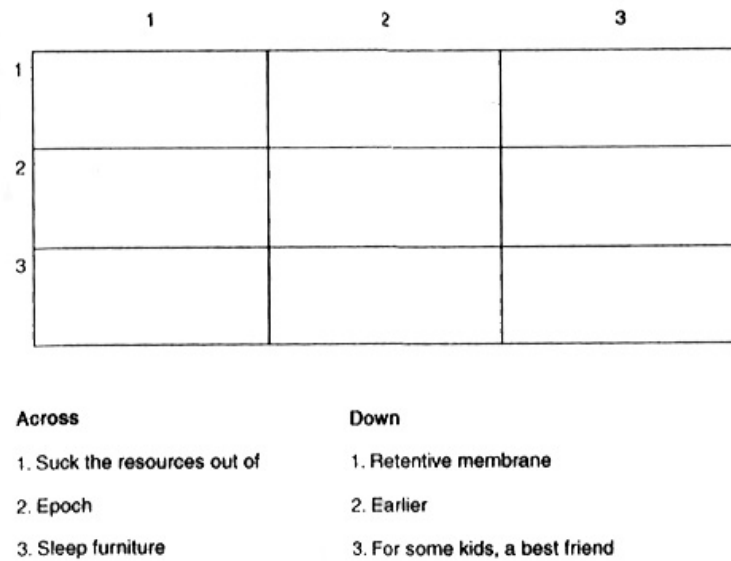
Beyond prediction, the intentional stance also picks-out those things that are "true believers", that is, systems for which intentional properties may be properly ascribed. All there is to being a true believer, in the most trivial sense, is being a system whose behavior is reliably predictable with the intentional stance. Naturally, the appropriateness of the intentional stance in defining true believers is a serious concern, for it cannot be properly applicable to everything for it to be a good indicator of being a true believer. Surely some belief attributions are spurious, and some not. It may be said that thermostats (and other similarly impoverished control systems) are "true believers" because they may be consistently described as such, but the intentional stance does not

yield any predictive power over the other stances, so they are trivial examples of true believers.

How are we to understand the way things detectable from the intentional stance to exist? Are they like tables and rocks, or are they a matter of interpretation, like whether a person is talented. Are they essential, or may they be eliminated? The clearest expression of Dennett style functionalism and its ontological commitments is found in Dennett's 'Real Patterns' (Dennett, 1991b).

#### **4. Real Patterns**

Dennett's mild realism maintains that there is no matter of fact about beliefs and desires (that is, they are interest relative), but the stance does pick-out real patterns. What is a pattern, and what makes it real? Real patterns are real, but not in the same way physical objects are. Rather, they are—borrowing from Reichenbach—*abstracta* (abstract objects), as opposed to *illata* (inferred entities) or observed physical objects. Abstracta are definable in terms of physical things, but that are not part of the “furniture of the world”. As such, abstracta are products of idealization, such as centers of gravity and population centers and are, thus, multiply realizable. There are many ways to give, say, a boat the same center of gravity, as there are many ways to have the same real pattern. Furthermore, rival patterns do not rule each other out. Thus, there we may have radically different interpretations with equal warrant. Dennett sees this last point as a corollary to Quine's indeterminacy of translation (Dennett 2000). To clearly demonstrate this, Dennett presents the following Quinean crossword puzzle:



**Figure 1: Quinean Crossword Puzzle (from Dennett 2000)**

The global structure of the Quinean crossword puzzle pulls it into two stable assignments. This represents a kind of holism; when the global structure constrains the fit of the individual assignments, there may well be more than one good fit. Generally, when we find a good answer to a translation problem, we accept it as the solution—this has been referred to as the *cryptographer's constraint* (coined in McCarthy, 1979). However, “this is not a metaphysical necessity, but a hugely powerful constraint” (Dennett, 2000). So, real patterns are abstracta subject to indeterminacy, which means there may be no fact of the matter further than proper consistent ascription.

A pattern must be discernable for it to be legitimate, and it may be individuated in many different ways. Given this, what is a pattern? Negatively defined it is the opposite of randomness. Borrowing from algorithmic information theory and Kolmogorov complexity, Dennett defines randomness as a series that requires nothing short of the bitmap to transmit, that is, it is incompressible. By contrast, something is a *pattern* if and only if “there is some more efficient way of describing it” and it is *real* if it makes predictions successful (Dennett, 1991b). Moreover, we may adopt three attitudes towards real patterns: 1) we care about every detail in defining the pattern, noise and all (e.g. Pattern A with exceptions at  $x_1, y_1$  etc.), 2) we may care about the noise in the pattern, but

only in its general measure (e.g. Pattern A with 10% noise), 3) we may disregard the noise completely (e.g. Pattern A) (Dennett, 1991b). Which way we characterize patterns is dependent upon our interests.

