CHAPTER 4

INTENTIONAL STANCE AND PREDICTION

4.1 Introduction

This chapter starts with a close examination of an important aspect of Dennett's intentional system theory, namely the problem of lectern. Following this, Dennett's favorite example of intentional system (chess playing computer) is then singled out for analysis. The problem of attributions in relation to intentional stance is briefly examined thereafter, followed by a close analysis of Dennett's important notion of original and derived intentionality. The discussion then sums up with a final consideration on the issue of causality and subpersonal model pertaining to Dennett's formulation of content. Building on what was left off last chapter, this chapter further argues that Dennett's writing largely fails to articulate a compelling formulation of mental content.

4.2 What is it to be Intentional System?

Dennett contends that "[p]hilosophers have tended to ignore a variety of regularity intermediate between the regularities of planets and other objects 'obeying' the laws of physics and the regularities of rule-following system" (BC

111-112). This is important for they exhibit *pattern*[1] "discernible in agents' behavior when we subject it to radical interpretation from the intentional stance" (BC 98; Dennett 2001b: 306). So, it is to these items that Dennett believes intentional stance applies - living things and artifact. Living things are nature's artifact (KM 29), designed by natural selection,[2] i.e., intermediate regularities "preserved under selection pressure: the regularities dictated by principles of good design" (BC 112), whilst artifacts are fruits of men's design, which are also certainly part of mother nature.[3] For things that do not fall within that class, only physical stance applies, for nothing that is physical escapes physical laws – i.e.,

[1] That is belief state is able to capture the existence of pattern in acting out as some sort of "indirect 'measurements' of a reality diffused in the behavioral dispositions of the brain (and body). We think beliefs are quite real enough to call real just so long as belief-talk measures these complex behavior-disposing organs as predictively as it does" (BC 114). In other words, "[t]o say that X believes that p is to assert that X's behavior (verbal or otherwise) demonstrates a particular kind of regularity; namely just that kind of regularity which justifies the 'projection' of X's intentionality about p" (Westbury and Dennett 2000: 25). Even functionalism which is the bedrock of Dennett's position is inevitably grounded in behavioral patterns. "As for functionalism, in its defensible version, it is not really an alternative to behaviorism, but simply a reflection of the tight constraint behavioral capacities (as described from the intentional stance) place on internal states" (MNM 923). More pointedly, Dennett also says that "[i]n Seager's opinion, 'Mind cannot be just another pattern.' Why not? Perhaps I have missed his point" (Dennett 2000a: 355).

[2] The question as to what constitutes 'designed' items, and what not is important because Dennett's employment of his intentional stance very much hinges on this. "When should we expect the tactic of adopting the intentional stance to pay off? Whenever we have reason to suppose the assumption of optimal *design* [grounded in faith in natural selection (BS 9)] is warranted" (BS 8, emphasis added). Also, "we can go on to use the agency metaphor – what I call description 'from the intentional stance'… to describe and explain the pattern of development that accounts for all the well designedness we see in nature" (Dennett 1984a: 61), for "the design process [i.e., natural selection] itself is the source of our own intentionality" (IS 317). "This supports and illustrates my fundamental point about constraint on interpretation. We are bound to ascribe content that makes it come out that there is a free-floating rationale in support of this design. When determining the semantic value of something, 'we should refer…. the general principles in accordance with which it is *designed* to be guided…' " (DC 223; see also KM 59-60).

[3] "There is no conflict between the claim that artifacts…are the products of natural selection and the claim that they are (often) the foreseen, designed products of intentional human activity" (Dennett 2001d: 78).

physics (KM 28). In considering if lectern could be regarded intentional system,[4] he has the following to say:

> [d]o our definition of an intentional system exclude any objects at all? For instance, it seems the lectern in this lecture room can be construed as an intentional system, fully rational, believing that it is currently located at the center of the civilized world, and desiring above all else to remain at that center. What should such a rational agent so equipped with belief and desire do? Stay put, clearly, which is just what the lectern does. I predict the lectern's behavior, accurately, from the intentional stance, so is it an intentional system? If it is, anything at all is (IS 23).

Dennett then goes on to deny that lectern is intentional system. The principle he relies on to warrant this is predictability.

> What should disqualify the lectern? For one thing, the strategy does not recommend itself in this case, for we get no predictive power from it that we did not antecedently have. We already knew what the lectern was going to do – namely nothing – and tailored the beliefs and desires to fit in a quite unprincipled way (IS 23).[5]

[4] The above roughly delineates what Dennett takes to constitute intentional system where they are seen as rational agent. But on what intentional system is not, Dennett's reliance on the lectern formulation (as proscribing principle) is much less clear.

[5] In denying lectern as intentional system, Dennett also believes that "the lectern is disqualified, because, first, there is no predictive leverage gained by adopting the intentional stance, and second, there is no principle governing the *ad hoc* attribution of the belief and desire" (Dennett 1988b: 496). More developed commentary on lectern is presented in later section. But *prima facie*, ruling out lectern as intentional system owing to the supposed absence of principles governing attributions appear indefensible. Because lectern, not unlike other artifacts of nature, which Dennett takes to be intentional system, is designed. As Dennett himself emphasizes elsewhere, "there simply are no grounds for content ascription beyond those that account for how well the devices work at performing their functions when conditions are right" (DC 223). If amoeba, plants, macromolecules and thermostat (KM 34, BC 327) could be regarded intentional system, lectern appears equally legitimate (lectern as well as thermostat are surely human's artifact designed to serve certain ends). In some ways, Dennett's inability to find governing principles of attribution is (perhaps) a reflection of flaws in the formulation of intentional stance theory at large. Because if the issue concerns what that actually constitutes intentional system, Dennett has quite clearly spelled out the conditions. So, if lectern ought be considered legitimate intentional system on this yardstick, then arguably our subsequent inability to find viable attribution only mirrors the inadequacy of the theory. For instance, lets assume that life is formally defined as X. So, whatever that fulfills X is life. But later, we find that it also includes many other things that cannot possibly be living. Clearly X is inadequate. In the case of intentional system, we are also given X (or rather conditions akin to role the played by X above), but later discovers that it embraces Y (lectern) which as Dennett alludes to above, we cannot possibly attribute beliefs and desires. Hence Y is not intentional system. In a way, it is true that Y is excluded because of our failure to attribute beliefs and desires (the way Dennett would have it), but the greater problem seems to lie in X. Because it seems when push comes to shove, the theory is unable to answer to its own demand. This invariably appears to suggest that we ourselves are not clear (or precise) as to what ought (or ought not) to be included as intentional system to begin with. Clear and lucid demarcation is important for this is arguably the crux to the entire formulation of intentional stance theory. If this is doubted (equivocal), then Dennett's construal of intentionality is likely likewise jeopardized. Just as in the life sciences, if we cannot even (unequivocally) identify correctly what is or is not living, we are not likely to go far in our investigation of the phenomena of life.

Apparently, it is not prediction *per se* that constitutes or determines if adoption of the strategy is warranted, for one needs to know if adoption of the strategy *augments* predictive edge. Meanwhile,

> [i]n the case of people or animals or computers, however, the situation is different. In these cases often the only strategy that is at all practical is the intentional strategy; it gives us predictive power we can get by no other method (IS 23).

We observe above key factor Dennett invokes to rule out lectern and include living things and computers as intentional systems is predictive leverage.

It is curious, however, why the strategy only applies well to living things and artifacts created by humans. Dennett has not explicitly discussed this.[6] At best, the benchmark for such constrain is unclear. For if everything originates from nature, it is dubious why Dennett must so limit the application of intentional stance if application of the stance to other phenomenon of nature in fact helps extend predictive leverage. For Dennett himself notes that natural selection, the major force responsible for the designing of living things, "shows how every feature of the natural world can be the product of a blind, unforesightful, *non-teleological*, ultimately *mechanical* process of differential reproduction over long period of time" (IS 284, emphasis added). Clearly, on this construal, men as much as

[6]Issue here concerns more the question what is it that constitutes intentional system and not so much on the kind of content (and conditions of attribution thereof) ought to be attributed to a system (and hence also the collateral question if it is first, second or third order intentional system and so on). Arguably, the first issue is more central, for if this is undecided, then the later concern is of marginal importance.

mountains, rivers, planets and galaxies are, without question, part of nature's creations – as far as the mechanistic processes of nature is concerned.[7]

Insofar as Dennett holds a heuristic view of intentionality, whereby what is to be intentional system is for "free" (IS 24), where internal constitution is never the concern, for what counts is its fruitfulness (see especially Dennett 1988b: 496), Dennett's doctrine is libertarian and insufficiently prohibitory to bar extension of his scheme to other creations of nature so long as they augment predictive leverage (see later part of the discussion on Zhimp in the following section).[8]

[7] The aphorism of nature surreptitiously involves in 'designing' its creations is of course allegorical, nothing is in principle designed for there is no draughtsman or designers that do the designing (leaving out God from discussions, the way Dennett would consider it a non-starter). End results of evolution are very much carved out from nature's raw materials by purely mechanistic processes. Hence, if end products of natural selection could in any way be considered 'designed,' this should not rule out other nature's contrivances from being similarly treated. If there is any difference, they probably differ in physical processes that bring them about. If formation of mountains, rivers, planets and galaxies is as physical as that of evolution (formed through some basic mechanical processes of nature), and if we view the outcome of natural selection as being design of sorts, arguably it seems equally natural to view other creations of physical processes as likewise 'designed.' Apparently, Dennett's relatively slack employment of the concept (of design) in a way backfires, for it appears to embrace much more than Dennett is bargaining for. As it is, though these other contrivances of nature may not appear as impressive as the intricacy of designs demonstrated by evolution, but not unlike the way Dennett sees thermostat and frog as having intentionality, the difference here is more of *degree* than kind. Appealing to design to ground intentional system is hence arguably vague and in large measure ill-defined, so unless Dennett could provide a more clearly elucidated ground that distinctly spells out what that excludes other nature's creation as illegitimate design items whilst readily embraces evolutionary outcomes as exemplar of items designed, the theory is likely to suffer from its unabashed liberalism.

[8] Criticisms in this section apply largely because of such commitments vis-à-vis other teleological account of content with realist bent. So, we see, according to Dennett, "[t]he first point to make about intentional system…is that a particular thing is an intentional system only in relation to the *strategies* of someone who is trying to explain and predict its behavior" (BS 3-4, emphasis added). "The intentional stance is the *strategy* of prediction and explanation that attributes beliefs, desires, and other 'intentional' states to systems – living and nonliving – and predicts future behavior from what it would be rational for an agent to do, given those beliefs and desires. Any system whose performance can be thus predicted and explained is an intentional system, whatever its innards" (Dennett 1988b: 495, emphasis added). We would have the opportunity to see later that Dennett's heuristic construal of intentionality (see especially his essay "True Believer" in *Intentional Stance* (1987b) which he considers the *flagship* essay on his theory of intentional stance) is, in large measure, incompatible with a teleological account of content. So, attempts to characterize

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However, if intentional system could be extended to all of nature's creation and if science has progressed without relying on such ascriptions, the actual use and applicability of Dennett's intentional stance theory is suspect.

4.3 Lectern and Intentional System

Lets work on the following thought experiment,[9] hoping to bring out more fully the upshot of arguments found in previous section from a different perspective. Assume some unexpected and drastic changes in the living environments of chimpanzee result in unexpected amplification of the forces of selection, favoring a rapid increase in their brain size, hence intelligence. They begin to possess some rudimentary forms of language quite like those of humans, in breadth at least if not in depth. And like us, they depend on folk psychology, rooted deeply in intentional idioms – the one familiar to us – to maneuver socially. As a result of these sudden changes, Zhimpanzees become very human-like.

Though there still is distinct gap that separates both humans and the Zhimps, the Zhimps have, however, become sufficiently intelligent to have rudimentary grasp

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intentional system on design ground seem unwarranted. As issues raised here are closely related to discussions on derived and intrinsic intentionality that are more fully treated in subsequent section, detail arguments are not presented here (see section 4.5.1).

[9]The thought experiment mirrors the reverse of Dennett's employment of the Martian example that regards Martians having super-intelligence that read us humans as easy as the way a simple thermostat would appear to a human engineer (IS 25). In this thought experiment, however, we reverse the role: to the Zhimps, the intelligence of humans would be like the way Martian's intelligence appear to us, in that what appears simple and straightforward to us would appear inordinately tough for them.

of the causality of things. They also posses a crude sense of self, sophisticated enough to be conscious of its own subjective existence vis-à-vis its surroundings. In other words, they become very human-like except their intelligence is still incomparably roughhewn. Most general scientific problems that appear 'easy' to us is 'hard' to them, e.g., problems of planetary motions, the meandering of rivers, hurricanes, Newtonian physics and so on.[10]

How does lectern appear from their perspectives? Let's assume, in line with the above, that the presence of lectern presents to them as hard a problem as the problem of mind and consciousness appears to us.[11] What could they do? They do not seem able to apprehend the problem, just as the mind problem eludes us from the physical stance. They could, however, emulate Dennett's tactical choice and try to see it as intentional system. Of course, Dennett as we had seen earlier, rules out lectern as legitimate candidate of intentional system on the ground that it does not augment predictive leverage: "I claim to solve the lectern problem…by showing how, when predicting lectern 'behavior,' the intentional stance gives a predictor no purchase over using the *physical stance*" (GR 522, emphasis added). But for the evolved Zhimps, this benchmark does not quite apply because they

[10] Dennett puts it slightly differently. "What is closed to the mind of a rat may be open to the mind of a monkey and what is open to us may be closed to the monkey" (Dennett 1991e: 10). Dennett acquiesces to this remark of McGinn in the later's argument for cognitive closure.

[11] That is, we take it that the stage of Zhimp's development in fact makes them marvel at lectern the way, for instance, the early men would be awed by the workings of nature. This does not stand oppose to what Dennett himself believes: "this is philosophy, and you get to make up whatever details you find you need to make your thought experiment work" (DDI 409). However, lectern in the argument could also be replaced with *thermostat* which Dennett would endorse as intentional system (BC 327), without really jeopardizing arguments made.

would naturally want to find intelligible explanations for the *behavior* of lectern.[12] More importantly, their physical understanding of lectern is as good as none!

In fact, Dennett's lectern yardstick is itself ambiguous, because there is no reason why lectern must be ruled out as intentional system just because it can be predicted from physical stance.[13] Because we see that chess which can also be similarly predicted is not thereby ruled out. If practicality of prediction is the concern, there is even more reason not to exclude it, because to predict lectern's behavior by invoking physical stance is just as unusual and impractical. We do not normally invoke physics to know what it is going to *do*. So, if practicality of prediction admits chess as intentional system, there seems no reason to rule out lectern.

But if it is on account of its motionless (stillness) it is ruled out as intentional system, for instance, as observed in the aforesaid: "[w]hat should disqualify the lectern? For one thing, the strategy does not recommend itself in this case, for we get no predictive power from it that we did not antecedently have. We already knew what the lectern was going to do – namely nothing – and tailored the beliefs and desires to fit in a quite unprincipled way," then the ground for such dismissal

[12] This should not be surprising as some of the Zhimps might have hit upon the idea of employing intentional criteria to explicate things, as it happens in human's pre-scientific era in which it was commonplace to describe natural phenomena in intentional terms by which nature is explicated according to the whims and fancies of men's emotions and needs. As Zhimps do not already have, for instance, an understanding of lectern at the atomic level, while their understanding of basic locomotive and kinematics principles are at best primitive, or nonexistence altogether, lectern, as also other phenomena of nature, would quite naturally appear mysterious to them.

nonetheless appears ill-founded. Crocodiles (or the dormancy of animals in hibernation and human meditating for that matter)[14] can remain still for long time waiting for preys (or resting), yet arguably we could have conceived intentional interpretations to account for these behaviors. The difference is then more of a degree than kind. We would surely need more varied and lavish intentional explanations for subjects that exhibit irregularities and richness in behaviors, whilst a more simpleminded one for relatively straightforward and unsophisticated behaviors. For surely, state of motionless (or stillness) is a manifestation of behavior of sorts, the way no one would deny zero a legitimate subset of number. Indeed, if we *could* consider Sisyphus's herculean feats intentional system, there is no reason to deny the same of lectern. So, it may appear unjustified for Dennett to rule out lectern as intentional system just because it yields no predictive purchases.[15]

Besides, we could reliably predict, *ad infinitum*, with almost perfect certainty, the alternations of sunsets and sunrise (time immemorial). In this, not unlike the lectern, no subsequent conceptualization of *physical* theories would give us any predictive leverage we do not antecedently have (at the *general* level), but this

[13]Lets take a detour to probe deeper the predicament the lectern allegory gives rise to before argument above is more fully developed below.

[14] Certain species of freeze-tolerant frogs, for instance, are capable of becoming frozen up on entering such state (Schmidt-Nielsen 1990: 230-231, McGrath 1999: 373). Frogs are certainly intentional system in Dennett's eye. And most significantly, Dennett has also considered plants with largely 'dormant behavior' intentional system (KM 34).

[15] Besides, relying on predictive leverage *per se* has its share of frailty, for if one important motivation in the formulation of intentional stance is the yielding of specs (or competence model), and if we could come up with multiple equally valid intentional interpretations to account for the lectern's behavior (though the outcome of prediction would principally remain the same), these varied interpretations surely make important theoretical differences.

does not mean we must jettison planetary motion as legitimate object of scientific inquiry. For this supposed leverage, in the absence of physical understanding, is empty at best. So, predictive leverage by itself, may not ultimately amount to anything, misapplication of the strategy leads astray. The same presumably applies to lectern.[16] To the Zhimps, though it is plausible that prediction of lectern, not unlike that of humans, offers them no predictive leverage in the absence of reliable physical understanding, it is foolhardy and premature to rule them out as legitimate object of study on the ground of predictive leverage.[17]

That said, lets see what happens when the Zhimps do in fact adopt Dennett's strategy of intentional stance (which is none other than the application of intentional idioms) to make intelligible lectern's behavior.[18] Lectern would then be seen as rational agent with desire-belief state. The lectern believes it is at the center of the universe, and it wants to be at the center of the universe, since it is rational, therefore it would stay put. Indeed, the Zhimps have discovered a system that enables them to predict rather accurately the behavior of the lectern. But how could treating lectern as intentional system help advance their mastery of the physical world? Surely, we know this is a forlorn strategy. If Zhimps take these

[16] Same leverage would apply to plants with 'behaviors' very much like that of lectern but is still today important focus of research in spite of our relatively extensive understanding of them.
[17] Dennett reiterates his emphasis on predictability in his short response to Sharpe's criticism (BC 97-98), but again what appears baffling is the absolute importance he bestowed predictability and the deprecatory ways he treats other intentional elements, as if their existence hinges on prediction alone, having no merit by themselves. We must be aware that prediction is not an end in itself, but always a means (to some ends). So, if it is too highly heralded to the extent of becoming absolute, one may easily lose sight of the original purpose of alluding to it in the first place, Dennett's theory not withstanding.
[18] If lectern is to be considered legitimate intentional system, then the question of what ought to be attributed to the lectern arises? In what follows, I merely adopt Dennett's original (perhaps

intentional attributions literally, their comprehension of physical world, for instance, is likely to remain at the ancestral stage of humans where myth, alchemy, fable and legend constituted their understanding. But what if they take intentional attributions as mere optimizing strategy, a scaffold that helps formulate some sort of competence model (seen in the Second Chapter) hoping it might in turn help throw light on the true nature (or the inmost workings) of lectern?[19] In other words, if the Zhimps' aim is to understand the underlying working mechanisms of lectern, how would treating it as intentional system help?

Perhaps due to poverty of imagination, it is hard to see how intentional attributions could actually help the Zhimps unravel the workings of nature. It suffers from one important mishap: overloading of strategy with excessive ontological presumptions. With hindsight, we know lectern's rationality together with its belief-desire postulations impede more than help in genuine understanding. Besides, one could also easily contrive alternative versions (other interpretations are possible). One is then trapped in vacuous sophistry.

Moreover, if Zhimps could 'successfully' apply intentional interpretations to lectern, there is no reason why, if the strategy is such resourceful, the Zhimps could not also apply it to other artifacts of nature. Let's see what could possibly happen if the Zhimps decide to take such tactical choice. The sun (presumably

caricaturized) attribution. Readers are free to adopt interpretations that probably commensurate better with Dennett's yardstick of attribution for intentional system (IS 49).

rational agent) believes its role is to supply planets (and Zhimps-kind) with warm and fire, it desires to do this in a position fairest to all, hence assuming center spot in the solar system. It is also the largest amongst planets, otherwise it would not have enough heat to supply necessary energy for all. Earth is rotating round the sun because it believes that is the best way to realize its desire of wanting to have four seasons in a year and so on. Meanwhile, the river believes the best way to punish sinful Zhimps is to deny them precious supply of water whilst draining or sojourning areas resided by conscientious Zhimps. This supposedly helps explain the twists and turns of the meandering river steering itself out to sea.[20]

Once the floodgate is opened, the barrenness of the theory is (quite) unmistakable.[21] As the above suggests, if lectern is intentional system, everything also possibly is, but this only proves its vacuity. This allegory of Zhimps, however, is not a caricature of Dennett's view. It is arguably a legitimate consequence of intentional stance theory. If intentional stance is truly useful device, it ought to work no matter who takes the stance. As Dennett argues in terms of the universality of physics and mathematics, "[i]t is worth bearing in mind that mathematics and physics are the same throughout the entire universe,

[19] That is subpersonal model in Dennett's sense.
[20] It is surely odd to have intentionality ascribed to these contrivances of nature. But as argued earlier, what is more important is the basic concern if they could be regarded intentional system. If it satisfies the demand of the theory, then the resulting awkwardness perhaps only reflects its own limitation (see arguments last section for fuller defend of this). However, as far as the above thought experiment is concerned, to the simpleminded and unsuspicious Zhimps, this is only an extension that is no more natural.
[21] Dretske captures it thus: "[i]t is also *useful* – for what appears to be exactly the same reasons – to describe some things as having an electrical phenomena, our predictions of what motors and light bulbs will do, are also part of some stance? If so, is the *electrical stance* merely a stance - a

discoverable in principle by aliens (if such there be)" (DDI 494n2). In like manner, the legitimacy of the lectern stance ought not be discredited for the Zhimps, simply because it could also be explicated via the physical stance (for humans). As in the case of the Martians who could predict human behaviors right from the atomic level (IS 37, GR 523-524), intentional stance (from human's standpoint) is not thereby discredited. So, there is no reason to expect otherwise in this case.[22]

In a way, the predicament of Zhimps is a *flashback* (reflection) of human's condition before the dawn of science. If intentional characterizations and predictions do not work in this supposed Dark Ages, there are more reasons to expect it superfluous in today's world of ours.[23] Generally, if intentionality baggage proves a liability in the customary characterization of things in the *physical* world, how could they be working wonders in certain *selected physical*

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stance in the same sense in which the intentional stance is a stance?" (Dretske 1988: 511, emphasis added; see also Searle 1988: 528).

[22] If Dennett in fact says it is to Zhimps that lectern is intentional system, but not to humans (hence all the preceding arguments/predicaments concerning Zhimps are inapplicable to humans), then Dennett would owe us an explanation how, given this arbitrary and capricious characterization, intentional stance could still act as specs (which certainly needs to be universally applicable in order to serve as blueprint for the instantiation of *physical* model) in virtue of intentional characterizations. Because if Dennett's reasoning here is correct, the specs we obtain of humans by means of Dennett's intentional stance would not serve any purpose (something which Dennett certainly disavows), because to the Martians, humans are not - or are not seen as - intentional system. Such relativization could presumably be effected *ad infinitum*. If so, whence the applicability (pertinence) of the specs?

[23] For instance, Baum and Heath in comparing Dennett's view to that of Skinner note in passing the followings: "if one applied Dennett's argument in favour of the provisional use of intentional terms, then in the absence of an explanation of gravity at the atomic level, Newton would have been justified in (provisionally!) explaining the falling of a stone by the stone's desire to reach the ground" (Baum and Heath 1992: 1315).

systems is a riddle.[24] Admittedly, as argued before, they are all physical systems originated from some basic physical processes. As the Zhimp thought experiment also shows, intentional stance is disappointingly unreliable in accounting for the underlying mechanisms of solar system and lecterns, in that the stance is more likely to confuse than enlighten the Zhimps (or us), how could adoption of similar stance to other physical systems (e.g., plants, microorganisms, chess computers, thermostats and the likes) lead the Zhimps (or us) in the right direction is rather bewildering (section 4.6 would pick this up again). With benefit of hindsight, we see progress is made in science precisely because we have outgrown our proclivity to see nature centered round misapplication of the excesses of intentionality.

4.4 Chess and Computer

Dennett has not really shown how ascription of things from intentional stance could lead to meaningful and concrete understanding at the physical and design level. At best, his discussions demonstrate how it is plausible to make predictions in the language of intentionality. In fact, as seen earlier in the Zhimps allegory, one could in principle "tailored the beliefs and desires to fit in" (IS 23; see also Searle 1988: 528) whatever way we want and would still get similar prediction.

[24] One must remember for Dennett, intentionality is not part of the furniture of the physical world, its existence is conditional: it exists as long as it helps or is useful in making predictions. So, one cannot say that intentional assumptions work well in certain physical system because they really have genuine intentionality (as in the case of humans or at least to some extent in animals) because intentionality in the real causal sense does not exist in Dennett's scheme of things. So, for consistency sake, we ought to treat all physical objects – living and nonliving alike - completely

So what is the acid test of the stance? Arguably, intentional stance is legitimate tactical move if we could in fact achieve some crucial understanding of the underlying physical processes through its employment. Let's develop this further and see how far this is true in Dennett's theory.[25] To recapitulate, Dennett says that

> in the case of people or animals or computers, however, the situation is different. In these cases often the only strategy that is at all practical is the intentional strategy; it gives us predictive power we can get by no other method (IS 23).

We possess intentionality the way folk psychology characterizes it. Certainly, Dennett's theory is built on these common presuppositions. So there is really nothing novel in this claim. What is unusual in his approach is his claim that computers (and thermostats as well[26]) could also be said to possess intentionality. As Dennett asserts, it is "the only strategy that is at all practical," as it "gives us predictive power we can get by no other method." We would examine these claims and analyze them briefly to see how far the proposed stance is capable of yielding concurrent meaningful physical models.

Chess playing computer is Dennett's favorite example in his extension of intentionality to the domain of the inanimate (BS 5-8, 271; IS 24, 74; KM 30-31). Lets take an example where this is discussed: "[t]he best chess playing computers

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on par with each other, with none having prerogative to be treated as intentional system, ruling out the others.

[25] For other criticisms on stance-conjured-prediction, see also Dretske (1988: 511).