The clearest and most concise presentation of Dennett's notion of real patterns was made by Ross:

To be is to be a real pattern, and a pattern is real iff:

(i) it is projectible under at least one physically possible perspective and

(ii) it encodes information about at least one structure of events or entities  $S$  where that encoding is more efficient, in information-theoretic terms, than the bit-map encoding of  $S$ , and where for at least one of the physically possible perspectives under which the pattern is projectible, there exists an aspect of  $S$  which cannot be tracked unless the encoding is recovered from the perspective in question. (Ross, 2000a)

Ross' definition is part of his metaphysical program which takes Dennett's real patterns to be the touchstone of existence. To enable real patterns to be legitimate entities in their own right, he universalizes them. The first clause grounds patterns in physicalistic terms, while the second allows patterns to exist over and above the physical stance (or stances), insofar as it tracks a unique feature that cannot be encoded by the physical stance. For our purposes, this formulation serves to highlight important metaphysical issues in Dennett's position.

Dennett has generally endorsed this strengthened statement of ontology, saying that it "rules out only silly, unmotivated ontologies, but is otherwise remarkably pluralistic, tolerant of multiple 'unreduced' levels of being... so long as they pay for themselves as patterns" (Dennett, 2000). However, he leaves the greater metaphysical program to be pursued by Ross and others, while adding a caveat: Ross' formulation it does not express the admission of lossy compressions. Lossy compression is a term that comes from computer science to describe methods of compression that lose information about the original source, but still presents a serviceable end-product. Dennett sees much of the compression done by humans as lossy, and necessarily so, given our computational constraints. It is important to note that, for Dennett, a pattern being lossy does not negate

its being real, so long as it does its job. As a matter of fact, abstracta are as a matter of definition lossy (Dennett, 2000).

## **5. Problems with Real Patterns**

Dennett's position has a great deal of philosophical tension in it that must be resolved for it to be credible. There are at least four interconnected questions that Dennett must answer *in detail* to clarify his position regarding intentional objects. Are intentional objects eliminable? Are intentional objects explanatorily reducible? Are intentional objects metaphysically reducible? Do intentional objects exist objectively? The answers to these questions must help Dennett avoid 1) collapse into simple realism or simple antirealism, 2) explicating mere instrumentalism and 3) cluttering his ontology in violation of Occam's razor.

### **5.1. This is Just Realism/Instrumentalism/Eliminative Materialism etc.**

It is fairly obvious that Dennett is not a strait Realist, nor is he a strait Antirealist. Propositional attitudes are not merely out there because they are abstracta tracked from a stance, nor are they mere conveniences for they are "perfectly objective phenomena" (Dennett 1981). He regards propositional attitudes as ineliminable for empirical rather than a priori metaphysical reasons—he simply does not think elimination is a likely scenario. The intentional stance is too robust to be easily replaced by neurological talk. Indeed, it may be said that we are evolutionarily hardwired to treat things such as ourselves as true believers. Intentional features are strikingly and naturally salient to us. Furthermore, those without this capacity are profoundly handicapped (e.g. autistics).

Dennett's position regarding reduction is like his views on eliminativism: he does not see reductive programs as being successful. For instance, if a reduction occurred from intentional properties to neural states, he would be surprised, because, as he sees it, "[c]onscious human minds are more-or-less serial virtual machines implemented-inefficiently- on the parallel hardware that evolution has provided for us" (Dennett 1991a), which implies that a straightforward reduction is very unlikely. Though he finds such reductions unlikely, it should be noted that he is no enemy of cognitive science—he has attempted a biologically inspired, functional explanation for consciousness (Dennett,



1991a), the details of which are beyond the scope of this paper. His seeking a positive account of mind is a source of strain in his position, though it may be relieved by recognizing that advances in understanding don't always come from reductions or eliminations. They may come from informative analogies (e.g. the pandemonium model), relevant constraints (e.g. evolutionary) and the like.

The position closest to Dennett's is instrumentalism, since his arguments against reduction and elimination almost always involve appeals to the usefulness of propositional attitudes. The move made from 'True Believers' (1981) to 'Real Patterns' (1991b) is meant to ward-off accusations of mere instrumentalism by grounding the sense of reality he attributes to propositional attitudes.

## **5.2. Real Patterns are merely Epistemological**

So far, Dennett's position regarding the independence of real patterns appears to be epistemologically motivated. Real patterns are defined in terms of their human use—they result from human interests. They exhibit “explanatory emergence” (Seager, 2000): “complexity does outrun the *explanatory resources* provided by *understanding* of the simple”. Scientists can explain each individual occurrence, but cannot derive a generalization until they hit the right high-level account. Until then, they are keeping account of a vast amount of data of which only a vanishingly small part is necessary for explanation and prediction. But as such, they are mere epistemic artifacts. Certainly, to say that they are real is not equivalent with saying they are real to us, unless we succumb to a kind of instrumentalism. It is not clear where Dennett's epistemology ends and his ontology begins. Dennett maintains that he is not a mere instrumentalist, so he must underwrite the reality of his patterns, beyond being a mere explanatory convenience even if it is, in some sense, emergent.