[26] Dennett says the same of thermostat, "what is theoretically interesting is that if you want to describe the set of all thermostats (cf. the set of all purchasers) you have to rise to this intentional level. Any particular purchaser can also be described at the molecular level, but what purchasers – or thermostats – all have common is a systemic property that is captured *only* at a level that invokes belief talk and desire talk" (BC 327, italics mine). We would focus our discussion on chess playing computer, but same argument applies here.

these days are practically inaccessible to prediction from either the design stance or the physical stance; they have become too complex for even their own designers to view from the design stance" (BS 5), so it is here that intentional stance prediction comes in handy for it "works when no other sort of prediction of their behavior is manageable" (BS 7).[27] Surely, "[o]ne can always refuse to adopt the intentional stance toward the computer, and accept its checkmates" (BS 7). Hence, according to him, the best way to interpret them would be to view them as intentional system (for instance, see also BS 59, 237-238).[28] But do we really need these inordinate postulations to make prediction (in the game) possible? Conceivably, a game is a specific engagement undertaken according to certain rules and end purposes. The question here is whether knowing these rules suffice, or are other things required?

[27]"This is a tremendous predictive advantage plucked from thin air in the face of almost total ignorance, thanks to the power of the intentional stance" (IS 79-80).

[28] To look instead at a more recent example, "[a]doption of the intentional stance is more useful – indeed – well nigh obligatory – when the artifact in question is much more complicated than an alarm clock. My favorite example is a chess playing computer. There are hundreds of different computer programs.... these computers all succumb neatly to the same simple strategy of interpretation: just think of them as *rational agents* who wants to win, and who know the rules and principles of chess and the positions of the pieces on the board. Instantly your problem of predicting and interpreting their behavior is made vastly easier than it would be if you tried to use the physical or the design stance...draw up a list of all the legal moves available to the computer when it is its turn to play. Why restrict yourself to legal moves? Because you reason, it wants to play winning chess and knows that it must make only legal moves to win, so, being rational, it restricts itself to these. Now rank the legal moves from best to worst and make your prediction: the computer will make the best move. You may well not be sure what the best move is (the computer may appreciate the situation better than you do!), but you can almost always eliminate all but four or five candidate moves, which still gives you tremendous predictive leverage....Sometimes when the computer finds itself in a tough predicament, with only one nonsuicidal move to make (a forced move), you can predict its move with supreme confidence...The move is forced by the overwhelmingly good reasons for making it and not any other move" (KM 30-31, emphasis added).

Games are human's creation with self-bounded rules. In an important sense, these rules and the game are synonymous. Without them, we have no game to begin with. One who does not know anything about chess, for instance, could presumably gain some understanding by watching how the game is played. At this point, success in prediction may well be as good as nothing. Naturally, we do not expect to gain predictive leverage by attributing intentionality to the subjects, be it artifacts or humans. Ascribing intentionality is superfluous because fundamental framework for making meaningful predictions is missing. However, to acquire game knowledge, one could engage in some sort of discriminative probing.[29]

In the process, she gets to learn what defines legitimate moves, and what amounts to illicit moves. Eventually, she comes to realize that chesspieces could only move in certain fashion, and not others. Naturally, she also learns in consequence that some privilege pieces may possess specific edge in procession, hence assuming greater significance compared to its lesser counterparts. Further to this, she would soon recognize that the pieces could be obliterated upon confrontation and so on. Subsequently, at more subtle level, she discovers that the *raison detre* of the game requires the ultimate checkmate of opponent's King and the maximal removal of their chesspieces. Ultimately however, if the learning of these rules does not require intentional postulation of these chesspieces as rational agents, it is not clear why playing the game requires one!

[29] By playing with a chess playing computer or a human chess player for instance. She could also observe the computer playing with itself.

The issue here is Dennett's contention that intentional stance is the only feasible interpretation or "mentalistic interpretation [is the] indispensable lever" (Dennett 1990g: 581), if one does not wish to descend to the more complicated and hence unpractical physical and design stance. Taking where we leave off, assuming after some laborious toils, Lucy is finally able to master the intricacies of the game. Does she need intentional stance to predict the moves of her computer opponent?[30] Hardly! She could sufficiently play (and thereby anticipate the game) merely by considering its corresponding cost-benefit consequences, purely according to the rules. (As *formal* as doing mathematics because the rationale of the game ultimately boils down to maximizing the benefits of each and every move whilst minimizing its accompanying costs.)[31] Hence, insofar as she is aware of the game dynamics, she could predict relatively well without having to resort to intentional attributions.[32]

The aforesaid may not be sufficiently compelling, hence the followings develop and reinforce the points made in more concrete detail. Consider a situation where a chess playing computer makes a puzzling move: its Queen has the opportunity to take the Bishop (essentially not restrained in movement, meaning it could

[30] For instance, Dennett asserts that, "Deep Blue, like many other computers equipped with artificial intelligence programs, is what I call an intentional system: its behavior is predictable and explainable by attributing to it beliefs and desires…and the rationality required to figure out what it ought to do in the light of those beliefs and desires" (Dennett 1997b: 352).

[31] Whether it means maximizing immediate advantages or losing some existing advantages for greater subsequent gain. The same applies to costs.

[32] Certainly intentionality is basic in everything we engage in, but it is different altogether when we have to ascribe (or attribute) intentionality (belief, desire and rationality) to something to make possible prediction of behavior.

easily break free) of its opponent and then go on to check its King to yield a Pawn. Alternatively, its Knight could go straight on to take the opponent's Queen, vanquishingly trapped in a *cul-de-sac*. Supposing the computer has surprisingly chosen the second alternative, hence allowing the Bishop to go free. What shall we say of its move?[33]

Shall we say the chess-agent is acting irrationally?[34] If not[35] and if we assume it is acting in the best spirit of the game,[36] shall we then say it has mistakenly

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[33] Which (lets assume after all considerations) is a sub-optimal choice, *ceteris paribus*. Because the opponent's trapped Queen could not have escaped its demise anyway!

[34] Dennett seems to think that blames of irrationality is justified. "An irrational opponent (human or artifact) might self-defeatingly failed to make a forced move, and for that matter a rational opponent (again human or artifact) might have a higher ulterior motive than avoiding defeat at chess" (IS 79).

[35] In games, we usually do not resort to irrationality to explain imperfections in performances. For example in tennis, we would most likely say a player is under stress, has not been in form, injured, or has not been training hard enough to account for their drop in performance. Instead of saying they are acting irrationally when they fail to perform to expectation. So, when a chess Masters plays an amateur or kid, on encountering some foolish or unwise move of theirs, the Masters is not likely to say they are irrational, but merely incompetence or at most not talented, for they would like to play winning chess too (i.e., making the best move within the constraints). But its just that their mastery of the games is still too unseasoned. Similarly, when I (amateur) encounter a very strong chess program making moves that I do not understand. I do not say it is making irrational moves, but would rather attribute my incomprehension to my incompetence to fully assess the situations. And it usually turns out that these moves are almost always unexpectedly brilliant, something I could not have thought of myself. We would say someone is acting irrationally if *knowing* option one is better, she chooses to act on option two; but this is likely not what the computer is doing.

[36] I do not want to say the reverse, that it is playing it rationally because there is nothing rational or irrational about a game. Besides, rationality in the hands of Dennett is turned into some kind of instrumentalistic presuppositions. Its attributions justified insofar as "the presupposition provides leverage for generating specific predictions of behavior" (BC 360). Even in mathematics which is a discipline where logic and inferences play important role, we do not say someone is irrational because she fails to see the solution or make the right deductions, or rational when the reverse is true. We are given rules, and so we just play according to the rules. If we are not observing the rules (e.g., when one is bribed), we are not playing the game (chess) in the first place. There is nothing irrational about that. There is nothing like if we want to win the game we must play it more rationally. For if we want to win, we would have to play in the most skillful and competent manner. So naturally, when the computer makes an unexpectedly brilliant move, we do not say this is due to the computer acting more rationally or believing and desiring the right sort of thing. Likewise, when the game is played badly, it is more of a question of competence and skill instead of the problems of rationality and intentionality.

believed (i.e., belief being erroneous) that second option is preferable or has mistakenly desired the Queen, or both.[37] Most likely not,[38] conceivably we would complain we are playing a weak program (or opponent) that is not able to properly assess the consequences of its moves to the best of its interest, i.e., we attribute the blunder (misapprehension or miscalculation) to the flaw of respective computer program.[39] This is in stark contrast to humans, for if someone acts in eccentric manner (abnormally or out of the norm as in the chess unusual behavior above), we usually appeal to her state of beliefs, desires and perhaps also rationality to understand her behavior. Hence, if we do not resort to (attributions of) beliefs, desires and rationality to explain the chess anomaly, whence the need to resort to intentionality and rationality arise in making predictions on the moves of computers.[40]

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[37] Surely, this is a mistake of judgement of sorts, but this is no ordinary sort of judgement because the judgement could not be reversed or altered in anyway, unlike human judgements that could be changed once the mistake is realized or when new facts come to view. To believe (desire) erroneously presupposes the reverse: i.e., the ability to believe something else when the blunder is henceforth recognized. In the case of the computer, this is not possible, because under no circumstances could its beliefs or desires (if it is assumed to have them) change, it could not have believe (desire) otherwise. What beliefs (desires) is this if no changing of facts or anything else could alter its initial conditions. Belief thus rendered is self-defeating for belief does not exist on nothing, it is founded on some basis (facts, information etc), when this basis is changed the belief would likewise be altered. In this case, we cannot even make the computer realizes its mistake, not to mention changing its beliefs.

[38] We are not likely to say, for instance, that the computer is behaving as such because it has an erroneous or outrageous beliefs or desires.

[39] We would most likely say, for instance, that something is not right, there is probably a flaw in its design, it is a weak program, too simpleminded or unsophisticated enough or maybe just not powerful enough. It would be rather surprising to hear one say something has gone wrong with its beliefs, desires or it is behaving irrationally (because it is not believing or desiring what it is suppose to believe or desire). And as layperson whom the physical and design stance lie out of reach, to overcome the problem, she would probably suggest the followings: lets try to switch to a better, more sophisticated and complete, even more discriminative, impeccable or stronger program rather than saying something like lets switch to a more rational program or a program that believes better and desires better because presumably there is something wrong with its beliefs and desires.

[40] Dahlbom seems to think likewise. "To the extent that human beings subject themselves to the rules of their institutions, or to 'opportunity,' their behavior is predictable from those rules. And to the extent that human beings rely on technology in their actions, their behavior is predictable from

Lets assume, for the sake of argument, we take away say thirteen of the legitimate chesspieces on each side, and shrink a 8x8 chess board to one of 3x3, assuming further we could still play reduced or abridged version of meaningful chess.[41] With the downsizing of the board and the chesspieces, it would not sound so implausible, as it would be in the traditional chess game, to draw out all the plausible moves and counter moves of all conceivable games, without appealing to beliefs and desires whatsoever. That being the case, we would then have a complete – or near complete – sets of all plausible games (and their corresponding movements) ever to be played. The process is not unlike the derivation of plausible theorems given a set of axioms.[42] If this is not inconceivable, then it would not sound preposterous to argue for the same in original version of traditional chess because nothing is changed in principle. Just in the full traditional version, we are dealing with more possibilities.

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the normal functioning of the technology. 'Watch her now as the game begins, and you will see her move the pawn in front of her king two steps forward.' 'Watch how all these cars will begin to move when the lights turn yellow and green.' The bureaucrat's stamping of your passport is artificial in the same sense in which the computer's chess move is: the stamping is determined by an institution, the move by a program. Explaining and predicting their behavior, we don't have to assume rationality or posit beliefs and desires" (Dahlbom 1993b: 179).

[41] It does not matter so much if meaningful chess could still be played. We doubt if it could. Or perhaps new rules could be formulated to save the game. However, the rationale here is more of underlining the plausibility of a formal working out of all possible moves in the game given the new rules.

[42] We certainly do not consider mathematical theorem an *agent* with rationality, embodied with corresponding beliefs and desires, when we try to figure out or anticipate various theorems we could possibly generate given the axioms. For instance, says Dennett, "[a]ll the theorems of Euclid are implicit in the axioms and definitions. And if you have a mechanical Euclid machine – if you have the axioms and definitions explicitly stored in the machine and it can churn out theorems – then the theorems it churns out and hence renders explicit were implicit in the system all along – they were implied by the axioms" (IS 216). If this is so, why must we treat chess playing differently?

Imagine we succeed in coming up with some sort of Chess Bible that records all (or nearly all) the moves (and countermoves) in all games that could ever be played given the chess rules.[43] Then, in the context of the argument, one could in fact play with someone (say a child or even adults may also do) who does not understand anything about chess, but is smart enough to understand enough of the Chess Bible to make moves by referring to instructions in the Chess Bible without a hint what she in fact is doing (i.e., with no understanding and grasp of the game whatsoever). So, the uninitiated child could indeed play some brilliant games with someone versed in chess and still wins the game. Similarly, if we also possess a copy of the Chess Bible, we would be able to predict rather accurately the moves of the child in the game, based purely on formal instructions found in the Bible, without needing the ascription proposed by the assumption of intentional stance.

Surely, in this case, to predict the chess game, there is no need to ascribe extraneous rationality nor beliefs or desires to the *game* of the child (and hence analogously the chess playing computer discussed earlier). Neither is it intelligible, it seems, to attribute rationality, desires and beliefs to the Chess Bible (of course one could still attribute them if one chooses to, but this is cumbersome and unnecessary), because the book just contains all the plausible moves conceivable given the rules of the game, for the same reason we do not attribute intentionality and rationality to theorems we derive from axioms, because they are just logical consequence of axioms (or assumption or rules), nothing more. Of

[43] There is some similarity with Searle's Chinese room example though when it was first thought

course, we know Chess Bible is not possible, not technically but practically impossible. However, this does not mean that predictions based on *formal* considerations of plausible moves and countermoves is completely out of reach for even modest search of plausible options in a chess situation (say four to five steps ahead) allows some *relatively* reliable predictions to be made.

Meanwhile, chess playing could also be seen analogous to the process of evolution, for evolution could also be considered a sort of 'game' (survivor game) that is played according to a set of principles (principally by the law of natural selection). However, unlike the game of chess, prediction is even harder here due to the randomness of gene mutation and the indeterminateness of environmental factors constituting forces of selection. In spite of the difficulty in making meaningful predictions, we do not doubt that the 'game' is exploiting some plausible design space, specified and embodied in the rules of the game (the physical laws).

However, what is important for our present considerations is that when knowing the laws (or axioms or rules whatever) does not help in predictions, attributions of intentionality do not help either. For no one is able to predict the emergence of language, eyes, wings and dinosaurs by attributing intentionality and rationality to the 'game.' When prediction is possible, as in some cases of microevolution, assumptions of rationality and intentionality is redundant and not needed, for we

out, Searle's thought experiment was not in the mind.

have not seen scientists or biologists appeal to them to make predictions. If evolution, as good example of algorithmic model (Dennett 1995o, DDI 50-51, 59-60) works well without extraneous intentional presumptions, what of chess, which in large measure is equally good example of algorithmic process in action.[44]

4.4.1 A Subpersonal Chess Model?

As seen in the second chapter, it is argued that one important justification of intentional stance is the competence model it yields (important for subsequent subpersonal characterization). On one hand, Dennett explicitly acknowledges the *ad hoc* nature of its attribution: they are "provisional guides" or "strategies that serve to organize data, explain interrelations, and generate questions to ask nature" (IS 265). Meanwhile, as noted earlier, Dennett made invocation of intentionality condition on predictability (BS xvii, BC 322, IS 15, 73).[45] On perhaps a tangential consideration, there is, however, concern over the extent of accuracy in prediction of the aforesaid. In playing chess, it is precisely the unpredictability of opponent's move that makes it interesting. Except in specific

[44] Dennett mentions in passing that good chess programs are just *algorithm* for playing chess (BS 266), and "in principle, there is an algorithm for playing perfect chess" (DDI 439). But what is algorithm? Dennett tells us that "[a]n algorithm is a certain sort of formal processes that can be counted on – logically to yield a certain sort of result whenever it is run or instantiated" (DDI 50). Besides, algorithm is essentially 'blind,' 'mindless,' 'mechanical procedure,' it is a "recipe that can be followed by servile – or even machines; no understanding required" (DDI 431; see also DDI 50, 59-60, 205, 308), for it is "[s]imple enough for a dutiful idiot to perform....requiring no wise decision or delicate judgements or intuitions on the part of the recipe reader" (DDI 51).

[45] "[Belief] can be discerned only from the point of view of someone who adopts a certain predictive strategy, the intentional stance...What it is to be a true believer, to have beliefs and desires, is to be an intentional system" (Dennett 1988b: 496).

circumstances, most of the time, predictions of opponent's moves are at best guesses.[46]

Usefulness of the strategy is hence questionable on following grounds. Difficulty, vagueness and unreliability of prediction (at the abstract level of intentional stance) is not likely to make the resulting competence model a very useful guide for subpersonal characterization,[47] not to mention the cumbersomeness of relying on the surreptitious presumptions of belief, desire and rationality in intentional stance formulations. One could in fact achieve more efficient and less messy way of characterization by relying solely on rules (of the game) and the accompanying appraisals of cost-benefits. The extent by which intentional stance serve as model for chess playing computer or for that matter "a 'black box' characterization of behavioral and cognitive competences observable in the field…couched in language that (ideally) heavily *constrains* the design machinery to put in the black box" (IS 257, emphasis added; BC 63, 313; IS 74-75, 78, 165, 255; BS 62) or serving for that matter as "engine of discovery" (Dennett 1983b: 382), is hence doubted.[48]

[46] Dennett is of course aware of this (IS 24, KM 31).

[47] Though, strictly, this is not part of Dennett's aim as far as chess is concerned, but effectiveness of intentional stance to serve as competence model could be assessed from its fruitfulness in providing a model for the chess computer, which could then be compared to original chess computer blueprint (this reversal in strategy is akin to that of reverse engineering which would be more fully discussed later in this chapter). This is arguably important given the central role chess computer plays as leading example of Dennett's intentional system.

[48] Dennett in more recent writing notes the followings in response to criticism of his theory. "In what way does the intentional stance constrain the development of design hypothesis in information theories? It constrains in the same way arithmetic constrains the design of hand calculators. Arithmetic can also be viewed as an abstract, ideal, normative system [the way intentional stance is]" (BC 315). But if one does not overwhelm the constraining arithmetic (which

On this account, we see intentional stance is not *the* only method to predict moves of chess playing computer. One could rely on less cumbersome and hence more direct method to achieve similar end. And if what Dennett regards as exemplar (at least amongst his most popularly cited instances) or "the leading example of an intentional system" (DC 231) is questioned, the grounds for treating the rest of its other counterparts in similar manner would be insecure. Besides failing to live up its proclaimed role as the only pragmatic tool which enables us to circumvent the more tedious physical and design stance, it does not seem to perform well as competence model, which is critical insofar as Dennett sees his theory as a bridge to science, lest his theory is reduced to some vacuous exercise that has no ultimate bearing on the real world.

4.5 Problems of Attribution

From above (Zhimps and chess allusions), we see lurking in Dennett's writing the danger of vacuous ambiguity in (intentional) attributions. Consider the following

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is surely a pure algorithmically mechanistic process) with cumbersome intentional overlay, why must we weigh down the chess rules with such encumbrances. If one could design hand calculators solely on arithmetic principles, there is no reason why one could not do the same with chess playing computers. By contrast, note for instance, Dennett says just think of the chess playing computer as "rational agents…who want to win, and who know the rules and principles of chess and the positions of the pieces on the board" (KM 30). With hindsight, we know the employment of a competence model (borne of the intentional stance) or intentional strategy for individuation of the design blueprint is by any means unnecessary and superfluous. (This indirectly counts against the usefulness of the employment of intentional stance. The rather brief treatment of competence model here sets the stage for more comprehensive discussion in later section (section 4.5).)

line of interpretation: the Pawn of chess playing computer does not take the Castle but chooses instead to take the Queen because it believes its King loves or desires its rival Queen. As it is ambitious, it strives hard to please the King. That apart, since Castle is not the King's utmost desire, it could be given up just yet and so on. To be fair, this is not to suggest that Dennett has this in mind in his formulation of intentional stance, but the *worry* is Dennett's theory invariably seems to accommodate such inflationary interpretations. Arguably, this could also provide the predictive leverage Dennett seeks.[49]

Dennett is certainly more circumscribe and discreet than the above. As pointed out earlier, Dennett does provide some rough guiding principles in which attributions *ought* to be made. "A system's belief are those it ought to have, given its perceptual capacities, its epistemic needs, and its biography…A system's desires are those it ought to [or ideally] have, given its biological needs and the most practicable means of satisfying them" (IS 49; see also pp.17, 20; BS 17). But how useful are these supposed constraints? With them as guiding principle, given our perceptual capacities, epistemic needs and biography, what kind of moral beliefs we ought to have? Similarly, given our biological needs, what kind of moral desires we ought to have.[50] Answers to these questions are far from clear

[49] It is true that Dennett has provided some constraining principles in which attributions are to be made as noted in the following paragraph. But arguably this inflated interpretations is not illegitimate as far as Dennett's theory is concerned. Strictly, if one considers this to be the environment (or context) which to play the game, there seems nothing in Dennett's theory to bar such move.

[50] One could in principle extend this to beliefs in the realm of politics, arts, economics, love, religious beliefs and other phenomena of life at large. Besides, "[h]ow can an infant take the intentional stance while knowing next to nothing about an agent's/system's perceptual capacities,

and differ according to individuals. But if anything is intentional system, we human beings are – in fact the archetype in which Dennett modeled his intentional stance theory.[51] So, if the model does not work well even with the 'prototype' or the "idealized standard" (IS 99)[52] of intentional system, one has no reason to suppose that generalization of the principle would work well with other entities we understand even far less than ourselves (see also Stich 1990: 182-183).

To consider other examples, let's venture from this illustration of chess into other instances. Let's focus on the belief of frog (IS 106-116, DDI 407-409, Dennett 1987a). In this regard, Stich (1990:182-183) points out the difficulty of attributing beliefs to frogs on normative grounds. What ought the frogs believe is not likely to have been unequivocally answered. Certainly, normative earmark is unable to give concrete answers to these questions.[53] Contriving normative rules that is

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biological/epistemic needs, and biography? In terms of understanding perceptual capacities, children have quite uneven developmental profile, and even two- and three-year-olds are unclear about how information is obtained through various sensory modalities, even seeing…Knowledge of various biological functions comes later still…and biographies, insofar as knowledge of them is necessary for successful and unique intentional interpretation, may take a good deal of life experience and learning, and depending on the problem, may not be available even to *adults*" (Griffin and Baron-Cohen 2002: 91, emphasis added).

[51] As was discussed earlier, intentional system is borne out of Dennett's concern to clarify and incorporate folk psychology into science. So, if anything, as humans are "the largest and most complex intentional systems we know" (IS 29), we are the model (paradigm) in which other interpretations are based. As Dennett himself observes, "our minds, the only minds we know from the outset, are the standard with which we must begin. Without this agreement, we'll be just fooling ourselves" (KM 4).

[52] "When we decide to interpret an entity from the intentional stance. It is as if we put ourselves in the role of its guardian, asking ourselves, in effect, 'If I were in this organism's predicament, what should I do?'" (KM 33).

[53] Of which more in later sections. The followings, however, help reinforce the point. "Just the quandaries Stich… examines in detail; quandaries that are resolvable – to the extent that they are - only by resort to normative considerations: we should project only what is *best* of ourselves, but what counts as best under the circumstances is itself a matter of interpretation" (IS 344).

subjective to serve as constraining principles to something that is equally equivocal would not lead us far.[54] So, perhaps the outlining of these criteria are still too vague and imprecise to serve as good attributing principles. If science and objectivity are the basis with which Dennett "launch a host of differently posed argument" (BC 365), the foregoing seems to have Dennett's theory backward. Indeterminateness of intentional interpretations in the form of normative and projective provisions (Fodor and Lepore 1993: 72-73, see also IS 342-345)[55] does not seem to sit well with demands of precision and objectivity in science, especially in view of its supposed role in the eventual formulation of a subpersonal model.

4.5.1 Original and Derived Intentionality

Above notwithstanding, Dennett nonetheless seeks to defend this ambiguity (IS 14, 29) most significantly in his writings on derived and intrinsic intentionality. Dennett acknowledges that mental ascriptions (and hence intentional stance) is essentially not falsifiable. *Ex-post* improvisation is always possible to make explanations fit the facts (IS 264-265, GR 529). Dennett concedes this and in fact argues that content of belief could never be made precise (IS 101, 108, 207-209).[56] We had seen how Dennett made use of this as part of his important thesis

[54] Or there is no need for one determinate account, as we shall see next section.
[55] Upon Stich's comment on his notion of rationality (Stich 1990: 181), Dennett modifies his thesis to incorporate the projective elements (IS 99, Dennett 1988c: 543).
[56] "I grant that such questions are only problematically answerable under even the best conditions but view that as no embarrassment" (IS 101).

on intentionality in the second chapter. Hence, detail argument is not rehearsed here. Lets recapitulate briefly the crux of the argument before moving on to a fuller analysis of the issue.

To Dennett, indeterminacy of interpretations is inevitable (see also BC 116-118). Dennett cites Quine's indeterminacy thesis as important motivation for his views.[57] Detail arguments for indeterminacy of intentional attributions is, however, more comprehensively elaborated (and defended) in his discussions of original and derived intentionality. In this, he argues for how "[a]ttribution of intentional states…cannot be sustained, without appeal to assumptions about 'what mother nature had in *mind*'" (IS 314, emphasis added). But what mother nature has in *mind* (unrepresented intentionality) is at best ill-defined, it exists as some kind of "free floating rationales" subject to interpretations when we take up intentional stance.[58] So, there is no stable and fix way to pin down content (and

[57] "Quine's famous thesis of the indeterminacy of radical translation is the somewhat more general and radical claim that when there is inscrutability of interpretation regarding any human behavior…there may be no deeper facts that settle the matter" (Dennett 1990c: 180; IS 40, 238, 344-345; BC 361). See Kenyon (2000) and Millikan (2000) for more detail assessments.

[58] To recap points noted in the second chapter, lets look at the following excerpt that summarizes well Dennett's views on the issue. " 'How then do I legitimize interpretivism about the functions in biology?' By examining the assumptions and constraints encountered in actual attempts to impute functions in biology. What one discovers is that assertions about function are in the end answers to 'why' questions. Such 'why' questions can only be satisfied by giving reasons. Whose reasons? Well, nobody's reasons: free floating rationales, I have called them" (DC 215). To have *reasons* and *rationales* presuppose a mind. Here apparently, Dennett is appealing to or invoking nature's mind (intentionality) subserve by biological functions (designs). In a way, these functions or designs could be viewed as proxy or stand-in for nature's variant of the mind. Says Dennett, "Dretske quite correctly insists that the meaning he is seeking for mental states must *make a real difference* in, and to, the life of the organism, but what he fails to see is that the meaning he seeks, while it is, in the case of an organism, independent of *our* intentions and purposes, is not independent of the intentions and purposes of Mother Nature, and hence is, in the end, just as derived and hence just as subject to indeterminacy of interpretation" (IS 305). As Dennett also believes, "[s]ometimes functional interpretation is obvious, but when it is not when we go to read Mother Nature's mind, there is no text to be interpreted. When 'the fact of the matter' about

hence derived intentionality) as they are not in any way objectively represented, as there is no one unique and objective way to attribute functions to biological designs we find in nature.[59] So, the aforesaid besides usurping the claim of original, *real* intrinsic intentionality, intentionality derived thus cannot have objective determinate content!