Dennett's work on real patterns is consistently vague about the distinction between the ontological commitment to 1) the existence of the elements that constitute a pattern, and 2) the pattern itself, beyond its elements (Haugeland, 1993). It is clear that he is committed the existence of entities at both levels, because they both constitute real things to Dennett. As was said before, multiple patterns may obtain in the same system and, furthermore, they may all be real. Some (e.g. Wilkerson, 1997) argue that reality of the

patterns would ultimately have to be sought by establishing some mapping between folk psychology and brain structure. This misses Dennett's essential point, which is much like Davidson's (Davidson, 1980a): while propositional attitudes (mental predicates, etc.) are dependent upon the physical details of a system, they are not identical to them.

There are two distinct claims to be argued for: 1) with all of the microphysical information obtained, there are still further facts missed and 2) all intelligent beings need the intentional stance to understand themselves and others. The first is easier to argue for, but only implies the practical necessity of intentional patterns for humans. The second is much more difficult to prove, but establishes the necessity of intentional patterns beyond human needs. The acceptance of the former amounts to instrumentalism; the latter provides the distinct position Dennett strives for.

Dennett cannot simultaneously maintain that intentional patterns are ineliminable and that it is an empirical matter. His real patterns must be more than convenient 'as if' entities, rather, they must be ineliminable 'is' entities. Indeed, he recognizes this: "...the moral to be drawn: namely, *the unavailability of the intentional stance with regard to oneself and one's fellow intelligent beings*" (Dennett, 1981).

The brute complexity of intelligent beings, Dennett implies, may lie in combinatorial explosion (Dennett, 1981). Solving problems in the face of the complexities generated by combinatorial explosion amounts to answering the frame problem with respect to intelligent beings. What reasons do we have for supposing that this is a universal difficulty? To be charitable, we may argue loosely as follows. It is a necessary condition for intelligence that it be able to predict its own behavior and other's. Prediction requires speedup from the process being predicted. Assuming physically intelligible universes have a "clock rate" (e.g. speed of light); the only way to speedup is to compress information. Thus, compression is necessary for all intelligences. The intentional stance presents the best speed-up known for intelligent creatures.

### **5.3. Real Patterns are Meinongian**

Even if we accept Dennett's account and admit real patterns into our ontology, there is an unresolved issue of parsimony. Though real patterns are not, by his admission, part of the "furniture of the world", they have a causal and explanatory role to play and are,

most important of all, *real*. As such, they are subject to Occam's razor. How many things has Dennett allowed into his liberalized ontology by accepting real patterns?

His mild realism is meant to encourage us to take centers of gravity, or voices (in the Rylean sense) and, by extension, real patterns and propositional attitudes, seriously. He maintains that he is concerned with things "as real as electrons" (Dennett, 1991b). There are, of course, trivial abstracta such as Dennett's lost sock center, which is defined as the center of the smallest circle that can be inscribed around all of the socks Dennett has lost in his life (Dennett, 1991b). Are patterns such as these excluded? We may come up with an outlandish scenario where such an abstraction is needed for some predictive purpose (indeed Ross has). I see nothing in Dennett's definition of real pattern that precludes us from allowing these absurd patterns in if we are careful with our examples.

Furthermore, other creatures may pick out other real patterns: "[o]ther creatures with different sense organs, or different interests, might readily perceive patterns that were imperceptible to us. The patterns would be there all along, but just invisible to us" (Dennett, 1991b). Again, according to the definition, and under threat of privileging humans, we must admit these patterns too. This implies that all discernable patterns are existent, and that we selectively perceive them according to our needs. If we take these patterns to be real, this constitutes a needless multiplication of entities.

Dennett's indexing the reality of patterns to the needs of agents is what gets him into trouble. There is a way out of this, though. Ross' account of real patterns avoids the anthropocentric explosion of real patterns by making them dependent upon objective features of the universe. Furthermore, Ross' account does shave the "really real" patterns down to those that are in principle ineliminable, but he does so by dropping abstracta (lossy patterns).

## **6. Conclusion**

While Dennett maintains that "ontology, for me, has always been the caboose, not the engine" (Dennett, 2000), his position depends upon his ontological commitments. Either Dennett sides with Ross by denying the abstracta illata distinction and avoid instrumentalism, or he may embrace his instrumentalism and keep the distinction. The former does not admit of the reality of lossy patterns, thus ruling out abstracta.

Propositional attitudes are considered by Dennett to be abstracta, though. The latter robs him of an original position. Of course, he may try to settle in-between, but this is hard going—allowing abstracta into the realm of the real may entangle Dennett in Plato’s beard. The best he can hope for is to show propositional attitudes to be ineliminable as Davidson and others have tried.

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