Hence, on Dennett's account, rival interpretations of intentional stance (IS 29, 40, BC 360-361) is only a direct consequence of derived intentionality (IS 287-332) – by means of free floating rationales (i.e., unrepresented meanings/functions)[60] - which Dennett considers to be "the only kind of semantic there is" (IS 336). It is clear then, to Dennett, alternative interpretations not only are inevitable, they are necessary. As there is no objective and unequivocal way to read the mind of nature, ascribing contents is always a matter of interpretations (IS 287-321). As Dennett says, "[y]ou can't have realism about meanings without realism about functions" (IS 321). Evidently, Dennett's claim of ambiguity in attributions of meanings and contents (and hence its irrealism) very much hinges on his thinking of derived intentionality.

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proper function is controversial – when more than one interpretation is well supported – there is no fact of the matter" (IS 300), for indeed, "[w]e cannot begin to make sense of functional attributions until we abandon the idea that there has to be one, determinate, *right* answer to the question: What is it for? And if there is no deeper fact that settle that question, there can be no deeper fact to settle its twin: What does it mean?" (IS 319).

[59] For short criticism on this, see Amundson (1988: 505-506) and Kitcher and Kitcher (1988: 517-518).

[60] Dennett says, for instance, "[c]ontent is a function of function" (BS 106; Dennett 1991c: 90), and that "what makes an intentional thing intentional is its function" (FDDI 267; DDI 411).

However, what concerns us here is given Dennett's construal of intentionality - as depicted in the following selected passages – how far is his way of talking about intrinsic and derived intentionality justified?

> [B]elief…can be discerned only from the point of view of one who adopts a certain predictive strategy, and its existence can be confirmed only by an assessment of the success of that strategy …I will argue that any object, whose behavior is well predicted by this strategy is in the fullest sense of the word a believer. What is it to be a true believer is to be an intentional system, a system whose behavior is reliably and voluminously predictable via the intentional strategy (IS 15, 108).
>
> [W]e attribute (or should attribute) beliefs and desires….when we discover some object for which the intentional strategy works, we endeavor to interpret some of its internal states or processes as internal representations (IS 32).
>
> The role of the concept of belief is like the role of the concept of center of gravity….Folk psychology is thus instrumentalistic…….Beliefs and desires of folk psychology are *abstracta* (IS 52-53).
>
> My view is that belief and desire are like froggy belief and desire all the way up…the huge psychological differences between us and the frogs are ill described by the proposed contrast between literal and metaphorical belief attribution (IS 112).
>
> The example of the thermostat shows that it is theoretically perspicuous to include even the simplest homeostats as intentional systems, since there are no sharp discontinuities between them, lower animals, and fully fledged (human) believers. In particular, it gets matters backwards to attempt to make a divide between intentional systems that harbor internal (mental) representations and those that do not. It is not that we attribute (or should attribute) beliefs and desires only to things in which we find internal representations, but rather that when we discover some object for which the intentional strategy works, we endeavor to interpret some of its internal states or processes as internal representations (Dennett 1988b: 497).
>
> [T]he reason for stressing our kinship with the thermostat should be clear. There is no magic moment in the transition from a simple thermostat to a system that really has an internal representation of the world (IS 32).
>
> [A]ll there is to being a true believer is being a system whose behavior is really predictable via the intentional strategy (IS 29).

It is clear from the above that on Dennett's characteristic construal of intentionality, intrinsic intentionality by way of innate reality that exist by itself is not a proposition worth taking seriously (Dennett 1995b: 66, BC 361). Its existence in fact predicates on predictability. Talks of intentionality is justified, on Dennett's account, insofar as attributions of intentionality explains behavior, in the "best (most predictive) interpretation" (IS 29). In other words, without the

inducement of predictability, intentionality is vacuous at best (Dennett 1988b: 496).

If this is the case, what about unrepresented intentionality by which Dennett deems nature (in virtue of nature's mind) its proprietor?[61] More specifically, if intentional ascriptions are justified due to its role as heuristic device (BC 360), i.e., deriving its legitimate presence from its useful role as predictive tool, how could we also simultaneously claim that it is originated from mother nature? For it does not have independent existence, it exists as predictive overlay, nothing besides.[62] In other words, if intentional ascriptions are only some kind of pragmatic strategy or stance - some kind of useful tool, on Dennett's view, that has neither real nor objective existence independent "of the power of any observer

[61] "[T]he brain is an artifact, and it gets whatever intentionality its parts have from their role in the ongoing economy of the larger system of which it is a part – or, in other words, from the intentions of its creator, Mother Nature (otherwise known as the process of evolution by natural selection). This idea is that the intentionality of brain states is derived from the intentionality of the system or process that designed them" (KM 52-53). "The answer lies in seeing that the process of natural selection is the source of all functional design, and hence, when considered from the intentional stance, the ultimate source of meaning. There is no representation ('mental' or otherwise) in the process of natural selection, but the process is nevertheless amenable to principled explanation from the intentional stance, in terms of the ('free-floating') rationales of the designs 'selected.'" (Dennett 1988b: 503).

[62] Recently, Dennett reiterates his views: "belief must be defined in terms of the circumstance under which a belief could be justifiably attributed to that organism. What is meant when it is asserted that an organism has a belief, we propose, is that its behavior can be reliably predicted by ascribing that belief to it – an act of ascription we call 'taking the intentional stance.' The suggestion is not simply that the adoption of such a definition might be a good heuristic for side-stepping the question of what a belief 'really' is, but the stronger suggestion that all there is to having a belief p is being a system that is efficiently (and in the strongest case, most efficiently) predictable under the assumption that it believes p. The suggestion is intended to carry *ontological*, rather than simply methodological weight. …To say that x believes p is to assert that that x's behavior (verbal and otherwise) demonstrates a particular kind of regularity; namely, just that kind of regularity which justifies the 'projection' of x's intentionality about p…The demand for a definition which defines belief in terms which can be independent of situational contingencies is ill founded….[so] we would like to discourage the demand for a context independent of belief, and encourage the idea that the definition of a belief in any particular

or interpreter to discover it" (IS 294; BC 360-361) - how nature in turn becomes its *progenitor* is dubious (or at least questionable).[63] Mother nature is made of blind physical processes that predicts nothing,[64] nor does it take any stance towards anything (see also Millikan 2000: 64).[65] By contrast, true to the spirit of Dennett's reasoning, mother nature has a mind (and hence unrepresented intentionality in the form of free floating rationales) we could read and interpret only and only if someone take a *stance* and make the "best (most predictive) of interpretation" (IS 29) of mother nature's behavior therefrom (see also Fodor 1996: 260, Newton 1992, Foss 1994, Goldman 1988: 514 for other illuminating criticisms).[66]

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circumstance is equivalent to the identification of the contingencies which allow that belief to be attributable" (Westbury and Dennett 2000: 24-28).

[63]"As a late and specialized product, a triumph of Mother Nature's high tech, our intentionality is highly derived....So if there is to be any original intentionality – original just in the sense of being derived from no other, ulterior source – the intentionality of natural selection deserves the honor" (IS 318)."What is particularly satisfying about this is that we end the threatened regress of derivation with something of the right metaphysical sort: a blind and unrepresenting source of our own sightful and insightful powers of representation" (IS 318). "So our intentionality is derived from the intentionality of our 'selfish' genes! They are the *Unmeant Meaners*, not us!" (IS 298, emphasis added; Dennett 1990b: 59, DDI 426). This is not a trivial point, for we note Dennett claims that "here is the somewhat startling consequence I wish to maintain: Mother Nature does exhibit genuine intentionality!"(Dennett 1990b: 60).

[64] "Evolution by natural selection is often a noise-amplifier, an exploiter of Kimura-style accumulation of random mutations that are not expressed phenotypically, but also of phenotypic don't cares, features that may vary into maladaptive regions at least for a while" (Dennett 2000a: 331).

[65] Note that according to Dennett's theory, to have minds at all, we even have to attribute intentionality to ourselves by taking up a stance (Westbury and Dennett 2000: 25).

[66] This almost vacuous presupposition results in paradoxical consequence. "Although 'attributions of intentional states to us cannot be sustained....without appeal to assumptions about 'what Mother Nature had in mind'" (IS 314), it is also true that "Mother Nature doesn't commit herself explicitly and objectively to any functional attributions; all such attributions depend on the *mind-set of the intentional stance*, in which we assume optimality in order to interpret what we find" (IS 320, italics mine; see also Fodor and Lepore 1993: 76). And as Fodor (1996: 252) also points out, "[y]ou can't explain intentionality by appealing to the notion of design because the notion of design presupposes intentionality." So, contra Dennett, it would seem then that we humans are the ultimate unmoved mover, if there really is one. Note, for instance, the exceedingly anthropocentric construal of intentionality in order to envisage mother nature as Unmeant Meaners: "consider the bee, which surely does not need to recognize or distinguish her oleic-acid-exuding dead sister qua health hazard, or even qua corpse....But when we go to explain why this phenomenon exists in

If intentionality *per se* is unintelligible in itself (having no separate and independent existence), Dennett's treatment of unrepresented intentionality as if it is autonomous and self-justifying (seeing, for instance, nature as the ultimate Unmeant Meaner)[67] is indefensible given his theoretical commitments. If the above is not untenable, then the important theoretical ground supporting Dennett's relativization of meanings (and contents) to functions is unsustainable. Arguably, if the claim of nature's mind or intentionality (via unrepresented or free floating rationale) is discredited (this also necessarily implies the jettisoning of derived intentionality because if there is no nature's mind, there is no intentionality to be derived from to begin with), then reliance on function to ground content (i.e., function acting as anchor from which intentionality is derived) would not be well supported.[68] In other words, Dennett's grounding of

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nature, why bees should have this proclivity built in, our explanation will single out the dead bee under the marked description; it was qua health hazard, and not qua anything else, that dead bees were 'recognized' by the evolutionary process itself (Mother Nature). The rationale of the behavior (…free floating rationale) is nevertheless *expressible only* in the referentially opaque language of intentional explanation. So whatever a 'cognitive capacity' is, if its presence is marked by an appeal to referentially opaque explication, then natural selection is itself an 'agent with cognitive capacities'" (Dennett 1985a: 764, emphasis added).

[67] Dennett claims for instance, "[a]ttributions of intentional states to us cannot be sustained without appeal to assumptions about 'what mother nature had in *mind*'" (IS 314, emphasis added), because "[t]he *original* reasons, and the original responses that 'tracked' them, were not ours, or our mammalian ancestors, but Nature's. Nature appreciated these reasons without representing them. And the design process itself is the *source* of our own intentionality" (IS 317, emphasis added; Dennett 1990b: 62). "We may call our own intentionality real, but we must recognize that it is derived from the intentionality of natural selection, which is just as real" (IS 318).

[68] Note, for instance, Dennett maintains that "Fodor 'deconstructs' one of the main strands of arguments in my book into three steps: (1) secure adaptationism against its critics; (2) show how it permits us to speak of biological functions; and (3) use that concept of function as the basis for a functionalist theory of meaning or intentionality. So far so good; that's just what I take myself to have done" (FDDI 263). "Science is nothing if not 'naturalistic,' however, and when one tries to naturalize psychology, it begins to look more and more biological, and hence teleological, and hence functionalistic; its crisp traditional categories – in particular, propositional attitudes – begin to slide towards the murky relativity of functional interpretation, and beyond: to the indeterminacy of radical interpretation" (Dennett 1988d: 386).

intentionality and meaning on design and function (in terms of uninterpreted intentionality to be subsequently deciphered through *interpretation* from intentional stance) is unsustainable owing to his heuristic construal of intentionality that precludes *ex ante* nature having a mind. Harking back to the question in which this section is originally motivated, arguments made here only serves to weigh down further on points made in the last section.

That apart, as observed, the logic of Dennett's theory requires the obscurity of the truth maker (if not its complete nonexistence). Whence shall we know our explications (attributions or interpretations) are correct? There are no objective grounds by which the question could be decided. These has pivotal import on Dennett's theoretical position at large, for parallel to his grounding of content on function, Dennett believes that

> if one took the attribution of propositional attitudes via intentional idioms seriously – dead seriously – there would be a real problem here: just exactly which principle or principles of interpretation give the real or actual propositional attitudes? But for Quine, as we have seen, this problem does not arise, since the 'dramatic idiom' is just a practical necessity in daily life, subject to purely pragmatic considerations, not a way of limning ultimate reality….Let us review how we got this far. Just about everyone accepts the Bretano irreducibility thesis, but if one accepts it primarily for Quine's reasons – because one has seen that there is indeterminacy of radical translation – one will not be inclined to be a (strict) Realist about attributions of propositional attitude, and hence will not be inclined to be a Realist about psychological content (genuine or intrinsic intentionality) (IS 344-345).

Arguably, if the ground for functional ambivalence and hence indeterminacy of content is untenable (i.e., when Dennett's reliance on mother nature as the

archetype Unmeant Meaner is found wanting), his claims for the irrealism of content, at least on *this* construal, is thereby insecure, or at least questionable.[69]

4.6 Competence and Subpersonal Characterization

4.6.1 Causality

This section continues from those of the above, but with slightly different focus. As observed, Dennett contends that ambiguity shall not stop one from adopting the stance. He emphatically believes "sometimes quick-and-dirty prediction is more valuable than an extension of one's fine grained scientific understanding" (IS 79). As he argues in the context of cognitive ethology, "mentalists, do run the risk of building the theoretical edifices out of almost nothing – and making fools of themselves when these card castles tumble, as they occasionally do. That is the risk one always runs whenever one takes the intentional stance…but it can be wise to take the risk since the *payoff* is often so high, and the task facing the more cautious and abstemious theorist is so extraordinarily difficult" (IS 265, italics

[69]Moreover, reverting briefly to argument made in the beginning of the chapter (on what constitutes intentional system), if viewing nature as the Unmeant Meaner or the source (or progenitor) of intentionality is, as shown above, questionable, then employment of the concept of function (design) as basis in characterizing (or identification) of intentional system is likewise not unproblematic. Because if the claim that nature as the unmeant meaner is invalidated, then his notion of derived intentionality would be likewise usurped. Without derived intentionality, there is no need to rely on functions to ground intentionality. And if functions do not individuate intentionality and meanings, postulation of intentional system on functional (or design) grounds is surely not creditable. This unquestionably opens up the door to a more libertine characterization of intentional system, and hence reinforces arguments made in section 4.2.

mine). Hence, the fact about the strategy is "in a nutshell, they work. Not always, but gratifyingly often" (IS 265).

Dennett believes Panglossian assumption of rationality, insofar as it is not turned into dogma, it is an "immensely fruitful strategy in *science*" (IS 268, emphasis added). Drawing parallels between psychology and biology, Dennett believes that "psychologists can't do their work without the rationality assumption of the intentional stance, and biologists can't do their work without the optimality assumptions....we take on optimality not because we naively think that evolution has made this the best of all possible worlds, but because we must be interpreters, if we are to make any progress at all, and interpretations require the invocation of optimality" (IS 277-279; see also Dennett 1988b: 502). Finally, "[t]he fact that an object can be reliably expected to approximate optimality (or *rationality*) may be deeper or more valuable fact than any obtainable from a standpoint of greater realism and detail" (IS 79, emphasis added).

So, strictly speaking, intentional system theories "are stances or strategies that serve to organize data, explain interrelations, and generate questions to ask nature" (IS 265; see also pp. 247-249, 251). In other words, "[t]he intentional stance profile or characterization of an *animal* – or for that matter, an *inanimate* system – can be viewed as what engineers would call a set of specs – specifications for a device with a certain overall information processing competence" (IS 255, emphasis added). This is presumably what Dennett refers to

as the high payoff, apart from the ease of prediction it grants. We would scrutinize this to see how far it is true that "in spite of their gaps and vaguesness, [the results] will be valuable" (IS 255).

But for now, let's analyze more closely the issue of causality.[70] Essentially, as Dennett underscores, "the prudent course is to regard optimality [intentional stance] models as provisional guides to future empirical research and not as the *key to deeper laws of nature*" (IS 265, italics mine). If this is what Dennett believes, it is difficult to apprehend, however, how intentional stance could in turn serve as specification model for physical instantiation whilst itself is not key to nature's law.[71] Dennett makes use of the distinction between kinematics and dynamics in physics as allegory (IS 58-59, Dennett 1988b: 497). Kinematics is to serve as sort of 'simplified' and 'idealized' abstraction for the design of gear box but one needs to descend to the more sophisticated (and complete) level of dynamics for a complete working specifications of gear boxes. Dennett argues the role of belief is like that of kinematics, whilst physical implementation of belief is akin to that of dynamics. But kinematics is surely physics and is as much part of nature's law as is dynamics (for other comments, see Kirsh 1988: 516, Sloman 1988: 529, Bechtel 1985: 480, Stich 1993:114-115, Nelkin 1996: 202, Churchland

[70] The issue of causality is considered first because if this is not well founded, the formulation of subpersonal model based on Dennett's intentional stance would be even on shakier ground. For if causality is jettisoned, how do we know if the subpersonal models are to be *trusted* to begin with!

[71] Note, for instance, Dennett says that "intentional stance is not just a good idea but the key to unraveling the mysteries of the mind – all kinds of minds" (KM 27). But if it is not key to deeper laws of nature, how it serves to unlock nature's secret is puzzling. And no less significant, how does it ultimately serve as "engine of discovery" is a mystery (Dennett 1983b: 382).

1983, MacLennan 1988, Rosenberg 1988). What makes intentional stance any different then?

Correspondingly, Dennett often claims intentional strategy works because of evolution (IS 51).

> The first answer to the question of why the intentional strategy works is that evolution has designed human beings to be rational, to believe what they ought to believe and want what they ought to want. The fact that we are products of a long and demanding evolutionary process guarantees that using the intentional strategy on us is a safe bet (IS 33).
>
> I suggest that folk psychology might best be viewed as rationalistic calculus of interpretation and prediction – an idealizing, abstract, instrumentalistic interpretation method that has evolved because it works and works because we have evolved. We approach each other as intentional systems… that is, as entities whose behavior can be predicted by the method of attributing beliefs, desires, and rational acumen (IS 48-49).
>
> Consider, for instance, the role of intentional characterizations in evolutionary biology. If we ask to explain the evolution of complex behavioral capabilities or cognitive talents by natural selection, we must note that it is the intentionally characterized capacities (e.g., the capacity to acquire a belief, a desire, to perform an intentional action) that has survival value, however it happens to be realized as a result of *mutation* (IS 59, emphasis added).

It is perplexing, however, how something by nature heuristic (and ascriptive) could have evolved. It is hard enough to bridge evolution – that is essentially physical - with mind. To bridge it with something as mystifying as the way Dennett conceives intentionality is, in some ways, mind-boggling. Dennett himself has not shown how natural selection in fact acts to favor or contrarily to deselect belief and desire (see also Fodor and Lepore 1993: 76),[72] as we see Dennett in fact claims that beliefs are merely virtual (IS 56-57; see also pp. 48,

[72] Dennett in fact notes, for example, "[h]omo sapiens is not itself a miracle, a skyhook, but something that has evolved by non-miraculous natural selection; its capacity to respond to semantic norms is itself something that has evolved under a regime that could not respond to semantic norms" (Dennett 2000g: 7), and even more significantly, "evolution of folk psychology was probably an interaction of genetic and cultural evolution" (Dennett 1983b: 380).

54, 80-81, 232; BC 85, 87, 360-361; BS xix, xx) [73] and not some respectable "intervening distinguishable states of an internal behaviour causing system" (IS 52; see also Dennett 1983b: 382). In fact, Dennett claims outright "there are no such thing as beliefs" (IS 110; Dennett 1988b: 498).

On this construal, the absence of causal influence makes its efficacy in prediction (and its corresponding evolution) a mystery. It is inscrutable, for instance, given its defeasible existence, how "propositional attitude statements [could act] as indirect measurements of a reality diffused in the behavioral disposition of the brain" (BC 114). Intentional stance also seems to have the power to discern objective patterns that escape even physical stance. For instance, "[p]redicting that someone will duck if you throw a brick at him is easy from the folk psychological stance; it is and will *always* be *intractable* if you have to trace the photons from brick to eyeball, the neurotransmitters from optic nerve to motor nerve" (BC 110). And no less confounding, "[o]ur imagined Martians might be able to predict the future of the human race by Laplacean methods, but if they do not see us as intentional systems, they would be missing something perfectly objective: the patterns in human behavior that are describable from the intentional stance, and *only* from that stance" (IS 25-26).

His retort in this regard generates more questions than answers. "But how could the order be there, so visible amidst the noise, if it were not the direct outline of a

[73] As Dennett puts it, these "putative states" can be relegated to "the role of idealized fictions in an action-predicting, action explaining calculus" (cf. Stich 1990: 113-114).

concrete orderly process in the background? Well, it could be there thanks to the *statistical effect of very many concrete minutiae* producing, as if by a *hidden hand*, an approximation of the 'ideal' order" (BC 111, emphasis added; see also Dennett 1988c: 537-538). Dennett claims further that "[t]here must be some way in which the internal processes of the system mirror the complexities of the intentional interpretation, or its success would be a *miracle*....the complexity of the realization will surely bear a striking resemblance to the complexity of the *instrumentalistic* interpretation" (IS 60, emphasis added).

It is here that Dennett's theoretical construction becomes unconvincing, for he merely assumes this is the case without really demonstrating nor arguing how this could be so.[74] We do not take astrology, horoscope, magic, alchemy and the likes seriously vis-à-vis science precisely because they lack causal respectability. Could we also treat gravitational forces vital in the explication of interstellar phenomena and the understanding of locomotion in outer space as virtual. If not, how could intentional stance be any different, for folk psychology is also *voluminously* predictive (BC 82, 110; IS 11, 24, 48, 79, 234; Dennett 1988b: 496-497; GR 523; Dennett 1995e: 413). If predictive efficacy of gravitational forces (also something that is not directly observable) derived from its being part of physical reality, whence the predictive potency/power of folk psychology derived? If what appears

[74] This reminds of a school day incident in which I asked the physics teacher why the earth is orbiting the sun? And his answer: "this needs to be, otherwise we would not have day/night alterations. We need to sleep, don't we?" But we know this correspondence cannot be made the explanation. Likewise, in the case above, of course nothing could be more obvious, there has to be some correspondence between meaning and the syntactical structure, but if the preceding allegory worth anything, identifying correspondence is not the same as explaining it. This difficulty is

to be the system's direct response to meaning is mere "overpowering illusion" (Dennett 1984a: 30), how then is the potency of meaning in our lives germinated? In the absence of cogent answers, resorting to intentional stance (robust) predictive power to justify the invocation of intentionality in some ways sounds very much like despondent resort to skykhook, "miraculous lifters, unsupported and insupportable" (DDI 75).[75]

So, if Dennett is right, it appears a greater miracle still, how some truly *as if* intentional properties (BC 361),[76] in the absence of causal influence could be conscientiously mirrored by its corresponding structural counterparts, thereby exhibiting some sort of "preestablished harmony between the causal facts and the facts of meaning" (Dennett 1990j: 20; see also Dennett 1984a: 28-30, Dennett 1990j: 19, IS 61-65, BC 63, 66, 67, 357).[77] These issues would be taken up again in the concluding part of the study in Chapter 9.[78]

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exacerbated, given the fact that intentionality is not to be considered real in Dennett's scheme of things.

[75]"The skyhook concept is perhaps a descendant of the *deus ex machina* of ancient Greek dramaturgy: when second-rate play writes found their plots leading their heroes into inescapable difficulties, they were often tempted to crank down a god onto the scene, like Superman, to save the situation supernaturally.....There are cranes, however. Cranes can do the lifting work our imaginary skyhooks might do, and they do it in an honest, non question begging fashion. They are expensive, however. They have to be designed and built, from everyday parts already on hand, and they have to be located on a firm base of existing ground... Cranes are no less excellent as lifters, and they have the decided advantage of being real" (DDI 74-75).

[76] Dennett, for instance, claims that "learning is a matter of extracting *meaning* from our interactions for use in the future. There is really no doubt that this is what our nervous systems are for, but how exactly this process of information-extraction and subsequent *meaning-manufacture* is accomplished remains a *mystery*" (BC 60, italics added). If this is inscrutable, its role in Dennett's scheme of things, given the fact that it is *not real*, would appear even more mysterious (see also Wilkerson 1997: 561).

[77] By contrast, Dennett in citing Maynard Smith approves with the later that, "in using optimization, we are not trying to confirm (or refute) the hypothesis that animals always optimize; we are trying to understand the selective forces that shape their behavior" (IS 279). Surely, selective forces that govern evolution is very much part of deep law of nature, but if it is, why not intentional interpretations, for both use optimal models for characterization. In fact, if Dennett is

4.6.2 Is there a Subpersonal Model?

As discussed earlier, one important ground for justification of Dennett's intentional stance is its pragmatic utility in helping the formulation of subpersonal specifications. We examine in this section the extent by which this translation (of the competence into the subpersonal model) is realized, without which Dennett's theory suffers from lack of scientific relevance. Let's scrutinize the following passage quoted by Dennett in *Intentional Stance* (Dennett 1987b) in relation to the issue whether macromolecules are to be treated as intentional system.

> A much more demanding *task* for these enzymes is to *discriminate* between similar amino acids....However, the observed *error* frequency in vivo is only 1 in 3000, indicating that there must be subsequent *editing* steps to enhance fidelity. In fact, the synthetase *corrects* its own *errors*....How does the synthetase *avoid* hydrolyzing isoleucine-AMP, the *desired* intermediate? (Rosenberg 1986; cf. IS 314; see also Dennett 1990b: 55)

Dennett then continues to comment on the above passage.

> It seems obvious that this is mere *as if* intentionality, a theorist's fiction, useful no doubt, but not to be taken seriously and literally. Macromolecules do not literally avoid anything or desire anything or discriminate anything. We the interpreters or theorists, make sense of these processes by endowing them with mentalistic interpretations....Pending completion of our mechanical knowledge, we need the intentional characterizations of biology to keep track of what we are trying to explain (IS 314-315).

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taking evolutionary theory as working hypothesis, it appears more fruitful and certainly less outlandish to see mental properties (intentionality) as contributing to real survival repertoire of living creatures, rather than serving as mere predictive overlay (see also Sharpe 1989: 239, Dummett 1988: 512-513, Fodor and Lepore 1993: 74).

[78]Presumably, analysis above does not prove Dennett wrong but perhaps Dennett ought to have furnished more cogent arguments to make his case more palatable.

However, as Dennett continues a paragraph later,

> [t]he disappearance of intensionality at the macromolecular level at first seems a telling objection to the persistent use of intentional idioms to characterize that level, but if we leave it at that, we miss a still deeper level at which the missing intensionality reappears. The synthetase may not desire that isoleucine-AMP be the intermediate amino acid, but it is only qua intermediate that the isoleucine is 'desired' at all - as an unsubstitutable part in a design whose rationale is 'appreciated' by the process of natural selection itself. And while the proofreading enzyme has no inkling that it is correcting errors qua errors, Mother Nature does…there is a reason they do what they do, a reason 'recognized' by natural selection itself (IS 315-316).

Hence, Dennett passes on the intentionality of macromolecules to mother nature in terms of free floating rationales that awaits interpretations. However, despite earlier criticisms (pertaining to the free floating rationale), a theory is only as good as it delivers. So, it is to this we now turn.[79]

In spite of the adequacy of a purely mechanical explication in the workings of macromolecules, Dennett insists that underlying this, there exist intentional interpretations. In fact, Dennett claims outright that macromolecules are intentional system.[80] However, it appears that these interpretations are only figurative way of talking (a manner of talking or explaining) at best. As Dennett himself says, "we need the intentional characterizations of biology to keep track of what we are trying to explain" (IS 315). Dennett has also claimed pertaining to the above that "[c]ertainly we can describe all processes of natural selection without appeal to such intentional language, but at enormous cost of

[79] The above passages are cited because it helps to draw out more clearly the logic of Dennett's view. It is important to note that to Dennett there is no essential difference between an entity that really has intentionality "as opposed to the events and entities that only behave as if they had intentionality" (BC 361). So, in important ways, what is said here applies also to cases we would normally consider to possess concrete intentionality.

cumbersomeness, lack of generality, and unwanted detail. We would miss the pattern that was there, the pattern that permits prediction and supports counterfactual" (IS 316-317).

Admittedly, if there is a cost we must pay for disregarding intentional explanations, it manifests notably in awkward and clumsiness of language employed in describing the process. Clearly, however, no serious damage is done to the biologist eventual aim of mastering the working mechanisms of macromolecules. Evidently, no serious biologists have actually used intentional stance to unravel its underlying secrets. Besides, if intentional characterization is important as specifications, Dennett has not shown how. In what follows, it is argued that intentional (stance) explications are largely gratuitous. If it plays a role in subserving a subpersonal model, this has not been well substantiated.[81]

Lets focus more specifically on the prey-catching routine of frog to make the case. In this regard, Stich, in his criticism of Dennett's assumption of rationality has taken Dennett to task on frog's beliefs. What ought the frog belief is ultimately vague and indeterminate.

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[80] "Self replicating macromolecules, thermostats, amoebas, plants, rats, bats, people and chess playing computer are all intentional systems" (KM 34).

[81] In earlier chess playing arguments, it is not true we must rely on intentional *attributions* to play the game, neither is it true that intentional characterization has proven indispensable in the design of chess programs. (The ultimate design rationale and implementation of the program is not cast in intentional language but is mainly dictated by game logic. In fact, if the designing of computer hardware that plays the game is accomplished without the need of intentional embellishments, there is no reason why designing of software requires one? Presumably, software merely contains chess related instructions and rules implemented by the hardware. If they could be readily

> Ought the frog to believe that there is an insect flying off to the right? Or merely that there is some food there? Or perhaps should it only have a conditional belief: if it flicks its tongue in a certain way, something yummy will end up in its mouth? Suppose the fly is of a species that causes frogs acute indigestion. Ought the frog to believe this? Does it make a difference how many fellow frogs he has seen come to grief after munching on similar bugs? (Stich 1990: 183).

Dennett is unperturbed nor does he directly response to Stich's remark but instead makes this indeterminacy his central argument that follows directly from the central assumption of his thought, in which he adds some of his own.

> What concept of a predator does the frog have? Can we distinguish between its believing that a predator is behind it and believing that a thing-to-avoid is behind it? When it looks for flies, can it be said to be looking for flies qua flies, or merely qua dark, darting, edible things or qua something still less specific? (IS 108).

Dennett, as seen earlier, argues that optimality (rationality)[82] assumption is important if we are to be interpreters. But what could exactly explain the frog flicking out its tongue in search of preys? If we are to treat frog as intentional system, which Dennett surely deems it one (IS 112, 116), we then have to explain its behaviors from intentional stance. As earlier discussions make clear, if frog is intentional system, its beliefs and desires are in principle indeterminate (IS 40-41, 106-116; BC 116-118; Dennett 1991c). So, on one hand, we could attribute to frogs the desire for flies qua food. Being rational, if it believes what looms before its eyes is fly, it would flick out its tongue. Meanwhile, it is also possible that the frog is desiring for object that moves with certain kind of patterns and shapes or even emitting peculiar kind of buzzing sound, something it strikes if it believes what appears in its visual field is such object and so on.

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captured by essentially mechanistic means used in the hardware, any extra mental postulations is only superfluous.) In what follows, something parallel to this argument is attempted.

So, mentalistic attribution is in a sense not falsifiable, the beliefs of frog, given its desires, could always be revised to preserve rationality (IS 264-265), but how useful is this tactical choice? We know frog in reality does actually strike blindly on dummy targets presented to its visual field (Dennett 1987a, DDI 408). Evidently, this blind behavior is clear example of conditioned behavior responses - in fact the exemplar of Skinnerian behaviorism. But as it is, intentional stance interpretations are not likely to acknowledge this (IS 302), given its optimality considerations and the assumption that generally intentional system (well designed by natural selection) would be *true believer* (IS 18-19, 96; Dennett 1988b: 496). Hence, intentional stance interpretation is likely to bolster (in a way misrepresent) these thoughtless mechanistic responses into human-like acts of belief-desire.[83]

This should not be surprising (and is only expected), because given the need to see to the yielding of a coherent belief-desire state for some purported intentional system, the frog's ultimately thoughtless mechanical responses, upon being embellished by after-the-fact improvisation of belief and desire, is made to appear invariably intelligent.[84] But surely, they do not truly *appreciate* the belief and desire, nor do they appeal to their rationality whatsoever, if they have any at all, to come to any decision before striking (see also Millikan 1983, Premack 1988: 523-

[82] For a short and illuminating remark on optimality and rationality, see also Kirsh (1988: 516). For more elaborate criticism, see Stich (1985, 1990).
[83] Dennett underlines the fact that "underlying *anthropomorphism* of the intentional stance: we treat all intentional systems as if they were just like us" (KM 33, italics mine).

524, Bennett 1993 for some other related comments). If this is the case, the theory is in danger of indiscriminate translation of what appears to be (the frog's) simple and straightforward conditioned tropism into 'thinking' being of sorts with apparent plasticity that allows it to deliberate and rationally act on desire given beliefs.[85] In view of this worrisome cleavage, indiscreet (indiscriminate) attribution of intentionality, though seemingly simple and effortless, is likely to lead to undesirable consequences (see also Millikan 2000: 61, 70-73).

This undesirable repercussion perhaps impact most on Dennett's thought on specs. The immediate worry would then be how intentional characterizations could still be useful in giving rise to the comprehension of the mechanical functioning of frog, since it tends more to obscure rather than illuminate investigation of its subject matter by ascribing it with mentality and astuteness they do not have (camouflaged instead by the dubious attribution of belief, desire and rationality). This is more likely to obstruct than help in attaining Dennett's primary aim in postulating intentional stance in which "the whole point of

[84] Dennett's thesis could always be saved (or adjusted) under the auspices of intentional system. The frog, for example, could be said to actually desire for something less precise until it eventually fits the bill.

[85] Dennett's idea could hence be faulted for this unrestrained freedom. Its constraining condition is too (maximally) lenient: if it could be made to explain anything, at the end it explains nothing. In his attack on the verifiability of original intentionality, Dennett contends thus: "I am quite prepared to acknowledge the existence of idle, unverifiable truths – I call them inert facts, after all – but insist that they cannot have the theoretical importance invested in them by their defenders; what is unverifiable cannot make a difference anymore, and we mislead ourselves when we make much of theoretical distinctions that cannot be relied upon to make a difference" (IS 211). It would seem then the same criticism would apply equally well to his indeterminacy notion. Mythical and supernatural explanations cannot in principle be proven false, but that also explain why they are not being taken seriously. Intentional stance, insofar as they rely on arbitrary attributions in contributing to a *competence model* is likely to have little to offer in terms of physical implementations at the subpersonal level.

adopting the intentional stance is to work directly toward that very goal: objectively accurate causal descriptions of creatures' cognitive insides" (Dennett 1990g: 581).

These excesses in attribution are certainly not inconsequential. Because blind tropism generally defines the frog. As Dennett puts it wryly, "[t]his question suggests to some that the behaviorists may have been right about lower animals… certainly about frogs… these simple brains are capable of nothing that should be dignified as properly cognitive" (BC 324). Clearly, there is a difference in designing system that smacks blindly at some dummy targets, and one that never gets tricked. As surely there are inherent differences in the make-up of beavers indiscriminately plugging water holes (even the water dipping sound comes from microphone), and one that knows the difference. But given the way Dennett's theory is conceived, it is likely to obscure these crucial (and distinctive) differences than highlighting it.

Besides, if there is a tenable version of frog's psychology - according to the blueprint outlined by intentional stance – to be employed for subpersonal characterization as "engine of discovery" (Dennett 1983b: 382), Dennett has not provided one. Perhaps there is no need to. Dennett himself asserts that "[t]he humble toad, it now seems, may provide our first instance of a creature whose

whole brain is within the reach of our scientific understanding" (Dennett 1987a: 372).

> In principle, then, the frog's behavior can be calculated and explained without any invocation of 'psychology' at all, from either the ground floor stance of physics or the slightly elevated design stance of biology. Frog psychology can be viewed as a practically useful but theoretically gratuitous shortcut: some pragmatic rules of thumb for oversimplifying the complexity. Frog psychology is gratuitous in just this sense: predictions from the physical stance or biological design stance have hegemony over predictions from the intentional stance; no intervening unpredictable 'emerging property' or 'critical mass effect' stands in the way of, or threatens to falsify, laborious predictions from the lower stances; only complexity stands (practically) in the way of prediction…Laplace's demon would say exactly the same thing about frog biology, of course; all you really need is frog physics, he would say (IS 109).

From this and the remark that follows, it is clear that Dennett is, in this context, as in his earlier account of macromolecules, seeing intentional interpretations as gratuitous (figuratively that is): "this anthropomorphizing way of organizing and simplifying our expectations about the frog's next moves is compelling and useful…..Try catching frog without it" (IS 108). Curiously, however, the role of intentional stance as specs for subpersonal characterization is not raised thereof, nor discussed, but only its utility in catching frog touched upon.[86] In this regard, it may be instructive to look at the case of bees that is conceivably a legitimate candidate of intentional system.[87]

> Suppose for example that we adopt the intentional stance toward bees and note with wonder that they seem to know that dead bees are a hygiene problem in a hive; when a bee dies its sisters recognize that it has died, and believing that dead bees are a health hazard and wanting, rationally enough, to avoid health hazards, they decide they must remove the dead bee immediately. Thereupon they do just that. Now if that fancy an intentional story were confirmed, the bee-system designer would be faced with an enormously difficult job. Happily for the designer, it turns out that a much lower-order[88] explanation suffices: dead bees secrete oleic acid; the smell of oleic acid turns on the

[86] Dennett invokes slightly different justification on this, of which we shall shortly see.
[87] For if amoeba, rats, and macromolecules are intentional systems, bees (and frogs) would have been more than sufficient in meeting this benchmark of classification.
[88] Dennett most likely would have meant zero order (for earlier attribution in the excerpt is likely the first order ascription), "an act that attributes no mentality, no intelligence, no communication, no intentionality" (IS 246).

> 'remove it' subroutine in the other bees; put on a dab of oleic acid on a live, healthy bee, and it will be dragged, kicking and screaming, out of the hive (IS 256).

Arguably, in similar manner, if physical and mechanistic accounts of frog's prey-catching behavior are available (Dennett 1987a), intentional characterizations ought likewise be renounced. Notwithstanding this, however, Dennett claims that frogs (or toads) is rightful intentional system as any. "[I]t seems comfortable to acknowledge in the case of the frog as an intentional system" (IS 116; CE 194n10). "I want to continue consider toads real intentional systems" (Dennett 1988c: 539). Besides, our beliefs are "froggy beliefs and desires all the way up" (IS 112; BC 76). Dennett in several places notes, for instance,[89] even in principle a lower order explanation is usually plausible, this should not invalidate intentional stance interpretations (IS 247, GR 523, Dennett 1988c: 539), for we still need intentional stance to "measure the *bargains* Mother Nature has struck" (IS 315; BC 315). So, even if intentional system is ultimately destined to be replaced by cheap substitutes (typified by tropistic behavior responses), its presence is, however, "theoretically important" (Dennett 1988c: 539; DC 229). As he asserts,

> [t]he intentional stance postpones consideration of several types of cost. It assumes that in the black box are whatever cognitive resources are required to perform the task or subtask intentionally described, without regard (for the time being) of how much these resources might cost, either in terms of current space, material, and energy allocations, or in terms of 'research and development' – the costs to mother nature of getting to such a design from a pre-existing design. And so long as cost is no object, there is no reason not to overdesign the system, endowing it with a richer intentional competence than it usually needs, or can afford. But it is precisely these costs that loom large in biology, and that justify the strategic recommendation that we should be bargain hunters when trying to uncover the design rationales of living systems: always look for a system that provides a mere approximation of the competence described from the intentional stance, a *cheap substitute* that works well enough most the time (BC 314-315, emphasis added).

[89] Or rather seeks to further justify frog and the likes as intentional system in spite of their automaton-like responses.

However, if it is invariably the cheap substitutes that Dennett is ultimately interested in, it is not clear why we need to take detour by way of intentional ascriptions to identify nothing else but this denigrate account, unnecessarily confounding the already murky water and is at any rate irrelevant (for we could also come up with the respective design blueprints by resorting to non-intentional means).

4.6.3 Reverse Engineering and Frog

Above notwithstanding, lets explore further the issue form another perspective. Reverting to earlier discussion on frog (the arguments also largely apply to bees), froggy fits Dennett's criteria of intentional system pretty well (it falls within the category of living things and it is 'designed' by natural selection). In view of this, frogs could serve as showcase to demonstrate the tenability of Dennett's claim of subpersonal individuation through intentional ascriptions,[90] for we have a case where we know relatively well the functioning of its brain,[91] in which we could compare to see how well it stands up (to testing). So, reverse engineering[92] may

[90] For Dennett claims that "intentional system theory specifies a semantic engine which must then be realized – mimicked in approximation – by a syntactic engine designed by the subpersonal psychologist" (IS 256n10; see also BC 253).

[91] As pointed out earlier, according to Dennett, "[t]he humble toads, it now seems, may provide our first instance of a creature whose whole brain is within the reach of our scientific understanding" (Dennett 1987a: 372).

[92] Dennett has consistently emphasized its importance (see BC 254-256, DDI 232-233, 228-229, 212-213).

help determine if Dennett's idea of spec indeed works. If anything, it is an acid test of the dependability (or reliability) of Dennett's strategy.[93]

So, in the case of frog, Dennett's thesis would be greatly strengthened if this could be shown to work. Unfortunately, however, nothing like the aforesaid is discussed or even possible to begin with for Dennett has not come up with anything that detailed how by taking intentional stance one could arrive at a competence model to serve as proxy to the design and the physical blueprint of the frog's brain (see also Newell 1988: 522, Kleeck 1988: 533-534, Sloman 1988: 530, Bennett 1983: 357, 358).[94] Obviously, there is no such account (or maybe no

[93] In spite of Dennett's claim in viewing "philosophical writing in an engineering spirit" (DC 203), the same *spirit* does not seem allowed here. (Of course, delineation here is not strict reverse engineering in the true sense of the word. but its essence in spirit is what that is of significance!) For it seems once something is explicated through the physical stance, intentional ascriptions is deemed redundant. Lets see what Dennett in fact says. "Of course, if some version of mechanistic physicalism is true (as I believe), we will never need absolutely to ascribe any intentions to anything" (BS 273; see also BS 285.) (Though in more recent work, as seen in previous paragraph, he argues that even if in principle a lower order explanation is usually possible, this ought not to jettison intentional interpretations. This, however, should not generally invalidate the point made here, because present argument becomes even more compelling and relevant with this interpretation.) And no less important for present discussion, "predictions from the physical or biological design stance have hegemony over predictions from the intentional stance" (IS 109; Dennett 1990j: 19, BC 63, Dennett 1983b: 382). But these assertions ought to be attenuated (mitigated), for if intentional stance interpretations are really useful for subpersonal characterization, we ought to be able to reverse the strategy, retracing our steps from physical back to intentional stance (the way Dennett expects us to trace out a physical model via intentional stance when our physical knowledge is minimal or nonexistence). In other words, if something is an intentional system, and if there is already available a blueprint of its physical functioning (as in the case of bees or even frog, for instance), we ought to be able to find some common ground to bridge this physical model to Dennett's intentional model. If we could not, then the problems may lie either with the conceptualization of intentional system itself (it may be too wide and capture too much) or that intentional interpretations is of no use for subpersonal characterization altogether. This should be the cornerstone of a good theory, as any good theory would allow and welcome such maneuver, but no such leeway seems allowed in Dennett's scheme, despite the fact that Dennett does mention in passing the followings: "progress in subpersonal cognitive psychology will blur the boundaries between it and intentional system theory, knitting them together much as chemistry and physics have been knit together" (IS 64).

[94] Dennett aphoristically suggests, for example, that "[i]n seeking knowledge of internal design our most promising tactic is to take out intelligence loans, endow peripheral and internal events with content, and then look for mechanisms that will function appropriately with such 'messages'

such account is in fact possible). The presence of preexisting physical models (in both the bees and froggy) only reinforce this, for biologists have devised relevant physiological account independent of intentional characterizations, without regard to Dennett's views on intentionality (see also Heyes 1987: 123). So, despite talks about optimality, rationality and the need for interpretive characterizations, when it comes to what really matters, Dennett's theory does not seem to amount much.[95]

In this context, perhaps his allegiance to Poundstone's game of life computer simulation serves to illustrate more. Contrary to Dennett's expectation, it appears

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so that we can pay back the loans" (BS 15). But apparently, the prospect of Dennett actually paying back the loan seems unpromising.

[95]In somewhat parallel manner, mentalistic talk is said to be misguided, undisciplined, incoherent and messy (see, for instance, IS 1, 47; BS xvii, xx; GR 525). Hence, "when one talks about beliefs one implicates oneself in a tangle of philosophical problems from which there may be no escape – save giving up talking about beliefs" (IS 117). "The proto-scientific quest… attempt to prepare folk psychology for subsequent incorporation into, or reduction to, the rest of *science*, should be critical and should eliminate all that is false or ill founded, however entrenched in popular doctrine" (IS 47, emphasis added; see also IS 54-55). But it is not clear how intentional stance has actually improved folk psychology. By contrast, it seems closer to truth that folk psychology is adopted wholesale (see also Kleeck 1988: 534) – it is a reform that never be, quite a far cry from his preliminary goal: "[s]ome traditionally well-regarded mental states should be eliminated; in other words, only a reformed folk psychology stands in need of materialistic reduction" (MNM 923). We can see this, for instance, in Dennett's fiddling with the role of rationality in his theory, making side allowances and qualifications to see how it could in fact accord better with folk psychology, instead of the reverse. So, Dennett countenances that "Stich is right; for ten years I have hedged and hinted and entertained claims that I have later qualified or retracted. I didn't know what to say, and could see problems everywhere I turned….First, a few words on what rationality is not. It is not deductive closure. In a passage Stich quotes from 'Intentional Systems' I present the suggestion that 'If S were ideally rational…S would believe every logical consequences of every belief….Nor is rationality perfect logical consistency, although the discovery of contradiction between propositions one is inclined to assent to is always, of course, an occasion for sounding the epistemic alarm….*I thus do not identify rationality with consistency and deductive closure*...I want to use 'rational' as a general-purpose term of cognitive approval – which requires maintaining only conditional and revisable allegiances between rationality" (IS 94-95, 97, emphasis added). But consistency and deductive closure are certainly goals that science aspires and strives. This apart, in commenting on Newell, Dennett also claims he aspires "to provide sound models of human wondering, anticipating, learning, forgetting, perceiving, intending, and many other phenomena familiar to folk psychology" (Dennett 1988c: 543), but no such account thus far seems forthcoming?

that this game of life example serves to undermine more than support his intentional stance thesis (BC 105-120), particularly the notion of indeterminacy of interpretations. We could try to work backwards and see how effective is Dennett's scheme in yielding a subpersonal psychology. Taking his characterization of the game of life at the design level,[96] we observe that these *interpretations* (for instance the eaters, puffer trains and space rakes) tend to beguile more than illuminate true mechanisms that govern cell movements at the physical level.[97] They muddle more than help in capturing the physics of the life world.[98] Arguably, they serve best as short-hand predictive devices but appear inept for discovering laws governing those cells. And if we are interested to discover laws governing the dynamics of these cells, appealing to higher level interpretations suggested by Dennett seems inessential.

To quote Dennett's own scruple about astrology, "[i]t is undeniable that astrology provides its adherents with a highly articulated system of patterns that they think

[96]The analogy with Dennett's standard or typical characterization of design stance is not so precise here (see, for instance, Cohen 1995: 20n12). Cohen in fact dubs it the quasi-design level. Though concern here is at the level of design, this discussion, however, provides good proxy to discussion on intentional stance.

[97]To have some idea of what this life world is all about, lets look at Dennett's exposition below. "An eater can eat a glider in four generations. Whatever is being consumed, the basic process is the same. A bridge forms between the eater and its prey. In the next generation, the bridge region dies from overpopulation, taking a bite out of both eater and prey. The eater then repairs itself. The prey usually cannot. If the remainder of the prey dies out as with the glider, the prey is consumed" (Poundstone 1985: 38; cf. BC 107). Cohen depicts it even more clearly. "Moving from the physical to the quasi-designed level description involves a distinct ontological shift: at the physical level there is no motion and the only objects in the Life world are individual cells, defined by their fixed spatial location; at the quasi-design level we talk of motion of persisting objects – a glider, for instance, across the grid, changing its shape as it moves; and when it is eaten by an eater, there is one fewer glider in the Life world" (Cohen 1995: 20).

[98] Manifesting itself as law: "[e]ach cell, in order to determine what to do in the next instant, counts how many of its eight neighbors is ON at the present instant. If the answer is exactly two, the cell stays in this present state (ON or OFF) in the next instant. If the answer is exactly three,

they see in the events of the world. The difference, however, is that no one has ever been able to get rich by betting on the patterns, but only by selling the patterns to others" (BC 119). Insofar as Dennett has not shown how exactly intentional stance could enrich us through the deliverance of a concrete mechanistic model, *patterns* borne of intentional stance are likely to assume status closer to astrology than real science.[99]

It is egregiously dubious how by taking a stance (Dennett 1988b: 505, Dennett 1988c: 537) - largely as a result of choice rather than discovery (BS 239, 241) - in which relativity of user's intentions is the hallmark of considerations (Dennett 1988b: 503),[100] it could result in genuine mastery of nature. As discussion on frogs (and bees) show, it is not the case that intentional stance is capable of yielding competence model for the subsequent characterization of a subpersonal model (see also, for instance, Rosenberg 1988: 527), even given the fact that the

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the cell is ON in the next instant whatever its current state. Under all other conditions the cell is OFF" (BC 106).

[99] Pertaining to this, Dennett discusses a criticism of his view. "[S]ince the *ultimate destination of theory on my view is an utterly mechanistic account of the brain's activities*, and since I insist that the most the intentional stance yields is an idealized and instrumentalistic account, it seems to Heyes that the intentional stance is at best a digression and distraction from the task at hand. How can a frankly idealizing model – which unrealistically describes (or prescribes) presumably optimal performance – actually constrain the development…of a mechanistic and realistic model? To put it even more bluntly, how could instrumentalistic fictions help us figure out the mechanistic facts?" (BC 311, emphasis added). In answering to this critical remark, Dennett rebuts. "To return to Heyes's question, with which we began, in what way does the intentional stance constrain the development of design hypotheses in information processing theories? It constrains in the same way arithmetic constrains the design of hand calculators. Arithmetic can also be viewed as an abstract, ideal, normative system (how one ought to add, subtract…)….." (BC 315). But Dennett does not seem to have adequately answered the question. For arithmetic and numbers are certainly not some "instrumentalistic fiction." Far from it, we note Dennett elsewhere in fact identifies arithmetic as standard of truth (par excellence) to be emulate by the sciences (Dennett 1999a: 99), whilst number, alongside size, shape, motion and solidity are identified as primary qualities (CE 371).

[100] Dennett says, in other context (relevant to present concern), that "the choice of an pattern would indeed be up to an observer, a matter to be decided on pragmatic grounds" (BC 118).

model only provides partial constrain on design (BC 316). On the contrary, the converse is almost always true. It is invariably the physical stance (or the subpersonal context) that renders untenable or demonstrates the redundancy of the intentional model.[101] Insofar as Dennett has not shown how a tenable subpersonal model borne of intentional stance is possible, Dennett's campaign tends to appear more like rhetorical exercises in good will, without real ultimate consequences, in spite of his uncompromising convictions.[102]

4.7 Conclusion

In the final analysis, contra Dennett, it appears that Dennett's discussion of the lectern, and his treatment of the original and derived intentionality has not yielded the outcome he expects. Close examination of these theses only result in theoretical crevasses that undermine more than reinforce his convictions. Besides, if what we ultimately get from intentional analysis is mere cheap substitutes that we could nonetheless obtain via nonintentional means, and if it is not further

[101]Dennett, for instance, complains that Fodor's Language of Thought does not offer enough detail to be taken seriously, but the same complain would seem to apply equally well to his central thesis of intentional stance: "Millikan's imaginative exercise illustrates a quandary I have faced myself. On the one hand, as she shows again and again, the details count. You are not entitled to assume that a 'language of thought' system would work just because *you think you can dimly see how a little bit of such a system might work*. All sorts of dubious assumptions lie hidden from exposure until you take on the task of describing the machinery of a language of thought with some serious attention to detail. The difficulties that her excursion encounters highlight the shaky position of those who think they can assume some serious attention to detail" (DC 226, emphasis added; for related discussions from Dennett on this, see also Dennett (1993b: 52) and Dennett (1988c: 535)). Dennett seems to demand less of his own theory, in spite of his own self-imposed sanction (the context here is pain, but ontologically speaking, Dennett is also seeing pain on par with intentionality): "When I apply this doctrine…I try to deliver the goods" (Dennett 1988c: 544).

[102] Dennett countenances, for instance, that "[Roitblat] is right that my view is intermediate between the vitalists and the eliminativists, he seems to think I view the intentional stance as

demonstrated how exactly *interim* intentional stance (Dennett 1983a: 343) could have meaningful (and nontrivial) constraining power in the development of a mechanically realistic model, then the ground for scientific justification of intentional stance appears doubtful. A theory purported to have an impact on the way we understand nature - like an interface mediating between the mind and the sciences, acting as some kind of "proto-scientific quest" (IS 47) - but ultimately having no influence on the physical world, unless adequately defended, is not likely to be favorably regarded, Dennett's theory notwithstanding.[103]

erring in attributing 'too much intelligence' to species; I do not, however, view this as a useful error, but as the truth, properly understood" (Dennett 1988c: 542).

[103] See, for instance, Dennett's own scruples on epiphenomenalism (CE 398-404, 461; Dennett 1993e: 140, BS 176).